S. HRG. 110–442

Senate Hearings

Before the Committee on Appropriations

Energy and Water Development Appropriations

Fiscal Year 2008

110*th* CONGRESS, FIRST SESSION

H.R. 2641/S. 1751

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

Energy and Water Development Appropriations, 2008 (H.R. 2641/S. 1751)

S. HRG. 110–442

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2008

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

UNITED STATES SENATE

ONE HUNDRED TENTH CONGRESS

FIRST SESSION

ON

H.R. 2641/S. 1751

AN ACT MAKING APPROPRIATIONS FOR ENERGY AND WATER DEVELOPMENT FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 2008, 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 2008

WEDNESDAY, MARCH 7, 2007

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

The subcommittee met at 2:21 p.m., in room SD–138, Dirksen Senate Office Building, Hon. Byron L. Dorgan (chairman) presiding.

Present: Senators Dorgan, Murray, Domenici, Bennett, Craig, and Allard.

DEPARTMENT OF ENERGY

OFFICE OF ENVIRONMENTAL MANAGEMENT

STATEMENT OF HON. JAMES A. RISPOLI, ASSISTANT SECRETARY OF ENERGY FOR ENVIRONMENTAL MANAGEMENT

OPENING STATEMENT OF SENATOR BYRON L. DORGAN

Senator DORGAN. I call the hearing to order. Let me apologize for the delay, but we have had two votes on the floor of the Senate and they are just finishing.

This is the first hearing of the Energy and Water Subcommittee this year and the first since I have assumed the chairmanship, and I am pleased to be in this role and working on so many interesting and divergent issues. I am also pleased to be working with my colleague Senator Domenici. I visited the National Laboratory at Sandia in New Mexico with Senator Domenici 2 weeks ago. I saw some of the scope of the subcommittee's jurisdiction during that visit and was very impressed, very interested.

Today we have two important programs to hear from, the Office of Environmental Management and the Office of Civilian Radioactive Waste Management. I am going to put most of my opening statement into the record so that we can hear the witnesses, but let me say that the Radioactive Waste Office has the immediate task of submitting a license for the Yucca Mountain waste repository to the Nuclear Regulatory Commission by June 2008. The Environmental Management Office has the immediate and long-term task of cleaning up the contamination from nuclear weapons facilities that date back to the Second World War. It is clear to me as I look at the budget that we have some very serious budget problems and we will evaluate some of those today.

PREPARED STATEMENT

I am going to put the rest of my statement in the record. I will be using a portion of that discussion during the question period. I want to thank both Mr. Sproat and Mr. Rispoli for being with us today.

[The statement follows:]

PREPARED STATEMENT OF SENATOR BYRON L. DORGAN

The hearing will come to order. Thank you all for being here today. This is the first hearing of the Energy and Water Subcommittee this year and the first of my chairmanship.

I am happy to be in this role and excited by the prospect of working on so many interesting and divergent issues. I am also pleased to be working with my colleague, and long-time chairman of this subcommittee, Senator Domenici.

I visited Sandia National Laboratory in New Mexico with Senator Domenici two weeks ago.

During that visit I saw some of the scope of this subcommittee's jurisdiction and my colleague's wealth of experience on these matters.

Today, we have two important programs to hear from—the Office of Environmental Management and the Office of Civilian Radioactive Waste Management.

The Radioactive Waste office has the immediate task of submitting a license for the Yucca Mountain waste repository to the Nuclear Regulatory Commission by June, 2008.

The Environmental Management (EM) office has the immediate and long-term task of cleaning up the contamination from nuclear weapon facilities that date back to World War II.

It is clear the proposed budget for the EM program is inadequate.

The EM program has recognized the shortfall in requested funding and has proposed to focus fiscal year 2008 cleanup on the highest risk activities across the complex. This is obviously wise.

But I'm concerned by the budget's implied premise that it is okay to delay addressing lower risk activities.

It is very clear that this budget will lead to missed milestones set out in cleanup agreements with the States. In fact, the Department is already stating it intends to work with the States to modify these cleanup agreements.

I find it unfortunate that the administration proposes to modify cleanup agreements based purely upon lack of funding.

Nuclear waste cleanup is difficult work involving some of the most dangerous materials on earth. We all understand that difficulties arise in this type of work that leads to missed milestones.

But, as I understand it, the States are often understanding in these circumstances and have agreed to make changes to the agreements when legitimate obstacles to cleanup have arisen.

It seems too much to ask that States agree to milestone changes simply because the Federal Government proposes to short-change such an important program.

I'm also concerned by a fiscal year 2008 budget document statement that says the life-cycle cost of the EM program is estimated to have increased by $50 billion.

We need a better explanation for this estimated cost increase and what the Department is doing to reverse this escalation.

The Department of Energy's own website has a section on the history of the EM program and its origins in the weapons programs that produced the contamination. The website notes that scientists in the weapons program early on advised that the resulting waste stream presented grave problems.

DOE's website then notes, "The imperatives of the nuclear arms race, however, demanded that weapons production and testing be given priority over waste management and the control of environmental contamination."

This historical observation about the Cold War period still seems applicable today.

The Department's budget proposes some big increases in a few programs, but proposes severe decreases for Environmental Management.

I'm concerned that we are again prioritizing other activities while not fully recognizing the risk of nuclear waste contamination or our obligation to cleanup.

This subcommittee has members with a keen interest in seeing the Federal Government live up to its responsibility at these waste sites. I look forward to working with them toward this goal.

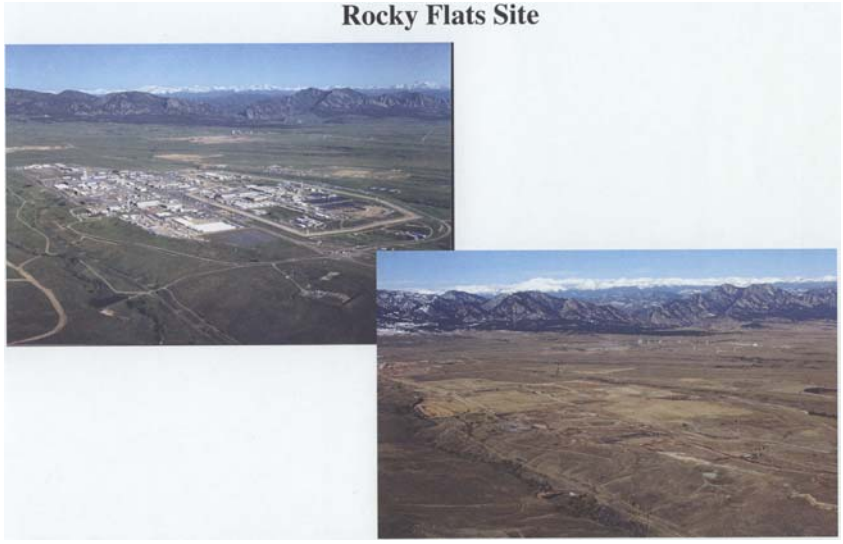
Senator DORGAN. Mr. Rispoli, if you will please present your testimony, we will include your entire testimony as part of the record and you may summarize.

STATEMENT OF HON. JAMES A. RISPOLI

Mr. RISPOLI. Thank you, Mr. Chairman. Good afternoon, Chairman Dorgan, and I look forward to seeing other members of the subcommittee, I am sure. I am happy to be here today to answer your questions on the fiscal year 2008 budget request for the Environmental Management program. I would like to thank you and your subcommittee for your support in this program.

As you know, the EM program has solved a number of cleanup challenges, including Rocky Flats, Fernald, and other major facilities that process significant amounts of plutonium and uranium and at one time presented challenges that seemed unanswerable. We are making progress on many other complex challenges that the program still faces. EM has been able to achieve notable results by addressing these challenges through risk reduction and prioritization and judicious use of the resources that you entrust to us on behalf of the American people.

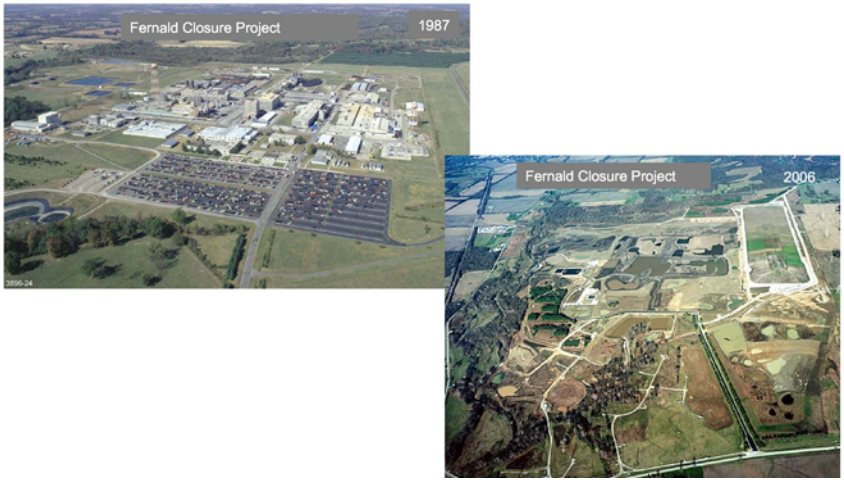
I realize that maybe we will not get the full benefit of this, but I would like to just quickly run through just some of the posters here that give you the idea of the before and after of what we have accomplished, some of the sites that we have closed literally just in the past year and a half. So I would like to start with the Rocky Flats poster. You can see the before and after, a significant cleanup effort, 3.6 million square feet of buildings demolished; the site will become a wildlife refuge.



The next poster is Fernald in Ohio. It is not much of a smaller site. Secretary Bodman and I were there with the Administrator of the EPA just last month to celebrate the closure of Fernald as well as other Ohio sites, and we will have a couple of shots of those as

well. This will also become parkland, wetlands, prairie. You will notice on the right-hand side of the after that there actually is a 75-acre on-site disposal cell.

Fernald Closure Project



The next two are Columbus and Ashtabula, Ohio. We celebrated those at the same ceremony. Columbus is a Battelle Memorial Institute property. It is about 31 acres and it is now available for reuse by the owner. The Ashtabula project is a similar privately owned property, 42 acres, also available for reuse by the owner.

Columbus Closure Project

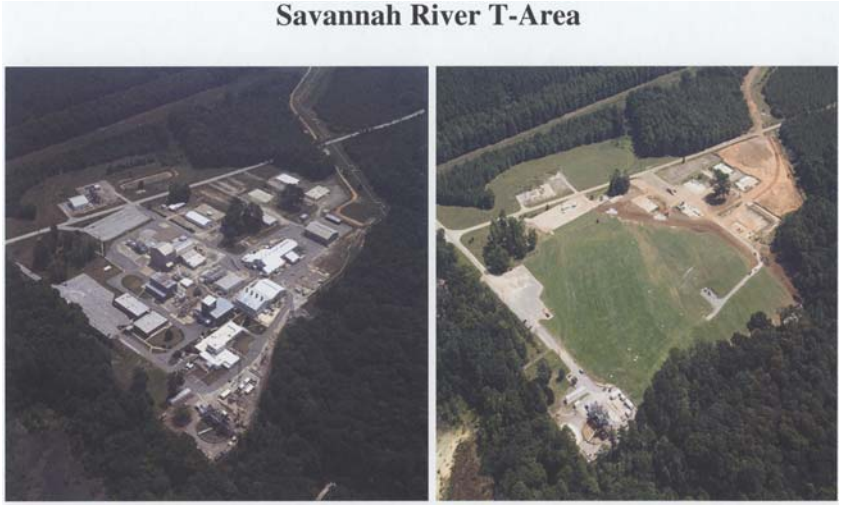
Ashtabula Closure Project

The next shot is Miamisburg, Ohio. Miamisburg also processed nuclear materials. In the case of Miamisburg you will notice there are three significant buildings still there that can be spotted in the before shot, and that is because this particular site is being taken over by a community reuse organization and the site will be put to a constructive reuse.

Miamisburg Closure Project

Some ongoing projects at other places: Oak Ridge, for example, where we have a very large, significant EM site, but at Oak Ridge, this is a picture of the Melton Valley before and after, where we removed 600,000 tons of rock and millions of cubic yards of soil that was contaminated.

At Savannah River, recently I went to the T Area celebration, where we demolished 28 facilities and took care of problems immediately adjacent to the Savannah River.

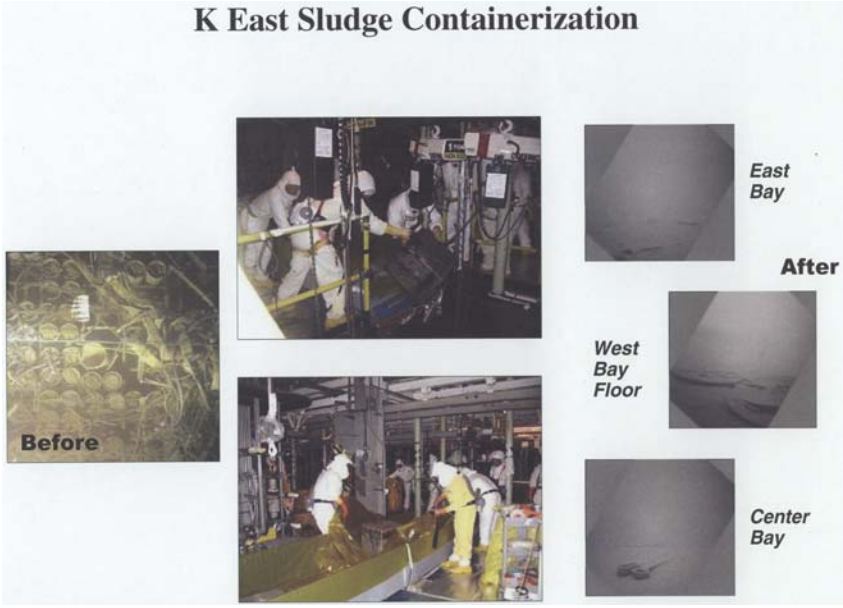


We have a picture here next of a truck pulling into the Waste Isolation Pilot Plant in New Mexico with the first remote-handed transuranic waste shipment. We have since accomplished five shipments. This is very recent, within the past month. We have since completed five shipments of transuranic waste from the Idaho facility to the Waste Isolation Pilot Plant after getting—obtaining, with

the help of the regulator in the State of New Mexico and the EPA, the permits that we needed to be able to do this, a very significant accomplishment for us.

First Remote-Handled Transuranic Waste Shipment to Waste Isolation Pilot Plant

I would like to show you a shot of a troubled project. This is the K Basins at Hanford. It has been a very, very difficult and challenging project. Spent nuclear fuel on the left below 22 feet of water, that we had to retrieve and then deal with all of the disintegrated pieces that derived from that fuel, again through 22 feet of water, with workers working with manipulators straight down through that to maneuver and pick up the pieces. You can see pictures of them in the center as well as on the right side of the clean-up as it was completed.



This is important. These basins are very close to the Columbia River and it is important to us to get these emptied out so that we can get on with ensuring that there is no contamination to the river from those.

The Idaho poster shows a very significant event. The Department had statutory authority to, after waste was removed from tanks, to close the tanks by grouting them with only de minimis material left in the tanks. It is a relatively new statutory authority, section 3116 of the 2005 National Defense Authorization Act, and this was the first application of that authority, at Idaho during the week of Thanksgiving, 2006.

Idaho Liquid Radioactive Waste Tanks

These cleanup successes were accomplished by the collaboration of DOE, the Congress, the States, and the national regulatory agencies, Indian nations, and communities, focusing on a common vision. All these completions and accomplishments should be recognized as results derived from partnerships that were founded on mutual respect and collaboration.

The task before us is very complex. We face challenges of having to develop and deploy new technologies as we proceed. We recognize our regulatory commitments and must focus on our urgent risks. At the same time, we are improving our management performance and incorporating new project scope, and in many of the projects we discover that the contamination is far greater than we had anticipated. But despite all of these, we are resulting and achieving progress.

First and foremost, safety is our top priority. We will continue to maintain and demand the highest safety performance. We believe that every one of our workers deserves to go home as healthy as he or she was when they came to work in the morning.

One of my goals as Assistant Secretary is that at least 90 percent of our portfolio will meet or beat our cost and schedule targets. Over the past year, we have personally conducted quarterly performance reviews of all of our projects with our leadership team. I can tell you today that we have shown measurable improvement, but we have yet to realize the full potential of implementing our management systems. So we will renew our emphasis on applying these principles as we go forward. We have not yet attained the ap-

propriate skills mix to most effectively implement our procurement and project execution strategies, so we are in the process of strengthening those capabilities.

Based on the results we are already seeing, I am optimistic that we can fulfill these multi-year objectives to be a truly high-performing organization.

As Secretary Bodman stated yesterday before the House Appropriations Energy and Water Development Subcommittee, the Federal Government has an obligation to address the environmental legacy of nuclear weapons production. Our request of $5.655 billion consists of three appropriations: defense environmental cleanup, non-defense environmental cleanup, and the Uranium Enrichment Decontamination and Decommissioning Fund.

In keeping with the principles of reducing risk and environmental liabilities, our 2008 request will support the following priority activities. First is stabilizing radioactive tank wastes in preparation for treatment. This is about 31 percent of our request. We consider it to be the most clear and imminent risk that we address in our program. Storing and safeguarding nuclear materials and spent nuclear fuel, which is about 17 percent of our request. Dispositioning transuranic low-level and other solid waste, about 16 percent of our request; and remediating major areas at our sites and decontaminating and decommissioning excess facilities, which is about 26 percent of our request. Examples of milestones and planned activities by site-specific categories can be found in my formal statement, Mr. Chairman, that I request be accepted for the record.

This budget requests and reflects difficult decisions to focus funding on activities we have identified to reduce the highest risks we face. Some of these funding decisions are not driven by existing compliance agreements. Therefore, this budget request does not cover some of the lower risk-reducing activities required under existing compliance agreements.

PREPARED STATEMENT

Mr. Chairman and members of the subcommittee, let me assure you that we will continue to work with this subcommittee and our regulators in implementing our risk reduction approach, using the resources you provide to ensure the best possible protection for the public. Challenges lie ahead, but we are focused on our objectives—safety, performance, cleanup, and closure. I look forward to continuing to work with this subcommittee and the Congress to address your concerns and interests, and I would be pleased to answer your questions during the hearing. Thank you, sir.

[The statement follows:]

PREPARED STATEMENT OF HON. JAMES A. RISPOLI

Good morning, Chairman Dorgan and members of the subcommittee. I am pleased to be here today to answer your questions on the President's fiscal year 2008 budget request for the Department of Energy's Environmental Management (EM) program. I want to thank the subcommittee for support of the EM program.

The EM mission was undertaken to address the safe and successful cleanup of the Cold War legacy brought about from five decades of nuclear weapons development and government-sponsored nuclear energy research. This mission, as I pointed out last year, is both inherently challenging and innately beneficial to the American people. As this committee knows the EM program has solved several cleanup chal-

lenges, including Rocky Flats and Fernald, that at one time seemed unanswerable. We are also making progress on the many other complex challenges that the program still faces. Since I last appeared before this committee, EM has been able to achieve notable results by addressing these challenges through a risk reduction and prioritization strategy and a judicious use of the resources that Congress entrusts to us. EM is implementing this prioritized, risk reduction strategy supported by the crucial tenets of safety, performance, cleanup, and closure.

The President's fiscal year 2008 budget request will allow this prioritized work on these important cleanup and closure projects to continue across the complex. For the EM program, the President's budget request for fiscal year 2008 is $5.66 billion. We've been able to achieve a decrease of $173 million from the fiscal year 2007 request by employing a thoughtful balance of reducing risk and completing cleanup for the EM program. Nearly half of our budget request will go towards our highest risks activities in stabilizing tank waste, nuclear materials, and spent nuclear fuel, and another quarter is going to clean up contaminated soil, groundwater, and unused facilities. With this request, we are continuing on our strategic course to address high priority-tank waste treatment and radioactive waste disposition while preserving our site completion and closure drive.

With this budget request, the Defense Waste Processing Facility at Savannah River Site (SRS), the Advanced Mixed Waste Treatment Facility at Idaho National Laboratory (INL), and the Toxic Substance Control Act Incinerator at Oak Ridge Reservation (ORR) will continue to operate, along with the initiation of operations at the Depleted Uranium Hexafluoride (DUF_6) conversion facilities in both Ohio and Kentucky. Design and construction will continue at the Waste Treatment Plant at Hanford, the Sodium-Bearing Waste Treatment Plant at INL, and the Salt Waste Processing Facility at SRS. Tank farm operations will continue at Hanford, INL, and SRS along with spent nuclear fuel receipt, storage, and cleanup.

At the SRS, this request will support ongoing nuclear material processing in H-Canyon and plutonium vitrification design to support ultimate disposition. At Hanford, it supports consolidation of plutonium and unirradiated category 1 and 2 nuclear fuel to an off-site location, pending a consolidation decision. Consolidation of enriched uranium from INL to an off-site location, and design and long-lead procurement for the U–233 disposition project at Oak Ridge Reservation is also supported in this request.

This request enables transuranic (TRU) waste projects to continue with priority for INL and Los Alamos National Laboratory (LANL) TRU waste. Other contact and remote-handled TRU shipments to the Waste Isolation Pilot Plant (WIPP) are also supported. Low-level radioactive waste and mixed low-level radioactive waste activities will be supported at Hanford, Nevada Test Site (NTS), INL, SRS, and ORR.

The request will allow high-priority waste retrieval, soil and groundwater remediation, and decontamination and decommissioning (D&D) of excess facilities at Hanford, INL, SRS, ORR, Portsmouth, Paducah, LANL, and other sites. In addition, the request supports targeted technology development and deployment in support of high-level waste, soil and groundwater, and facility D&D.

With this budget request, EM will achieve our goals for risk reduction and cleanup completion at:

—Lawrence Livermore National Laboratory-Site 300, California;
—Inhalation Toxicology Laboratory, New Mexico;
—Pantex Plant, Texas;
—Sandia National Laboratory, New Mexico; and,
—Argonne National Laboratory-East, Illinois.

As cleanup work is completed at sites with continuing missions, EM will transfer long-term surveillance and monitoring activities to the cognizant program office or, for those sites without a continuing mission, to the Office of Legacy Management.

The fiscal year 2008 budget request will allow the EM cleanup program to reduce risk, honor commitments and produce results worthy of the investment of the American people. We are committed to ensuring strong management of this complex cleanup work to secure safe and efficient progress that protects the public, our workers, and the environment. We have shown we can deliver meaningful results. Your continued support will allow us to deliver results important for today, as well as for generations to come.

RISK REDUCTION RESULTS

The results being delivered by the EM program's risk reduction and prioritization strategy are proving that linking safety, performance, cleanup, and closure can lead to significant outcomes. We are communicating and discussing our challenges with our State and Federal regulators, Congress, the communities, and other interested

parties. We believe that reasonable solutions are best found through open interaction with all interested parties. Recently, we celebrated another success at the completion ceremonies for the Fernald, Ashtabula and Columbus sites. Cleanup successes achieved with the assistance of representatives from Congress, the State and national regulatory agencies, and the communities, collaborating and focusing on a common vision. It is the latest demonstration of our progress following the earlier completion of cleanup at Rocky Flats in Colorado, the Kansas City Plant in Missouri, and the Lawrence Livermore National Laboratory-Main Site in California. All these completions should be recognized as results that have been borne from partnerships founded on mutual respect and collaboration.

EM has also made other significant progress:

—Stabilizing and packaging for disposition all plutonium residues, metals, and oxides (SRS and Hanford);

—Producing well over 2,000 cans of vitrified high-level waste from radioactive tank liquid wastes (SRS and the West Valley Demonstration Project);

—Retrieving and packaging for disposal over 2,100 metric tons of spent nuclear fuel from the K-Basins on the Hanford site to protect the Columbia River;

—Characterizing, certifying, and shipping close to 37,000 cubic meters of TRU waste from numerous sites to WIPP for permanent disposal;

—Disposing of more than 965,000 cubic meters of legacy low-level waste and mixed low-level waste (contaminated with hazardous chemicals); and

—Eliminating 11 out of the 13 high-risk material access areas through material consolidation and cleanup.

In addition, on a site-specific level, we have:

—Initiated pre-conceptual design of the Plutonium Disposition Facility at SRS;

—Completed disposal at WIPP of all legacy drummed TRU waste from SRS;

—Completed demolition of the 232–Z facility at Hanford;

—Completed clean up at the Melton Valley area and the D&D of three gaseous diffusion buildings at the ORR (K–29, 31 and 33) at ORR;

—Disposed of over 8,500 tons of scrap metal from the Portsmouth site; and

—Completed the first remote-handled TRU waste shipments to the WIPP from INL.

SOLVING THE CHALLENGES

The task before us is extremely complex. We sometimes face the challenge of having to engineer new approaches or invent new technologies as we proceed. Technologies were not available or sufficiently effective, our regulatory environment has continued to change, performance issues have hindered progress, new scope has been added to our program, and greater than anticipated contamination has been found for some existing cleanup. But ingenuity and hard work are resulting in progress.

DOE is committed to resolve this cleanup in partnership with our stakeholders and regulators. The consequences of inaction pose unacceptable risks to our environment and the public.

In continuing to address these challenges, EM is focusing its cleanup efforts on the reduction of high risk issues to most efficiently invest the department's fiscal year 2008 funding request. We intend to overcome these challenges in collaboration with our partners, dealing openly with any impacts to previously predicted cost, schedule and performance. I want to assure you that we will meet these challenges with the energy and dedication that have demonstrated our steadfastness to our mission and our commitment to the public.

First and foremost, safety is our top priority. We will continue to maintain and demand the highest safety performance. We have taken measures to fully integrate safety into our project designs at an earlier stage while assuring our line project teams have the necessary experience, expertise, and training. Every worker deserves to go home as healthy as she or he was when they came to work in the morning. Safety will remain a cornerstone in the execution of our mission objectives.

We are actively engaged, both within the department and externally with our regulators and stakeholders, in identifying issues that impact our mission objectives. We have been challenged by lower than expected performance levels, increased scope, and unrealized planning assumptions. As we identify issues that could affect future performance and regulatory commitments, we are taking significant steps to improve our operations in planning and executing our work. We are applying lessons learned to help prevent future occurrences that will impact our planning and commitments.

One of my goals as Assistant Secretary is that at least 90 percent of our "projectized" portfolio will meet or exceed our cost and schedule targets. We have

begun the process of integrating our management tools into our business processes. Over the past year, I have personally conducted Quarterly Performance Reviews of all EM projects with our leadership team. I report to you that we have showed progress but we have yet to realize the full potential of implementing our management systems and better applying risk management principles—that is, identifying project uncertainties and developing mitigation measures. Some of our projects have fallen short of expected performance, but we are engaging our field management contractors with state-of-the-practice project management methods.

Over the last year, it has become apparent that we have not yet attained our full potential in our procurement and execution of projects. We have instituted measures to strengthen our emphasis on program execution. This multi-year objective already is producing results that should provide more effective management in the future. This initiative is being coupled with additional training for Federal managers and staff to enhance project management and acquisition skills. This integrated approach will deliver dividends for our managers in the long term.

We are improving our ability to ensure that proper procurement vehicles are available to meet our acquisition strategies. We are taking a new look at contract types and fee structures within our contracts. EM must acquire the best services including those of small business, to meet our business objectives and to become a top-performing organization.

I have asked my senior leadership at Headquarters and in the field to take immediate actions to ensure that everyday operating processes reflect lessons learned. Lastly, in conjunction with the National Academy of Public Administration, EM has undertaken a review of our organization and its associated functions and authorities. To date, the process has identified areas for improvement, along with some refinements of our organizational alignment. During the next few months, EM will be implementing the resulting recommendations to ensure we have an organizational structure that will enhance our ability to respond to the needs of the mission.

THE FISCAL YEAR 2008 BUDGET REQUEST

The department's fiscal year 2008 budget request for defense EM activities totals $5,655 million. The request consists of three appropriations, Defense Environmental Cleanup, Non-Defense Environmental Cleanup, and the Uranium Enrichment Decontamination and Decommissioning Fund.

The fiscal year 2008 budget request reflects safety as its utmost priority. The Office of Environmental Management is committed to our safety principles and to maintaining the highest safety performance to protect the workers, the public and the environment.

The budget request reflects prioritizing program work to balance the goals of risk reduction; completing ongoing work to achieve completion at four sites; and, meeting our environmental commitments. For fiscal year 2008, EM's funding priorities are listed in order of risk, to best address our cleanup challenges:

—Requisite safety, security, and services across EM cleanup sites;
—Radioactive tank waste storage, treatment, and disposal;
—Spent nuclear fuel storage, receipt, and remediation;
—Solid waste (transuranic, low-level, and mixed low-level wastes) treatment, storage, and disposal;
—Special nuclear materials storage, processing, and disposition;
—Soil and groundwater remediation; and
—D&D of contaminated facilities.

Examples of milestones and planned activities for fiscal year 2008 by site-specific categories are:

Hanford

Richland

Consolidate, package, and remove of spent nuclear fuel and other radioactively-contaminated elements within the K Basins (K-East and K-West).—The K Basins project is a high priority, risk reduction activity due to its close proximity to the Columbia River. The goal of this project is removal of all spent nuclear fuel, radioactive sludge, contaminated K Basin water, and radioactive debris from the K Basins. The endpoint of the K Basins cleanup will mean the removal of more than 55 million curies of radioactivity that pose a threat of leakage to the surrounding environment, including the Columbia River.

Amplify River Corridor remediation activities for Reactor Areas D, F, and H.—The River Corridor Closure Project will complete remediation of contaminated waste sites; the D&D and demolition of facilities that are adjacent to the Columbia River; and placement of eight reactors into an interim safe storage condition. The work

performed within the River Corridor Closure Project includes digging up contaminated soil, constructing interim safe storage (cocooning) of the reactors, demolishing facilities in the old reactor complexes and facilities in the 300 Area, disposing of waste in the Environmental Restoration Disposal Facility, and constructing surface barriers or caps over contaminated sites.

Continue retrieval of contact handled suspect transuranic waste and scheduled shipments to WIPP.—The Hanford Site contains thousands of containers of suspect transuranic waste, low-level, and mixed low-level wastes. The end point of this project will include the retrieval of contact-handled suspect transuranic waste in the low-level burial grounds, the treatment of mixed low-level waste, the disposal of low-level waste, and certification and shipment of transuranic waste to WIPP.

Continues on track groundwater/vadose zone remediation activities.—Due to 40 years of vast weapon production processes, Hanford's groundwater has been contaminated with carbon tetrachloride, chromium, technetium 99, strontium, and uranium plumes. EM is dedicated to preventing the potential for contaminates reaching the groundwater by: decommissioning an additional 100 unused groundwater wells; monitoring 700-plus wells for contaminants of concern above drinking water standards; and, commencing design of final remediation actions to address carbon tetrachloride and technetium plumes.

Office of River Protection

Sustain tank farm closure processes and maintain the tanks in a safe and compliant condition.—The radioactive waste stored in Hanford tank farms has been accumulating since 1944. Due to the age of the tanks, a number have leaked in the past into surrounding soil and groundwater. In order to reduce the risk of future tank leaks into the environment, the overall objectives of this project include the stabilization of radioactive waste stored underground in tanks, including retrieval, treatment, disposal, and closure of the facilities.

Progress on path forward for the Waste Treatment and Immobilization Plant.—The Waste Treatment and Immobilization Plant (WTP) is critical to the completion of the Hanford tank waste program by providing the primary facility to immobilize (vitrify) the radioactive tank waste at the Hanford Site. The WTP complex includes five facilities: the Pretreatment Facility, the High-Level Waste Facility, the Low-Activity Waste Facility, the Balance of Facilities, and the Analytical Laboratory. In fiscal year 2008, the WTP project team plans to complete: close-in of the annex building in the Low-Activity Waste Facility; installation of roofing and completion of the building shell for the Analytical Laboratory; construction of the water treatment building in the Balance of Facilities; and renewal of construction for the High-Level Waste Facility and the Pretreatment Facility.

Idaho

Transfer spent nuclear fuel from wet to secure dry storage.—Promote the safe and secure receipt, dry storage, and packaging and future transfer of the spent nuclear fuel to a Federal geologic repository.

Continue shipments of transuranic waste to the WIPP.—Maintain program activities that support waste characterization, packaging, and transportation of remote-handled transuranic waste to WIPP that lead to reduced surveillance and operation costs.

Pursue ongoing sodium-bearing waste treatment facility construction, including efforts to gain necessary regulatory approvals for sodium bearing waste treatment and disposal.—The overall objective of this project is treatment and disposal of the sodium-bearing tank wastes, closure of the tank farm tanks, and performance of initial tank soils remediation work. Construction and operation of the sodium-bearing waste facility will reduce potential risk to human health and the environment by preventing the potential migration of contamination into the Snake River Plain Aquifer, which is a sole-source aquifer for the people of Southeastern Idaho.

Los Alamos National Laboratory

Characterize, certify, and ship above-grade transuranic waste inventory.—The Solid Waste Stabilization and Disposition Project includes the treatment, storage, and disposal of legacy transuranic and mixed low-level waste generated between 1970 and 1999 at LANL. Final disposal of the legacy transuranic waste from LANL will reduce risk to workers, as well as reduce security costs associated with transuranic waste.

Promote soil and water remediation and monitoring.—The LANL Soil and Water Remediation Project's objective is to identify, investigate and remediate, when necessary, areas with chemical and/or radiological contamination attributable to past Laboratory operations.

In fiscal year 2008, in order to fulfill the objective of protecting and monitoring the regional aquifer, as well as long-term surveillance and monitoring to provide necessary safeguards and protection for surface and ground waters, the following activities are planned:

—Perform groundwater monitoring at all major watersheds: LA/Pueblo; Mortandad; Canon de Valle; Sandia; and in close proximity to the major waste sites;
—Conduct stormwater sampling and implement erosion control measures;
—nstall and monitor four wells in Pajarito and Bayo canyons; and
—Complete construction of 260 Outfall Corrective Measures for alluvial and surface water treatment system.

Oak Ridge

Continue design of U–233 down-blending project and begin Building 3019 modifications.—Down-blending the Building 3019 inventory for disposition is in accordance with the national non-proliferation goals by making the U–233 material unsuitable for use in weapons and reducing security costs at the Oak Ridge National Laboratory.

Ship contact-handled transuranic waste to WIPP.—Process 250 cubic meters of contact-handled transuranic debris and 170 cubic meters of remote-handled transuranic debris with shipments to the WIPP; and continue to dispose of low-level/mixed low-level waste at the NTS.

Complete the Molten Salt Reactor Experiment fuel salt removal remediation project.—Upon completion of active remediation, surveillance and maintenance activities of the Molten Salt Reactor Experiment facility will be provided until decontamination and decommissioning of the site has occurred.

Decontaminate and decommission building K–25 and K–27, including completing demolition of the K–25 west wing.—Surveillance and maintenance of the K–25 and K–27 buildings will be continued in order to maintain safe conditions. Demolition of K–25 east wing and K–27 will occur after the decontamination and decommissioning process.

Paducah

Complete construction and startup of the deleted uranium hexafluoride conversion facility (DUF$_6$).—The Paducah DUF$_6$ conversion facility is scheduled to begin operation in fiscal year 2008. The DUF$_6$ conversion facility will convert depleted uranium hexafluoride into a more stable form, depleted uranium oxide, which is suitable for reuse or disposition. The depleted uranium oxide will be sent to a disposal facility, the hydrogen fluoride by-products will be sold on the commercial market, and the empty cylinders will be sent to disposal or reused.

Store, treat, and dispose of legacy waste and newly generated waste.—The Paducah Gaseous Diffusion Plant is responsible for some waste streams generated by the United States Enrichment Corporation's operation of the Plant. In fiscal year 2008, we plan to complete expansion of five new sections of on-site landfill for non-hazardous waste disposal; perform ongoing characterization, packaging, treatment and disposal of 50 cubic meters of newly generated waste (mixed and low-level); and complete legacy low-level waste characterization, packaging, and disposal. The continued shipment and disposal of the waste will reduce potential for release into the environment from aging containers.

Portsmouth

Finalize construction and startup of the uranium hexafluoride conversion facility.—The Portsmouth DUF$_6$ conversion facility is scheduled to begin operation in fiscal year 2008. Like the Paducah facility, the DUF$_6$ conversion facility will convert depleted uranium hexafluoride into a more stable form, depleted uranium oxide, suitable for reuse or disposition.

Store, characterize, treat, and dispose of legacy waste generated by activities at the Portsmouth Gaseous Diffusion Plant.—We will continue to characterize, treat, and dispose of any newly generated waste; develop the management and disposal of low-level waste associated with 438 converter shells in storage with potentially classified waste; disposition of excess site equipment (vehicles, scrap, etc.) and disposition of poly bottle solutions which contain liquids with high fissile material and are required to be treated prior to disposal.

Continue transition activities from cold shutdown mode to decommissioning.—In fiscal year 2008, there is an increase in funding to support the transition of the Gaseous Diffusion Plant from a cold shutdown to decontamination and decommissioning. Activities include: conducting environmental monitoring and reporting for groundwater, surface water, sediment, biological, vegetation, and associated sample collection; performing enhanced uranium deposit mitigation measures for criticality

concerns in the process buildings to eliminate near-term safety issues; and initiating soil and groundwater investigation and/or remediation underneath approximately 140 buildings.

Savannah River Site

Consolidate on-site Plutonium to K Area.—In order to meet the Department's Design Basis Threat criteria, plutonium at SRS is being consolidated into one Category 1 Special Nuclear Materials Storage Facility. The receipt, storage, and disposition of these special nuclear materials at the SRS allows for de-inventory and shutdown of other DOE complex sites, while providing substantial risk reduction and significant mortgage reduction savings to the Department.

Ship all legacy transuranic waste to WIPP and treat low-level waste and mixed low-level waste.—In fiscal year 2008, SRS plans to dispose of transuranic waste previously characterized as mixed low-level waste; dispose of low-level waste and newly generated waste, including soil, groundwater and decontamination and decommissioning wastes; dispose of mixed low-level waste inventory and newly generated waste; and dispose of hazardous waste inventories, thus reducing potential exposure to project workers.

The end-state for this project is the shipment of all legacy transuranic waste to the WIPP, the treatment of PUREX waste, and the elimination of all legacy inventories and disposition of newly generated low-level waste, mixed low-level waste, and hazardous waste.

Continue groundwater corrective actions across the Site.—The SRS is working to prevent the spread of contamination into adjoining groundwater aquifers and nearby surface waters. Existing contamination in vadose zones, groundwater and surface water/sediments are currently being cleaned up, thereby reducing the risk to site workers, the public and the environment.

Treat, stabilize, and dispose legacy radioactive waste stored in underground storage tanks.—The continuation of the design and construction of the Salt Waste Processing Facility will aid the Defense Waste Processing Facility in the process of safely disposing of the liquid tank wastes. The Salt Waste Processing Facility will separate the high-activity fraction from the low-activity fraction of the salt waste stored in the underground tanks at the SRS. The completion of the Salt Waste Processing Facility will support the mission of SRS in meeting its Federal Facilities Agreement commitments for waste tank disposition.

Waste Isolation Pilot Plant

Operate the WIPP in a safe manner to support disposal capabilities for transuranic waste.—The WIPP in Carlsbad, New Mexico, is the nation's only mined geologic repository for the permanent disposal of defense-generated transuranic waste. All of the defense-generated transuranic waste from eligible generator sites must come to WIPP for receipt, handling, and disposal.

CONCLUSION

The fiscal year 2008 budget request enables risk reduction to continue. Challenges lie ahead but we are focused on our objectives and our strategy. Safety, performance, cleanup, and closure underpin our actions and initiatives. We are committed to work with all interested parties to resolve issues. We look forward to continuing to work with this subcommittee and the Congress to address your concerns and interests. Our success relies on our effective partnerships with our regulators, the communities, and our contractors to produce progress in accomplishing meaningful results for the American public.

I look forward to a continuing dialog with you and the subcommittee. This concludes my formal statement for the record. I will be pleased to answer any questions at this time.

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

We will hear from Mr. Sproat and then ask questions. But we have been joined by the ranking member, former chairman of this subcommittee, Senator Domenici. Senator Domenici, welcome.

OPENING STATEMENT OF SENATOR PETE V. DOMENICI

Senator DOMENICI. Thank you very much, Mr. Chairman. I am pleased to say a few words and thank you for that.

First, thanks to the witnesses for coming. I look forward to working with you as we put together this balanced bill for fiscal year

2008. I am glad that you are starting out this way, which would indicate to me that you want to get a bill; you do not want to go through what we did last year, with no bill.

I look forward to addressing many important issues revolving around research programs that can have a real impact on our energy security and will support cutting edge scientific research. We will also face a number of challenging issues, such as Katrina recovery and environmental cleanup. I appreciate your willingness, Mr. Chairman, to visit New Mexico to tour our great labs and hear from the people who have devoted their professional careers to supporting our Nation's security and nuclear deterrent. You did that with me and I am most appreciative and will not forget that.

Mr. Chairman, you have also selected a great staff. Doug Clapp and Franz Wuerfmannsdobler are exceptional and will serve the subcommittee well. Along with my two veteran people, I think we have a good team. Roger Cockrell is the best guy in town and you kept him on water projects and he will serve us well, Democrat and Republican.

I noted earlier that there are many challenging matters. Two of those issues are the topic of the hearing today, Yucca Mountain and environmental cleanup. Yucca Mountain, the budget provides $494 million and makes the development and submission of the license application to the Nuclear Regulatory Commission (NRC) in 2008 a top priority.

I am going to skip through the Yucca, assuming that you have covered most of it, and go to the matter that is haunting the laboratory at Los Alamos with reference to cleanup. I think you know there is a big problem there. But I would say with reference to Yucca just one thing. Last year Senator Reid and I developed legislation to address the potential that waste might remain on site well past 2017, opening date for Yucca Mountain. As Mr. Sproat pointed out in the written testimony, at the Federal Government legal liability increases by $500 million annually each year Yucca Mountain is delayed. Is that correct?

Mr. SPROAT. That is correct.

Senator DOMENICI. I will continue to work with the majority leader and the chairman to see if we can find an acceptable compromise that will reduce our legal liability in the near future. I hope you can think about that and work with us on that. That is a lot of money going right out the window for nothing.

Mr. SPROAT. Yes, sir.

Senator DOMENICI. The budget provides for environmental management at $5.6 billion for defense and non-defense. The budget is in steady decline from the fiscal year 2006 level that was a record at $7.3 billion. This is a reduction of nearly 25 percent. You have got a real job.

In particular, I am concerned at what this will mean to Los Alamos. Just 2 years ago the Department entered into a consent agreement, Mr. Chairman, with Los Alamos and the State to clean this up by 2015. That is a very important document and a very important commitment. Unfortunately, the budget requests for the past 2 years have been wildly inconsistent and insufficient to deliver on the agreed-upon cleanup milestones.

I have spoken with Secretary Bodman regarding my frustration with the lack of funding consistency and I believe the Department needs to set a budget baseline that matches our cleanup goals and then deliver on these commitments, not 1 year but multiple years. We simply cannot continue to make environmental management the bill payer for every new important R&D program.

PREPARED STATEMENT

I also realize that I need to make this appeal directly to OMB. I will do that, which has held the Department's budget flat. But when you have a consent agreement it would seem to me that you have got to pay for it. I understand the Secretary will go to New Mexico and try to work out something that is more doable, but yet over 12 or 15 years will do the job. We will all be interested in whether that works.

Thank you, Mr. Chairman.

[The statement follows:]

PREPARED STATEMENT OF SENATOR PETE V. DOMENICI

Mr. Chairman, I would like to welcome you to your first budget hearing as chairman of the Energy and Water Subcommittee. I look forward to working with you as we put together a balanced bill for fiscal year 2008.

I look forward to addressing many important research programs that can have a real impact on our energy security and will support cutting edge scientific research. We will also face a number of challenging issues, such as the Katrina recovery and environmental cleanup.

I appreciate your willingness to visit New Mexico to tour one of our great labs and hear from the people who have devoted their professional careers to supporting our Nation's security and nuclear deterrent.

It means a lot to me that you would make your first laboratory visit in New Mexico.

Mr. Chairman, you have also selected great staff—Doug and Franz are exceptional and will serve the subcommittee well. We will also continue to share the services of Roger Cockrell—the best water guy in town.

Mr. Chairman, as I noted earlier there are many challenging policy matters facing this subcommittee. Two of those issues are the topic of this hearing today—Yucca Mountain and environmental cleanup.

YUCCA MOUNTAIN

This budget provides $494 million and makes the development and submission of the license application to the NRC in 2008 a top priority.

I believe that the Secretary recognizes the importance of ensuring that the license is of the highest quality and can be vigorously defended in 2008.

The Department has taken a new approach to standardizing the canisters used to package and ship spent nuclear fuel to the repository for storage. I am interested in this approach, but want to make sure this solution will cut costs.

I know the Department is very serious about completing Yucca Mountain by 2017; but the Congress still must pass authorizing legislation in order for Yucca Mountain to stay on even this new schedule. Although, I will assist in anyway I can in moving this legislation, I am not confident that this language will pass without significant changes, if at all.

Last year, Senator Reid and I developed legislation to address the potential that waste might remain on site well past the proposed 2017 opening date for Yucca Mountain. As Mr. Sproat pointed out in his written testimony that the Federal Government's legal liability increases by $500 million annually each year Yucca Mountain is delayed.

I will continue to work with both the majority leader and Chairman Dorgan to see if there is an acceptable compromise that will reduce our legal liability in the near future.

ENVIRONMENTAL MANAGEMENT

The budget provides $5.6 billion for defense and non-defense cleanups. This budget is on a steady decline from the fiscal year 2005 record level of $7.3 billion. This is a reduction of nearly 25 percent.

I understand the Department has attempted to prioritize cleanups based on risk in order to fit within the budget constraints. But the facts paint a very different picture. The budget cuts will undermine the Department's existing cleanup obligations and will push back completion dates.

In particular, I am concerned about what this will mean for Los Alamos. Just 2 years ago the Department entered into a Consent Agreement with the State to cleanup the site by 2015.

Unfortunately, the budget requests for the past 2 years have been wildly inconsistent and are insufficient to deliver on the agreed upon cleanup milestones.

I have spoken with Secretary Bodman regarding my frustration with the lack of funding consistency. I believe the Department needs to set budget baselines that match our cleanups goals and then deliver on these commitments year after year.

We simply can't continue to make environmental management the bill payer for every new important R&D initiative. I also realize I need to make this appeal directly to OMB, which has held the Department's budget flat.

Nevertheless, I am committed to work with the laboratory, the State of New Mexico, the Department and Chairman Dorgan to find the appropriate level of funding for this cleanup effort.

Thank you Mr. Chairman.

Senator DORGAN. Senator Domenici, thank you very much.

CONSEQUENCES OF A REDUCED ENVIRONMENTAL MANAGEMENT BUDGET

Senator DORGAN. Let me make a comment that I did not make at the start of this and then I am going to call on Senator Murray for a moment. I was looking back at the web site of the Department of Energy. They note that scientists early on in the weapons programs in this country's effort to produce nuclear weapons advised that the resulting waste stream presented very grave problems, but the DOE's own web site says: "The imperatives of the nuclear arms race, however, demanded that the weapons production and testing be given priority over waste management and the control of environmental contamination."

Well, we understand what happened and the Department of Energy's web site describes why it happened. Now there is a responsibility to address it, and I am very concerned about the proposed budget. What we are confronted with is a requirement to address these issues with a budget that is dramatically reduced, a budget that I think will result in substantially missed milestones. I am going to ask about that.

But I know that both of you will be required today to support the President's budget. That is your role. But I do want to ask questions about the consequences. What are the consequences of a budget that is a 23 percent reduction in 4 years for the EM budget? What is the basis of that, with so much cleanup work yet to be done across these complexes? How can such a great reduction in funding be proposed and what would be its consequences?

So I will ask those questions, but I wanted to, following Senator Domenici's comments, make those observations. I am going to call on Senator Murray.

STATEMENT OF SENATOR PATTY MURRAY

Senator MURRAY. Mr. Chairman, I will just submit an opening statement for the record. Just let me thank you for having this hearing. I look forward to working with you and Senator Domenici on the critical issues that your subcommittee is going to have to address this year, and I want to thank Mr. Rispoli and Mr. Sproat for being here today.

I appreciate the opportunity to talk about the importance of cleaning up waste across the DOE complex, but particularly at Hanford in my home State. I do want to just say quickly I am pleased the administration is keeping its commitment to getting the vit plant back on track and fully funded. It is a long process. We are in it for the long haul and I appreciate that.

I have a number of questions and I will be asking them after we have heard the testimony. Thank you, Mr. Chairman.

[The statement follows:]

PREPARED STATEMENT OF SENATOR PATTY MURRAY

Thank you Chairman Dorgan for calling this meeting to examine DOE's cleanup efforts across the country and thank you Mr. Rispoli and Mr. Sproat for coming here to testify today.

I glad to have the opportunity to talk about the importance of cleaning up waste across the complex and particularly at Hanford in my home State.

I am pleased that the administration is keeping its commitment to getting the vit plant back on track and fully funded.

I know that this is a long process and I am it in it for the long haul. There are several important projects ongoing at Hanford and today I would just like to ask a few particular questions of you Mr. Rispoli.

Senator DOMENICI [presiding]. Thank you very much.

The chairman asked if I would just proceed with where he was going and ask you, Mr. Sproat to, wherever you were on the testimony, proceed.

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

STATEMENT OF HON. EDWARD F. SPROAT III, DIRECTOR

Mr. SPROAT. I had not started. Thank you, Senator.

Good afternoon, Mr. Chairman, Senator Domenici, Senator Murray. Thank you very much and I appreciate the invitation of the subcommittee to talk about the President's fiscal year 2008 appropriations request for the Office of Civilian Radioactive Waste Management, of which I am the Director. We have responsibility, as you know, to design, build, license, and operate the Yucca Mountain repository, the national high-level waste repository.

Fiscal year 2008 is a major critical year for the national repository program. This is the year when we have major deliverables that are due: the supplemental environmental impact statement for the repository, certifying the licensing support network and submitting the license application to the Nuclear Regulatory Commission.

The President's budget request, $494.5 million, will allow us to achieve those milestones, which are on the critical path to opening this repository by 2017, which is our best achievable date. In my written testimony, which I ask be introduced in the record, there are more specifics about our deliverables for 2008 and the other de-

scriptions of funding of State and local oversight associated with the repository is also mentioned in that formal statement.

Let me talk a little about the impact of the fiscal year 2007 final appropriations, final authorization. For fiscal year 2007, which as you know has only been passed here in the past 3 or 4 days, the President——

Senator DOMENICI. You mean appropriations, not authorizations.

Mr. SPROAT. I am sorry, appropriations.

The President asked for $544.5 million for the Yucca Mountain program, of which was appropriated $444.5 million, which was $100 million less than what the President asked for. So right now my management team and I are in the middle of the effort to understand the impacts of that on the program. While we are still evaluating the impacts of the final 2007 appropriation, it is likely but not yet certain that we will not be able to meet our best achievable schedule for opening the repository by March 2017. A 1-year slip is likely, but we are still evaluating the recovery options. So I have not given up on that 2017 date.

However, we will meet our commitment to deliver the license application for the repository to the NRC by mid-2008. It is certain, however, that we will have a reduction in force, across the program later in fiscal year 2007 and in 2008, even with the full fiscal year 2008 appropriation request of $494.5 million. Exactly how much of a reduction in force and when it will occur we are still evaluating.

What I would like to talk about next is the issue of our ability to access or not access the Nuclear Waste Fund. I know certain members of this committee are probably very familiar with this issue. By 2009, fiscal year 2009, there is going to be a major turning point for this program. Sustained funding well above current and historic levels will be required starting in fiscal year 2009 if we are to complete this repository in 2017.

The current funding levels will not be adequate to support design and, if necessary, concurrent capital purchases, construction, transportation infrastructure, and the transportation and disposal casks that we will need to begin to design and purchase to open the repository by 2017. Now, one of the problems, I think as the committee is well aware, is that the Nuclear Waste Fund was created by the Nuclear Waste Policy Act and is funded by a one mill per kilowatt-hour fee on all nuclear generation in the country. As of today, the fund has a balance of approximately $19.5 billion—that is with a "b"—which is invested in U.S. Treasury instruments. The Government receives approximately $750 million per year in revenues from ongoing nuclear generation and the fund averages about a 5.5 percent annual return on its investments.

At the present time, due to technical scoring requirements, the Department cannot access the Nuclear Waste Fund receipts, interest, or corpus for their intended use without having a significant negative impact on the Federal budget deficit. In the legislation that the administration submitted to Congress last year and again we submitted yesterday, the President proposes fixing this problem by reclassifying mandatory Nuclear Waste Fund receipts as discretionary in an amount equal to appropriations from the fund for authorized waste activities. Funding for the program would still have

to be requested annually by the President and appropriated by the Congress from the Nuclear Waste Fund.

While the lack of access to the fund is not critical to the program in fiscal year 2008, it will have a serious consequence in fiscal year 2009 and beyond. For each year beyond 2017 the repository opening is delayed, the Department estimates that U.S. taxpayers' potential liability to contract holders will increase by approximately $500 million per year. This will be in addition to the estimated current potential liability of approximately $7 billion. There will also be added additional costs associated with keeping the defense waste sites, particularly the one in Senator Murray's site, open longer than originally anticipated.

So in summary, the President's fiscal year 2008 budget request will provide the needed funds to allow us to submit the construction application for Yucca Mountain in mid-2008, which is on the critical path. The significant reduction in the fiscal year 2007 funds will present challenges that I and my management team are working on and it puts in jeopardy our ability to meet the March 2017 date, but we are still working on some potential work-arounds.

PREPARED STATEMENT

Each year's delay beyond March 2017 will result in an increase in taxpayer liability, and therefore I respectfully urge the Congress to consider and pass the President's fiscal year 2008 budget request and the proposed Nuclear Waste Management and Disposal Act which we sent up to the Hill yesterday.

With that, I would be pleased to answer any questions the committee may have.

[The statement follows:]

PREPARED STATEMENT OF HON. EDWARD F. SPROAT III

Mr. Chairman and members of the committee, I am Edward F. Sproat III, Director of the Department of Energy's (DOE) Office of Civilian Radioactive Waste Management (OCRWM). I appreciate the invitation to appear before the committee to discuss the President's fiscal year 2008 budget request for my office which has the responsibility to design, license, construct, and operate a repository for the disposal of high-level radioactive waste, as defined in the Nuclear Waste Policy Act (NWPA) of 1982, as amended.

When I first came to this program last summer I outlined four strategic objectives to implement the President's priorities during my tenure. They are:

—Submit a high-quality and docketable License Application to the Nuclear Regulatory Commission (NRC) no later than Monday, June 30, 2008;
—Design, staff, and train the OCRWM organization such that it has the skills and culture needed to design, license, and manage the construction and operation of the Yucca Mountain Project with safety, quality, and cost effectiveness;
—Address the Federal Government's mounting liability associated with unmet contractual obligations to move spent nuclear fuel from nuclear plant sites; and
—Develop and begin implementation of a comprehensive national transportation plan that accommodates State, local, and tribal concerns and input to the greatest extent practicable.

The President's fiscal year 2008 budget request of $494.5 million for this program is supportive and vital to achieving these objectives.

FISCAL YEAR 2008 KEY ACTIVITIES

Fiscal year 2008 will be a critical year for the program. It is imperative that the DOE submit a high-quality License Application to the NRC in 2008. This activity is on the critical path to opening the repository and allowing the Department to meet its contractual obligations to begin accepting and removing spent nuclear fuel

and high-level radioactive waste from 131 sites around the country. This budget request will provide the funding needed to complete that License Application.

In fiscal year 2008, our objectives are to:

—Submit a License Application for the repository to the NRC;
—Certify the Licensing Support Network in accordance with NRC requirements and regulations;
—Complete the Supplemental Yucca Mountain Environmental Impact Statement (EIS);
—Begin the defense of the License Application after submittal;
—Design the standard canisters to be used by the industry to package and ship spent nuclear fuel to the repository;
—Perform critical personnel safety upgrades at the Yucca Mountain site;
—Perform the analysis and deliver the report to Congress required by the NWPA on the need for a second repository; and
—Resolve comments and issue the final EIS for the Nevada Rail Line which is required to transport spent nuclear fuel to the repository.

In addition to the specific deliverables outlined above, the budget request also includes funds for the following activities:

—Funding for payments-equal-to-taxes to the State of Nevada and Nye County, Nevada, where Yucca Mountain is located. Our fiscal year 2008 request also includes funding for the State of Nevada and affected units of local government as well as funding for the University System of Nevada and Nye County and Inyo County, California, for independent scientific studies.
—Funding for cooperative agreements with State regional groups and other key parties involved in transportation planning. NWPA Section 180(c) pilot grants will also be pursued to support operational preparedness training and to refine the Section 180(c) program.
—Funding for program management and integration of the project components through formal baselines, procedures, and the system requirements hierarchy, and for resolving cross-cutting issues that impact the waste management system. This area has been weak in the past and is now targeted by senior management for improvement.
—Funding for program direction which supports Federal salaries, expenses associated with building maintenance and rent, training, and management and technical support services, which include independent Nuclear Waste Fund audit services, independent technical and cost analyses, and University-based independent technical reviews.

IMPACT OF FISCAL YEAR 2007 FINAL BUDGET AUTHORIZATION

The President's fiscal year 2007 budget request for the Yucca Mountain Program was $544.5 million. The final budget authority received for fiscal year 2007 was $444.5 million, a $100 million reduction. While we are still evaluating the impact of the final fiscal year 2007 appropriation in conjunction with the President's fiscal year 2008 request, it is likely but not yet certain, that we will not be able to meet our Best-Achievable Schedule (attached) for opening the repository by March 2017. A 1-year slip is likely, but we are still evaluating recovery options. We will, however, meet our commitment to deliver the License Application for the repository in mid-2008.

IMPLICATIONS OF NON-ACCESS TO THE NUCLEAR WASTE FUND

The NWPA established the requirement that the generators of high-level nuclear waste must pay for its disposal costs. As a result, the Nuclear Waste Fund was created and is funded by a 1 mil per kilowatt-hour fee on all nuclear generation in this country. As of today, the Fund has a balance of approximately $19.5 billion which is invested in U.S. Treasury instruments. The government receives approximately $750 million per year in revenues from on-going nuclear generation and the Fund averages about 5.5 percent annual return on its investments. At the present time, due to technical scoring requirements, the Department cannot access the Nuclear Waste Fund annual receipts, interest or corpus, for their intended use without a significant negative impact on the Federal budget deficit. Because the monies collected are counted as mandatory receipts in the budgetary process, spending from the Nuclear Waste Fund is scored against discretionary funding caps for the Department. In legislation the administration submitted to Congress last year and has submitted again to this Congress, the President proposes fixing this problem by reclassifying mandatory Nuclear Waste Fund receipts as discretionary, in an amount equal to appropriations from the Fund for authorized waste disposal activities. Funding for the

Program would still have to be requested annually by the President and appropriated by the Congress from the Nuclear Waste Fund.

While lack of access to the Fund is not critical to the program for fiscal year 2008, it will have serious consequences in fiscal year 2009 and beyond. Over the past 6 months, we have been developing a projected budget authority needs estimate by fiscal year through repository construction. It is based on projected funding requirements for construction of the repository and the transportation infrastructure needed to meet the Best-Achievable Schedule opening date of March 2017, assuming enactment of the Nuclear Waste Management and Disposal Act that the administration has introduced. Sustained funding well above current and historic levels will be required if the repository is to be built. Funding at current levels in future years will not be adequate to support design and the necessary concurrent capital purchases for repository construction, the transportation infrastructure, and the transportation and disposal casks.

For each year beyond 2017 that the repository's opening is delayed, the Department estimates that U.S. taxpayers' potential liability to contract holders who have paid into the Nuclear Waste Fund will increase by approximately $500 million. This will be in addition to the estimated current potential liability of approximately $7.0 billion due to the Department's not beginning removal of spent nuclear fuel in 1998 as required by contract. There will also be added costs associated with keeping defense waste sites open longer than originally anticipated. The Department has not yet estimated those costs. It can be seen, however, that each year of delay in opening the repository has significant taxpayer cost implications, as well as the potential for delaying construction of needed new nuclear power plants. Therefore, the administration believes it is in the country's best interest to expedite construction of the repository and the transportation infrastructure necessary to bring both defense and commercial spent nuclear fuel and high-level waste to Yucca Mountain.

In summary, the President's fiscal year 2008 budget request will provide the needed funds to allow submittal of the construction License Application for Yucca Mountain by mid-2008. The significant reduction in requested funding for fiscal year 2007, however, will present challenges and puts in jeopardy the Department's ability to meet the March 2017 opening date. And, each year's delay beyond the March 2017 date will result in increased potential taxpayer liability to utility contract holders as well as increased costs for storage at defense waste sites across the country. I respectfully urge the Congress to consider and pass the President's fiscal year 2008 budget request for the Office of Civilian Radioactive Waste Management.

I would be pleased to answer any questions the committee may have at this time.

BEST-ACHIEVABLE YUCCA MOUNTAIN REPOSITORY SCHEDULE

Milestone	Date
Design for License Application Complete	November 30, 2007.
Licensing Support Network Certification	December 21, 2007.
Supplemental Environmental Impact Statement (EIS) Issued	May 30, 2008.
Final License Application Verifications Complete	May 30, 2008.
Final Rail Alignment EIS Issued	June 30, 2008.
License Application Submittal	June 30, 2008.
License Application Docketed by NRC	September 30, 2008.

BEST-ACHIEVABLE REPOSITORY CONSTRUCTION SCHEDULE

Milestone	Date
Start Nevada Rail Construction	October 5, 2009.
Construction Authorization	September 30, 2011.
Receive and Possess License Application Submittal to NRC	March 29, 2013.
Rail Access In-Service	June 30, 2014.
Construction Complete for Initial Operations	March 30, 2016.
Start up and Pre-Op Testing Complete	December 31, 2016.
Begin Receipt	March 31, 2017.

The schedule above is based on factors within the control of DOE, enactment of the Nuclear Waste Management and Disposal Act, appropriations consistent with optimum Project execution, issuance of an NRC Construction Authorization consistent with the 3-year period specified in the Nuclear Waste Policy Act, and the timely issuance by the NRC of a Receive and Possess license. This schedule also is

dependent on the timely issuance of all necessary other authorizations and permits, the absence of litigation related delays and the enactment of pending legislation proposed by the administration.

Senator DOMENICI. Proceed. Do you want to go ahead?

Senator MURRAY. My understanding is Senator Dorgan had to step out for just a short while. So if it is okay with you, Senator Domenici, I will go ahead and start with my questions, and then I am hopeful—oh, he is back.

Senator DOMENICI. He has finished his statement.

Senator DORGAN [presiding]. Thank you very much. I apologize. I had a relative that had a little fender-bender. She is fine, but needed to talk to her dad, and it was not her fault.

Senator CRAIG. Of course, dad. I've been there.

Senator DORGAN. Thank you both.

Mr. Sproat, I apologize for having missed your testimony.

Mr. SPROAT. That is all right.

Senator DORGAN. But I have read your testimony and I appreciate your being here.

I will proceed to questions and I will defer my questions. Senator Domenici, do you want to begin?

NUCLEAR WASTE FUND LEGISLATIVE PROPOSAL

Senator DOMENICI. Mr. Chairman, I just want to extend—I know you have had this, but here is a very interesting proposal that is included in his testimony that we have not had come up from the administration before. I am not so sure that—I do not think we ought to throw it away. This $19 billion sitting around in the fund is not being used and the fact that we continue to appropriate for the repository is driving some programs into bankruptcy while this grows. And they have an idea on how to moderate it and I think maybe we should look at it a little. It would just be saying maybe it ought to be used for its intended purpose.

Mr. SPROAT. What it is intended to be used for.

Senator DORGAN. All right. Did you wish to ask questions now?

Senator DOMENICI. No.

Senator DORGAN. Senator Murray, why don't you proceed.

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

SUPPLEMENTAL BULK VITRIFICATION TECHNOLOGY

The environmental management budget literature indicates that liquid tank waste is the highest priority issue, but there is a reduction in funding for the work done in the tank farm activities and there is zero funding requested for the supplemental treatment. I understand the need to thoroughly investigate potential technology, but this budget runs out of money prior to the cold test in June. Can you explain the logic in that, Mr. Rispoli?

Mr. RISPOLI. I believe, Senator, that you are addressing the testing for the demonstration project, which is a——

Senator MURRAY. Could you turn on your microphone.

Mr. RISPOLI. Sorry. Thank you.

I believe you are discussing the supplemental bulk vitrification technology, which is a supplemental technology that we have been talking about for several years now. We met with—I met with the contractor and the contractor's team just last week. As you know,

they have performed engineering scale, one-sixth scale tests on the technology, and they would like to do a full-scale test this summer.

I would point out that in a review of that particular project that was done independently, a technical review, we did find a number of technical issues. The contractor as a result of that review has been working on those technical issues and they believe that they have solved the most significant one at least, which is the migration of a highly radioactive technetium, which is soluble, to the surface, which would not then accomplish its intended purpose of encapsulating it in the glass.

They would like to demonstrate this in a full-scale test this summer. We have worked with them and we believe we can accomplish that full-scale test this summer.

Senator MURRAY. Do you have money in the budget to do that?

Mr. RISPOLI. We believe we can—yes. Yes, Senator, we believe we can accomplish that this summer.

Senator MURRAY. Okay, very good.

FISCAL YEAR 2008 FUNDING FOR HAMMER PROGRAM

Let me ask you about the funding for HAMMER. Year after year we get budgets with no request for HAMMER. You know what the facility is. It is a facility that trains many people actually, but our workers in particular, emergency responders and others dealing with hazardous material. Safety is, as you know, at the Hanford site a top concern and we want to make sure they have the best training possible.

I am concerned because we continue to see no funding, no funding in the CR, or in the fiscal year 2008 request. Did you ask for funding for the HAMMER facility?

Mr. RISPOLI. The HAMMER facility we intend to fund by having the contractors at Hanford buy their training through the HAMMER facility. That has been a model that has worked successfully. We do not envision that the HAMMER facility will not be supported. We believe we have a strong base of support for that facility from within the budget at Hanford through the contractors that require the training for their workers.

Senator MURRAY. Do you need any additional funding for HAMMER outside of that?

Mr. RISPOLI. Pardon me, Senator?

Senator MURRAY. Do you need any additional funding for HAMMER outside the private contractors?

Mr. RISPOLI. I believe that we can attain the support required for the HAMMER facility through that mechanism.

Senator MURRAY. Can you give me the budget for that separately from this and show me how that works on paper?

Mr. RISPOLI. Yes, I can.

[The information follows:]

HAMMER FUNDING

The base cost of the facility is $6.4 million. This is funded by distributing the cost proportionally to each project at Hanford. The cost to conduct classes is funded through fees paid by attendees for each class.

HANFORD SITE MANAGERS VACANCIES

Senator MURRAY. Okay. I wanted to ask you about the lack of communication between management at the Hanford site and people back at headquarters. I understand that has been partly responsible for the struggles at the Hanford Vitrification plant. I know that you are working on that, but we are facing a situation today where two of our top manager positions are going to be vacant. We have Roy Schepens and the pending retirement of Keith Klein. There are three contracts that are scheduled for competition and there is a lot of work to be done at the site. There have been a lot of changes in the contractor teams and now the Federal leadership is in transition. It seems like a lot of musical chairs out there at a time when we specifically need continuity and leadership.

Can you tell me where you are on those positions?

Mr. RISPOLI. Yes, I can, Senator. Thank you. You are correct. Senator and members of the subcommittee, we are losing two highly skilled long-term professionals to retirement at the site out there. Roy Schepens is already physically retired and Keith Klein announced his retirement. In fact, he has been aspiring to do this for quite some time. It is the culmination of a remarkable career.

I can tell you that this week we are interviewing for Roy Schepens' replacement at headquarters. I would also tell you that we actually did something a little different for the Federal Government. We hired a search firm because we realized that not everyone would look to the Government web site to look for this type of a position if, for example, they are in private industry.

So we did everything we could to shake the trees to get qualified people to apply.

Senator MURRAY. Are you finding qualified people?

Mr. RISPOLI. Well, I personally know none of the names, but that is the way it is supposed to be. It has been paneled. There have been a group of experts, including some people who I am sure you would know, that went through and reviewed the candidates and then forwarded them to the selecting official for interviews and selection. The interviews again started this week. I am very optimistic that that process will have yielded some viable candidates that we can look at for that position.

In the case of Keith Klein, we do have some time because his retirement is not until the end of May. But again, given the time that it takes, we know that in fact Mike Weis, the deputy manager, will be the acting manager there. I believe you know Mike Weis. I am sure that he himself will be a contender for that position. We all have a very high degree of confidence in him and I believe that that will work out very well.

I might also mention that Shirley Olinger will be the acting manager of the Office of River Protection and she has been the deputy there for quite some time as well.

So I think in the management end for this interim period we are in good hands. For the one that was more imminent, we are interviewing now and we can go forward. You are correct in that we have three contracts that are being advertised. I will tell you that—you may recall from last year that we did appoint a Deputy

Assistant Secretary for Acquisition and Project Management. We are managing these efforts centrally. The work is done in the field, but we are managing the time lines separately. Having visited there myself, I can tell you that the team working on those procurements is robust, they are competent, they are qualified. They have got people that have done this before. And that, coupled with our new headquarters structure and oversight, I feel that we can get through this period even with the loss of the two managers that are out there.

With all of that said, Senator, I know that it is going to be—for the people of the community, they are going to see it as a tumultuous period. I think we just have to get through this together.

Senator MURRAY. I appreciate your personal attention to that.

Mr. Chairman, I have some other questions I wanted to submit for the record if I could.

Senator DORGAN. Without objection.

Senator MURRAY. And I appreciate your accommodation today.

Senator DORGAN. Without objection. Thank you very much, Senator Murray.

Mr. RISPOLI. Thank you, Senator.

Senator DORGAN. Senator Domenici.

Senator DOMENICI. Mr. Chairman, do you want to go?

Senator DORGAN. I will defer.

Senator DOMENICI. Do you have time to hold the whole meeting? I cannot do the whole.

Senator DORGAN. Yes.

Senator DOMENICI. I thank you.

MISSED CLEANUP MILESTONES AT LOS ALAMOS NATIONAL LAB

I want to ask some questions that are parochial and if I get to the others, fine. But I want to talk to you, Mr. Rispoli, about Los Alamos missed milestones. The Department has proposed $140 million for Los Alamos—write that down—which is insufficient to clear up and clean up the milestones contained within the consent order that the Department entered into with the State in 2005. According to that June 15, 2006, baseline for the project, which assumes completion of all consent order milestones, the budget for Los Alamos would be $283 million, more than double the request.

If the Department remains on its current path proposed as part of the 2007–2008 budgets, cleanup milestones will be missed and the cleanup will be delayed 2 years beyond the consent order deadline of 2015.

Now, sir, I am not sure that I understand how you can justify a budget that forces the Department to miss agreed-upon milestones and will result in fines and other penalties from the State. Can you tell me how you intend to keep the cleanup on schedule with the budget baseline you have offered for the 2008 budget?

Mr. RISPOLI. Senator, thank you. There are actually two parts to my answer on your question. As you know, we have been funding in the current fiscal year, we have been funding at a rate of about $141 million per year, which is the same rate that we were funding at in the prior fiscal year. We did that notwithstanding that we were in a CR situation and that the budget for 2007 had about $90 million. We recognized that were we not to fund at the $141 million

level that we would have jeopardized milestones in the current fiscal year.

I personally met with Mr. Curry in his offices in Santa Fe. He has met with me here in Washington. I have met with his seniormost staff. We recognize that and we believe that we needed to provide the funds to the lab to be able to attain those milestones.

With all of that said, as you know, the State has issued four and is considering issuing a fifth notice of violation in 2007, none of which are related to funding shortfalls. They are basically all conduct of operations. We, both myself and Administrator Tom D'Agostino, are personally aware of the problem. We both talk with the contractor about this issue and it is a very difficult issue. I think we are making headway. I think we will be seeing some changes in the way that the laboratory itself approaches the management of that portion of the work, which I think is a good thing.

I would also mention that in the competition for this contract the contractor who won, the LANS organization, did in fact envision efficiencies, to be able to address going forward in a more efficient way. For example, we believe that at Los Alamos today, it costs us at least five times more per drum of transuranic waste to ship it to WIPP than it does anywhere else in the complex. So we do believe that we can attain efficiencies with the new kind of thinking that the contractor said they would bring to this issue.

Looking forward to the second part of your question, we know that the milestones created by the recent agreement needed to have a new cost and schedule baseline. The laboratory worked up a new cost and schedule projection so that we would know how to fund it. However, despite two tries to get that estimate through an independent audit, it has not passed.

So the challenge we have is until we really know what those efficiencies will bring and what this new cost and schedule can do, we do not know what the right amount of funds are to put on it. We know that we have been funding at $141 million per year. We know that we have been not missing milestones with that level of funding. I would tell you that we need to reassess that once we have an independent audit of the cost and schedule for the environmental work at Los Alamos.

Senator DOMENICI. Well, look. I have done the charts and looked at them. You are going to miss the milestones, there is no question, by 2 years. And it is important to me that I know that you are working with Mr. Ron Curry. He is New Mexico's environmental man. It is my understanding that that relationship between the Environment Department and Los Alamos is not very good. Are you doing anything to improve it or do you know whether anything is happening out there that might improve it?

Mr. RISPOLI. Senator, I will tell you that I agree fully with you that the relationship has not been good. I think in fairness that the relationship between myself and Mr. Curry is strong and between his senior staff and us is strong. I think it is also noteworthy that the Federal Government changed its environmental manager. They have appointed Mr. George Rael of the NNSA to be the new leader of the environmental program for the Federal staff. And you probably heard the press release today that the laboratory itself will be

placing a new manager in charge of the environmental program there.

I do think that Mr. Curry and I are clearly in agreement that we want to have a good relationship and I do believe that these steps will get us where we want to be.

Senator DOMENICI. Could you please explain to me and the committee who is responsible for paying these fines? Is it DOE, University of California, or LANS?

Mr. RISPOLI. My understanding, Senator, is that because, in the case of the Los Alamos operation, that not all of the fines are attributable to LANS. In other words, some of them are, but some of them were direct contracts from the Los Alamos site office with contractors to do the work. My understanding is that the fines will, at least most of them will be borne by the Federal Government.

I am aware that in one case the contractor indicated they would take a fine, but I believe in most cases it would be the Federal Government.

Senator DOMENICI. Do you have any idea, just looking at them out there, to tell the chairman how many thousands of dollars they are allegedly fining us in those five fines, four fines?

Mr. RISPOLI. Senator, I only have one with me. That one alone is $402,000 and it is a potential notice of violation. I can get you the answer for that for the record.

Senator DOMENICI. Would you get us the answer for the record?

Mr. RISPOLI. Yes, sir.

[The information follows:]

FINES ASSESSED AGAINST DOE AND LOS ALAMOS NATIONAL SECURITY (LANS)

In the past eight months, the New Mexico Environment Department (NMED) has assessed penalties against the Department and/or Los Alamos National Security, LLC (LANS) for five alleged violations of the Consent Order or other hazardous waste regulations. As of March 22, 2007, the five violations and the responsible parties are summarized below:

Description	Date	NMED Proposed Fine	Actual Fine (Responsible Party)
Improper disposal of debris from Incinerator Ash Pile.	7/12/06	$88,930	$51,000 (DOE to pay).[1]
Late Investigation Report submittal on Incinerator Ash Pile.	9/12/06	$30,000 plus $3,000/day from Oct 12 until project completion.	$120,000 (DOE to pay).[1]
Failure to report new release associated with chromium groundwater contamination.	9/15/06	$795,620	TBD (UC and/or LANS to pay—responsibility under negotiation).[2]
Improper removal of hazardous waste from Sigma Mesa D&D project.	10/25/06	$402,600	TBD (UC to pay).[2]
Failure to comply with Work Plan provisions for Material Disposal Area-C characterization.	12/7/06	$1,000/day for first 30 days (paid) plus $3,000/day until new report submitted.	$30,000 paid to date, but continuing at $3,000/day (starting 1/5/07) until report is submitted) (LANS to pay).

[1] The National Nuclear Security Administration agreed to pay these penalties.

[2] DOE has directed the fines to the contractor, but negotiations are still pending regarding eligibility for reimbursement under the contracts.

As a general rule, LANS, the current Management & Operating (M&O) contractor, has the responsibility (and University California (UC) before it) for performing environmental remediation at Los Alamos National Laboratory (LANL). However, to reduce costs, some years ago DOE decided to contract directly with companies outside the M&O contractor to perform several environmental remediation projects, including remediation work on the Incinerator Ash Pile in TA–73. In the two cases of penalties associated with the Airport Ash Pile, listed as items #1

and #2 above, DOE has acknowledged that it is responsible for paying the penalties and LANS was not responsible for any activities that led to the alleged violations.

Under the current M&O Contract, LANS is responsible for paying for violations associated with environmental remediation work they are responsible for (see #5 above). The previous M&O contractor, the University of California, was likewise responsible under its M&O contract for fines and penalties. Some of the actions that led to the assessment of penalties occurred prior to the date that LANS took over the contract, June 1, 2006. As a result, UC may have responsibility for certain of the penalties and/or both UC and LANS may share in the liability (see #3 and #4 above). No final determinations have yet been made with respect to these penalties.

Senator DOMENICI. I am finished. Thank you very much.

Mr. RISPOLI. Thank you, Senator.

Senator DORGAN. Senator Craig.

CONTRACTOR PERFORMANCE

Senator CRAIG. Jim, let us stay on the cleanup theme for a moment because it is important for all of us and our labs to try to stay on those schedules as much as we can. How do you rate the Idaho cleanup contractor's performance, let us say compared with other cleanup projects at DOE?

Mr. RISPOLI. I believe that the Idaho contractors are both—are doing very well. I think that they are performing at a level that we feel comfortable with. I am not suggesting that they are earning every penny of their fee because I do not honestly know to that level of detail. But I do know that when I look across the program that Idaho is performing very well for us.

Senator CRAIG. It is my understanding that they have come in in most instances ahead of schedule and under budget with most of their cleanup effort. Is that not true?

Mr. RISPOLI. In most areas that is true. As you know, even in one facility, the Advanced Mixed Waste, we had to make up for a lot of lost time and were successful in doing that. But yes, Senator, I would agree.

Senator CRAIG. Do you believe the best performers should be rewarded with additional funds to accelerate project schedules to achieve real cleanup results or would you expect good performers to do more with less because of their successes?

Mr. RISPOLI. I think the answer is a little bit of both. But I would offer to you that in many cases contracts provide incentives for contractors who can deliver more with less. In other words, we try to incentivize our contractors to do exactly that, that if they can perform work in a less than full funding situation they would then have opportunity to earn more fee.

Senator CRAIG. Could you please provide me, and I think all of us would be interested in, a copy of the remaining fiscal year 2007 EM budget when finalized and an explanation as to any impacts it would have on these projects? Of course, I am interested in the Idaho cleanup.

Mr. RISPOLI. You mean for the continuing resolutions?

Senator CRAIG. That is correct.

Mr. RISPOLI. Yes, Senator. That is—right now the continuing resolution is with OMB. It is in the final stages of being prepared to be brought to the Congress. But I would be happy to do that in a separate meeting with you.

Senator CRAIG. Rumors abound and we would like to put those away.

Mr. RISPOLI. Yes, sir.

PROPOSED LEGISLATION FOR NUCLEAR WASTE FUND

Senator CRAIG. Ward, again thank you for being before the committee and the working relationship we have with you. How confident are you in your ability to complete the Yucca Mountain license application by June 2008? You have discussed that some.

Mr. SPROAT. Senator, assuming that we receive the full amount that the President requested for fiscal year 2008, which is $494.5 million, I am 100 percent confident we will meet that date.

Senator CRAIG. Does this require the Fix Yucca legislation you proposed, that was proposed by DOE yesterday?

Mr. SPROAT. No, Senator, it does not. In other words, the Fix Yucca legislation—and I am prepared to talk about any parts of that you would like—is not a prerequisite to the submittal of the license application. Parts of it are a prerequisite before the NRC would be able to grant us a construction authorization, primarily land withdrawal.

Senator CRAIG. What is your opinion of the Domenici-Craig Nu Way bill from the last Congress? Does the certainty of interim storage of defense waste at Yucca hurt or help this project?

Mr. SPROAT. I believe it would help this project because, No. 1, I believe it would give us legislative clarity, if you will, regarding the Department's authority to do interim storage of high level waste and naval spent nuclear fuel, which right now we believe—and it has been looked at by a number of people over a number of years. We currently believe we do not have that legislative authority to do that. So that certainly would give us that authority and capability and would allow us to move forward with, probably on an expedited basis, on figuring out how to make that happen.

Senator CRAIG. Thank you. Thank you both.

Mr. Chairman.

Senator DORGAN. Senator Craig, thank you very much.

Senator Bennett.

ATLAS MILL SITE CLOSURE DATE

Senator BENNETT. Thank you, Mr. Chairman.

Mr. Secretary, you probably will not be surprised that I want to talk about the Atlas Mill site. By nodding, I guess you are prepared to——

Mr. RISPOLI. Yes, sir, I am.

Senator BENNETT [continuing]. To talk about that.

We know that the first recommendation—or first comment perhaps is a better term—that came out of the Department as to when this would be done was it would take about 7 to 10 years, and that would put it 2017, 10 years from today.

Secretary Bodman before the Energy and Commerce Committee on the House side said it will occur around 2028. So he has added another 10 years to the 10 years that was the outside date we had, and I am not sure whether he is anticipating that that would take place in 1 year or if it would start in 2028 and then take another 7 to 10 years.

I am sure it comes as no surprise that Secretary Bodman's testimony set off a lot of alarm bells down in that part of my State. I would like to have you talk to us about that and tell us what you think is really going to happen, how much it is going to cost, and therefore help me understand what my responsibilities on this subcommittee ought to be to try to see to it that we get as close to the original projected date as we possibly can.

Mr. RISPOLI. Thank you, Senator Bennett. We are in the process now of evaluating proposals that we have in hand from the contractor community to do that. We expect to have an award this summer. The process that we would have in the Department, the 2028 is a good planning figure. That is the planning figure that we use, but it is exactly that. It is a planning figure, because the process that we would have will require the contractor to propose what technology, what efficiencies, and so forth they would employ.

We are assuming there will be one trainload per day, one trainload per day that would be hauling that material out to Crescent Junction. We are assuming a certain type of conveyor system to load the train cars, for example. But until we evaluate the proposals and develop a cost and schedule that can be independently audited, the 2028 number, while a good number and the best we have, is a planning number. It could be significantly better than that depending upon the contract mechanism chosen.

Of course, the other factor then is the annual funding. This year we are looking in the 2008 budget about $23 million is in the budget for the funding. I think until we evaluate the proposal and look at what is the proper baseline, I think that we are at that early stage where we just do not know. As soon as we finish that evaluation, we will have a much better handle on what would a reasonable schedule and baseline be.

The 2028 is a good number, as I say, but we still have quite a ways to go in the evaluation process.

Senator BENNETT. Let me say back to you what I think I heard so you can tell me whether I am right or not. By midyear this year, you will have an understanding of which contractor you want and how that contractor will go about it?

Mr. RISPOLI. Yes, sir.

Senator BENNETT. And at that point, presumably you will know how soon the contractor can begin?

Mr. RISPOLI. At that point we would be ready to send in an independent review team to review the contractor's numbers, to say yes, this is a valid cost and schedule. So that will actually begin happening this summer, and typically the process is just a few months after that when we would know whether it is a valid cost and schedule.

Senator BENNETT. So let us go through it. Let us just put some dates on it. Let us say you know by July. You pick the contractor. Let us give you 90 days, August, September, and October, so you will know by November whether the contractor is good or not. Assuming that he or she is, you will know in November what the time schedule will be?

Mr. RISPOLI. I think that is a reasonable time line, yes, sir.

Senator BENNETT. So let us say that the first shipments can then start, what, 5 years from November? Will it take them that long

to put the conveyor belt in or whatever, or 5 months? Or do you have any sense of the timing?

Mr. RISPOLI. No, sir, I do not know that yet, because I do not know what technologies or what approaches those who are bidding will actually propose to us. So I cannot say when they would have the system in place to begin loading the rail cars and moving the material away from there to Crescent Junction.

Senator BENNETT. Well, let us assume for just a minute that the contractor physically could do it in a year, within a year after November, so that it could start moving as early as November of 2008.

Mr. RISPOLI. I think that is a reasonable—at this point in time, I think that is a reasonable assumption. I would offer to you that actually once we have the proposals evaluated it would be very appropriate at that time for me to visit with you and give you more detail, once that is available information.

Senator BENNETT. Okay. But what I want to nail down and be absolutely sure, Secretary Bodman's use of the term "2028" did not signal a determination on the part of the Department to put this off an extra 10 years?

Mr. RISPOLI. I think the Secretary was referring to the best number we have today, which is a 2028 number based upon an assumption of costs and assumption of annual funding profile. I think that once we see what the approach is and what the actual cost is likely to be, we can evaluate that and see how good or how not good the 2028 number is. But we just do not have a better number today.

Senator BENNETT. I understand that. But again, what I hear you telling me is that the Department's use of the 2028 as a planning date is not a signal that they have decided to slow this down or delay it?

Mr. RISPOLI. I would not take it to be that, no, sir. I would agree with you. That is true.

Senator BENNETT. Because that is the signal that got sent in the press, that they were thinking, gee, this could be done by 2018. On the timetable we have talked about, 2018 is logical if they start in November of 2007. It takes them a year to get the thing in place, 2008, and it takes them 10 years to get it done, it is 2018. So 2028, that is the outside year that you think it could happen if the Congress does not fund it properly or if the contractor runs into unforeseen difficulties. But for planning purposes, you say this will be done by 2028, but that is not the statement we are going to delay it to 2028?

Mr. RISPOLI. That is true because, as I mentioned earlier, we know we are going to move it by train. We know that our planning today is one train per day. That may or may not be optimal. It may be the best that can be done, depending upon the physical parameters, traffic and things like that.

Senator BENNETT. When you brief me later this year, we can go into all of those. But the point I wanted to make and that you now have confirmed is that Secretary Bodman's testimony was not a statement that the Department wants to delay this project.

Mr. RISPOLI. I do not think that we took it as a delay. Again, it was just a planning number that we had, and that is the number

we gave to the Secretary to use based upon what we know today, which is not very much.

Senator BENNETT. Thank you.

Senator DORGAN. Thank you.

Senator Allard.

LESSONS LEARNED APPLICATIONS TO OTHER CLEANUP SITES

Senator ALLARD. Thank you, Mr. Chairman. I apologize for being late. I apologize for not hearing the testimony because you did talk about Rocky Flats, which I think is a success story that we do not talk enough about.

Mr. Chairman, when I first got involved with Rocky Flats having been elected to the U.S. Senate, it was a cleanup project laid out over 70 years, $35 billion in costs. We were able to put together an accelerated program of cleanup, bring it down to 10 years, and we were able to finish that project 1 year ahead of the redone schedule with savings of hundreds of millions of dollars. I think one of the key aspects of good cleanup were the incentives that we built into the contract which really kept things moving.

We had very cooperative employees with the Department of Energy working out there and citizens in the area, who made it their goal to get the cleanup done. The agency had bought into it. But I do think that there are a lot of lessons to be learned by this.

Are we going to apply some of the lessons learned in this cleanup to other sites? Because this is the largest cleanup I think in the world, frankly, where we have had a success story like this, where we have been under budget and ahead of schedule. I would like to know if there are lessons learned here that can be applied to other projects where we might have nuclear cleanup.

Mr. RISPOLI. Senator Allard, absolutely. And I believe that we actually touched on this at the ceremony itself out in Colorado last year. We are addressing lessons learned from Rocky Flats in a couple of ways. I will mention two of them.

The first is that we have established a lessons learned section of our internal house web site, you might say. So that not only for the Rocky Flats situation, but many others as well, we can better share lessons learned. We are so spread out geographically that we realize that oftentimes different organizations are facing similar challenges, and so use the electronic media as best we can to get that out.

The other is that at the Rocky Flats cleanup not only the prime contractor, but even a number of the subs had people with a lot of experience. As that job closed down, they have actually sent those people to other places to help with similar situations in other places.

PREPARED STATEMENT

But I believe that you are absolutely right. We had some tremendous success there. I would likewise say we gave in our opening a few photos of places that are not as big, but certainly just as significant, such as the Fernald site in Ohio, where we again had similar successes in lessons learned, and we are working to promulgate those.

Senator ALLARD. While I think about it, Mr. Chairman, I would like to make my full statement a part of the record if I might.

Senator DORGAN. Without objection.

[The statement follows:]

PREPARED STATEMENT OF SENATOR WAYNE ALLARD

Thank you, Chairman Dorgan, for holding this hearing today. I am proud of the work that Senator Domenici accomplished last year and I look forward to working with you as the new Chairman, as well as the other members of this committee. I would also like to thank the panel for coming today and offering their testimony.

This is my third year on this subcommittee, and I like to take advantage of all the opportunities to hear from the Department of Energy's EM Assistant Secretary about Rocky Flats. I think it is important for many reasons to talk about this success story, because if you were to visit the site today, you would see what Rocky Flats looked like more than 50 years ago. It is pristine and quiet with little to remind you that it once was the place of the most dangerous building in the United States.

I remember the time-frame when the Department of Energy, then the Atomic Energy Commission, established Rocky Flats as a nuclear weapons production facility. I remember the decades of production and the many workers who toiled to protect our country—24 hours a day, 7 days a week.

The first time I toured Rocky Flats—with the site's extensive security controls, enormous concrete buildings, and tons of weapons-grade plutonium still on site—it was unimaginable what it would look like today. I remember the worries of security threats, wide-spread contamination, industrial pollution, and radioactive fall-out. And, most importantly, I remember the early estimates for cleaning-up Rocky Flats—70 years and $35 billion.

So, Mr. Chairman, I thought I would again touch on this success because we are fortunate to have come so far and to have achieved so much. The picturesque Rocky Flats that exists today seemed like a dream just 10 years ago. Few believed the site could be successfully cleaned-up. Even fewer believed that the clean-up could be completed early—15 months ahead of the already accelerated schedule and hundreds of millions of dollars below budget. We in Congress, and the Department of Energy, need to celebrate this success and hopefully channel it into other clean-ups around our country.

Again, thank you Mr. Chairman for bringing us here today, and I look forward to the testimony of the witnesses.

CLEANUP FUNDING STRATEGY

Senator ALLARD. The other idea when we were working on this—I was on the authorizing side in the Armed Services Committee and this was under my jurisdiction at the time. Part of the thinking was that once we get Rocky Flats clean then that begins to free up dollars for cleaning up other sites. Is that happening, and we are getting expedited cleanup in some of these other sites?

Mr. RISPOLI. I think that right now we are looking at over the next, in 2006, 2007, 2008, 2009, at a number of sites—it is in my statement for the record; it is also in the budget—that are being cleaned up. I believe what we are looking at after that are essentially the really big sites that we will be at for a long time, driven more by schedules and technology problems, such as Hanford, Savannah River, Oak Ridge.

In fact, at Oak Ridge we will even be adding more. I reviewed a proposal just yesterday that will add even more square footage to the program for D&D such as we did at Rocky Flats.

Senator ALLARD. Well, I hope that you continue to push cleanup on those other sites, because they were also cooperative in this effort. There was an extra amount of dollars that went to the cleanup of Rocky Flats to speed up cleanup, so we could point to a success story. The idea was that once we got it cleaned up it would free

out other dollars so that they could proceed at a more rapid pace in getting their cleanup problems handled. So I hope that you keep that in mind when you are putting together your budgets and working with those other areas.

GLOBAL NUCLEAR ENERGY PARTNERSHIP

Can you give us an update on where the Department is on the Global Nuclear Energy Plan proposed by the administration several years ago?

Mr. RISPOLI. Unfortunately, Senator, I cannot. I am not——

Senator ALLARD. Can you, Mr. Sproat?

Mr. SPROAT. Just so I am clear, Senator, are you talking about the Global Nuclear Energy Partnership?

Senator ALLARD. Yes, I am.

Mr. SPROAT. That is not under my area of responsibility and I would prefer that if you would like an update on that, let me take that question for the record and ask Assistant Secretary Spurgeon to come back and brief you on that. That is under his area of responsibility.

Senator ALLARD. This is where we have the MOX and all that and it is now a MOX Plus facility.

Mr. SPROAT. Yes, sir.

Senator ALLARD. All right. If you could respond to the record, I would appreciate it.

[The information follows:]

ADVANCED FUEL CYCLE INITIATIVE

The Global Nuclear Energy Partnership (GNEP) is funded under the Advanced Fuel Cycle Initiative (AFCI) within the Office of Nuclear Energy. AFCI activities are currently focused on developing a detailed roadmap for implementing the GNEP initiative, including supplying information to support a Secretarial decision on the path forward for GNEP. The Secretarial decision on the path forward for GNEP, and subject to compliance with all applicable law and regulation, longer-term, AFCI activities are anticipated to include supporting supply arrangements among nations to provide reliable fuel services worldwide for generating nuclear energy. There has already been considerable progress internationally to encourage such arrangements.

The GNEP Statement of Principles has been endorsed by Japan and France and is currently being considered by Russia, China, and the United Kingdom. A U.S.-Russian Action Plan was submitted to President Bush and President Putin in December 2006. Similar action plans are being prepared for Japan and France. Domestically, the Department has sought input from the private sector to assist the Department in developing an appropriate business model for the proposed nuclear fuel recycling center and advanced recycling reactor components of GNEP, including potential scope, cost, schedule, and technical risk.

DOE is also working with the Nuclear Regulatory Commission (NRC) to provide information regarding potential commercial separations plants and advanced reactor concepts. DOE is working to develop a Memorandum of Understanding on interactions with the NRC for GNEP similar to that which is in place regarding the Next Generation Nuclear Plant.

Mr. RISPOLI. I would point out that the MOX facility in particular at the Savannah River site is an NNSA project, and I think that all of it is kind of held together and has to be dealt with in the context of the nuclear future for the Nation. But the MOX project in particular, if you have a question on it, that would be appropriate for the NNSA.

Senator ALLARD. Okay, I appreciate it. And it all has to happen together.

Mr. RISPOLI. I think they are all interconnected, yes, sir.

Senator ALLARD. Yes. And I think that we need to look at reprocessing our nuclear rods. We have got technology now where we can, with the reprocessed rod we bring the waste stream down to 5 percent. It is highly toxic, but we bring it down to 5 percent, which I think helps take care of some of our storage issues. And with the new technology it is much more difficult to convert to a nuclear weapon, I understand. So I think that it would help quell some of the opposition that we have had in the past when we looked at reprocessing rods.

Thank you, Mr. Chairman.

Senator DORGAN. Senator Allard, thank you very much.

We are coming up on some very big decisions in these areas, the MOX facilities, Global Nuclear Energy Partnership (GNEP) and Reliable Replacement Warhead program (RRW), many of which are related and have significant consequences. We likely will be holding some hearings in this subcommittee on those very issues. I have not set a date, but I expect to do that.

Let me just say that I went to graduate school in Colorado, knew of and saw Rocky Flats at the time, and about 2 weeks ago flew over Rocky Flats on a commercial airline going from Denver to North Dakota. It is quite remarkable to look down and see what has been done at that site. I was duly impressed, and I appreciate your raising that issue. That is, I think, an example of great success.

MISSED MILESTONES CONSEQUENCES

Mr. Rispoli, you heard the comment that I and my colleague Senator Domenici offered about the 23 percent reduction over 4 years in funding. I respect that you are here to represent the President's request to Congress and you would not be a very diligent subordinate if you did not fully support that. But clearly there are consequences to that, and can you tell me the milestones that will be missed? You talked about meeting 90 percent of the milestones. What about the milestones that are missed, and is the budget request simply a reflection that these are lesser priorities than the other issues?

Mr. RISPOLI. Mr. Chairman, if I may address it this way, everywhere that we operate we have milestones that are established by some sort of an agreement, whether it be a tri-party agreement with the EPA and the State or a consent order with the State or some other agreement. We have milestones. And intrinsic, built into all of those agreements generally is a provision to renegotiate milestones as you face technical difficulties and the State recognizes that you have made every effort to comply.

So a normal process is in fact that we need to recognize that and address milestones that for one reason or another cannot be met.

Senator DORGAN. Yes, but this is not about technical difficulties. I am talking about funding.

Mr. RISPOLI. Yes, I understand.

Senator DOMENICI. And with so much cleanup work yet to be done and your description to Senator Allard of the big projects yet to be started, how does one justify reducing funding for these things? How do you justify it?

Mr. RISPOLI. I understand the question, yes, Senator. What we did was—and this may not be on the mark to answer your question. What we did was we recognized all the milestones and within those milestones we applied a risk-based approach to where do we get the greatest risk reduction for the funds that you appropriate and give us to operate our program.

In so doing, there were some milestones that we believe related to low-risk activities, generally but not always, generally D&D of a building, for example, or D&D of a number of buildings. And those came to the bottom of the list. So when it was time to make budget decisions, we tried to focus the resources where the greatest risk reduction would be and leave for the lower end some of the D&D and other related types of activities.

And you are correct that the budget could not cover all of those, but that is the rationale that we used.

Senator DORGAN. But that is still not quite responsive. You are talking about how you focused. I am asking the question of why, given the body of work in front of us—which, and I am new to this, but it appears to me to be very substantial—why on earth would we be talking about a 23 percent reduction in funding over 4 years?

Mr. RISPOLI. Yes, sir, it is a significant difference when you look across the years. I would point out that the annual cost for funding, for example, Rocky Flats, Fernald, all these other closure sites, was about $1 billion a year and those sites did complete. So when you look at the difference between a year or 2 ago and today, we would certainly recognize that $1 billion worth of annual requirement basically was completed, and so we had to redirect our resources and attention to other places.

Senator DORGAN. But would you agree it is counterintuitive, given the amount of work and given the fact that we will miss milestones, not for technical reasons but because we are suggesting this is not a high enough priority to even maintain level funding, to be talking about budget cuts in this area?

Mr. RISPOLI. I understand your question, Senator, and I am not disagreeing with your point at all. But I would also point out that at the time those milestones were set up it assumed technologies that did not exist or in some cases, like at Hanford, we have had to use two or even three technologies instead of one. We assumed that certain regulatory things would be in place. They were not in place. There were extra quantities of things that had to be done that resulted in consuming more resources to get the work done.

So there are many, many factors to this that led to a funding profile that got us to where we are today.

Senator DORGAN. Is the reduction in funding in recent years a component of what has led to the estimated increase in the life cycle costs of the program?

Mr. RISPOLI. Any life cycle cost is a balance—I believe again you are correct—it is a balance between the amount that you can provide to that project on its funding curve and the life and the duration of the project. Certainly, in general if you have a shorter duration you would have a lower cost.

Senator DORGAN. Do not misunderstand the intent of my questions. Because we have got competing interests for funding in this subcommittee, with some very big projects and some very impor-

tant ones, I am trying to understand the circumstances that have led to certain requests, in this case a request for a budget cut in an area that seems to me to be in significant need of perhaps, at minimum, level funding, given the workload in front of us.

Well, you have done the best you can to avoid directly answering my questions. But I think if I can find an interpreter I will understand what you have said. Again, I am not making fun of you. I understand your role here. Your role here is to support the President's budget. Ours is to try to evaluate with limited resources and nearly unlimited needs and wants, how to allocate and economize.

So I appreciate you being here. And I did start in a very positive way, talking about Rocky Flats.

Mr. RISPOLI. Yes, sir. Thank you.

Senator DORGAN. When we get these projects completed and you look at it, it is almost breathtaking to see because you would not believe it could be done until you have seen it after the fact. And I appreciate that.

Mister—is it "SPROUT" or "SPROAT?"

Mr. SPROAT. "SPROAT."

YUCCA MOUNTAIN UPDATED BASELINE

Senator DORGAN. Mr. Sproat, does the Department of Energy plan to update these 6-year-old cost estimates for the project before it submits the license application?

Mr. SPROAT. Yes, Senator, we do. As a matter of fact, when we set the new best achievable milestones schedule for the repository last summer, basically at that point in time we were rebaselining the project, saying—taking a look at how long it would take to build the repository, the railroads, the transportation infrastructure. That required us to go back and take a look at what our budget authority request annual requirements should be between now through repository construction.

We did that. We had it reviewed by an independent outside engineering construction firm. We incorporated their comments. That work has been completed. I just got released from the Office of Management and Budget this week to release those figures. Right now what we are doing is packaging those figures in a way that when people read it they can make sense out of it, and I suspect we will be able to send that revised budget authority request case flow up here to the Hill within the next 2 weeks.

YUCCA MOUNTAIN REDUCTION IN FISCAL YEAR 2008 TRANSPORTATION REQUEST

Senator DORGAN. The fiscal year 2007 budget request for the program sought $67.7 million for transportation. In 2008 you are requesting $15 million for transportation. Can you describe to me what that precipitates, what does that mean?

Mr. SPROAT. The basic reason that reduction was made is because we do not need the money in fiscal year 2008.

Senator DORGAN. Okay, so it is a timing issue.

Mr. SPROAT. That is exactly right. The primary reason is that in early—in 2006, we were prepared to make a record of decision of selecting what is called the Caliente route, the Nevada Rail Line route through Nevada to the repository. At that point in time,

though, the Walker River Payute Tribe, who owns the land, came to us and said: We would like you to evaluate an alternative route through our reservation. They had previously not been willing to do that.

As a result, and taking a look at that potential route, we see a significant opportunity for both schedule and dollar savings. So we are currently doing an environmental impact review of that route. As a result, that is pushing off the record of decision for the Nevada Rail Line for about a year.

So we are putting a lot of money into transportation this year through the environmental impact statement work, but the record of decision to decide which rail line we are going to go with is not going to be made until probably about a year plus from now, and therefore we do not need as much money in transportation as we did in 2007.

Senator DORGAN. A quick question. Does the DOE have the authority to commence construction of a rail spur to Yucca Mountain in the absence of the NRC construction authorization for the repository?

Mr. SPROAT. We believe we do. However, we have requested clarification of that authority in our legislation that we sent up here to the Hill yesterday. We do believe we have that authority, but we suspect that without clear legislative direction we will probably end up in some legal lawsuits and litigation regarding that. So that is why we are including that in our legislation.

Senator DORGAN. Your program will not be a stranger to legal action, will it?

Mr. SPROAT. No, sir, it will not.

ADDITIONAL COMMITTEE QUESTIONS

Senator DORGAN. Let me thank both of you very much for being here and for being involved in these programs. Both are important programs.

Do my colleagues have any additional questions?

If not, we will be sending some additional questions to you and ask for your response.

We will leave the record open until this Friday, March 9, at 5 o'clock, so the questions can be submitted.

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

QUESTIONS SUBMITTED TO HON. JAMES A. RISPOLI

QUESTIONS SUBMITTED BY SENATOR BYRON L. DORGAN

LOS ALAMOS MISSED MILESTONES

Question. Mr. Rispoli, the Department has proposed $140 million for Los Alamos cleanup, which is insufficient to the cleanup milestones contained within the Consent Order the Department, has entered into with the State in 2005. According to the June 15, 2006 baseline for the project, which assumes completion of all the Consent Order Milestones, the budget for Los Alamos should be $283 million more than double the request. If the Department remains on the current path proposed as part of the fiscal year 2007 and fiscal year 2008 budgets, cleanup milestones will be missed and the cleanup will be delayed by 2 years beyond the Consent Order deadline of 2015. Mr. Rispoli, I am not sure I understand how you can justify a budget

that forces the Department to miss agreed upon milestones and will result in fines and other penalties from the State. Please clarify.

Answer. The President's request for fiscal year 2008 for LANL is an appropriate amount and is based on the Consent Order requirements in the budget year and the site contractor's performance since assuming responsibility for cleanup in mid-fiscal year 2006. The contractor continues to develop the legacy cleanup program baseline, and when complete later this year we anticipate that a new baseline will be validated. We anticipate that this will be accomplished in time to inform the fiscal year 2009 budget process.

The budget level that your question refers to for Consent Order compliance ($283 million) is consistent with an amount that the Los Alamos site contractor has identified as part of a proposed revision to the legacy cleanup program cost and schedule baseline which it submitted to the Los Alamos Site Office. This revised amount addresses all aspects of cleanup scope at the site (soil and water remediation, legacy transuranic waste disposition, and decontamination and decommissioning), not only the environmental restoration activities that are subject to the requirements of the Consent Order. This revision has undergone an external independent review by the Department's Office of Engineering and Construction Management that revealed a number of deficiencies that require corrective actions.

Question. Mr. Rispoli, can you tell me how you intend to keep cleanup on schedule with the budget baseline you have offered in the 2008 budget?

Answer. The Los Alamos site contractor has developed and submitted to the Los Alamos Site Office a proposed revision to the legacy cleanup program cost and schedule baseline. This revision has undergone an external independent review by the Department's Office of Engineering and Construction Management that revealed a number of deficiencies that require corrective actions. That process is continuing, and when complete later this year we anticipate that a new cost and schedule baseline will be validated. We anticipate that this will be accomplished in time to inform the fiscal year 2009 budget process.

RENEGOTIATING THE LANL CONSENT ORDER

Question. Last week, I spoke with Secretary Bodman about the challenges facing the Los Alamos National Lab in complying with the various cleanup milestones. It was his belief that he needed to take action to find a workable cleanup strategy within the existing budget constraints. I believe it is important for the Department to implement a cleanup strategy that is sustainable within the existing budget constraints.

I expect the State to push back in a very public fashion and I understand their frustration, but no matter how many fines or penalties the State levies it will not do anything to cleanup the sites. We need a partnership between the State and the Department to negotiate realistic cleanup goals. Can you tell me what your plan is to prioritize cleanup at LANL and work with the State on a path forward?

Answer. The Department is committed to the cleanup of the Los Alamos National Laboratory. Our priorities at the site are to reduce risks, to improve our performance such that we can meet the requirements of the Consent Order, and to accomplish these goals efficiently. To meet these priorities, we have to make some changes. These changes have started already, and include personnel changes on the environmental side at the contractor level. We have also made a significant management change at the Los Alamos Site Office with the reassignment of Dan Glenn, previously the Pantex Site manager, to Los Alamos. He brings a fresh perspective to assessing and addressing the problems at Los Alamos. He also brings his experience in developing and implementing ideas leading to the successful resolution of complex issues at the Pantex site in Texas that should improve performance at Los Alamos. We anticipate that this kind of fresh start at both the contractor and Government management levels will foster improved relations with the State.

We are in the midst of the validation process for a new, comprehensive and integrated baseline for the complete scope of the Los Alamos legacy waste cleanup. When this baseline is in place, we expect to see improved activity planning and efficient execution of the cleanup work at the site.

Question. Based on your current budget request, will this result in delaying the cleanup beyond the existing 2015 deadline?

Answer. We recognize that without efficiencies in work performance at the site and an executable comprehensive cost and schedule baseline for the work, we will have difficulty in meeting the overall cleanup date of 2015 in the consent order. When the Department completes its review of the new proposed cleanup baseline for Los Alamos and is able to validate it later this year, we will assess whether the

completion date for overall cleanup of the site as contained in the consent order is still achievable.

FINES

Question. Mr. Rispoli, it is my understanding that there is some sort of provision in the consent order that says if the Department does not provide adequate clean up funding the Lab cannot be held responsible. Is that true?

Answer. Section III.K.3 of the consent order states that no provision of the consent order shall require the Government to obligate or pay funds in contravention of the Anti-Deficiency Act, and that payment or obligation of funds by the Government for activities required by the Order shall be subject to the availability of appropriated funds. Based on this provision, the site cleanup contractor would not be responsible for non-performance if sufficient funds were not appropriated.

LOS ALAMOS NATIONAL LABORATORY (LANL) SAFETY CONCERNS

Question. Mr. Rispoli, it is my understanding that the relationship between the New Mexico Environment Department and Los Alamos is not very good. I understand that LANL had safety concerns with the drilling operation, what were those concerns and do you believe they were justified?

Answer. The hazards involved in drilling four boreholes between two pits at Material Disposal Area C were a major concern for the Department. The borehole drilling was potentially dangerous because it risked penetrating the radionuclide inventory and compressed toxic gases at the landfill. Material Disposal Area C is a 1960s vintage disposal area and, as is the case with many of these old landfill sites, the actual distance between the pits cannot be determined reliably from the design drawings from that era. Similarly, the integrity of the soil ridges between the waste pits is difficult to determine after so many years since placement of the wastes.

Therefore, the contractor had to rely on geophysics data to determine the safe drilling locations for the boreholes. Upon review of the geophysics data by all parties, Los Alamos Nuclear Services, NNSA, and the New Mexico Environment Department, resolution was reached that placement of four boreholes between waste pits in one location of Materials Disposal Area C could be accomplished after taking worker and environmental risks into account. The drilling was done using a geoprobe to confirm the existence of the boundary between waste pits without entering the waste pits. Safety procedures required that the geo-probe insertion and subsequent drilling be done by workers in level B protection consisting of breathing air and chemical protection suits. The use of level B protection also involves physical risk to the worker during the drilling activities as their vision and movement is restricted by their trailing breathing air hose apparatus. To mitigate this additional hazard, mockups were conducted of all activities with the protective clothing to ensure that the work could be conducted safely and that the field procedure could be implemented as written. These precautions and appropriate work planning enabled the drilling to be completed without incident.

The Department requires that all work be done safely at every site. Given the nature of the hazards involved, I believe the concerns were justified and the contractor took the appropriate safety measures to implement the requirements set forth in the consent order.

TECHNICAL AREA-21

Question. Mr. Rispoli, in fiscal year 2007 the Department requested $18 million in funding to initiate decommissioning of TA–21—a former plutonium facility—in order to characterize the extent of the contamination beneath this facility. However, the fiscal year 2008 request does not provide any funding to support this cleanup which has a cleanup deadline of 2013. Every year this project goes without funding is another year delay in the consent order. Mr. Rispoli, your fiscal year 2007 budget requested $18 million for TA–21 cleanup, since Congress didn't spell out how the funds are to be used, can you tell me if you intend to use the funds to begin the D&D work?

Answer. As part of the prioritization process that is associated with the development of the Environmental Management budget, my office examines the requirements to ensure safety, to provide essential services, and to undertake environmental compliance and risk reduction activities throughout the DOE complex. Typically, decontamination and decommissioning activities are not associated with high priority risk reduction requirements. The work at Technical Area 21 at Los Alamos falls into this latter category. In addition, Los Alamos does not have an approved cost and schedule baseline for the work. Once the cost and schedule estimates are independently verified, we will have a higher confidence level. We anticipate that

this independent verification will be accomplished in time to inform the fiscal year 2009 budget process. At that time, the Department will review activities for Los Alamos National Laboratory cleanup including the decontamination and decommissioning work scope.

Question. Without any funding requested in your fiscal year 2008 budget how do you intend to recover from this delay and meet the 2013 consent order milestone for this project?

Answer. As part of the prioritization process that is associated with the development of the Environmental Management budget, my office examines the requirements to ensure safety, to provide essential services, and to undertake environmental compliance and risk reduction activities from across the DOE complex. Typically, decontamination and decommissioning activities are not associated with high priority risk reduction requirements. The decontamination and decommissioning work at Technical Area 21 does not yet have an approved cost and schedule baseline. An appropriate confidence level in the scope, cost, and schedule profiles for these work activities is needed before we proceed. This confidence would be indicated by the validation of the baseline that is expected later this year, in time to inform the fiscal year 2009 and out-year budget process. At that time the Department will review activities for Los Alamos National Laboratory cleanup and whether the completion data for overall cleanup of the site as contained in the Consent Order is still achievable.

LOS ALAMOS NATIONAL LABORATORY

Question. Mr. Rispoli, the lab has been working hard to accelerate the disposal of high priority drums of TRU waste at WIPP. Unfortunately, this involves sorting through more than 12,000 drums of waste and then verifying their contents. This has been slowed by the NNSA Site Office's unwillingness to accept responsibility for the accelerated cleanup plan. It is my understanding that the Defense Nuclear Facility Safety Board supports the accelerated approach, but the NNSA Site Office has not yet signed off on this new plan.

Do you favor the accelerated approach proposed by the contractor and do you believe it will result in the acceleration of shipments to WIPP?

Answer. The Administrator of the NNSA has directed his Headquarters Chief of Nuclear Safety to work with the NNSA site office and the contractor to identify and implement an acceptable plan to dispose of the high priority drums presently stored above ground in fabric structures. This approach is focused on accelerating the safety documentation as well as the necessary upgrades to nuclear facilities required to characterize and package high priority drums for disposal at the Waste Isolation Pilot Plant (WIPP). In addition, the NNSA team is poised to evaluate and approve innovative approaches in the work plan that meet the intent of federal requirements and DOE Orders to ensure that the project is achievable. The project is now on an aggressive schedule with the goal of initiating shipments of high priority waste later this year and completing by January 2008. These shipments are among the Department's top priorities for waste shipments destined for disposal at the WIPP.

ACCELERATION OF TRU WASTE TO WIPP

Question. What can your office do to help the LANL site office become more comfortable with this strategy?

Answer. The Office of Environmental Management and the National Nuclear Security Administration (NNSA) are collaborating in various aspects of the project to ship the high priority drums of above-grade stored legacy transuranic waste to the Waste Isolation Pilot Plant. In addition, the Waste Isolation Pilot Project office will support the shipping schedule that will be identified under this project. I have directed my staff to be mindful of your concerns regarding the LANL site office in their continuing regular interactions with NNSA.

SANDIA CLEANUP

Question. Mr. Rispoli, your fiscal year 2008 budget does not provide any funding to complete the remaining cleanup project at Sandia National Lab. It is my understanding you are waiting for the State of New Mexico to give the final approval before you place a cap on the landfill. Why has the State not approved this final action and what source of funding do you intend to use to complete this project?

Answer. The Sandia Site Office has been working closely with the New Mexico Environment Department (NMED) to satisfy additional requests for information to support the proposed regulatory decision to allow placement of a permanent cap on the mixed waste landfill. This has resulted in additional scope being added to the project in the form of a requirement for development and application of a contami-

nant fate and transport model, collection of soil gas samples from the landfill and immediate surroundings, participation in a formal public review and comment resolution on the Corrective Measures Implementation Plan, a Corrective Measures Implementation Report, and a Long-term Monitoring and Maintenance Report. These products must be delivered and accepted by NMED and the process activities completed before approval can be provided for installation of the final landfill remedy. Some measures, such as preparation of the landfill surface to allow emplacement of the cap sub-grade soil layer, have been permitted by the regulators, and this work has been completed.

We had not anticipated the extent of these additional requirements. Unexpended project funds from fiscal year 2006 are being used to fund this work but the additional scope requires funds that exceed the available balances. Under the Revised Continuing Appropriations Resolution, 2007, the Department has provided an additional $4.7 million to support these activities.

CONSOLIDATION OF SPECIAL NUCLEAR MATERIAL

Question. Mr. Rispoli, the Department has inventories of special nuclear material including plutonium, highly enriched uranium and spent fuel that exceeds our national security mission needs and is very costly to secure. As I have expressed several times before, I believe the Department needs to work quickly to consolidate and dispose of this material to reduce costs and eliminate the proliferation risks. Can you please explain to the subcommittee your strategy for the consolidation of this material and challenges you face in consolidating this material?

Answer. The Department's Nuclear Materials Disposition and Consolidation Coordination Committee (NMDCCC), established in 2005 to address nuclear material consolidation and disposition issues, recently completed an implementation plan (IP) for consolidation and disposition of surplus non-pit, weapons-usable plutonium. While the IP recommends consolidating this material to the Savannah River Site (SRS), any decisions on proposed consolidation and disposition are subject to review under the National Environmental Policy Act (NEPA), other applicable laws, and a final determination by the Secretary.

Challenges facing the Department for consolidating plutonium include completing required environmental reviews, assuring support from the South Carolina Congressional delegation and local authorities, and complying with legal requirements. For example, prior to shipping additional weapons-usable plutonium to SRS, Public Law 107–107, National Defense Authorization Act for Fiscal Year 2002, requires submittal to Congress of a plan for disposal of plutonium that would have been disposed of using the Plutonium Immobilization Plant that was cancelled in 2002.

With respect to highly enriched uranium (HEU) and spent fuel, the deputy secretary has approved the Enriched Uranium (EU) Disposition Project which would provide for continued operation of SRS's H-Canyon facilities. As part of the project, surplus HEU materials currently managed by the Environmental Management Office, the National Nuclear Security Administration (NNSA), and Naval Reactors will be sent to SRS and processed in the H-Canyon facilities for disposition purposes. Spent fuel currently stored at the Idaho National Laboratory (INL), and in various domestic facilities and other countries, that is aluminum-clad (this is the only type of cladding material that is compatible with the H-Canyon processing capabilities) will also be shipped to SRS and be disposed of through processing in H-Canyon, along with the aluminum-clad spent fuel already at SRS. The uranium from processing the spent fuel and HEU materials is planned to be blended down to a low enrichment and sold to the Tennessee Valley Authority for use in manufacturing fuel for its commercial nuclear plants. As a result, additional waste will be generated from continued operation of H-Canyon, but that amount is relatively small. Approximately 225 additional Defense Waste Processing Facility (DWPF) canisters will result from operation of H-Canyon through 2019. There is sufficient space in the site tanks to store this waste prior to transferring it to DWPF for vitrification. The EU disposition plan also includes processing in H-Canyon of approximately two metric tons of weapons-usable plutonium that cannot be disposed of using the Mixed-Oxide (MOX) Fuel Fabrication Facility or the proposed Plutonium Disposition Project due to specific contaminants. Therefore, H-Canyon processing is critical to our efforts to consolidate plutonium.

MIXED-OXIDE (MOX) FUEL FABRICATION FACILITY VS.VITRIFICATION

Question. Mr. Rispoli, your budget requests $15 million to perform design work on the Plutonium Vitrification Demonstration project in South Carolina. As I understand it, this facility will be able to handle up to 13 tons of plutonium that can not be processed through the MOX plant. Could you explain to the subcommittee why

you are pursuing this project and why this is not an acceptable solution for the 34 tons of U.S. surplus weapons grade plutonium the United States and Russia have agreed to eliminate from their stockpiles.

Answer. We have proposed the Plutonium Vitrification Disposition Project in order to be able to disposition plutonium that, because of isotopic content and impurities such as chlorides and fluorides, are not suitable for processing in the MOX Fuel Fabrication Facility as currently designed. This plutonium was to be disposed of using the Plutonium Immobilization Plant, but construction of that facility was cancelled in April 2002 when the decision was made to proceed with only the MOX plant. We are required by law to have a disposition path out of the State for all surplus plutonium stored at the Savannah River Site (SRS) and the proposed Plutonium Vitrification Disposition Project, together with the MOX plant and continued operation of the H-Canyon facilities, will ensure there is a disposition path for all plutonium currently at SRS or that may be sent there in the future. The proposed Project is subject to review pursuant to the National Environmental Policy Act (NEPA) and compliance with other applicable laws relating to potential consolidation and disposition of plutonium at SRS.

The current concept, process, and planned capability of the Plutonium Vitrification Disposition Project would be unsuitable to disposition the additional 34 metric tons (MT) of surplus plutonium planned to be processed in the MOX facility. Significant changes would be required in the design, footprint, process and throughput of the new project. It is envisioned that the proposed Plutonium Vitrification Disposition Project would be designed to fit in the basement of an existing facility and sized to disposition up to approximately 13 MT of lower purity plutonium by vitrifying it in lanthanide borosilicate (LaBS) glass. LaBS glass is well suited for plutonium with higher quantities of impurities and does not degrade the quality and performance of the product for long-term storage and disposal. However, when mixed with plutonium, LaBS glass produces a significant radiation field. This effect is manageable for vitrifying the plutonium not suitable for the planned MOX facility, but would not be desirable for a significantly longer campaign such as the additional 34 MT of higher purity plutonium. That is because in order to maintain the radiation exposure to operators as low as reasonably achievable, it would take about an additional 20 years of operation to vitrify the additional 34 MT of plutonium or require a substantially more complex and costly facility. Therefore, adding the 34 MT of surplus plutonium planned to be processed in the MOX facility to the 13 MT planned to be vitrified would likely require changing the waste form from glass to ceramic in order to eliminate high radiation.

Although the reaction that causes the high radiation levels does not occur when the plutonium is mixed with ceramic, the ceramic does not accept impurities and maintain its quality as well as glass. Much of the 13 metric tons of plutonium contains significant impurities that could result in cracking of the ceramic pellets. The cancelled Plutonium Immobilization Plant that was to immobilize plutonium in ceramic required blending a large amount of pure plutonium with the impure plutonium in order to dilute the impurities to an acceptable level. There is not enough pure Pu in the 13 metric tons to dilute the impurities to an acceptable level.

The lanthanide borosilicate glass planned to be used in the vitrification process is preferred over ceramic for vitrifying relatively lower quantities of impure plutonium not only because it can accommodate more impurities than the ceramic, but also because addition of the lanthanide allows a larger amount of plutonium to be included in each can of glass. Also, the change would require construction of a new and larger facility (similar to that of the cancelled Plutonium Immobilization Plant) vs. modification of an existing facility because production of the ceramic waste form requires much more space than exists in the K-Area facility.

Additionally, the Plutonium Vitrification Disposition Project would utilize the can-in-canister concept where small cans of vitrified plutonium are placed inside Defense Waste Processing Facility (DWPF) canisters and the canisters are then filled with high activity waste glass. The cans of vitrified plutonium need the high-level waste glass to surround them in order to qualify the waste package for disposal at Yucca Mountain; this high-level waste glass also provides resistance to proliferation. With a ceramic waste form and the additional 34 MT of plutonium, approximately 100,000 cans of ceramified plutonium would be generated, requiring 3,600 DWPF canisters of high activity glass. That would require processing beyond the planned DWPF completion date of 2026 by approximately a decade and require about 2,000 more DWPF canisters of glass waste than will be produced from processing all of the Savannah River tank waste. Taking into account the additional waste resulting from the entire Enriched Uranium Disposition Project through 2019, which is approximately 200 to 250 additional DWPF canisters, there is simply not enough high-level radioactive glass at SRS to over-pour the plutonium glass or ceramic generated

from 13 MT of plutonium to meet the spent fuel standard required to assure proliferation resistance in the repository. Since neither the plutonium-ceramic nor the vitrified plutonium can be sent to the geologic repository without being inside DWPF canisters filled with glass waste, this approach is not viable.

For all these reasons, the proposed Plutonium Vitrification Disposition Project is not viable for the disposition of the plutonium destined for the MOX plant.

WASHINGTON STATE—HIGH LEVEL WASTE VITRIFICATION PROJECT

Question. Mr. Rispoli, the Department has faced enormous challenges in containing the cost of this massive project to vitrify the millions of gallons of high level waste stored in underground tanks in Washington. This project was originally budgeted for $5.7 billion in 2003. Today, after several independent evaluations, the Department estimates that the total projects cost will be $12.3 billion and will be completed by 2019. Can you please explain why the original baseline was so low and why you believe this new cost estimate will not escalate further over the next decade?

Answer. The Department of Energy, with the advice and assistance of the U.S. Army Corps of Engineers has implemented several major initiatives to ensure that we fully understand what is required to successfully complete the Waste Treatment Plant (WTP) project and begin plant operations.

The major reasons for the increases in the estimated cost and the delays in schedule result from faulty initial estimates and the overly optimistic treatment of uncertainty and risk for the following: (1) design of novel technology for a large, complex nuclear-chemical plant (pulse jet mixing pumps, non-Newtonian fluids, etc), (2) quantity, procurement and availability of equipment and materials, (3) availability and productivity of professional and craft labor, and (4) environmental and safety regulatory compliance (fire proofing, seismic ground motion, etc.). These were further aggravated by conditions created by deficiencies in the acquisition strategy and management approach. It is important to note that the March 2003 performance baseline was established with a design completion of 30 percent, using a majority of estimating tools which were based on parametric costs from similar facilities. The December 2006 performance baseline was established with a design completion of 78 percent, using a majority of estimating tools which were based on costs from material take-offs. This provides a more highly detailed cost estimate that enables higher confidence.

The Department has increased its confidence in the success of this project as a result of implementing several key actions that addressed its project management capability, management of calculating technical risks, and the project's cost and schedule baseline. Over the past 18 months, the Department has retained a broad range of external, senior professionals from private industry, academia, and other government agencies to thoroughly review the key elements of the WTP. Key initiatives to reinforce the confidence in the project are as follows:

Strengthen Project Management

The Assistant Secretary for Environmental Management has established a Headquarters' senior-level waste treatment and immobilization plant oversight team. The team is fully engaged in all aspects of the project;

The Department commissioned an independent expert team that completed an after action fact finding review to better understand the management issues associated with the project. All of the recommendations have been or are in the process of being addressed;

DOE has recruited talented personnel in the areas of contracting, procurement, contract law, and project management;

The WTP contractor is implementing an earned value management system (EVMS) to track variances to the baseline. The system is being independently certified to be fully compliant with the requirements of the American National Standards Institute/Environmental Industry Association (ANSI/EIA) 748–A–1998. This system, currently in use by the contractor as a management tool, will accurately report project cost and schedule performance;

A structured daily, weekly, and monthly project reporting system is in place, and a Quarterly Performance Review is conducted by the Assistant Secretary for Environmental Management;

The Secretary of Energy is engaged in the WTP project and meets with senior principals of Bechtel National Inc. on a regular basis.

Verify Technology

The Department commissioned a broad group of distinguished independent senior professionals from private industry and academia to thoroughly review all tech-

nology aspects of the WTP process flow sheet. The flow sheet report was finalized in March 2006 and identified 28 issues that have already been or currently are being addressed;

DOE is on a path forward to having the final earthquake seismic and ground motion criteria approved by the Secretary of Energy. DOE has retained the U.S. Army Corps of Engineers to oversee the drilling of one core hole and three deep boreholes to confirm the geophysical properties of the layers of bedrock below the WTP project site. Borehole drilling commenced in June 2006 and was completed in October 2006. We forecast that the Secretary of Energy will approve the final seismic and ground motion criteria by September 2007;

The Defense Nuclear Facilities Safety Board has been actively engaged in the seismic issue and all safety related technical issues from the commencement of the project. Also, I meet monthly with the Board to share information and discuss issues.

Establish a Credible Project Cost and Schedule

In August 2006, the U.S. Army Corps of Engineers delivered to the Department an independent review of the contractor's May 2006 estimate-at-completion, which provided a qualified validation of the cost and schedule baseline—with the addition of $650 million and three months of schedule contingency.

In addition, two other external independent reviews were implemented (March 2006 and October 2006) to confirm the quality of the WTP cost and schedule baseline and project management systems.

In December, 2006, as a result of the independent reviews, the Department's Office of Engineering and Construction Management validated a final total project cost of $12.263 billion and schedule completion date of November 2019. The revised project cost and schedule was approved by the Deputy Secretary of Energy on December 22, 2006.

Based on the actions we have taken and the reviews by independent industry experts, the project is now reinforced with a strong project management framework, a clear understanding of the technical issues, and a credible project cost and schedule baseline.

WASHINGTON STATE—TRI-PARTY AGREEMENT

Question. Mr. Rispoli, in 1989 the Department entered into a Tri-Party Agreement between the U.S. EPA, the State of Washington and DOE to set cleanup milestone for Office of River Protection. Since the agreement has been signed, the Department has been forced to work through hundreds, if not thousands of changes to this agreement and renegotiate revisions to the compliance orders. It seems inevitable that the Department will miss milestones and will be forced to renegotiate the consent agreement when neither party fully understands the extent and the nature of the existing contamination. It appears that the Department is accepting an enormous amount of risk to sign-up to an enforceable agreement without understanding the full extent of the cleanup. How has the Department worked through the thousands of missed agreed upon milestones?

Answer. The Department of Energy (DOE) remains committed to the cleanup at the Hanford site in accordance with the Tri-Party Agreement (TPA). It is important to remember that the TPA is a "living" document that was designed to be updated. For example, there are TPA milestones that call for new milestones to be defined at specified points in time. Similarly, new sections are added to the TPA, as appropriate. To clarify, DOE has missed relatively few agreed upon milestones. In fact, DOE has completed 96 percent of the milestones within schedule from the start of the TPA. There were originally 161 milestones, and today there are 950 completed milestones and 235 milestones to go for a total of 1,185 milestones. In accordance with the terms of the TPA, there have been 442 approved change requests, 6 amendments, and 3 modifications known as "Director's Determinations."

As with any "living" document, the TPA parties explore opportunities to improve safety, effectiveness, efficiency, and flexibility of the Hanford cleanup. To do this, the parties engage in regular dialog to ensure the milestones make sense and further the intent of the TPA.

Question. What has been the process for the Department to engage the other interested parties to work out an achievable solution?

Answer. The Department of Energy (DOE), the Environmental Protection Agency, and the State of Washington have engaged in a series of large and small group meetings to understand technical and schedule issues regarding the Waste Treatment Plant, supplemental treatment for low-activity tank waste, tank waste retrieval, and groundwater remediation. The goal of all of the parties remains safe, timely, risk-informed cleanup of the Hanford site.

QUESTIONS SUBMITTED TO HON. EDWARD F. SPROAT III

QUESTIONS SUBMITTED BY SENATOR BYRON L. DORGAN

SECOND REPOSITORY

Question. Mr. Sproat, I read an article that quoted you as saying that the threat of a second nuclear fuel repository would convince Congress to approve the legislation the administration sent up yesterday. I couldn't disagree more with this analysis. For Members to take your threat seriously it must be believable and I don't believe your statement is. Of all the options we have before us today, including GNEP, do you believe this administration would endorse the creation of a second repository?

Answer. This was never intended to be threat of a second repository; rather, it was meant to communicate a statutory requirement. Section 161(b) of the Nuclear Waste Policy Act (NWPA), as amended, requires the Secretary of Energy to report on the need for a second repository. That report is required to be submitted to the President and the Congress between January 1, 2007 and January 1, 2010. Without passage of the provisions in the administration's proposed legislation that would remove the administrative capacity limitation provisions in section 114(d) of the NWPA limiting the capacity of Yucca Mountain to 70,000 metric tons of heavy metal until a second repository is operational, this report will likely conclude that a second repository is needed to dispose of the commercial spent nuclear fuel from the existing fleet of commercial reactors and the remaining defense high-level radioactive waste that cannot be disposed within the 70,000 metric ton limit. While GNEP spent nuclear fuel recycling has the potential to reduce the volume of spent nuclear fuel to be disposed of in Yucca Mountain it will be many years before there is sufficient information on which to make reasonable projections as to when and to what extent advanced recycling facilities will be deployed.

YUCCA MOUNTAIN AUTHORIZATION

Question. Yesterday, the administration sent up legislation, identical to the version from the 109th Congress, which I introduced on behalf of the administration. It is my understanding that passage of this legislation is critical if you are to meet the 2017 operations goal you have set for the project. If Congress fails to enact this legislation, what impact will this have on the opening or operations of Yucca Mountain?

Answer. First, without passage of the administration's legislation the Nuclear Regulatory Commission cannot grant a construction authorization for Yucca Mountain because permanent land withdrawal is required as a condition to receive a construction authorization. Second, without the funding reform proposed in the legislation, the Department is highly unlikely to have sufficient budget authority available to construct the repository to our best-achievable schedule for initial repository operation in 2017.

CANISTER HANDLING AND STORAGE

Question. Mr. Sproat, the budget discusses a new canister storage approach that will simplify the canister handling operations at Yucca Mountain. Can you please explain this new approach has [sic] how it will impact the overall project costs? What do utilities think of this new approach?

Answer. The canistered approach, utilizes the transportation, aging and disposal (TAD) canister for the receipt of most of the commercial spent nuclear fuel expected to be disposed of at Yucca Mountain. The use of the TAD canister will eliminate hundreds of thousands of individual spent fuel assembly handling operations at the Yucca Mountain facilities, which will allow the Department to simplify the design of the repository surface facilities and their operations. This, in turn, will result in less costly facilities and reduced operating costs. Regarding overall program costs, any increased program costs for the purchase of the TAD canisters is expected to be off-set by programmatic savings in facility construction and operations. The Department cannot speak for utilities as to their views; on this approach. However, during the development of the TAD performance specification requirements, the Department did attend several industry meetings to receive technical input for the TAD performance specification. At these meetings the industry was generally supportive of the canister development effort.

GOVERNMENT LEGAL LIABILITY

Question. Mr. Sproat, included in your statement you indicate that Federal Government's legal liability for failure to accept spent fuel by 1998 will increase by $500 million annually after 2017. This will be on top of the existing $7 billion liability. Why isn't the administration doing anything in the meantime to reduce or eliminate this well defined problem? Why wait until 2017?

Answer. If the Department starts accepting spent nuclear fuel in 2017, we estimate that the liability to the U.S. Government to be $7 billion; that liability will grow by $500 million per year every year the repository is further delayed. The Department believes that the best approach to limiting the Government's liability is to begin acceptance of commercial spent fuel at the repository at the earliest possible date. The passage of the administration's proposed legislation to ensure the timely opening of Yucca Mountain is the most significant step urgently needed to limit the liability. The Department also believes that an interim storage facility at another location could not be sited, licensed, constructed and begin operations appreciably sooner than the Yucca Mountain repository begins accepting spent fuel. Moreover, under the current law, an interim storage facility could not be constructed until after NRC grants a construction authorization for the repository and then only an amount of spent fuel equivalent to 10,000 metric tons of heavy metal could be accepted at the storage facility until the repository begins operations, at which time the limit would increase to 15,000 metric tons.

Question. Why hasn't the administration considered an interim strategy to stage the fuel or set it aside for recycling in light of the looming legal liability?

Answer. The Department's best-achievable schedule for commencing operations of the Yucca Mountain repository is 2017. The Department believes that interim storage could not be undertaken appreciably sooner than when Yucca Mountain could be open. Moreover, under the current law, an interim storage facility could not be constructed until after NRC grants a construction authorization for the repository and then only an amount of spent fuel equivalent to 10,000 metric tons of heavy metal could be accepted at the storage facility until the repository began operation, at which time the limit would increase to 15,000 metric tons.

NEVADA RAIL LINE

Question. Mr. Sproat, this budget requests $15 million to support work on the Nevada rail line, yet the legislation you have just sent to the Hill requires Congress to withdraw land for this rail line. Why would we spend any amount of funding in this project until we are certain that we can get access to the land we will need to build the project?

Answer. The President's fiscal year 2008 budget requests $15 million for transportation projects, which includes $5 million for work with States, Tribes, and other stakeholders on national transportation planning efforts. The $10 million requested for work on the Nevada Rail Line Project will be used to complete the environmental impact statement on possible rail alignments. This information is necessary to define the ultimate path a rail line to Yucca Mountain would take in Nevada and to support the granting of either a permanent withdrawal of lands or a right-of-way for the Nevada Rail Line. The proposed legislation would withdraw land for the repository but not for the Nevada Rail line.

LAYOFFS

Question. Mr. Sproat, the Department recently announced layoffs of contractor staff in order to restructure the workforce. Can you tell me how this will impact the project and if you expect additional layoffs during this fiscal year?

Answer. The OCRWM prime contractor, Bechtel SAIC Company (BSC) located in Nevada developed a workforce restructuring plan (WRP) that is consistent with the level of funding provided in fiscal year 2007. The WRP will result in layoffs of approximately 65 BSC employees. This will allow BSC to assess and realign, where necessary, those skills that are essential to successfully completing the License Application by February 2008. The funding reduction and the WRP have no impact on the license application submission, but the program will defer non license application related activities in fiscal year 2007. Because the funding received by the program for fiscal year 2007 was $100 million less than the President requested, we do anticipate making additional reduction in force later in fiscal year 2007 and in fiscal year 2008. The timing and size of those further reductions are currently being evaluated.

SUBCOMMITTEE RECESS

Senator DORGAN. This hearing is recessed.

[Whereupon, at 3:32 p.m., Wednesday, March 7, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2008

THURSDAY, MARCH 15, 2007

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

The subcommittee met at 2:33 p.m., in room SD–192, Dirksen Senate Office Building, Hon. Byron L. Dorgan (chairman) presiding.

Present: Senators Dorgan, Landrieu, Reed, Domenici, Bennett, Craig, and Allard.

DEPARTMENT OF DEFENSE—CIVIL

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS—CIVIL

STATEMENT OF HON. JOHN PAUL WOODLEY, JR., ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)

OPENING STATEMENT OF SENATOR BYRON L. DORGAN

Senator DORGAN. I'm going to call the hearing to order. This is the hearing of the Subcommittee on Energy and Water Development and we will take testimony today on the budget request and justifications for the Department of the Army, Army Corps of Engineers, the Bureau of Reclamation and the Department of the Interior.

My ranking member is Senator Domenici. He is, at the moment, in the Budget Committee. They are marking up the budget document. I don't know how long he will be there but it might take some while. So he has indicated it's fine to begin without him because he is busy on budget votes.

I'm joined by my colleague, Senator Craig, and we have two panels today. I am going to have both panels seated together and I appreciate that. We have a series of six votes today that start at 3:45 and because of that, I think because we have six votes that will be sequential, they will take us probably 1½ hours to 1 hour and 40 minutes to complete. I want to try to do a good hearing and a complete hearing but try to complete it as efficiently and effectively as we can before we start those votes. Because if we would have to recess and then come back 1 hour or 1 hour-plus later, that would not be helpful to anybody.

I'd like to make a brief opening statement and then I'm going to call on Senator Craig.

Today the subcommittee will take testimony on the fiscal year 2008 budget request for the Army Corps of Engineers and the Bureau of Reclamation. General Strock is with us today from the Corps of Engineers. Sir, my understanding is that this will be your final hearing with us and you will soon retire from the Army. Let me thank you for your service to our country and thank you for appearing before this committee a number of times and we look forward to a smooth transition with your successor, General Van Antwerp when he is confirmed.

Let me say that the President's budget for the Corps of Engineers proposes $4.87 billion. That's nearly $500 million below the enacted level of fiscal year 2007, $5.34 billion. The highlights of the fiscal year 2008 budget include general investigations' proposed 45 percent decrease, $90 million down from the current year—excuse me, proposed at $90 million, $73 million less than the current year enacted. General construction is proposed at a 38 percent decrease from current year. We have a very substantial backlog in unconstructed projects. I'm very concerned about both of these recommendations, frankly.

The Mississippi River and Tributaries is proposed at $260 million, a decrease of 35 percent from the current year. The O&M, operations and maintenance general, is proposed at an increase of 25 percent. This increase is somewhat less than it sounds because of the $286 million shifted from the construction account to O&M for the sake of budget transparency.

The fiscal year 2008 budget request is assembled along the Corps' eight business lines. I'm going to put a statement in the record speaking about the investigation accounts and the construction funding and some other thoughts about it.

Let me just say even as I include my whole statement in the record that I'm disappointed by the budget because frankly, as I think our witnesses know and I hope the administration knows, we have a substantial amount of work to be done. We have projects that are not yet funded. We have projects underway that are not funded adequately and I frankly don't understand the budget request. I understand we have to tighten our belts but I also understand there is a very big difference between spending and investing and I think when you take a look at all of the appropriations requests that we receive in the Congress, if ever you would classify projects as investments, you would classify these projects as investments. These, in many cases, are water projects, public works projects that will provide dividends for years to come to this country. So I don't view this as typical spending. We are providing flood control, we are saving substantial money in flood control projects, we are investing in water projects that enhance our economy and provide opportunities that weren't otherwise provided.

PREPARED STATEMENT

So I'm very concerned about the budgets. With respect to the Bureau of Reclamation, again I think we have budgets here that come to us probably expecting the committee to add back funding. Maybe that's the case. If it is, my hope will be that this expectation is realized because I think the Corps of Engineers and Bureau of Reclamation are critical to a whole range of things that represent the

public good in our country and we must provide adequate funding for the things that they undertake on our behalf.

I'm going to call on Senator Craig and ask that my entire statement be part of the record.

[The statement follows:]

PREPARED STATEMENT OF SENATOR BYRON L. DORGAN

Good afternoon—the hearing will come to order.

Today, the subcommittee will take testimony on the fiscal year 2008 budget requests for the U.S. Army Corps of Engineers and the Bureau of Reclamation.

The hearing will consist of two panels. The first panel will consist of witnesses from the U.S. Army Corps of Engineers.

Testifying for them will be: John Paul Woodley, Principle Deputy, Assistant Secretary of the Army for Civil Works, and Lieutenant General Carl A. Strock, Chief of Engineers for the U.S. Army Corps of Engineers.

At the conclusion of this panel, we will observe a short break and seat the panel for the Bureau of Reclamation. Testifying for the Bureau of Reclamation will be: Mark Limbaugh, Assistant Secretary for Water and Science, Department of the Interior, and Robert Johnson, Commissioner, Bureau of Reclamation. Mr. Woodley, General Strock, thank you for appearing before us today.

General Strock, I understand that this will be your final hearing with us as you will soon retire from the Army. I want to thank you for your service to this committee and the Nation. I look forward to a smooth transition with your successor, General Van Antwerp, when he is confirmed.

The President's budget for the Corps of Engineers proposes $4.87 billion, which is $469 million below the fiscal year 2007 enacted amount of $5.34 billion.

Several of the highlights for the fiscal year 2008 budget include:

—General investigations is proposed at $90 million, down 45 percent ($73 million) from the current year. Even if we were going to consider the proposed cancellation of $50 million of fiscal year 2007 funds, this account would still be 20 percent below the fiscal year 2007 enacted amount.

—Construction, general is proposed at $1.523 billion, a decrease of 38 percent ($813 million) from the current year which certainly doesn't help to reduce the more than $40 billion backlog in unconstructed projects. I am not sure whether we will be able to make up the entire deficit in this account.

—Mississippi River and Tributaries is proposed at $260 million, a decrease of 35 percent ($137 million) from the current year.

—Operation and maintenance, general is proposed at $2.471 billion, an increase of about 25 percent ($496 million). I wish this is as good as it sounds. However, this increase is inflated by $286 million that was shifted from the construction account to O&M for the sake of "budget transparency".

BUDGET PRIORITIES FOR FISCAL YEAR 2008

Your fiscal year 2008 budget request is assembled along the Corps' eight business lines: Emergency Management; Environment; Flood and Coastal Storm Damage Reduction; Hydropower; Navigation; Recreation; Regulatory; and Water Supply.

In the GI account, the budget proposal arbitrarily limits funding to $90 million. The only justification used is that since the Corps civil works program already has a large backlog of ongoing construction work, there is no need to study and design additional projects. There are many reasons why this is a shortsighted budgetary view:

—The planning program in the Corps' GI account is the entry point for Federal involvement in solutions to water resource problems and needs.

—It assumes that the country will stop growing and that new investment opportunities will not be present.

—In truth, as the country grows, new investment opportunities will be presented and some previously authorized projects may no longer make sense or may be less competitive.

Construction funding within the budget was prioritized primarily by the use of the benefit to cost ratio. While this is a more equitable way to compare projects than previous measures, it still does not get to the heart of your budgeting dilemma. That is, that your program has been underfunded for years.

Your budget proposes that 16 high priority projects consume some 51 percent of the construction budget. The remaining 52 projects that you recommended have to split the remaining 49 percent of the construction budget. This will lead to these

52 projects limping along for another year. Meanwhile the other 250 or so projects that are on-going from previous years are not even addressed in the budget.

Our national water resource needs continue to grow as our population grows and shifts around the country. The American Society of Civil Engineers has again graded our infrastructure as a "D". How does this budget address this abysmal grade? It doesn't!

You are budgeting in large measure as if there is a finite group of projects that once they are finished, investment in our national infrastructure will be complete. Then all that will be required is funding to maintain this infrastructure. You are not providing sufficient funding to maintain what we have, much less provide for the future.

Finding a new and better prioritization system will not solve the problems of consistently underfunding infrastructure. Sure you may succeed in prioritizing your agency into irrelevance, but that does not help the problem nor can we allow that to happen.

The only way to solve this problem, is for the administration to provide more funding for these infrastructure investments. If they won't then the Congress will certainly try. Note that I did not say spend more money, I said invest more. The funding that we provide is for investments not only for today but in our future.

BUDGET PROPOSALS

The fiscal year 2006 budget has a number of proposals, some new for this year, some recycled from previous years.

The budget has again proposed the elimination of continuing contracts in favor of multiple year contracting. I will have a number of questions for you concerning this proposal.

The budget again proposes a beach policy that has been previously rejected by the Congress. I think it is safe to assume that the modified policy will also be rejected.

Finally, I find it fascinating that the administration has proposed considerable authorizing language as a part of the budget. Perhaps you should consider proposing an administration WRDA bill to address these needed authorizing provisions.

It is obvious from this budget proposal that the Congress has considerable work ahead. The President has proposed considerable infrastructure investments, unfortunately, they are not in our country, but in Iraq and Afghanistan.

I look forward to working towards preparing a responsible budget for our national infrastructure.

Our second panel will consist of witnesses from the Department of Interior. Testifying will be: Mark Limbaugh, Assistant Secretary for Water and Science, Department of the Interior, and Robert Johnson, Commissioner, Bureau of Reclamation.

The two major project accounts for the Department of Interior under the jurisdiction of the Energy and Water subcommittee are the Central Utah Completion Act Account and the Bureau of Reclamation.

THE CENTRAL UTAH PROJECT

The Central Utah Project Completion Act of 1992 authorized this element of the Colorado River Storage Project to be completed by the Central Utah Conservancy District.

The Central Utah Project Completion account is proposed at $43 million for fiscal year 2008, an increase of nearly 27 percent ($9 million) from the current year.

The increase in this account is primarily due to construction contracts planned for the project in fiscal year 2008.

THE BUREAU OF RECLAMATION

The Bureau of Reclamation is proposed at $958.4 million for fiscal year 2008, a decrease of 6.5 percent ($66.6 million) from the current year.

This budget includes: $816.2 million for the Water and Related Resources account, $51.6 million for the Central Valley Project Restoration Fund, $31.8 million for the California Bay-Delta Restoration account, and $58.8 million for the Policy and Administration account.

Major projects funded in Water and Related Resources include: $27.2 million for the Central Arizona Project, $124.8 million for California's Central Valley Project, $58 million for the Animas-La Plata Project in Colorado, $55 million for rural water projects, and $77 million for continued work to ensure the safety of dams.

ISSUES FOR FISCAL YEAR 2008

I am concerned that funding for rural water projects is declining. We have people in my home State that can see Lake Sakakawea from their house, yet 50 years after the lake was constructed, they still have to haul water to their homes each and every week whether it is −35 degrees or 100 degrees outside. It should not be that way. Not in this country. The budget proposal further drags out completion of these projects and the delivery of fresh water to these impacted communities.

Under Water 2025, $11 million is proposed to meet the challenge of preventing crises and conflicts over water in the west. Ten million dollars of the funds are proposed for the 50:50 challenge grant program which relies on local initiative and innovation to identify and formulate the most sensible improvements for local water systems.

Another area of the budget that has been seriously underfunded is water reclamation and reuse. Water reclamation and reuse is a vital component of increasing near term water supplies for the West. The Federal share for most of these projects is about 25 percent or $20 million whichever is less. In many cases, the few Federal dollars involved are the difference as to whether these projects can move forward or not. The Federal dollars are leveraged against other funding to make these projects a success. Only about $10 million was provided for these projects in the budget request. Congress normally provides $25–30 million.

The administration has proposed $1 million to develop and administer the Loan Guarantee program. This new program is intended to address aging water infrastructure issues in the West. It was authorized by the Reclamation Rural Water Supply Act of 2006.

Title I of this act requires the Secretary to establish a formal rural water supply program for rural water and major maintenance projects. The Secretary is also to establish programmatic and eligibility criteria along with other reporting requirements and criteria for appraisal and feasibility studies. I am glad to see that you are funding this initiative and hope that you will include rural water supply as a bigger part of your budget for fiscal year 2009.

I look forward to working with you gentlemen as we prepare the fiscal year 2008 budget for your agencies.

STATEMENT OF SENATOR LARRY CRAIG

Senator CRAIG. Mr. Chairman, I will adhere to your admonition about time because we do want to hear these folks who are before us. I must also say to the panel, a lot of what the Senator has said, I agree with. It's probably the result of him coming from the High Plains and me coming from the high desert. Like no one else, our States appreciate and understand water.

But let me welcome, of course, Assistant Secretary Woodley and General Strock. Again, thank you for your service. Commissioner Johnson and the Assistant Secretary are in the back of the room and he'll be forward. Are you going to have everybody at the table?

Senator DORGAN. Yes.

Senator CRAIG. Then Commissioner Limbaugh, why don't you move down and let me ask that you go over to the right side. There you go. So we'll get you all at the table. There we go.

I want to thank you all for your willingness to work with our offices on a variety of issues from the Corps helping deliver clean drinking water to many of my Idaho constituents, the Bureau of Reclamation storing Idaho's most precious resource, water. I sat through several budget hearings so far and one trend remains true. Declining budgets are a part of the current fiscal reality that we're all dealing with. I realize and understand you all are forced to balance priorities with the current fiscal constraints and I appreciate what a difficult task that must be.

Now, let me turn my focused comments specifically to the Army Corps of Engineers. First I want to start by thanking members of the Corps that have served our country in Iraq. You will play a

vital role, not only domestically but internationally as we pursue stable environments, both in Afghanistan and Iraq. We thank you for your service there.

Second, thank you for your diligent work in my State, as I mentioned earlier, in drinking water, waste water infrastructure. Some may argue this isn't part of your core mission. However, you all do phenomenal work in my State and generally, complete projects within a reasonable timeframe, within budget, for which I commend you and thank you.

The Corps also plays a vital role in operating and maintaining our national waterways. As has just been mentioned, Idaho ships a significant number of products on the Snake and Columbia systems. It is important that we maintain those while dredging has gone on. The reality of infrastructure maintenance, aging locks, aging gates—all of those kinds of things to sustain a very critical transportation system is important. So I am concerned about that. I'm also concerned about the administration's proposal that would create a lock tax. As you know, shippers already pay a fuel tax. I'm interested in hearing how this new tax will access—will be accessed as well as where the revenue might end up. If it's just a new source of revenue that gets dumped into the General Fund, I don't think any of our users are all that interested. Dedicated revenues that end up replacing used infrastructure makes—could make some sense.

The Bureau of Reclamation, as you know well, Commissioner and Assistant Secretary—water is what makes the West what it is today. We have a problem with aging infrastructure and I appreciate your helping find long-term solutions to those problems. I commend the administration for acting quickly, setting up a guarantee loan program. Although it is only set at $1 million, I'm encouraged. I think it is a step clearly in the right direction that begins to address some of the ways we solve some of these problems. We need to continue looking for creative financing packages for our water users so they can rehabilitate their infrastructure in an efficient and cost effective way.

We in the West are no longer at the frontier. We are a developed economy in an aging infrastructure and with a developed economy, it has resources properly leveraged that can assist itself when government becomes a cooperating partner and I'm not here nor are any of my users here to suggest that the government ought to be the only partner or that it ought to be the only supplier of resource. I've been supportive of the 2025 Program as well as Title 16 Program and I hope to see those programs continue to yield results.

One last thing—this is not only directed at your agencies but also at the Federal agencies that have provided budgets in Congress. It's been difficult to decipher which programs have received increases, which have received decreases and more specifically, what was enacted in the 2006 versus what is requested now. This information isn't widely available, has been tough not only to find areas to look at, understand and/or criticize. These are the realities of what we're working with now and I hope the administration works on this for the next year so that we all have a better understanding of where we are.

Thank you, Mr. Chairman. I look forward to all of your testimony.

Senator DORGAN. Senator Craig, thank you very much. To my other colleagues, let me say that we have six votes starting at 3:45 and so I want to try to see if we can get the witnesses to make their statements and I want to make sure we have ample opportunity at the hearing to ask questions as well. If you'd like to make a very brief opening statement, I'll recognize that but I——

Senator BENNETT. I've got a page and a half, Mr. Chairman. Will that be enough?

Senator DORGAN. Why don't you proceed?

STATEMENT OF SENATOR ROBERT F. BENNETT

Senator BENNETT. Okay. I just wanted to address the Army Corps and thank them for their excellent work in Utah. We've had their quick response to devastating floods in Washington County and I enjoyed working with them.

But I do have a significant issue that I want to call General Strock's and Secretary Woodley's attention to. The Army Corps has made good progress in rural Utah by providing financial and technical assistance for water infrastructure projects. Rural Utah 595 Program—you're nodding, you're familiar with that. It makes it possible for rural cities and counties to build the critical water projects that otherwise they couldn't afford. So the Congress has supported this program and I'm asking for the subcommittee's continued support.

But the committee—although the committee has provided specific funding to the rural Utah account, on two separate occasions, the Army Corps has reprogrammed nearly $1.5 million to spend on projects in other States and these missing funds could complete several infrastructure projects in Utah that are now on hold because of the lack of funding.

I raised this concern with the Division Commander, Brigadier General McMahon, last week when he came to see me and he assured me that the Corps was simply borrowing the money and the funds would be replaced. I'm not familiar with that process in the Federal system, how you borrow money that has been earmarked for one purpose and use it for another. Maybe we ought to be paid interest. I don't know. But I understand that the Corps has formulated its work plan for fiscal 2007 and in that work plan, it did not include funds to restore those that were borrowed from the rural Utah account. So I want to raise the issue here and have a response on the record for replacing the funds and would like to know when they will be replaced.

So that's my issue, Mr. Chairman and I raise it and it's there to be responded to either in the question period or if we're all drawn away from votes, on the record. Thank you very much.

Senator DORGAN. Senator Bennett, thank you very much. Senator Landrieu.

PREPARED STATEMENT

Senator LANDRIEU. I'm going to waive my opening statement and will submit it for the record but I do need several questions after the testimony.

[The statement follows:]

PREPARED STATEMENT OF SENATOR MARY L. LANDRIEU

Thank you Chairman Dorgan and thank you Assistant Secretary Woodley and General Strock for appearing before this committee. Today, we are here to discuss the very important matter of the Corps budget and I appreciate the chance to share my thoughts with this committee and with you the leadership of the Corps.

I find the President's budget request for the Corps for fiscal year 2008 is once again woefully inadequate. The President's budget requests a mere $4.87 billion while we all know there is substantially more needed. Additionally, I am troubled by the continuation of the downward trend of investment in the country's infrastructure, specifically civil works projects. Specifically for Louisiana, several important projects have either been omitted or under funded in the President's budget request, such as: Morganza to the Gulf, SELA and others. While the Corps' regular fiscal year 2008 budget request is cause enough for concern, I am also concerned by the supplemental appropriations request the administration is asking Congress to consider.

The piece-meal approach to hurricane recovery is still not sufficient. The request to reprogram, rather than appropriate $1.3 billion to cover identified shortfalls for hurricane recovery is not a sustainable approach. Many Americans and most Louisianans recall the President's commitment from Jackson square to rebuild the devastated region; however the rhetoric has not matched the funding request. Robbing Peter to pay Paul will not provide adequate protection to prevent future disasters. Accordingly, I urge the Corps to deliver an estimate of the full cost of hurricane protection system recovery so Congress can develop a comprehensive path forward.

The path forward must involve comprehensive wetland, navigation and flood protection planning. In the fiscal year 2006 Energy and Water Appropriations bill, this committee directed the Corps to develop a "full range of flood control, coastal restoration and hurricane protection measures exclusive of normal policy considerations" in close coordination with the State of Louisiana. I remain concerned that the Corps will not follow Congress' intent in either presenting options outside of normal policy considerations or in the development of plans with sufficient input for Louisiana's interests. The State of Louisiana has developed its plan for flood control, coastal restoration and hurricane protection and I urge the Corps to incorporate the State's findings into its Cat 5 plan.

Finally, I look forward to having some of my questions answered and I again thank the chair for the opportunity to speak here today.

Senator DORGAN. General Strock and Secretary Woodley, thank you both for appearing on behalf of the Corps. We appreciate once again your willingness to be here to present statements and answer questions. Why don't you proceed as you wish, Mr. Secretary.

STATEMENT OF HON. JOHN PAUL WOODLEY, JR.

Mr. WOODLEY. Thank you, Mr. Chairman. I will be very brief and I want to begin my testimony by paying tribute to my colleague who is retiring later this year, the 51st Chief of Engineers. Lieutenant General Strock will be concluding a very distinguished career in which he served as Chief of Engineers at perhaps the most challenging time in that agency's long and storied history. So I want to put that directly before the committee before I say anything else.

Senator DORGAN. Mr. Secretary, the committee shares your gratitude and the "thank you" that we would offer General Strock for his service to our country as well.

Mr. WOODLEY. We have requested a 3 percent increase over our fiscal year 2007 request this year, providing $2.5 billion for the operation and maintenance account as the chairman noted, which represents a 9 percent increase over our request for fiscal year 2007.

We have prioritized to—first of all, dam safety to continue to repair those projects that are in danger and to work on—give special priority to those projects that protect human health, human safety and property.

We've also asked for an increase of funding in the Regulatory program to $180 million. This funding will be used for permit processing, enforcement and compliance, including our increased workload that we are anticipating because of recent judicial determinations by the Supreme Court.

PREPARED STATEMENT

We will be working with stakeholders as Senator Craig indicated, to see what kind of solution we can reach about the depletion of the Inland Waterways Trust Fund. That fund is very close to depletion because of the enormous investments that we are making in the Nation's waterway infrastructure and construction and some kind of action, we believe, should be taken to address the question of the depletion of that fund.

So those are the highlights of our submission. I very much appreciate the opportunity to appear and address your questions today.

[The statement follows:]

PREPARED STATEMENT OF HON. JOHN PAUL WOODLEY, JR.

Mr. Chairman and distinguished members of the subcommittee: thank you for the opportunity to testify before the subcommittee, and to present the President's budget for the Civil Works program of the Army Corps of Engineers for fiscal year 2008.

OVERVIEW

The fiscal year 2008 budget for Army Civil Works provides funding for development and restoration of the Nation's water and related resources within the three main Civil Works program areas, namely, commercial navigation, flood and coastal storm damage reduction, and aquatic ecosystem restoration. The budget also 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. 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.

Total new discretionary funding in the fiscal year 2008 budget is $4.871 billion for fiscal year 2008, the highest amount ever in a Civil Works budget. Within this total, we have allocated $2.471 billion to activities funded in the operation and maintenance (O&M) account. This is the highest funding level for operation and maintenance ever proposed in a President's budget or enacted by the Congress. It is 9 percent above the fiscal year 2007 budget level for the O&M account and $206 million above fiscal year 2006 enacted, after accounting for the $296 million that the budget has proposed to transfer in fiscal year 2008 from construction to operation and maintenance.

The budget also includes a fiscal year 2007 recommendation to re-allocate up to $1.3 billion of emergency supplemental appropriations enacted in fiscal year 2006. This would enable the Corps to use available, unobligated funds for measures that will provide a better overall level of protection for the New Orleans metropolitan area in the near-term. This proposal is discussed further below.

A 5-year budget development plan (FYDP) is under development and will be provided to the relevant committees of Congress. The FYDP includes two scenarios or projections: one based on the President's proposed fiscal year 2008 budget; and one above that level based on the most recently enacted appropriations (fiscal year 2006) at the time the budget was prepared. The projections are formula driven. They do not represent budget decisions or budget policy beyond fiscal year 2008, but they can provide perspective on the Army Civil Works program and budget.

Enclosure 1 displays the current estimate for the distribution of new discretionary funding among eight appropriation accounts, eight program areas plus executive direction and management, and five sources including the general fund of the Treasury and trust funds. Enclosure 2 is a crosscut between appropriation accounts and program areas.

PERFORMANCE-BASED BUDGETING

The fiscal year 2008 budget reflects a performance-based approach to budgeting. Competing investment opportunities for studies, design, construction, and operation and maintenance were evaluated using multiple metrics. We used objective, performance criteria to guide the allocation of funds among construction projects (see below).

The budget includes initiatives leading to the development of a more systematic, performance-based budget and improved asset management. For instance, to improve investment decision making, the budget funds the development of economic models for navigation and methods for evaluating the benefits of aquatic ecosystem restoration efforts. To help identify, evaluate, and establish priorities for the maintenance and rehabilitation of existing flood and storm damage reduction, commercial navigation, and hydropower assets, the budget provides funding to develop asset management systems and risk-based condition indices. Finally, the budget presents information for operation and maintenance activities by river basin and by mission area, setting the stage for improved management of Civil Works assets and more systematic budget development in future years.

The focus on Civil Works program performance has a number of foundations. First, the Civil Works Strategic Plan, which was updated in 2004, provides goals, objectives, and performance measures that are specific to program areas as well as some that are crosscutting. Second, each program area has been assessed using the Program Assessment Rating Tool (PART). Summaries of all completed civil works program assessments can be found on the administration's new website, www.ExpectMore.gov. Both the Civil Works Strategic Plan and the PART-based program evaluations are works in progress and will continue to be updated.

HIGHLIGHTS—WATER RESOURCES DEVELOPMENT ACCOUNTS

Studies and Design

The fiscal year 2008 budget provides $90 million for the Investigations account and $1 million for studies in the Mississippi River and Tributaries account. The budget funds the 67 most promising studies and preconstruction engineering and design (PED) activities. Performance was assessed based on the likelihood in the near-term of meeting the construction guidelines discussed below. For instance, among the projects in PED, the projects with benefit-cost ratios of 3.0 to 1 or higher received funding.

Within the $90 million, $13 million is for the Louisiana Coastal Area study and science program for coastal wetlands restoration; $22 million is for other project-specific studies and design; $10 million is to continue the national inventory of flood and storm damage reduction projects; $17 million is for research and development; and $28 million is for other coordination, data collection, and study activities. Priorities within research and development include the Navigation Economic Technologies research program and the development of benefit evaluation methods for aquatic ecosystem restoration.

Construction

The budget provides $1.523 billion in the Construction account and $108 million for construction projects in the Mississippi River and Tributaries account.

Many more construction projects have been authorized, initiated, and continued than can be constructed efficiently at any one time. The funding of projects with low economic and environmental returns and of projects that are not within Civil Works main mission areas has led to the postponement of benefits from the most worthy projects, and has significantly reduced overall program performance.

To remedy this situation and to achieve greater value to the Nation from the Civil Works construction program, the budget focuses significant funding on the projects that yield the greatest return to the Nation, based upon objective performance criteria. The budget again proposes performance guidelines to allocate funds among construction projects. The most significant change is the inclusion of benefit-cost ratio (BCR) as a metric, rather than remaining benefit-remaining cost ratio. The BCR compares the total benefits to the total costs of a project at its inception, and provides a way to establish priorities among projects.

Under the guidelines, the budget allocates funds among construction projects based primarily on these criteria: their BCR; their contribution to addressing a significant risk to human safety or to dam safety assurance, seepage control, or static instability correction concerns; and the extent to which they cost-effectively contribute to the restoration of nationally or regionally significant aquatic ecosystems that have become degraded as a result of Civil Works projects, or to a restoration effort for which the Corps is otherwise uniquely well-suited. The construction guidelines are provided in Enclosure 3.

The construction projects funded in the budget include 6 national priorities; 11 dam safety assurance, seepage control, and static instability correction projects; and 41 other, high-performing projects. The budget also funds ongoing continuing contracts, but no new contracts, for 11 projects with BCRs between 1.5 to 1 and 3.0 to 1.

Operation and Maintenance

The budget proposes $2.471 billion for the Operation and Maintenance account and $151 million for maintenance activities in the Mississippi River and Tributaries account. Even after adjusting for the reassignment of work, discussed below, this amount is the highest funding level for operation and maintenance ever proposed in a President's budget.

The budget emphasizes performance of existing projects by focusing on the maintenance of key commercial navigation, flood and storm damage reduction, hydropower, and other facilities. The proposed funding would enable the Army Corps of Engineers to carry out priority maintenance, repairs, and rehabilitations, and priority initiatives such as the development of asset management systems.

The operation and maintenance program now includes four types of activities that were funded in the Construction program until last year. The budget transfers responsibility and funding for these activities—compliance with Biological Opinions at operating projects pursuant to the Endangered Species Act, rehabilitation of existing projects, use of maintenance dredging material, and replacement of sand due to the operation and maintenance of Federal navigation projects—because they are integrally connected to the operation and maintenance of Corps projects. The reassignment to the Operation and Maintenance program is needed to improve accountability and oversight, reflect the full cost of operation and maintenance, and support an integrated funding strategy for existing projects. The budget includes proposed appropriations language to cover funding for these activities in the Operation and Maintenance account.

The budget proposes that Congress allocate operation and maintenance funding by river basin, rather than on a project-by-project basis. The justification materials present a current estimate for each basin of the distribution of proposed funding among the flood and coastal storm damage reduction, commercial navigation, hydropower, stewardship, recreation, and water supply program areas. Should operation and maintenance work be funded using this framework, managers in the field would be better able to adapt to uncertainties and better able to address emergencies as well as other changed conditions over the course of the fiscal year, consistent with congressional appropriations decisions. The Corps has displayed its current project-by-project estimates for the fiscal year 2008 operation and maintenance program on its website.

HIGHLIGHTS—PROGRAM AREAS

The Army Civil Works program includes eight program areas, plus the oversight/executive direction and management function. The eight program areas are commercial navigation, flood and coastal storm damage reduction, environment, recreation, hydropower, water supply, emergency management, and the regulatory program. Budget proposals for the nine areas are discussed below.

Flood and Coastal Storm Damage Reduction, and Emergency Management

The fiscal year 2008 budget provides $1.384 billion for flood and coastal storm damage reduction, and $45 million for emergency management.

Among the 69 construction projects funded in the fiscal year 2008 budget, 46 are for flood and coastal storm damage reduction, including 8 dam safety and seepage control projects and 34 projects that address a significant risk to human safety or have high benefit-cost ratios.

The budget emphasizes natural disaster preparedness and flood and coastal storm damage prevention. Specifically, the budget includes $40 million in the Flood Control and Coastal Emergencies account to fund preparedness for flood and coastal emergencies and other disasters. This is a 25 percent increase for preparedness activities compared to the fiscal year 2007 budget, and is needed to maintain and im-

prove our ability to respond to disasters. The budget also includes $20 million in multiple accounts to apply lessons learned from Hurricanes Katrina and Rita (including the 12 follow-on actions identified by the Chief of Engineers and stepped-up cooperation with Federal Emergency Management Agency programs for flood plains), $10 million to continue to inventory and assess flood and storm damage reduction projects across the Nation, and $10 million to continue to assess the safety of the Corps portfolio of dams (including improving ordinary, but essential, inspection procedures).

The budget provides funding for all work currently planned to remedy the most serious (Action Class I and II) dam safety, seepage, and static instability problems at Corps dams. The planning, design, and construction of these projects are funded at the maximum amount that the Corps estimates that it can use efficiently and effectively.

The budget continues to support Federal participation in initial construction, but not in re-nourishment, at beach nourishment projects that provide storm damage reduction or ecosystem restoration outputs.

Commercial Navigation

The fiscal year 2008 budget provides $2.009 billion for the commercial navigation program area.

The amount budgeted for inland waterway construction projects (replacements and expansions in the Construction Account, and rehabilitations in the Operation and Maintenance account) is about $418 million, the highest amount ever included in a President's budget. Half of the funding, or $209 million, would be derived from the Inland Waterways Trust Fund. The funding in the Inland Waterways Trust Fund will not be sufficient after fiscal year 2008 to support this level of investment in our principal inland waterways.

The administration is developing and will propose legislation to require the barges on the inland waterways to pay a user fee. The user fee will address the decline in the balance in the Inland Waterways Trust Fund, which affects the government's ability to finance a portion of the continuing Federal capital investment in these waterways. The legislation will be offered this spring for consideration by Congress.

The budget focuses operation and maintenance funding on those waterway segments and commercial harbors that support high volumes of commercial traffic, with emphasis on the heavily-used Mississippi, Ohio, and Illinois waterways. The budget also funds harbors that support significant commercial fishing, subsistence, public transportation, harbor of refuge, national security, or safety benefits.

The budget continues the policy of funding beach replenishment, including periodic re-nourishment, where the operation and maintenance of Federal navigation projects is the reason for the sand loss on shorelines.

Environment

The fiscal year 2008 budget provides $514 million for the environment program area.

The budget includes $274 million for aquatic ecosystem restoration, of which $162 million is for the Corps of Engineers share of the South Florida/Everglades restoration effort. Of this amount, $35 million is for the Modified Water Deliveries project, a key element of this effort that both the National Park Service and the Corps are funding. The budget provides $23 million for the Upper Mississippi restoration program and $13 million for the Louisiana Coastal Area restoration effort and its science program. The costs of compliance with Biological Opinions at existing projects are not included in the above figures. The budget includes these costs as part of the joint operation and maintenance costs of the affected projects and allocates these costs among the program areas served by the projects.

The budget provides $110 million for environmental stewardship. Corps of Engineers-administered lands and waters cover 11 million acres, an area equal in size to the States of Vermont and New Hampshire. Funded activities include shoreline management, protection of natural resources, support for endangered species, continuation of mitigation activities, and protection of cultural and historic resources.

The budget provides $130 million for the Formerly Utilized Sites Remedial Action Program (FUSRAP) to clean up contamination at sites resulting largely from the early atomic weapons program. This funding will enable continued progress toward completion of remedial actions at a number of sites.

Regulatory Program

The fiscal year 2008 budget provides $180 million to the Corps Regulatory Program to protect wetlands and other waters of the United States. This represents a $22 million increase over the fiscal year 2006 enacted level of $158 million, and a $55 million increase since 2001. The funding will be used for permit processing, for

enforcement and compliance actions and for jurisdictional determinations, including additional workload necessitated by the Supreme Court's Carabell and Rapanos decisions.

Investing in the Regulatory Program is a win-win proposition. The added funds will enable most public and private development to proceed with minimal delays, while ensuring that the aquatic environment is protected consistent with the Nation's water quality laws.

Recreation

The fiscal year 2008 budget provides $267 million for recreation operations and related maintenance.

To help finance recreation modernizations, the budget includes an initiative based on a promising model now used by other major Federal recreation providers such as the National Park Service and the Forest Service. The administration is re-proposing legislation for the Corps to generate additional revenue to help upgrade and modernize the recreation facilities at the sites where this money is collected. Specifically, the legislation includes authority for the Corps to charge entrance fees and other types of user fees where appropriate, and to cooperate with non-Federal park authorities and districts. The Corps would keep collections above an annual baseline amount.

Hydropower

Hydropower is a renewable source of energy. The Civil Works program is the Nation's largest producer of hydroelectric energy, and provides 3 percent of the Nation's total energy needs.

The fiscal year 2008 budget provides $291 million for hydropower. This total includes $159 million for hydropower operation and maintenance costs, $43 million for the costs of replacements at four hydropower projects, and $89 million for the costs allocated to hydropower from multipurpose projects and programs. The replacement projects will help to reduce the forced outage rate, which is well above the industry average.

Water Supply

On average, Civil Works projects provide 4 billion gallons of water per day to meet the needs of municipal and commercial users across the country. The budget includes $4 million for operation and maintenance costs allocable to water storage.

Executive Direction and Management

The fiscal year 2008 budget provides $177 million for the Expenses account.

Within this amount, $171 million is for the management and executive direction expenses of the Army Corps of Engineers, both at its Headquarters and Major Subordinate Divisions, as well as support organizations such as the Humphreys Engineer Center Support Activity, the Institute for Water Resources, and the Finance Center.

In addition, the budget proposes to consolidate funding for activities related to oversight and general administration of the Civil Works program within the Expenses account, including funding for the Office of the Assistant Secretary of the Army (Civil Works). Of the $177 million for the Expenses account, $6 million is for the Office of the Assistant Secretary of the Army (Civil Works), including some indirect and overhead costs that previously were centrally funded by the Army.

OTHER BUDGET HIGHLIGHTS

Protection of Greater New Orleans

The fiscal year 2008 budget also recommends, as part of a fiscal year 2007 supplemental appropriations package, enactment of a statutory provision to authorize the Secretary of the Army to reallocate up to $1.3 billion of the emergency supplemental appropriations that were provided in fiscal year 2006, but that remain unobligated. The recommended statutory language would reallocate unobligated funds appropriated by Public Law 109–234 (the "Fourth Emergency Supplemental Appropriations Act of 2006") to fund activities specified in Public Law 109–148 (the "Third Emergency Supplemental Act of 2006"), and would reallocate unobligated funds among certain activities specified in the third emergency supplemental appropriations act of 2006. Within the total amount that would be reallocated, $270 million would be reallocated from the Construction account to the Flood Control and Coastal Emergencies account.

The fiscal year 2006 emergency supplemental appropriations were initially allocated based on "rough order of magnitude" estimates by the Corps of the amount of work that would be required to rebuild, complete, and raise the levees in New

Orleans. Their estimate of the cost of the work necessary to accomplish these objectives is expected to increase greatly as a result of various engineering forensic investigations and assessments, a review of new storm surge data, increased material costs, and other factors. The earlier cost and schedule estimates have proven to be low, and actionable re-estimates will not be available until this summer. Without the reallocation of the fiscal year 2006 funds that were allocated in law, important work to increase the level of protection in some areas could not be completed in concert with similar work in other areas. The proposed re-allocation would enable the Corps to best apply available funding to those measures that will increase in the near-term the overall level of protection for the New Orleans metropolitan area.

General Provisions

The budget includes bill language to authorize continuation of limits on reprogramming with certain changes; replace the continuing contract authority of the Corps with multi-year contracting authority patterned after the authority available to other Federal agencies; and prohibit committing funds for ongoing contracts beyond the appropriated amounts available, including reprogramming.

The budget also includes bill language to authorize the following: continuation of the national levee inventory and assessment; continuation of activities in Missouri River Basin to comply with the Endangered Species Act; completion of the two Chicago Sanitary and Ship Canal invasive species barriers in Illinois, subject to appropriate cost-sharing; and completion of the McAlpine Lock and Dam, Kentucky and Indiana, project.

WATER RESOURCES DEVELOPMENT ACT PROPOSAL

I am working with others in the administration towards the goal of developing a legislative framework that will reflect the administration's priorities for a Water Resources Development Act for consideration by Congress. This proposal or a subsequent legislative proposal will support the budget's recommendations for the Civil Works program as addressed in my testimony today.

In the coming weeks I hope to be able to make a proposal that will help accomplish the principles, policies, and practices that have proven to be successful in the past, and will seek to create incentives for their improvement. Working together, I believe the administration and the Congress can make very substantial improvements in the Civil Works program, and I look forward to offering a proposal that I trust you will find helpful.

PRESIDENT'S MANAGEMENT AGENDA

The Army Civil Works program is pursuing five government-wide management initiatives, as are other Federal agencies, plus a sixth initiative on real property asset management. "Scorecards" for the Army Corps of Engineers and other Federal agencies can be found at http://www.whitehouse.gov/results/agenda/scorecard.html.

Under these initiatives, the Corps is improving its efficiency through recently completed public-private competitions. In addition, the Corps is undertaking two efforts (for Logistics Management and the Operation and Maintenance of Locks and Dams) to improve its performance through re-engineering of internal business processes, rather than through public-private competitions.

The Corps has also made great progress in working with the Office of the Department of Defense Inspector General on the fiscal year 2006 audit. The Corps is continuing to work towards the goal of obtaining an unqualified opinion, on its accounts, and has been a leader within the Department of Defense in this area. The Corps is committed to addressing any concerns that may arise during the audit.

CONCLUSION

In developing this budget, the administration made explicit choices based on performance. The increase in O&M funding, transfer of activities from construction to O&M, emphasis on high-performing construction projects, and increase for preparedness for flood and hurricane emergencies and other natural disasters, for example, all reflect a performance-based approach.

At $4.871 billion, the fiscal year 2008 Army Civil Works budget is the highest Civil Works budget in history. This budget provides the resources for the Civil Works program to pursue investments that will yield good returns for the Nation in the future. The budget represents the wise use of funding to advance worthy, mission-based objectives. I am proud to present it.

Thank you, Mr. Chairman and members of the subcommittee, for this opportunity to testify on the President's fiscal year 2008 budget for the Civil Works program of the Army Corps of Engineers.

ENCLOSURE 1.—DEPARTMENT OF THE ARMY CORPS OF ENGINEERS—CIVIL WORKS BUDGET, FISCAL YEAR 2008—SUMMARY

	Amount
Requested New Appropriations by Account:	
Investigations	$90,000,000
Construction	1,523,000,000
Operation and Maintenance	2,471,000,000
Regulatory Program	180,000,000
Flood Control, Mississippi River and Tributaries	260,000,000
Expenses	177,000,000
Flood Control and Coastal Emergencies	40,000,000
Formerly Utilized Sites Remedial Action Program	130,000,000
TOTAL	4,871,000,000
Requested New Appropriations by Program Area:	
Commercial Navigation	2,009,000,000
(Inland and Intracoastal Waterways)	(1,052,000,000)
(Channels and Harbors)	(957,000,000)
Flood and Coastal Storm Damage Reduction	1,384,000,000
(Flood Damage Reduction)	(1,356,000,000)
(Coastal Storm Damage Reduction)	(28,000,000)
Environment	514,000,000
(Aquatic Ecosystem Restoration)	(274,000,000)
(FUSRAP)	(130,000,000)
(Stewardship)	(110,000,000)
Hydropower	291,000,000
Recreation	267,000,000
Water Supply	4,000,000
Emergency Management	45,000,000
(Flood Control and Coastal Emergencies)	(40,000,000)
(National Emergency Preparedness)	(5,000,000)
Regulatory Program	180,000,000
Executive Direction and Management	177,000,000
TOTAL	4,871,000,000
Sources of New Appropriations:	
General Fund	3,889,000,000
Harbor Maintenance Trust Fund	735,000,000
Inland Waterways Trust Fund	209,000,000
Special Recreation User Fees	37,000,000
Disposal Facilities User Fees	1,000,000
TOTAL	4,871,000,000
Additional New Resources:	
Rivers and Harbors Contributed Funds	445,000,000
Coastal Wetlands Restoration Trust Fund	81,000,000
Permanent Appropriations	9,000,000
TOTAL	535,000,000
Total New Program Funding	5,406,000,000

ENCLOSURE 2.—DEPARTMENT OF THE ARMY CORPS OF ENGINEERS—CIVIL WORKS BUDGET, FISCAL YEAR 2008

[CROSSCUT BETWEEN APPROPRIATION ACCOUNTS AND PROGRAM AREAS]

	Navigation	Flood/Storm	Recreation	Aq. Ec. Restor.	Stewrdshp.	FUSRAP	Hydro-Power	Water Sup-ply	Emerg. Mgmt.	Regul. Prog.	Ovrsgt/ ED&M	TOTAL
Investigations	19	41	.....	30	.....	.....	.....	.....	.....	.....	.....	90
Construction	572	665	.....	241	.....	.....	45	.....	.....	.....	.....	1,523
Operation & Maint.	1,383	475	251	1	106	.....	246	4	5	.....	.....	2,471
MR&T–I	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
MR&T–C	10	96	.....	2	.....	.....	.....	.....	.....	.....	.....	108
MR&T–M	25	106	16	.....	4	.....	.....	.....	.....	.....	.....	151
FUSRAP	.....	.....	.....	.....	.....	130	.....	.....	.....	.....	.....	130
FC&CE	.....	.....	.....	.....	.....	.....	.....	.....	40	.....	.....	40
Regulatory	.....	.....	.....	.....	.....	.....	.....	.....	.....	180	.....	180
Expenses	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	177	177
TOTAL	2,009	1,384	267	274	110	130	291	4	45	180	177	4,871

ENCLOSURE 3.—DEPARTMENT OF THE ARMY CORPS OF ENGINEERS—CIVIL WORKS BUDGET, FISCAL YEAR 2008

CONSTRUCTION PERFORMANCE GUIDELINES

1. Project rankings.— All ongoing specifically authorized construction projects, including projects funded in the Mississippi River and Tributaries account, will be assigned based upon their primary purpose to one of the main mission areas of the Corps (flood and storm damage reduction; commercial navigation; aquatic ecosystem restoration) or to hydropower. Flood and storm damage reduction, commercial navigation, and hydropower projects will be ranked by their total benefits divided by their total costs (BCR), calculated at a 7 percent real discount rate. Aquatic ecosystem restoration projects will be ranked by the extent to which they cost-effectively contribute to the restoration of a nationally or regionally significant aquatic ecosystem that has become degraded as a result of a civil works project, or to a restoration effort for which the Corps is otherwise uniquely well-suited (e.g., because the solution requires complex alterations to the hydrology and hydraulics of a river system).

2. Projects funded on the basis of their economic and environmental returns.—Ongoing flood and storm damage reduction, commercial navigation, and hydropower construction projects with a BCR of 1.5 or higher and ongoing aquatic ecosystem restoration construction projects that are cost-effective in contributing to the restoration of a nationally or regionally significant aquatic ecosystem that has become degraded as a result of a civil works project or to a restoration effort for which the Corps is otherwise uniquely well-suited will receive at least the amount needed to pay estimated contractor earnings required under ongoing contracts and related costs. In allocating funds among these projects, priority will be given to those with the highest economic and environmental returns.

3. Projects funded to address significant risk to human safety.—Flood and storm damage reduction projects that are funded to address significant risk to human safety will receive sufficient funding to support an uninterrupted effort during the budget year.

4. Projects with low economic and environmental returns.—Ongoing flood and storm damage reduction, commercial navigation, and hydropower construction projects with a BCR below 1.5 will be considered for deferral, except for flood and storm damage reduction projects that are funded to address significant risk to human safety. Likewise, ongoing aquatic ecosystem restoration construction projects that do not cost-effectively contribute to the restoration of a nationally or regionally significant aquatic ecosystem that has become degraded as a result of a civil works project, and do not cost-effectively address a problem for which the Corps is otherwise uniquely well-suited, will be considered for deferral.

5. New starts and resumptions.—The budget could include funds to start up new construction projects, or to resume work on ongoing construction projects on which the Corps has not performed any physical work under a construction contract during the past 3 consecutive fiscal years, only if the project would be ranked that year in the top 20 percent of the ongoing construction projects in its mission area. The term "physical work under a construction contract" does not include activities related to project planning, engineering and design, relocation, or the acquisition of lands, easements, or rights-of-way. For non-structural flood damage reduction projects, construction begins in the first fiscal year in which the Corps acquires lands, easements, or rights-of-way primarily to relocate structures, or performs physical work under a construction contract for non-structural project-related measures. For aquatic ecosystem restoration projects, construction begins in the first fiscal year in which the Corps acquires lands, easements, or rights-of-way primarily to facilitate the restoration of degraded aquatic ecosystems including wetlands, riparian areas, and adjacent floodplains, or performs physical work under a construction contract to modify existing project facilities primarily to restore the aquatic ecosystem. For all other projects, construction begins in the first fiscal year in which the Corps performs physical work under a construction contract.

6. Other cases.—Projects will receive the amount needed to ensure that they comply with treaties and with biological opinions pursuant to the Endangered Species Act, and meet authorized mitigation requirements. Dam safety assurance, seepage control, and static instability correction projects that are funded in the construction program will receive the maximum level of funding that the Corps can efficiently and effectively spend in each year.

Senator DORGAN. General Strock.

STATEMENT OF LIEUTENANT GENERAL CARL STROCK, CHIEF OF ENGINEERS

General STROCK. Thank you, Mr. Chairman. With your permission, I'll submit my full statement for the record.

Senator DORGAN. Without objection.

General STROCK. I'm honored to be testifying before you today with Mr. Woodley and my Director of Civil Works, Major General Don Riley and our Director of Programs, Mr. Gary Loew as well as our colleagues from the Bureau of Reclamation.

Sir, this is a performance-based budget that reflects the realities of a national budget that must address recent national disasters and the ongoing global war on terror. The fiscal year 2008 budget focuses construction funding on 69 projects that will provide the highest economic and environmental returns on the Nation's investment.

The 69 projects include 6 national priority projects, 11 dam safety projects and 52 other ongoing projects. These projects are critical to the future success of our water resources and this funding will be used to improve the quality of our citizens' lives and to contribute to national economic growth and development. This budget uses objective performance measures to establish priorities among projects and proposes changes to the Corps' contracting practices to increase control over future costs. We believe that focusing our effort on funding and completing a smaller, more beneficial set of projects will improve overall program performance and will help the Nation realize the net benefits, per dollar, from its investment much sooner.

The Corps has learned many lessons in the past year, since Hurricane Katrina struck the gulf coast in 2005. The lessons learned provided great insight into changes that need to be made with respect to parts of our organizational culture, in the planning, execution and life cycle management of projects and in how we communicate risk to the American public and our decision makers.

In light of this, as an institutional response, I issued my 12 Actions for Change in August in recognition of the need to continue to change our organization to better serve the Nation. These 12 actions also commit the Corps to ensuring the American public has the information necessary to fully understand and make decisions about risk when they live behind or near a Corps of Engineers project.

The fiscal year 2008 budget includes $2.47 billion for operation and maintenance and $158 million under the Mississippi River and Tributaries Program. I can assure you that I will continue to do all that I can to make these programs as cost effective and as efficient as possible.

Domestically, the Corps of Engineers volunteers from across the Nation continue to respond to the call to help construct and improve a comprehensive hurricane and storm damage protection system along our gulf coast. This critical work they are doing will reduce the risk of future storms to people and communities in the region.

Over the past year, Corps dams, levees and reservoirs again provided billions of dollars in flood damage reduction and protected

lives, homes and businesses in many parts of the Nation following heavy rains.

Internationally, the U.S. Army Corps of Engineers continues to support the mission to help Iraq and Afghanistan build foundations for democracy, freedom and prosperity. Many USACE civilians, each of whom is a volunteer and soldiers are providing engineering expertise, quality construction management and program and project management in those 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 Iraqis and Afghans.

In closing, sir, the Corps is committed to staying on the leading edge of service to the Nation. In support of that, we're working with others to continue to transform our Civil Works Program. We're committed to change that ensures an open, transparent and performance based Civil Works budget.

PREPARED STATEMENT

Ladies and gentlemen of the committee, thank you very much for the honor to serve you over the last 3 years. It has been a wonderful experience for me. I regret that I will not be working with you into the future but I wish you the very best of luck in pursuit of a sound water resources policy for the Nation. Thank you.

[The statement follows:]

PREPARED STATEMENT OF LIEUTENANT GENERAL CARL STROCK

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 (Civil Works), the Honorable John Paul Woodley, Jr., on the President's fiscal year 2008 budget for the United States Army Corps of Engineers' Civil Works Program.

My statement covers the following 3 topics:

—Summary of Fiscal Year 2008 Program Budget;
—Construction Program; and
—Value of the Civil Works Program to the Nation's Economy, and to the Nation's Defense.

SUMMARY OF FISCAL YEAR 2008 PROGRAM BUDGET

Introduction

The fiscal year 2008 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. Direct Program funding totals $5.406 billion, consisting of discretionary funding of $4.871 billion and mandatory funding of $535 million. The Reimbursed Program funding is projected to involve an additional $2 billion to $3 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. It proposes to give the Corps the flexibility and responsibility within each major watershed to use these funds to carry out priority maintenance, repairs, and rehabilitations. The budget incorporates objective performance-based metrics for the construction program, funds the continued operation of commercial navigation and other water resource infrastructure, provides an increase in funding for the regulatory program to protect the Nation's waters and wetlands, and supports restoration of nationally and regionally significant aquatic ecosystems, with emphasis on the Florida Everglades and the Upper Mississippi River. It also would improve the quality of recreation services through stronger partnerships and modernization. Additionally, it emphasizes the 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, while maintaining and enhancing capabilities for execution of our Civil and Military Program missions. These customers rely on our extensive capabilities, experience, and successful track record. The work is principally technical oversight and management of engineering, environmental, and construction contracts performed by private sector firms, and is financed by the customers.

Currently, we provide reimbursable support for about 60 other Federal agencies and several State and local governments. Total reimbursement for such work in fiscal year 2008 is projected to be $2.0 billion to $3.0 billion. The exact amount will depend on assignments received from the Federal Emergency Management Agency (FEMA) for hurricane disaster relief and from the Department of Homeland Security for border protection facilities.

CONSTRUCTION PROGRAM

The goal of the construction program is to produce as much value as possible for the Nation from available funds. The budget furthers this objective by giving priority to the continued construction and completion of those water resources projects that will provide the best net returns on the Nation's investment for each dollar invested (Federal plus non-Federal) in the Corps primary mission areas. The budget also gives priority to projects that address a significant risk to human safety, notwithstanding their economic performance. Under these guidelines, the Corps allocated funding to 69 construction projects, including 6 national priority projects; 11 other dam safety assurance, seepage control, and static instability correction projects; and 52 other ongoing projects.

The budget uses objective performance measures to establish priorities among projects, and through a change in Corps contracting practices to increase control over future costs. The measures proposed include the benefit-to-cost ratios for projects with economic outputs; the extent to which the project cost-effectively contributes to the restoration of a nationally or regionally significant aquatic ecosystem that has become degraded as a result of a Civil Works project or to an aquatic ecosystem restoration effort for which the Corps is otherwise uniquely well-suited; and giving priority to dam safety assurance, seepage control, static instability correction, and projects that address a significant risk to human safety. Resources are allocated based on Corps estimates to achieve the highest net economic and environmental returns and to address significant risk to human safety. This approach significantly improves the realization of benefits to the Nation from the Civil Works construction program and will improve overall program performance by bringing higher net benefits per dollar to the Nation sooner.

Maintenance Program

The facilities owned and operated by, or on behalf of, the Civil Works Program 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 operation and maintenance also is becoming more expensive as this infrastructure ages.

The Operation and Maintenance (O&M) program for the fiscal year 2008 budget consists of $2.471 billion in the Operation and Maintenance account and $158 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 the operation, maintenance, repair and security of existing commercial navigation, flood and storm damage reduction, and hydropower works owned and operated by, or on behalf of, the Corps of Engineers, including administrative buildings and laboratories. Funds are also included in this program for national priority 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. Other work to be accomplished includes dredging, repair, aquatic plant control, removal of sunken vessels, monitoring of completed costal projects, and operation of structures and other facilities, as authorized in the various River and Harbor, Flood Control, and Water Resources Development Acts.

VALUE OF THE CIVIL WORKS PROGRAM TO THE NATION'S ECONOMY AND DEFENSE

We are privileged to be part of an organization that directly supports the President's priorities of winning the global war on terror, securing the homeland and contributing to the economy.

The National Welfare

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.

Domestically, USACE personnel from across the Nation continue to respond to the call to help re-construct and improve the hurricane and storm damage reduction system for southeast Louisiana. The critical work they are doing will reduce the risk of future storms to people and communities in the region.

Over the past year, Corps dams, levees and reservoirs again provided billions of dollars in flood damage reduction and protected lives, homes and businesses in many parts of the Nation following heavy rains.

Mr. Chairman, we will continue to work with you, this subcommittee, and other Members of Congress on the ongoing study, and the authorization and funding proposed by the administration, for modifications to the existing hurricane protection system for New Orleans. The budget's recommendation, as part of a fiscal year 2007 supplemental appropriations package, to re-allocate up to $1.3 billion of emergency supplemental appropriations enacted in fiscal year 2006 will enable the Corps to use available, unobligated funds for measures that will provide a better overall level of protection for the New Orleans metropolitan area in the near-term.

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 Iraq and Afghanistan build foundations for democracy, freedom and prosperity.

Many USACE civilians—each of whom is a volunteer—and soldiers are providing engineering expertise, quality construction management, and program and project management in those 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 Iraqis and Afghanis.

In Iraq, the Gulf Region Division has overseen the initiation of more than 4,200 reconstruction projects valued in excess of $7.14 billion. Of those, more than 3,200 projects have been completed.

These projects provide employment and hope for the Iraqi people. They are visible signs of progress.

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. In support of that, I have worked to transform our Civil Works Program. We're committed to change that ensures an open, transparent, and performance-based Civil Works Program.

Thank you, Mr. Chairman and members of the committee. This concludes my statement.

Senator DORGAN. General Strock, thank you very much. Next we will hear from Secretary Limbaugh and Commissioner Johnson. Secretary Limbaugh is from the Department of the Interior and represents, with Mr. Johnson, the budget for the Bureau of Reclamation. You may proceed.

DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

STATEMENT OF MARK LIMBAUGH, ASSISTANT SECRETARY FOR WATER AND SCIENCE

Mr. LIMBAUGH. Mr. Chairman, thank you. Mr. Chairman, distinguished members of the committee, it's an honor to be here today on behalf of Secretary of the Interior, Dirk Kempthorne, to present the 2008 budget request for the Bureau of Reclamation and the Central Utah Project Completion Act Office.

With me here today is Commissioner Bob Johnson and Reed Murray, the Program Director for the Central Utah Project Completion Act Office.

Interior's mission lies at the confluence of people, land and water and Interior employees fulfill a mission that spans 12 times zones and stretches pole to pole and we operate in every single State and the U.S. Territories. So how we do our jobs in Interior and at the Bureau of Reclamation affects whether 31 million people have drinking water when they turn on their tap or irrigation water for farms that produce 60 percent of the Nation's produce.

Our work contributes to the energy security of the Nation through the Hydropower produced by Reclamation projects.

Now three themes occur in our efforts to manage the Interior's broad portfolio. First is pursuit of management excellence. Second are partnerships and third is the use of science that informs our decisions. Applying these themes, the Bureau of Reclamation has embarked on a Managing for Excellence Initiative to enhance transparency, accountability and effectiveness in its future business operations.

Now in partnership with many of our water contractors, power customers and stakeholders, Reclamation manages and delivers water while addressing competing needs through adaptive management programs, endangered species recovery and habitat conservation programs and innovative water management solutions in places like the Grand Canyon, the Platte River, the CALFED program in California and the incredible work we've done in partnership with the seven basin States in the Colorado River Basin.

Reclamation has also teamed up with the U.S. Geological Survey to update our water management predictive models by incorporating the latest in climatic science and data that reflect our constantly changing snow melt and run-off patterns.

So in formulating the 2008 budget, the Department committed to ensure that our programs, including the Bureau of Reclamation and the Central Utah Project Completion Act, would maintain a high level of service to the American people and reach even higher levels of excellence.

The President's 2008 budget request for the Department of the Interior is $10.7 billion of which $958.4 million is for the Bureau of Reclamation. The request for the Central Utah Project Completion Act is $43 million, to continue with planning and construction of that project in cooperation with our partner, the Central Utah Water Conservation District.

Now, the 2008 budget highlights two initiatives in the Bureau of Reclamation. To help Reclamation's water contractors address the impacts of drought and the many other water supply challenges, the President's budget includes $11 million to continue our Water 2025 Competitive Grants program. Continuing that challenge grant program will allow Reclamation to promote innovative, collaborative solutions in areas of the West where we are now experiencing or can predict that we will be experiencing conflict over water, all the while leveraging a small Federal investment with cost-share partners. We will again, Mr. Chairman, send legislation to the Congress requesting permanent authorization for this program in order to keep this valuable cooperative, competitive grant program alive.

Another priority is a new program that Senator Craig mentioned, our Loan Guarantee program. Now, we propose $1 million to kick that program off and we're trying to help address the challenges of financing improvements to an aging Federal infrastructure. This Loan Guarantee program will allow our contractor water users access to capital markets that they probably wouldn't have without it in order to assist the Bureau of Reclamation in rebuilding and preparing its infrastructure for the future.

Finally, Mr. Chairman, I'd like to highlight two long-term issues that we're addressing in the 2008 budget request. First, our 2008 budget will help launch the recovery of the San Joaquin River in California. Now, this restoration program, which has authorizing legislation before the Congress now, is a result of an agreement that settles litigation that has been spanning 18 years. We applaud the farmers and the fishermen, the environmentalists and the public officials who have come together and worked out an agreement in order to both improve the environment and protect the local economy in California.

Second, the recently-initiated Platte River Recovery program is equally innovative, covering three States, thousands of farmers, hundreds of agricultural dependent-communities and four endangered and threatened species. In partnership with the Federal Government, this recovery program will permit existing water and power users in the Platte River Basin to continue operating while allowing for future growth, all in compliance with the Endangered Species Act.

PREPARED STATEMENT

So Mr. Chairman, in closing, I again thank you for the opportunity to appear before this committee. I look forward to working with you and the members of the committee on issues related to the Bureau of Reclamation's Central Utah Project Completion Act and other issues that come before us and certainly look forward to answering any questions you may have. Thank you.

[The statement follows:]

PREPARED STATEMENT OF MARK LIMBAUGH

Good morning. I am pleased to be here today on behalf of the Secretary to discuss the President's fiscal year 2008 budget for the Department of the Interior and, in particular, the Bureau of Reclamation. I appreciate the opportunity to highlight our priorities and key goals.

Developing a budget for the Department of the Interior is an extraordinary exercise. We have an extensive mandate that rivals just about any governmental agency in its breadth and diversity—and its importance to the everyday lives of our citizens. Our 73,000 employees live and work in communities across America and its territories. We have 2,400 field offices. We manage 145,000 assets—second only to the Department of Defense. Our work stretches from pole to pole from wildlife refuges in the Arctic to scientific research at the South Pole.

Managing one in every 5 acres in the United States, we oversee land and resources that stretch across 12 time zones from the Caribbean to the Pacific Rim. The sun literally never sets on the Department of the Interior. We have the third largest contingent of Federal law enforcement officers, with 3,400 officers and agents. We oversee over 800 dams and irrigation projects. Interior-managed lands and water generate one-third of the Nation's domestic energy supply. The Department serves American Indians, including 561 federally recognized Tribes, Alaska Natives, and our Nation's affiliated island communities. We undertake research and provide information to understand the Earth and assist us in the management of the Nation's water, biological and mineral resources, and monitor all manner of natural hazards including volcanoes, earthquakes, and landslides. We also work with States to restore abandoned mine land sites and protect communities.

BUDGET OVERVIEW

Our overall 2008 request for the Department of the Interior is $10.7 billion. Permanent funding that becomes available as a result of existing legislation without further action by the Congress will provide an additional $5.1 billion, for a total 2008 Interior budget of $15.8 billion.

The budget request for the Bureau of Reclamation and the Central Utah Project Completion Act (CUPCA) programs under the purview of this subcommittee is $1 billion; the Bureau of Reclamation's proposed budget is $958.4 million and the CUPCA proposed budget is $43.0 million.

With enactment of the fiscal year 2007 Joint Resolution, we now have a full year appropriation of $1.0 billion for the Bureau of Reclamation and $34.0 million for CUPCA. This does not include additional funds that are authorized and will be provided for 50 percent of the January 2007 pay raise. Based on direction in the Joint Resolution we are preparing a detailed operating plan for these two agencies for fiscal year 2007. Once our operating plans are approved we will submit them to Congress on March 17. At that time we will be able to provide comparisons at the program level with the 2008 budget request.

The comparisons in our 2008 budget are with the third 2007 continuing resolution, which was in effect through February 15. Throughout this testimony the comparisons will be on that basis.

The Department's 2008 budget is carefully crafted within the President's commitment to continue to fund the Nation's highest priorities while eliminating the deficit in 5 years. The administration is on track to achieve this goal.

At the heart of Department's 2008 budget are four major initiatives including:

—The National Parks Centennial Initiative to enhance National Parks as we approach their 100th anniversary in 2016;
—The Healthy Lands Initiative, which will allow access to public lands for a number of uses and provide for energy for the Nation while also protecting critical lands and habitat;
—The Safe Indian Communities Initiative to combat the methamphetamine crisis on Indian lands; and
—The Improving Indian Education Initiative that will enable Indian children to grow up in an environment that allows them to achieve their dreams.

THE NATIONAL PARKS CENTENNIAL INITIATIVE

The President's 2008 parks budget totals a historic $2.4 billion. The park operating budget, at $2.1 billion, provides an increase of $290 million over the continuing resolution spending level, the largest increase in park operations funding ever proposed. This is $258.3 million over the 2006 level and $230 million over the President's 2007 budget for parks.

Within our operating budget increase, we propose a $100 million Centennial Commitment over 10 years, for a total of $1 billion dedicated to park operations. Our Centennial Initiative will also inspire philanthropic organizations and partners to donate $100 million per year over 10 years to the National Park Service. The Centennial Challenge Federal Fund will match all private donations up to an amount of $100 million. These Federal mandatory matching funds and philanthropic contributions, together with the $100 million annual Centennial Commitment in discre-

tionary funds for park operations, would infuse up to $3 billion into the park system over the next decade.

HEALTHY LANDS INITIATIVE

Another priority for the Secretary is the Healthy Lands Initiative, which will ensure continued access to public lands for traditional uses and recreation, while maintaining strong environmental protections for wildlife and habitat.

As activities on public land increase, we are seeing growing conflicts among recreation users, energy developers, hunters, ranchers, and others all competing to protect, access, and use these public lands. Several Interior bureaus will join together to identify, restore, and mitigate the potential impacts of increased energy production in wildlife-energy interface areas and potentially prevent the listing of certain species such as sage grouse.

Focused on six strategic areas, these funds will transform land management from the current parcel by parcel approach to landscape-scale decision making, drawing upon partnerships and new policy tools to provide increased access for energy and other uses, while simultaneously preserving important habitat corridors and sites for the benefit of species. In 2008, including this increase, over 400,000 acres will be restored in partnership with Federal leaseholders, private landowners, State, local, and tribal governments—to benefit wildlife. The Healthy Lands Initiative includes $22.0 million to fund partnerships with local communities, conservation groups, and companies to rehabilitate and protect working landscapes.

THE METHAMPHETAMINE CRISIS IN INDIAN COUNTRY

I would like to highlight two other 2008 priorities for the Department of the Interior, our Safe Indian Countries and Indian Education Initiatives. While I recognize that the Senate Indian Affairs Committee has jurisdiction over these matters, I also know many of you represent States and tribes that are struggling with the impacts associated with methamphetamine.

Methamphetamine is a highly addictive synthetic stimulant that creates intense euphoric highs for periods up to 24 hours. It is inexpensive and, unfortunately, has rapidly become the drug of choice for an increasing number of Americans.

The social effects of methamphetamine use are tragic. Addicted mothers are giving birth to drug-addicted babies. The drug is fueling homicides, aggravated assaults, rape, child abuse, and other violent crimes. Violent crime in Indian Country is reaching crises levels at twice the national average.

Our budget includes $16 million for a Safe Indian Communities initiative that reconfigures and tailors our focus to combat organized crime, break up drug trafficking, and interrupt the drug supply.

IMPROVING INDIAN EDUCATION

Improving Indian education is also a priority. One of only two school systems operated by the Federal Government, the Bureau of Indian Education should oversee schools that are models of performance for the No Child Left Behind Act. Yet only 30 percent of the schools in the Bureau of Indian Education system are meeting NCLB goals.

In recent years, we have improved school facilities by replacing 32 schools and renovating another 39 schools. It is now time to focus on the classroom. Our 2008 budget proposes to invest $15.0 million to improve the performance of students in Indian schools. Additional funding will provide educational program enhancements and tools for lower performing schools and educational specialists to guide Indian schools in achieving academic success. The request also provides additional funding for transportation to reduce the redirection of education dollars to pay for buses and fuel.

INTERIOR PRIORITIES FOR WATER PROGRAMS

The Department, through the Bureau of Reclamation, is the largest supplier and manager of water in the 17 western States. The 2008 budget emphasizes Reclamation's core mission of delivering water and power. Reclamation priorities include a focus on ensuring facility integrity and site security and resolving major western water challenges.

In addition to the initiatives I described, Interior's 2008 budget requests resources for priority programs in the Bureau of Reclamation and CUPCA. The 2008 budget for the Bureau of Reclamation includes four major initiatives, including:

—Improving and diversifying water supplies to prevent crises through cooperative, cost sharing efforts funded by Water 2025;

—Development of a Loan Guarantee Program that will help water districts to repair aging infrastructure; and
—The California Bay-Delta Restoration program which supports the efforts of a consortium of Federal and State agencies that are working to improve the health of the ecosystem and water management and supplies;
—Improvements in the safety and reliability of Bureau of Reclamation facilities through the Safety of Dams Program.

WATER 2025, PREVENTING CRISES AND CONFLICTS

The 2008 budget includes $11.0 million for Water 2025. The overarching goal of Water 2025 is to meet the challenge of preventing crises and conflicts over water in the West. Water 2025 will achieve this by increasing the certainty and flexibility of water supplies, diversifying water supplies, and preventing crises through cooperatively adding environmental benefits in many watersheds, rivers, and streams.

The 2008 Water 2025 request includes $10.0 million for the 50/50 challenge grant program, which relies on local initiative and innovation to identify and formulate the most sensible improvements for local water systems. The request also includes $1.0 million for system optimization reviews for Reclamation to work on a 50/50 cost-share basis with local entities to assess the potential for water management improvements.

The administration will submit legislation for the authorization necessary to accomplish the goals of this program.

LOAN GUARANTEE PROGRAM

The 2008 request includes $1.0 million for the Loan Guarantee program which is a critical component of Interior's strategy to address aging water infrastructure challenges in the West. The Loan Guarantee Program uses a business-like approach that recognizes the inability of many water districts to secure funds for expensive rehabilitative repairs without the capability to use Federal facilities as collateral to obtain bank financing. The program was authorized by the Reclamation Water Supply Act in 2006.

The loan program will allow water districts to obtain long-term loans to address major rehabilitation and replacement projects, thereby addressing the key issue facing Reclamation's aging infrastructure. The $1.0 million included in the 2008 budget will be used for setting up the administrative components of the Loan Guarantee Program.

CALIFORNIA BAY-DELTA RESTORATION

The 2008 budget includes $31.8 million for CALFED. The CALFED Bay-Delta Authorization Act was signed into law in 2004. A Consortium of Federal and State agencies works collaboratively, funding and participating in the CALFED program. Their efforts focus on improving the health of the ecosystem and water management and supplies. In addition, CALFED addresses the issues of water supply reliability, aging levees, and threatened water quality.

The Bay-Delta system is critical to California's economy because the two rivers that flow into the Bay-Delta provide potable water for two-thirds of California's homes and businesses and irrigate more than 7 million acres of farmland on which 45 percent of the Nation's fruits and vegetables are grown. The Bay-Delta system also provides habitat for 750 plant and animal species, some listed as threatened or endangered.

Funding for California Bay-Delta Restoration is requested in the following program areas: $7.0 million for the environmental water account; $8.5 million for the storage program; $5.0 million for water conveyance, $1.5 million for ecosystem restoration; $4.8 million for water quality; $3.0 million for science; and $2.0 million for Reclamation's oversight function to ensure program balance and integration.

SAFETY OF DAMS PROGRAM

A total of $77.0 million is requested for the Safety of Dams program, an increase of $8.0 million from 2007 that is primarily for corrective actions at Folsom Dam. The Dam Safety program continues to be one of Reclamation's highest priorities. The program helps ensure the safety and reliability of Reclamation's dams by focusing funding and resources on those facilities, which pose the highest risk to the downstream public. The program includes: investigation, identification, evaluation, decision-making and risk reduction activities. The program accomplishes three main tasks: Safety Evaluations of Existing Dams, Initiating Safety of Dams Corrective Actions, and conducting the DOI Dam Safety program.

By focusing on the safety and reliability of Reclamation's dams, the Dam Safety program plays a vital role in accomplishing the Department's end outcome goal of delivering water consistent with applicable State and Federal law in an environmentally responsible and cost efficient manner. The efforts of the Dam Safety program are currently measured by the percent of water infrastructure in fair to good condition as measured by the Facility Reliability Rating.

MAINTAINING CORE PROGRAMS

The 2008 request for Reclamation's principal operating account is $816.2 million, which is an increase of $60.3 million over the 2007 continuing resolution. The budget proposal continues to emphasize assuring operation and maintenance of Bureau of Reclamation facilities in a safe, efficient, economic, and reliable manner; ensuring systems and safety measures are in place to protect the public and Reclamation facilities; 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 issues. Funding for each project or program within Reclamation's budget request is based upon Departmental and bureau priorities, compliance with the Department of the Interior strategic plan, and performance accomplishments.

The 2008 request includes a total of $429.5 million for water and energy, land, and fish and wildlife resource management 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.

Reclamation's 2008 budget assumes enactment of two legislative proposals. First, a proposal for the Pick-Sloan Missouri Basin program would re-allocate the repayment of capital costs of the program. Power customers would be responsible for repayment of all construction investments from which they benefit. This change would increase reimbursements to the Treasury from power customers by $23.0 million in 2008. A legislative proposal will be transmitted to the appropriate congressional authorizing committees for consideration.

Second, the 2008 budget also reflects the settlement of an 18-year legal dispute, *Natural Resources Defense Council* v. *Rodgers,* over the Bureau of Reclamation's operation of Friant Dam near Fresno, California. Reclamation's budget presumes that implementing legislation will be enacted. Bills have already been introduced in the Senate and the House, as S. 27 and H.R. 24, which would implement the proposed Settlement. Consistent with this legislation, Reclamation's 2008 budget would redirect approximately $7.5 million per year of payments from the Central Valley Project Friant Division and $9.8 million from the Reclamation Fund into the newly-created San Joaquin Restoration Fund, which would be available without further appropriations to implement the provisions of the settlement.

ACHIEVING KEY GOALS

I would like to call the attention of the subcommittee to our mission goals and the efforts we are making to achieve results for the Nation in areas that touch on the issues and programs of interest to the subcommittee.

Achieving Energy Security.—In his State of the Union address, President Bush underscored that America must enhance energy security. The Department of the Interior plays a key role in advancing this goal. Nearly one-third of the energy produced in the United States each year comes from public lands and waters managed by Interior. To carry out the goals of the Energy Policy Act and enhance the availability of affordable oil, gas, and alternative energy sources, the 2008 budget for Interior programs includes $481.3 million for energy programs, an increase of $25.5 million over the 2007 continuing resolution. With these resources, the Department will enhance energy security through increased production, protect the environment, promote conservation, and expand the use of new technologies and renewable energy sources.

Cooperative Conservation.—Through partnerships, Interior works with landowners and others to achieve conservation goals across the Nation and to benefit America's national parks, wildlife refuges, and other public lands. The 2008 budget includes $324.0 million for the Department's cooperative conservation programs, $34.6 million over 2007. These programs leverage Federal funding, typically providing a non-Federal match of 50 percent or more. They provide a foundation for cooperative efforts to protect endangered and at-risk species; engage local communities, organizations, and citizens in conservation; foster innovation; and achieve conservation goals while maintaining working landscapes.

Refuge Operations and Species Protection.—Targeted increases for the National Wildlife Refuge System and other FWS species conservation programs will focus new resources on conserving and restoring the habitat necessary to sustain endangered, threatened, and at-risk species and prevent additional species from being listed under the Endangered Species Act. A program increase of $4.7 million for refuge wildlife and habitat management will allow the refuge system to increase the number of recovery plan actions completed in 2008 by 111; protect or restore an additional 57,983 acres; and fill three new positions to manage the new Northwestern Hawaii Marine National Monument. The 2008 budget also includes $2.2 million in programmatic increases for the recovery of the gray wolf and the Yellowstone grizzly bear.

Healthy Forests Initiative.—The 2008 budget for the Healthy Forests Initiative, a total of $307.3 million, supports the Department's efforts to reduce the threat of catastrophic wildfire and improve forest and rangeland health. The 2008 budget request funds the Hazardous Fuels Reduction program at $202.8 million, an increase of $3.0 million for fixed costs over the 2007 level. An additional $1.8 million in the hazardous fuels program will be shifted from program support activities to on-the-ground fuel reduction to help treat high-priority acres.

Wildland Fire Management.—The 2008 budget proposes $801.8 million to support fire preparedness, suppression, fuels reduction, and burned area rehabilitation. This amount represents a net increase of $32.6 million above 2007, including an increase of $37.4 million for suppression operations. This budget will fully fund the expected costs of fire suppression in 2008 at $294.4 million, based on the 10-year average. The 2008 Preparedness program is funded at $268.3 million, a net reduction of $6.5 million from the 2007 level. A significant portion of this reduction will be achieved by eliminating management and support positions and lower-priority activities. The 2008 Wildland Fire Management program will realign its preparedness base resources to better support initial attack capability, which will include the addition of over 250 firefighters. These actions will help maintain initial attack success.

Oceans Conservation.—Interior bureaus conduct ocean and coastal conservation activities that significantly advance understanding of the processes and status of ocean and coastal resources. The 2008 President's budget includes $929.5 million to support the President's Ocean Action Plan. This funding will allow Interior bureaus to continue their high-priority work within the U.S. Ocean Action Plan and includes an increase of $3.0 million for USGS. In 2008, USGS will begin to implement the Oceans Research Priorities Plan and Implementation Strategy by conducting observations, research, seafloor mapping, and forecast models. USGS will also begin to implement an interagency national water quality monitoring network. Also included is $600,000 for three new positions to support management of the new Northwestern Hawaiian Islands Marine National Monument.

Indian Trust.—The 2008 request for Indian Trust programs is $489.9 million, $17.6 million above 2007. The Indian Land Consolidation program is funded at $10 million, $20.7 million below 2007. The 2008 budget also includes $4.6 million in reductions to reflect efficiencies and improvements in services to beneficiaries, the completion of trust reform tasks, the completion of project task efforts, and management efficiencies. The budget includes a $3.6 million increase for the Office of Historical Accounting to assist with the increased workload associated with additional tribal trust lawsuits.

Payments in Lieu of Taxes.—PILT payments are made to local governments in lieu of tax payments on Federal lands within their boundaries and to supplement other Federal land receipts shared with local governments. The 2008 budget proposes $190 million for these payments. The 2008 request is a reduction of $8 million from the 2007 level. This level of funding is significantly above the historical funding level for PILT. From the program's inception in 1977 through 2001, the program was funded in the range of $96–$134 million.

CONCLUSION

We believe that the Department's 2008 budget will—in its entirety—make a dramatic difference for the American people. We will better conserve our public lands. We will improve our national parks. We will protect our wildlife and its habitat. We will help craft a better future for Indian country and particularly for Indian children. We will better manage and protect water and related resources and produce the energy that America needs to heat our homes and run our businesses. This concludes my overview of the 2008 budget proposal for the Department of the Interior and my written statement. I will be happy to answer any questions that you may have.

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

STATEMENT OF ROBERT W. JOHNSON, COMMISSIONER

Mr. JOHNSON. Thank you, Mr. Chairman and members of the subcommittee. It's my pleasure to be here. This is my first opportunity to testify before this committee and I look forward to working with you now and in the future.

The overall fiscal year 2008 appropriation request for Reclamation totals $958.4 million. This request provides funding for multiple priorities of the Reclamation program, consistent with the President's objective of achieving a balanced budget by 2012. I would like to, in my oral presentation, highlight three broad categories of activity that comprise the major portion of the Reclamation budget.

First, our budget reflects the need to maintain our existing portfolio of projects. Reclamation has over 472 dams, 348 reservoirs, 58 powerplants and many other water delivery facilities. Our infrastructure provides water to 31 million people and 10 million acres of irrigated farmland. We generate 42 billion kilowatt hours of electricity annually, enough to provide power for a population of about 8 million.

Our predecessors gave us a magnificent infrastructure that has helped meet our water needs in the American West amazingly well. Much of that infrastructure is 50 to 100 years old and its proper operation and maintenance is our top priority. Approximately $380 million of the Reclamation budget, about 40 percent, is dedicated to making sure that our facilities are operated and maintained in a safe and reliable fashion.

Second, we frequently find ourselves having to manage our projects to meet changes in social and public values that are embodied in the Endangered Species Act, the Clean Water Act, the National Environmental Protection Act and other State and Federal environmental laws. In many cases, meeting these requirements have been manifested in the development of broader river management and/or restoration plans. Implementation of these plans is becoming a significant element of the Reclamation program. Reclamation's involvement is almost always necessary to meet its obligations associated with the operation and maintenance of its projects.

Reclamation is currently involved in environmental restoration management programs on the Colorado, Middle Rio Grande, Platte, Klamath, Columbia, San Joaquin, Trinity and Sacramento Rivers. We anticipate that our efforts on these and other river systems will continue to be a significant part of the Reclamation program well into the future. Our 2008 budget request includes about $150 million for these activities.

Finally, Reclamation continues to be actively involved in programs to develop new water supplies and infrastructure. In total, these programs represent approximately $175 million of our 2008 request. Examples of ongoing activities in our 2008 budget include the Animas-La Plata Project. This project is located in southwestern Colorado and will provide water supplies to settle the water right claims of the Ute Mountain Ute and Southern Ute In-

dian Tribes. It will provide municipal and industrial water to rural communities in the Four Corners areas of Colorado and New Mexico and it will provide water service to parts of the Navajo Indian Reservation.

Second, rural water programs. The Reclamation budget includes funding for water systems to deliver surface water to Indian and non-Indian communities in the rural Great Plains. These projects provide good quality water to rural areas where existing water supplies are either non-existent or of very poor quality.

Three, water re-use projects. Under title XVI of Public Law 102–575, Reclamation continues to provide some funding for development of projects that re-use existing waste water supplies. Located primarily in southern California, these projects provide drought-proof supplies that we hope meet increasing demands for water caused by fast-growing urban populations.

Fourth, Indian water distribution systems in Arizona. Under the authority of the Central Arizona Project, Reclamation is funding construction of water delivery systems to serve Colorado River water to Indian tribes in central Arizona. These systems provide new water supplies to settle Indian water right claims and meet economic development needs on the reservations.

Finally, water conservation programs. Through the Water 2025 program and our Water Conservation Field Services program, Reclamation provides funding for implementation of water conservation projects. Using a challenge grant approach, these programs are competitive and usually leverage non-Federal funding to maximize the effectiveness of the Federal investment. These programs have been successfully applied in all 17 reclamation States.

PREPARED STATEMENT

In conclusion, our budget represents a proper balance between maintaining our infrastructure and meeting our environmental compliance obligations with river restoration plans and also providing money for the development of new water supplies.

Mr. Chairman, thank you and I'd be happy to answer questions.

[The statement follows:]

PREPARED STATEMENT OF ROBERT W. JOHNSON

Thank you, Mr. Chairman, Mr. Domenici and members of the subcommittee, for the opportunity to appear in support of the President's fiscal year 2008 budget request for the Bureau of Reclamation. With me today is Bob Wolf, Director of Program and Budget.

Since this is my first opportunity to present the President's budget, I would like to make two introductory comments. First, I truly appreciate the time and consideration this committee gives to reviewing and understanding Reclamation's budget and its support for the program. Second, while the development of an annual budget is a long and complex task, it is truly rewarding to see our institution work so hard to prioritize and define our program in a manner that serves the public and those who rely on Reclamation for their water and power.

Our fiscal year 2008 request has been designed to support Reclamation's efforts to deliver water and generate hydropower, consistent with applicable State and Federal law, in an environmentally responsible and cost-efficient manner.

The funding proposed is for key projects and programs that are important to the Department and in line with administration objectives. The budget request also supports Reclamation's participation in efforts to meet emerging water supply needs, to address water shortage issues in the West, to promote water conservation and improved water management, and to take actions to mitigate adverse environmental impacts of projects.

The fiscal year 2008 request for Reclamation totals $958.4 million in gross budget authority and is partially offset by discretionary receipts in the Central Valley Project Restoration Fund ($51.3 million).

WATER AND RELATED RESOURCES

The fiscal year 2008 request for Water and Related Resources is $816.2 million. More specifically, the request for Water and Related Resources includes a total of $429.5 million for water and energy, land, and fish and wildlife resource management activities (which provides for construction, management of Reclamation lands, and actions to address the impacts of Reclamation projects on fish and wildlife), and $386.7 million for facility operations, maintenance, and rehabilitation activities.

Providing adequate funding for facility operations, maintenance, and rehabilitation continues to be one of Reclamation's highest priorities. Reclamation 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 2008 Request for Water and Related Resources Include

I would like to share with the committee several highlights of the Reclamation budget:

Water 2025 ($11 million).—Water 2025 is a high priority for the Secretary of the Interior and will focus financial and technical resources on areas in the West where conflict over water either currently exists or is likely to occur in the coming years.

The overarching goal of Water 2025 is to meet the challenge of preventing crises and conflict over water in the West. Water 2025 will contribute to meeting this goal by increasing certainty and flexibility in water supplies, diversifying water supplies, and reducing conflict through the use of market-based approaches and enhancing environmental benefits in many watershed, rivers and streams consistent with State and Federal laws.

With $11 million, Water 2025 will continue to be a multifaceted program with projects that embody the overarching goal of preventing crises and conflict over water in the West. Leveraging limited Federal dollars through the Challenge Grant program will continue to be a major component of Water 2025. The Challenge Grant program will focus on projects that improve water management through conservation, efficiency, and water markets, as well as collaborative solutions to meet the needs of the future. Beginning with fiscal year 2007, a system optimization review component has been added to ensure existing water management systems are operated to maximize water deliveries. Modernization of existing systems will occur within the framework of existing treaties, interstate compacts, water rights, and contracts.

In addition to the program and policy priorities reflected in the fiscal year 2008 budget request, the Department intends to re-submit permanent authorizing legislation this spring to support the Water 2025 program.

Loan Guarantee Program ($1 million).—The fiscal year 2008 request includes funding for a Loan Guarantee program, which is an important component of Interior's strategy to address aging water infrastructure challenges in the West. The loan guarantee program, which is a business-like approach that recognizes the inability of many water districts to fund expensive rehabilitative repairs without the capability to use Federal facilities as collateral to obtain bank financing, was authorized by Title II of Public Law 109–451, the Rural Water Supply Act of 2006.

Klamath Project in Oregon and California ($25 million).—The fiscal year 2008 request will continue and increase funding for Reclamation to collaborate with other Federal and State agencies, tribes and the public to develop a basin-wide recovery plan that addresses water supply, water quality, fish habitat, and fish populations.

Lower Colorado River Operations Program in California, Arizona and Nevada ($15.4 million).—The fiscal year 2008 request will provide funds for the work necessary to carry out the Secretary's responsibilities as water master of the lower Colorado River. The fiscal year 2008 request funds measures under the multi-species conservation program to provide long-term Endangered Species Act compliance for lower Colorado River operations for both Federal and non-Federal purposes.

Middle Rio Grande in New Mexico ($23.2 million).—The fiscal year 2008 request will continue funding for endangered species activities and Reclamation's participation in the Middle Rio Grande Endangered Species Act Collaborative Program as well as repair of priority river maintenance sites.

Animas-La Plata in Colorado and New Mexico ($58 million).—The fiscal year 2008 request includes $58 million to continue construction of the project's major fea-

tures, Ridges Basin Dam and Durango Pumping Plant and the Ridges Basin Inlet Conduit. The project is critical to implementation of the Colorado Ute Settlement Act. Funding will be primarily directed to these three features while other key features are held for future implementation.

Savage Rapids in Oregon ($15 million).—The fiscal year 2008 request will provide funds for continuing construction of the pumping facilities. Removal of this irrigation diversion dam and the installation of pumping facilities will allow the local farming community to continue irrigated agriculture and remove a migration barrier for the threatened Southern Oregon and Northern California coho salmon.

Columbia/Snake River Salmon Recovery in Idaho, Oregon, Montana, and Washington ($15 million).—The fiscal year 2008 request will address the requirements in the biological opinions issues in December 2000 by the U.S. Fish and Wildlife Service and in November 2004 by the National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries). The 2004 biological opinion has been remanded to NOAA Fisheries and a new biological opinion is due in July 2007. During the remand, the 2004 biological opinion remains in place as Reclamation continues to implement actions identified in the 2004 updated proposed action. These requirements include significantly increased regional coordination efforts; actions to modify the daily, weekly, and seasonal operation of Reclamation dams; acquisition of water for flow augmentation; tributary habitat activities in selected subbasins to offset hydrosystem impacts; and significantly increased research, monitoring, and evaluation. The request includes funding for the Nez Perce Water Settlement Act.

Platte River Endangered Species Recovery Program ($9.6 million).—The fiscal year 2008 budget request is for Federal participation in the Platte River Recovery Implementation Program. The agreement for the program was signed by Secretary Kempthorne and the Governors of Nebraska, Colorado and Wyoming in late 2006.

Site Security ($35.5 million).—An appropriation in the amount of $35.5 million is requested for site security to ensure the safety and security of the public, Reclamation's employees and key facilities. This funding includes $11.7 million for physical security upgrades and $23.8 million to continue all aspects of Reclamation-wide security efforts, including law enforcement, risk and threat analysis, implementing security measures, undertaking security-related studies, and maintaining guards and patrols on the ground.

The fiscal year 2008 budget request assumes annual costs associated with guard and patrol activities will be treated as project O&M costs subject to being reimbursed based on project cost allocations. These costs in fiscal year 2008 are estimated at $22.1 million of which $18.9 million will be reimbursed. Of the funding to be reimbursed, $11.6 million will be in direct up-front funding from power customers, while $7.3 million in appropriated funds will be reimbursed by irrigation users, M&I water users, and other customers in the year in which they were incurred through Reclamation's O&M allocation process. Reclamation will continue to treat facility fortification, studies, and anti-terrorism management-related expenditures as non-reimbursable.

Safety of Dams ($77 million).—Assuring the safety and reliability of Reclamation dams is one of the Bureau's highest priorities. The Dam Safety Program is critical to effectively manage risks to the downstream public, property, project, and natural resources. The fiscal year 2008 request provides for risk management activities at 361 dams and dikes, which would likely cause loss of life if they were to fail. In fiscal year 2008, large-scale, ongoing corrective action work is planned at Folsom Dam. Reclamation is working closely with the U.S. Army Corps of Engineers to coordinate this work with the flood control efforts to minimize Federal costs and duration of work.

Rural Water ($55 million).—The fiscal year 2008 request continues funding for ongoing rural water projects. This includes funding for Municipal, Rural, and Industrial (MR&I) systems for the rural water components of the Pick Sloan-Missouri Basin Program—Garrison Diversion Unit (North Dakota), the Mni Wiconi Project (South Dakota), and the Lewis and Clark Project (South Dakota, Iowa, and Minnesota).

On December 22, 2006, the President signed Public Law 109–451, the Rural Water Supply Act of 2006. Title I of the statute requires the Secretary to establish a formal rural water supply program for rural water and major maintenance projects in the 17 western States. The Act requires the establishment of programmatic and eligibility criteria for the rural water program along with other reporting requirements and criteria for appraisal and feasibility studies. Implementation of the Act will allow the Department, the administration and Congress to set priorities and establish clear guidelines for project development to help meet the water supply needs of rural communities throughout the West.

Science and Technology (S&T) ($13.4 million).—The fiscal year 2008 request includes funding for the development of new solutions and technologies which respond to Reclamation's mission-related needs. We feel our S&T work is important and will contribute to the innovative management, development, and protection of water and related resources. Of the amount requested, about $4.4 million is planned for internal desalination Research & Development conducted by Reclamation.

POLICY AND ADMINISTRATION

The $58.8 million request in fiscal year 2008 is a slight increase and includes funding for labor cost increases due to cost of living raises and inflationary costs for non-pay activities. Funding requested will be used to: (1) develop, evaluate, and direct implementation of Reclamation-wide policy, rules, and regulations, including actions under the Government Performance and Results Act, and implement the President's Management Agenda; and (2) manage and perform functions that are not properly chargeable to specific projects or program activities covered by separate funding authority.

CENTRAL VALLEY PROJECT RESTORATION FUND

This fund was established by the Central Valley Project Improvement Act, title XXXIV of Public Law 102–575, October 30, 1992. The request of $51.6 million is expected to be offset by discretionary receipts totaling $51.3 million, which is the maximum amount that can be collected from project beneficiaries under provisions of section 3407(d) of the Act. The discretionary receipts are adjusted on an annual basis to maintain payments totaling $30 million (October 1992 price levels) on a 3-year rolling average basis. The request of $51.6 million was reduced by $7.5 million (i.e., would have been $59.1 million) due to a legislative proposal, which redirects $7.5 million collected from the Central Valley Project Friant Division water users to the new San Joaquin River Restoration Fund for fiscal year 2008. These funds will be used for habitat restoration, improvement and acquisition, and other fish and wildlife restoration activities in the Central Valley Project area of California.

SAN JOAQUIN RIVER RESTORATION FUND PROPOSED LEGISLATION

The 2008 budget also reflects the settlement of *NRDC* v. *Rodgers*. The administration will submit authorizing legislation, the San Joaquin River Restoration Settlement Act, which includes a provision to establish the San Joaquin River Restoration Fund. Under the settlement, the legislation proposes to redirect approximately $17.3 million per year of payments from the Central Valley Project, Friant Division water users into the Fund which would be available without further appropriations to implement the provisions of the settlement. Previously, $7.5 million of these funds went into the Central Valley Project Restoration Fund.

CALIFORNIA BAY-DELTA RESTORATION FUND (CALFED)

Title I of Public Law 108–361, titled the Calfed Bay-Delta Authorization Act, was signed by the President on October 25, 2004. The act authorized $389 million in Federal appropriations over the period of fiscal year 2005 through fiscal year 2010. For fiscal year 2008, $31.8 million is requested to enable Reclamation to advance its commitments under the CALFED Record of Decision and with a focus towards implementation of priority activities included in the Calfed Bay-Delta Authorization Act that will contribute to resolving water resource conflicts in the CALFED solution area. Funds will specifically be used for the environmental water account, feasibility studies of projects to increase surface storage and improve water conveyance in the Delta, conduct critical science activities, implementation of projects to improve Delta water quality, ecosystem enhancements, and program planning and management activities.

FISCAL YEAR 2008 PLANNED ACTIVITIES

Reclamation's fiscal year 2008 priority goals are directly related to continually fulfilling our progress in water and power contracts while balancing a range of competing water demands. Reclamation will continue to deliver water consistent with applicable State and Federal law, in an environmentally responsible and cost-efficient manner. Reclamation will strive to deliver 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 work to maintain our dams and associated facilities in fair to good condition to ensure the reliable delivery of water. Reclamation will strive to meet or beat the industry forced outage average to ensure reliable de-

livery of power. Reclamation will reduce salinity by preventing an additional 18,500 tons of salt from entering the water ways.

Moreover, the fiscal year 2008 budget request demonstrates Reclamation's commitment in meeting the water and power needs of the West in a fiscally responsible manner. This budget continues Reclamation's emphasis on delivering and 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 2008 and beyond.

MANAGEMENT STUDIES

Reclamation continues to make significant advancements in its quest for management excellence. Reclamation's Managing for Excellence Action Plan reflects specific actions to realize the underlying principles of the President's Management Agenda. The National Academy of Sciences, at Reclamation's request, completed and published its study in 2006 to assist Reclamation in determining the appropriate organizational, management, and resource configurations to meet its construction and related infrastructure management responsibilities associated with fulfilling its core mission of delivering water and power for the 21st century.

The Managing for Excellence action plan, developed in response to the Academy's report, outlines a process and timeframe for identifying and addressing the specific actions that can be taken to increase transparency, efficiency, and accountability within Reclamation. As of the end of January 2007, Reclamation has completed approximately 50 percent of the 41 action items identified. Although the philosophy of Managing for Excellence will continue into the future, the Managing for Excellence Action Plan will conclude after December 2007 and implementation will continue as part of Reclamation's normal business.

CONCLUSION

Mr. Chairman, Please allow me to express my sincere appreciation for the continued support that this committee 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. Johnson, thank you very much. I'm going to ask a couple of questions and then turn to my colleagues. We've been joined by Senator Jack Reed as well. Senator Reed, others made a very brief statement. Would you like to make a comment?

Senator REED. I'll just put that in the record, Mr. Chairman.

[The statement follows:]

PREPARED STATEMENT OF SENATOR JACK REED

Senators Dorgan and Domenici, it is an honor to serve with you again on the Appropriations Committee. I look forward to working with you on this subcommittee given the importance of energy and water programs to Rhode Island.

Good afternoon, Secretary Woodley and Lieutenant General Strock, I look forward to hearing your testimony. I want to commend the work of Colonel Thalken, Bobby Byrne, and the New England District. With over 400 miles of coastline, the Corps has a number of ongoing navigation and ecosystem restoration projects in Rhode Island that are extremely important to my State's economy and environment.

The Corps also provides an important service in the inspection of our Nation's dams and levees. I am interested in your efforts to help local communities and States ensure that these critical infrastructure projects are sound and able to protect the lives and properties for which they were designed. I am also interested in the Corps efforts to restore aquatic ecosystems given the number of ongoing projects in Rhode Island to protect our coastal ponds.

Senator DORGAN. All right. I'm going to ask a series of questions about the Missouri River System and the eighth year of the drought now, ninth year of the drought in Montana and that system. But I withhold on those questions. I'm just going to ask a question to, I would say, Secretary Woodley and General Strock, on the issue of the pumps in New Orleans, which I expect you would come here and expect to get a question about.

I've read the reports, the Associated Press reports and so on and I would like to have both of you comment publicly about it. The story that is told in these reports is that a substantial amount of money was committed to rush to put in pumps to protect New Orleans but the pumps apparently, while costing $26.6 million, came from a company that the U.S. Justice Department had sued just 4 years ago. Those pumps apparently did not work. People inside the Corps of Engineers questioned whether the pumps should be purchased, alleged that they would not work. In any event, at least the stories about this suggest that it was a profound waste of the taxpayers' money, an unwise decision in contracting. I want to ask you what we should make of these stories and what the Corps' view is of what has happened there.

Mr. WOODLEY. Senator, the provision of pumping capacity to complement the temporary closure structures on the drainage canals at Lake Pontchartrain, is perhaps the single aspect of the project that has taken more of my personal attention than any other. I have been very deeply involved in it and have followed it very closely. I can tell you that the challenges of that effort should not be minimized. We're not talking about the kind of pump that you put in your birdbath. These are very serious installations of enormous capacity, capacity almost unknown elsewhere in the Nation.

They were accomplished in time for the beginning of the 2006 hurricane season on a schedule of unprecedented speed and scope and overcoming enormous challenges of the hydraulics and the planning and construction by people who were extremely dedicated to the work. I am not familiar with the technicalities of it. I do not pretend technical expertise. I do know that a great deal of technical expertise and scrutiny has been given to this and I believe that at the end of the day, when the full story is told that it will be a rather different story from the impressions and implications that we have from the initial report.

Senator DORGAN. Well, let me ask a specific question then. Is it the case that a mechanical engineer from Corps wrote a memo to Corps officials saying the equipment being installed was defective, warned that the equipment would break down should they be tasked to run at a normal use, as it be required and that when the pumps were installed, they were defective, have broken down sufficient so that you've had to withhold 20 percent of the funding of the contract?

General STROCK. Sir, I should probably answer that as the Corps of Engineers representative here. I am not aware of a member of the Corps of Engineers that expressed those concerns but his or her concerns, I think, are valid. The fact is, as the Secretary has said, this is a very, very complex and large-scale operation. I'm not sure that anything like this has ever been done before. In addition to focusing on the complexity, I'd also like to recognize that this is a tremendously important function, too. Our task is to keep the waters of Lake Pontchartrain out of the city in the event of another storm surge but we must do that in a way that does not interfere with the city's ability to pump rainwater that falls inside the city. So we know how important this is.

Sir, the process that would normally be followed for a project of this size and complexity would take about 3 years to accomplish. It's been about 18 months since the Corps got this mission and by the end of April, we will have those pumps operating effectively. We know what the problems are and we have the solutions in place. The normal protocol is to test pumps in the factory. You can do that with pumps below 42 inches in diameter. With pumps the size of these, there is no protocol for factory testing and we have not been able to identify a factory in the United States that can test these in the factory as the Hydraulic Institute likes to do.

Our Engineering Research and Development Center worked with the Hydraulic Institute and proposed a protocol of field testing. That protocol was reviewed and approved by the Hydraulic Institute, which is the authoritative body in these matters and those tests have been conducted in the field. They did determine problems. We experienced significant vibrations in the pumps. We know why that occurred. We are making fixes to that.

So sir, this is not unexpected. The process of certification and testing of the pumps, which would normally be done in a factory had to occur in the field in this case. We were faced with the challenge of running things through the normal process and having no pumping in place or very little pumping in place for the 2006 hurricane season. We chose to accept a calculated risk and put something in place that would have an effect at the beginning of the hurricane season.

So sir, I offer no apologies for this, for the efforts of the Corps of Engineers. There may be some issues you touched on that I'm not familiar with that I will look into. The matter of the Department of Justice investigation, we were aware of that during the contract award process. Unless a contractor has been debarred or specifically proposed for debarment, we cannot prohibit a contractor—cannot deny an award to a contractor and that process had not occurred with the contractor.

Senator DORGAN. General, thank you. I will have some other questions. Let me just point out on debarment. It's pretty hard to get debarred these days. That's a particular concern I have.

General STROCK. Yes sir, but as the law says, unless they are debarred, we cannot——

Senator DORGAN. You cannot consider——

General STROCK. We cannot prevent them from——

Senator DORGAN. You can't consider other issues? But my point is that there are a whole lot of companies, I think, out there of which significant questions have been raised in contracting that are not debarred and that I would hope we would think twice before contracting with again.

But having said that, we've been joined by the ranking member, Senator Domenici. Senator Domenici, we have a series of six votes starting in 35 minutes. I'm going to start a series of 5-minute rounds. I apologize for that but if you have an opening comment, I'd be happy to recognize you for that and then I'm going to call on Senator Craig and we'll just use the early-bird rule.

OPENING STATEMENT OF SENATOR PETE V. DOMENICI

Senator DOMENICI. Mr. Chairman, I want to take just a couple of minutes to explain where I have been. I happen to also be on the Budget Committee. Today, the Budget Committee was finishing its work, fellow Senators and that meant under their rules, you must be present in the room to vote. You can't vote by proxy. So we had a full house of Senators voting for the last 2½, 3 hours and that meant I could not be in two places. I knew that you all would be here and get the job done and I'm going to return it now to you, Mr. Chairman and then my turn will come. If it doesn't, I'll do my homework another way. Thank you.

Senator DORGAN. Thank you, Senator Domenici. I did mention the Budget Committee responsibilities you have and I appreciate you being here.

[The statement follows:]

PREPARED STATEMENT OF SENATOR PETE V. DOMENICI

Thank you Mr. Chairman, I would like to take a couple of moments and address a couple of priority issues.

Like all of my colleagues, I continue to eagerly await the final decision by the Corps on which priorities they will choose to fund for the fiscal year 2007 budget. I sincerely hope that the Corps will not focus only on its priorities, but will continue to provide funding to the many ongoing projects and studies that were funded in fiscal year 2006.

As part of the fiscal year 2008 budget the administration has indicated that the Inland Waterway Trust Fund may go broke within a couple of years due to the large amount of rebuilding needs. The administration has indicated that they will be submitting a legislative proposal to replace the current 20-cent per-gallon diesel fuel tax with a user fee.

As the author of this current fee, I have more than a passing interest as to how this matter is resolved. It is vital to our economy that we sustain a viable, operating inland waterway system. The continued effectiveness of the system will be determined if there is a reliable source of funding.

The responsibility for solving this problem falls to EPW and the Finance Committee, but the solution will have a big impact on this subcommittee in the future.

Mr. Chairman, I want to address an issue that I believe you and I share a similar interest—drought relief.

As you are well aware many communities and rural areas in the West and Midwest are experiencing a severe drought. I believe we need to find solutions to address our long term water needs and we need more resources committed to this effort.

Two programs that have not received sufficient attention in this budget are Water 2025 and the reclamation and reuse programs managed by the Bureau. I think everyone would agree that $11 million requested for Water 2025 will not provide the long term solutions we will need.

Another area that has been seriously underfunded is water reclamation and reuse. This activity is a vital component of increasing near term water supplies for the West. The Federal dollars are leveraged to make these projects a success. Only about $10 million was requested for these activities in fiscal year 2008. I am proud of the fact that Congress has consistently provided between $25 million to $30 million for this important work.

Mr. Chairman, I would like to work with you to bring greater attention to this issue and work to raise awareness among our colleagues. When compared to the budget priorities of this administration, which increasingly includes large amounts of funding for environmental infrastructure projects, it is not at all unreasonable for this subcommittee to focus more resources on addressing water shortages. I am certain it will pay off in the future.

Mr. Chairman, another priority of this subcommittee has been the recovery of the gulf coast following Hurricanes Katrina and Rita. Over the last several supplemental requests this subcommittee has provided over $6 billion in rebuilding assistance to the gulf coast.

This region was devastated by these storms, and I am proud to say this subcommittee worked hard to address critical infrastructure repairs and upgrades that are needed in this region.

I am interested in hearing from General Strock and Assistant Secretary Woodley regarding the rebuilding efforts.

I am also interested to know if the Corps has been a good steward of the Federal resources. I am concerned about recent press reports of extraordinary price inflation and poor quality work being performed in Louisiana. I hope our witnesses can address these concerns.

Mr. Chairman, before I close I would like to thank General Strock for all his hard work during the hurricane recovery efforts. The General is retiring from the Army and this will be his last hearing before this subcommittee.

General, I am sorry you are going, but I greatly appreciate your hard work and dedication to this country.

Thank you.

Senator DORGAN. Senator Craig.

Senator CRAIG. Thank you very much, Mr. Chairman. I have several questions. I'll ask a couple of them and submit the rest for the record so that we can save time and everybody get a round.

To the Corps, does the 2008 budget request provide sufficient funding to complete the Snake River Programmatic Sedimentation Management Plan by its 2009 due date and if not, how does the Corps intend to provide potential navigation maintenance if it is not needed prior to the completion of the plan?

General STROCK. Sir, I'll need to take that for the record. I don't have the specifics on that study in front of me.

Senator CRAIG. Okay. We'll take that for the record then and anticipate you responding to it. To the Bureau, Mark, can you please describe in more detail the new Loan Guarantee program that you've outlined? For instance, what kind of strings are attached to these loans and what kind of interest rates and loan durations can we look forward to?

Mr. LIMBAUGH. Mr. Chairman and Mr. Craig, thank you. Before I answer that, I too want to add, I was remiss in not adding my goodwill to General Strock. Under his leadership, we have, between the Bureau of Reclamation and the Army Corps of Engineers, we've probably worked closer and better together than ever before. So thank you, General Strock.

To answer your question, Senator, we are in the process of developing the rules and regulations for that program. It's my understanding in talking with the Department of Agriculture, who we will be working very closely with to try to administer this program without increasing the bureaucratic side of operating a program such as this. The way it works is we would only have to appropriate a percentage of the total loan volume out there as it pertains to the default rate or the possible estimated default rate.

So this would allow us to be able to allow our contractors to obtain financing for their share of improvements to our system, which currently, we're just doing under the Operation and Maintenance contracts that we have. It's burdensome on them to have to come up with large amounts of money in 1 year or 2 years from the rate payers. So this would allow a tool in the toolbox, if you will, in order to finance their share.

The interest rates are generally lower than the normal commercial rates, from what I'm told. I have not done any recent analysis of those rates and what levels they are but they are very close to the municipal rates that are currently available under the tax free

municipal bonds, which are also an opportunity for some of these contractors to use.

But I guess the point is, Mr. Chairman and Senator Craig, this program is something that we don't have right now and what we're trying to do is take care of a problem that we see out there in as fiscally responsible way as possible, not to hit our appropriations budget as much as it would have if we did direct loans but also to add a tool in the toolbox that our contractors can use to keep these facilities viable into the next century.

Senator CRAIG. Mr. Chairman, thank you. Secretary, thank you for those thoughts and as you work through this, keep us informed. You participated with me in the Center for the New West in looking at creative, out-of-the-box ideas that I think added a dynamic, like you say, a valuable tool in the process and Commissioner Johnson, you've been there looking at this. We've got a lot of work to do across the country and to be able to leverage resources in a way that multiples them beyond our capability here is, I think, a very valuable approach. So I'll watch this very closely to see if we can't assist you in making it happen sooner and enhancing it if at all possible.

Mr. LIMBAUGH. We will keep you informed.

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

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

Senator BENNETT. Thank you, Mr. Chairman. I got my question asked in my opening statement so I won't ask it again and see if you remember it well enough to give me an answer.

General STROCK. Yes, Senator, we certainly do but on something on the detail of a program like that, we would have to take that for the record and get back to you. I can assure you that of course, any re-programming of any kind at this time, under the rules established by the committee would have to be submitted to both houses for a concurrence of some nature. But we will definitely be working on that. We recognize that prior reprogrammings have, in many cases, created an obligation on the part of the agency to seek repayment at the earliest possible time, especially when the funding could be usefully utilized within the program, as you indicate that it can be now. So we're very concerned about that and we'll definitely be getting back to you directly.

Senator BENNETT. Thank you. I like the phrase, the earliest possible time. Thank you, Mr. Chairman.

Senator DORGAN. Thank you very much, Senator Bennett. Senator Landrieu.

Senator LANDRIEU. Thank you. I want to begin by saying the three gentlemen representing the Corps before me have been personally supportive of our efforts in New Orleans and in the gulf coast to rebuild. I've spent many hours with you all, walking levees, looking at flood walls, walking through neighborhoods assuring people. So I want to start with a personal thank you to you.

But after being close up for 18 months, I've come to the conclusion that you all may be stuck in an agency that is dysfunctional and I believe that your wholly inadequate budget is what this committee is discussing. I have two or three specific questions but for this committee, because I intend to stay on this committee for sev-

eral years to try to fix it, I want to say to the chairman, I thank him for taking his time to ask the question about the pumps and I'll get to that in a minute.

But the overall budget for this Corps, the way I'm looking at it, is a construction budget of all new construction for the whole country—for the whole country—of $1.5 billion of new construction, $2.4 billion for operation and maintenance, $180 million for regulatory and then there are other things. Is this what is reflected in the documents that you've submitted?

I want to show you all a chart that I had my office do since I couldn't get this information from anywhere. We just did it ourselves. This is a frightening chart. This shows the fall-off in appropriations of Civil Works projects in this country since 1929. We are funding less than one-tenth of the GDP of Civil Works projects in 2007 than we did in 1929.

And in the year 2005, which is not even on this chart, I want the chairman and the ranking member to know, the levees in New Orleans broke. That is the end of the story. That's the only story that needs to be told. That's what happens when a government like ours will not fund critical infrastructure operation and maintenance and construction. Levees break. Cities and communities are ruined.

The problem I have, Mr. Chairman, with this budget is it's the same budget. Nothing has changed. Nothing. Nothing has changed. There is no money in this budget for SELA. There is no money in this budget for adequate levee construction. I don't know how many people have to die. I don't know how many homes have to be lost. I don't know how many businesses have to be ruined to change the budget.

Now, there is no sense in my arguing this with you because you all are not in charge of the budget. But I'm going to ask this chairman publicly to have someone from the administration that is in charge of the budget, appear before this committee. I would like to ask OMB that controls the budget to appear because I'm going to ask them how they justify this budget. Maybe pre-Katrina. You never really would know what would happen when levees broke so we could sort of pretend we didn't have to do anything. But after Katrina?

This is my question. The chairman asked his question of this but the memo was written by a Corps, according to the AP, by Maria Garzino, a Corps mechanical engineer overseeing quality assurance at a MWI test site in Florida. In her memo, she warned that the pumps would break down should they be tasked to run under normal use, as would be required in the event of a hurricane. The pumps failed less strenuous testing than the original contract called for, according to the memo. Originally, each of the 34 pumps was supposed to be load tested, made to pump water. Of the eight pumps that were load tested, one was turned on for a few minutes. The other was run at a third of the operating pressure. Three of the other load test pumps experienced catastrophic failure and these are the pumps that we have installed in the canals that flooded the city of New Orleans and hurricane season is 2 months away. So you can imagine the calls that I'm getting to my office today, trying to explain this and my time is up.

So I want to say, I have many questions I'm going to submit. But I am going to call for a full investigation of how these pumps were purchased, how they were installed, why they don't work but more importantly, Mr. Chairman, I think we have to get to the bottom of a budget that is wholly inadequate, not just for south Louisiana but I think it is inadequate for the other 49 States that are represented in this Nation and I think it is a dangerous budget and I think people's lives are at risk because I've seen their lives lost because of the levees breaking. I could go on but nothing has changed in this budget and I'm going to continue to press to get more funding, more fuller funding and more organizational reform at the Corps of Engineers. Thank you.

Senator DORGAN. Senator Landrieu, thank you very much. Senator Reed.

Senator REED. Thank you very much, Mr. Chairman and gentlemen, thank you. Secretary Woodley and General Strock, in the wake of Katrina, you've conducted a review of levee systems throughout the country. One of them was in Woonsocket, Rhode Island and you discovered some deficiencies, which the local officials have estimated would cost $2 million to repair and also, there are some indications of even more serious structural issues.

My first question is, is this a one-shot sort of inspection or do you have a regular program to inspect the structural aspects of these levies?

General STROCK. Sir, this was not a one shot effort. We have a program entitled, Inspection of Completed Works. When the U.S. Army Corps of Engineers works in partnership and constructs levees, they are turned over to a local sponsor for operation and maintenance. It is their responsibility to provide 100 percent of that O&M. We have a periodic inspection requirement that ensures that they are performing the maintenance and that's important that they do that so we can ensure that they are maintaining the Federal specifications when they are in the Federal program, as the levee in Woonsocket is, then in the event of a compromise of that structure under-load, if a storm overwhelms it and it needs repair, then we can go in and have the authority to repair that.

If they do not maintain it, then when those structures are damaged, we do not have the authority to go in and conduct repairs. So this is a periodic inspection. The difference this time is we learned very well in New Orleans that we had to re-emphasize the rigor of this program and for that reason, we had about 120 communities that were required to show us that they have a plan to improve the operation and maintenance of those levees.

Senator REED. Well, it struck me that this was—if there was ongoing inspections, they wouldn't have quite this liability that they would have been corrected or at least have been on notice and I think a lot of the community leaders were surprised when the inspection took place and the extent of your criticism was known.

Is this—again, you might have an inspection program on paper but is this done on a yearly basis? Is it done rigorously or is it now something?

General STROCK. Sir, it's done every 2 years and we saw a wide variety. We saw many cases where there were repetitive deficiencies noted on the levees and we simply didn't present an ulti-

matum to the community as we have now. We have just recognized that we have to get tough, if you will, on the operation and maintenance responsibilities. It's all about public safety. It is regrettable if we let things slip over the years but we have to draw the line now and that's what we're going to do.

Senator REED. Well, going forward and that's what I think our major objective should be is that this is one of 100-plus levee systems around the country in small communities. I'm wondering within your request of funding, will there be any Federal dollars requested to help these communities? And it's not just for Rhode Island, I would suspect it's probably every one of these facilities. And again, these are small communities who are struggling to do all sorts of things and the idea that within 1 year, because of your—as you described ultimatum, they have to put in millions of dollars of sophisticated engineering work without any help. Have you considered that in your request?

General STROCK. Sir, we don't currently have the authority to provide the assistance. We don't have the appropriation to do that and it's a policy call about whether to apply for that kind of capability, which we have not made at the Corps of Engineers.

Senator REED. Well, I would hope that if—it seems to me, the only way this is going to get done, frankly—otherwise you're going to have communities that just have a stark choice. They don't have the resources and the real consequences that imperil Federal flood insurance for the surrounding communities and that's—that leaves a too unacceptable sort of option. So we've got to something at every level and also local State level. But I would hope we could get our heads together and come up with something.

General STROCK. Yes, sir. And sir, I'll provide you the details on Woonsocket about the specifics of the progress at that particular level.

Senator REED. Colonel Thalken, by the way, your Commander, is an excellent district engineer and he's been very cooperative with us. He and his civilian colleagues should be complimented for the effort in New England. Please pass that on to him.

General STROCK. I agree, sir, and thank you.

Senator REED. One of the other areas that was illustrated in Katrina that made us all sort of sit up and take notice is the poor state of flood mapping. You have inundation maps, FEMA has flood maps. Your inundation maps will show much larger flooding in CAT 2 and 3 storms and many communities are living in sort of a never-never land where they look at 20-year-old FEMA maps and they think they can build in a particular where your inundation map shows already flooding in a serious storm.

My time is expiring but I would hope that we could work together to ensure that we have a consistent mapping program that reflects your information and the FEMA information and do it in a way that all the communities know where they stand.

General STROCK. FEMA does have the lead on the Map Modernization program, sir, and we work very closely with them.

Senator REED. I have other questions, Mr. Chairman and I'll submit them. Thank you.

Senator DORGAN. Thank you very much. Senator Domenici.

Senator DOMENICI. Well, thank you very much, Mr. Chairman. I think it probably is best for us that I came along kind of late today because frankly, I've been at this so long that I am truly sick and tired of the kind of budgets we are getting from the executive branch of Government for the Corps of Engineers and the Bureau of Reclamation. I truly believe, Mr. Chairman, that we don't have enough time. If we had enough time, we could spend the next 6 or 7 months, this committee, just traveling this country to find out where—where we are not doing our job. It's got to be rampant.

These little tiny budgets that you're sending up here to accomplish what we know is the problem is an absolute joke. Some people spent a lot of their time the last 15 years beating up on the Corps for not doing what people thought they should. I never was on that side. I tried my best to work with the Corps but I thought for the most part, they tried very hard. I still feel that way.

I think you can slack off and make mistakes but I tell you, that one card that the Senator from Louisiana put up showing just one line, linear, what's happening to the projects of the Corps of Engineers is absolutely—it just convinces you that somebody doesn't care.

To me, Mr. Chairman, you asked me a moment ago, what about OMB? They don't testify. What about OMB? They sit in the back room and there is no question they underfund this and they know, for most of the time—look at me. I've been chairman up here. They got a good sucker like me that I was both Budget Committee Chairman and chairman of this subcommittee and I'd go fight to get them an extra $3 billion or $4 billion every year. They knew it. I think I contributed to making it worse. They just come along and fund everything less, figuring somebody, some dodo down there in the Senate or the House will come along with an extra $3 billion or $4 billion. But that isn't right. We took it away from other programs here, the way we budget.

So I have a whole bunch of questions here I'm going to give you. I want them answered, if you don't mind, to the committee. They are about my State. They are about drought out there and there will be one in there that will be directed to you, Mr. Chairman, seeing if you might come out there and go visit these drought areas one day, one time.

But I actually don't think we can put a budget together that is meaningful that spends the kind of money that the White House has sent up here for the Bureau of Reclamation and the Corps of Engineers. I think it's just as well let a few kids get down there with crayons and let them draw some things. They'll do just as well as we do. Because we don't know what we can do with this little tiny bit of money they've given us and the messages have been there. Now they are falling apart and who is to blame? And then we just had Katrina knock us in the head. It's no longer cheap. This is big, big time business.

So I've got about 10 for you and I hope you answer them. I know you're leaving us, General, as I understand it. I met your successor. He's not here today but he's going to do fine and we look forward to working with him. He will do a good job, trying to bear with it and I hope the first time we get him up here that we impose on his good judgment the fact that he is also responsible to us, not

just to the OMB and executive branch. If they want to come up here and testify, they better not come up here with budgets like this because they are going to be insulted because all they do is infuriate us.

I mean, nice, decent Senators see this kind of junk and then we say, what is happening? If we wait another 5 years before we get started, we'll never fix this stuff. You all know that. You can't do it, that's all. So I'm not even going to ask you a question. I'm just going to tell you, whatever your problems are, we can fix those. But we can't fix the problems of these—of all of this work that is underfunded and falling apart and conduct oversight hearings on whether we bought things from the right supplier or not, when the whole thing is falling down.

You know, I was also the one that came along and put that tax on barges. You remember. I don't know if any of you were around. I was the Lone Ranger then but I did win. It was a terrific, exciting day on the floor when we took a vote and every big Senator that was from the South wanted to continue the way we were and I'll be darned if I didn't win and they had to pay a little bit of money for the Inland Waterways. But then you know, it doesn't get spent anyway but we should shock them a little more and make the program a real good one, in my opinion. But anyway, we'll see.

Mr. Chairman, we've got a lot of work to do and I thank you for your dedication. But we can't get it done unless we hit them hard because it's not going to work out. It's just going to be us up here working and they're not going to be working.

Senator DORGAN. Senator Domenici, thank you very much.

Senator DOMENICI. Thank you.

Senator DORGAN. Senator Allard.

PREPARED STATEMENT

Senator ALLARD. Mr. Chairman, thank you. I do have a statement I'd like to have you put in the record, if you would, please.

Senator DORGAN. Without objection.

[The statement follows:]

PREPARED STATEMENT OF SENATOR WAYNE ALLARD

Mr. Chairman, I would like to thank you for holding this hearing. I would also like to extend a special welcome to Commissioner Johnson, as I believe that this is the first time he has appeared before our subcommittee. I am currently moving back and forth between this hearing and mark-up in the Budget Committee, so I appreciate the chance to be here.

Those of us in the West are well aware of the important work that the Army Corps and the Bureau of Reclamation has done over the years. The projects developed by both of these entities are vital in supplying water to many people in rural areas of my home State of Colorado. The value of these projects has become even more evident during the prolonged drought that Colorado—and the entire West—continues to experience.

Mr. Woodley, I am grateful for the work that the Army Corps has done and continues to do in Colorado, especially with the Fountain Creek and Chatfield Reallocation Studies. I must however express my disappointment with the fact that, although both of these studies could be completed with another year of funding, neither project was included in the President's proposed budget again this year. I will have questions about these projects later in this hearing.

I would also like to bring up a concern that is emerging with Bureau projects throughout the West, which I will also follow-up on with some questions. Mr. Commissioner, as I am sure you are aware, many federally-owned Bureau of Reclamation projects are at or past their life expectancy and are in severe need of rehabilita-

tion. While the cost of rehabilitation is generally one-half to one-third of the cost of replacing a project, this is more than many communities can afford. The Bureau has maintained that rehabilitation is the same as operations and maintenance, which in many cases was turned over to local operating agencies long ago.

It seems to me, however, that these two things are not the same. No matter how many oil changes or tune-ups you perform on a car, it will eventually no longer be serviceable. The same can be said of these projects. Local entities have worked diligently over the years to care for, and make repairs to, these projects. But eventually they reach the end of their operational life, and more extensive help is needed. Especially in light of ever increasing Federal water standards and ever diminishing water supplies. I believe that the Federal Government should play a role in assisting local communities in the rehabilitation of federally-built, federally-owned projects.

Again, thank you for holding this hearing, Mr. Chairman. I look forward to working with you, the Ranking Republican Member Mr. Domenici and our colleagues to ensure that these two important agencies are able to continue moving forward with the important services that they provide to our communities.

Senator ALLARD. Well, I have some of the same concerns, I guess, that Senator Domenici raised. In the State of Colorado, for example, we have a Fountain Creek Water Study that we started in 2001 and then in the President's budget, he doesn't continue the study. Isn't that a waste of taxpayer dollars to put out some money at the first part and then you don't put any more and you haven't even completed the study? I don't understand the thinking when you get these projects. It seems to me that when you get a study started, you complete it and find out what the results are and if you decide at that point you didn't want to move on, you've got the basis of the study and that's understandable. But why stop in the middle of the study and run the risk of wasting taxpayer dollars on the first half of the study because you didn't complete the last half.

So my question is, is how do you determine your priorities and some of your funding and in particular, on issues like that? That really is a perplexing problem for me. I don't understand how you set your priorities when you let things like that happen. Secretary Woodley?

Mr. WOODLEY. Senator, I can tell you that I believe that would be a study funded in our General Investigations account and that account is the single account, I would say, which is under the greatest pressure in all of our budget. That is the most difficult thing to budget something in, in my budget process. I'm an advocate for a strong investigations and studies program because I believe that it pays enormous dividends for the Nation. There is a view within the administration that the studies have an element to them that is counterproductive because they tend to—they lead to new proposals for new projects as opposed to working on our backlog of existing projects.

Senator ALLARD. Yes, but Secretary, why would you start a study and then not complete it? Not provide money to complete it? I mean, you really haven't answered my question. I can understand your frustrations. There are a lot of requests but it seems to me, it's even more imperative that you focus your resources on what you have, complete those and then take the next step and we're all better off if we do that.

Mr. WOODLEY. I think your point is very well taken, Senator.

General STROCK. Senator, if I could, from the Corps' side on this?

Senator ALLARD. Yes. I didn't hear your response, Secretary Woodley.

Mr. WOODLEY. I said it was very well taken.

Senator ALLARD. Oh.

Mr. WOODLEY. I said that I believe that the Senator's point is very well taken, Mr. Chairman.

Senator DORGAN. So his proposition that withdrawing funding in the middle of a study is not the right thing to do?

Senator ALLARD. Yes, that's—can we change the budget proposal?

Mr. WOODLEY. That's what I said, Senator. Except to the extent that of course, that the President's budget is totally without flaw.

Senator ALLARD. Lieutenant General.

General STROCK. Yes, sir. I certainly agree with what Secretary Woodley has said here. Where the Corps is concerned, though, we do have some flexibility in this current fiscal year work plan and studies like this, which are underway, are being considered in the development of that work plan. We do not want to stop a study if we don't have to. Unfortunately, that work plan has not been approved and I can't share with you where Fountain Creek is going to fall out in that. But I can assure you we understand the importance of this study and in putting together our work plan, we took that into consideration.

Senator ALLARD. You know, we have flooding problems on that creek. We have discharge problems in that creek. We have a lot of things that are happening in regard to that creek and I have a hard time understanding, if we're really interested in water quality and being able to manage our river and waterways, why more attention isn't paid to that particular project and it affects more than just the Fountain Creek. You've got the downstream aspect of it, which the Arkansas River and a lot of interest there that are very keen, all the way down to the gulf, as to what is happening on that little creek because it drains out of such a large metropolitan area, which is Colorado Springs.

General STROCK. And that is absolutely consistent with our new approach, doing things on a more watershed and basin wide basis to understand the cumulative benefits and impacts that works within the watersheds. So absolutely, Fountain Creek is a great example of that.

Senator ALLARD. Well, you know, I guess we're a little unique in the State of Colorado. We're head waters some six, seven major drainage systems. We have four—we're broken down into four districts and so I guess our interests get kind of divided out. The other thing that I want you to take a look at is the Chatfield Reallocation Study. It's one of those projects that is just an emerging problem. We've got some farmers who are going to be without water because of some water management issues in the State of Colorado and it seems like we have plenty of storage capacity, more than what we need for flood control, considering all the other resources we have on there but if we could just have a study again, I think it would help us on that. So I hope you can take a look at it. I've got a number of other questions that I'd like to raise with you but the fact that I'm running out of time and we're getting ready to have a vote

here, we'll send those to you and if you could give us a response, I'd appreciate it.

General STROCK. Yes, sir.

Senator ALLARD. Thank you.

Senator DORGAN. Senator Allard, thank you.

Senator LANDRIEU. Mr. Chairman, could I say one more thing before I leave and I really appreciate again, you using your time for the questions but I want the record to reflect, I'm also very concerned about the recommendation to move $1.3 billion—$1.3 million—billion; thank you, Roger—$1.3 billion from one set of levee projects, flood control, to another. I'm going to oppose that. I understand that in the past, it's been done but I'm not going by the past anymore.

If there was enough money in the pot, I could understand moving it around, based on what you're ready to fund. But when the pot is only one-fourth or less filled, moving money around, once it has been allocated, only makes it that much harder for those of us that have to fight to get it for you. So I am opposed to it. The chairman knows that and I hope it is not reflected in the budget that we submit to the full committee.

Mr. WOODLEY. Senator, in response to that, the important thing is that the money be made available to the effort that must go forward. We are now in a state where we need additional money. If you can find a better source for that——

Senator LANDRIEU. Well, then go get—let me suggest where you can get it from. You can go to 1600 Pennsylvania Avenue and you can ask the President for an additional $1.3 billion. You will not get it from this Senator or this committee. Thank you.

Mr. WOODLEY. In that event, Senator, there will be delays in the process and the program.

Senator DORGAN. Well, we have a vote that is starting but I have about—well, I have time so I'm going to ask you all some questions as well and let me say this. Senator Domenici and I think Senator Allard and Senator Landrieu all expressed concerns I have.

You're all up here representing the President's budget. I understand that. On the other hand, I cannot believe that you are satisfied to be here representing, for example, in the Construction account, a very substantial decrease for the Corps. A 38 percent decrease given what Senator Landrieu showed you on that chart. I mean, I can't believe you're here thinking that makes a lot of sense.

So you, I guess, are tied to saying to me you support the President's budget. We can't get the Director of OMB up here but everyone in this room, I would think, understands that, given what we have to do, cutting the construction budget of the Corps of Engineers by 38 percent makes no sense at all.

My understanding is that in the Corps budget you proposed 67 projects for construction. Now we have about 300 projects that we fund. That means about 230 projects you're proposing that we not fund. Are you saying to us you don't support those projects? You don't want—I guess what you're saying to us is that you don't want those projects funded. Is that what you're saying to the country? And if so, why? Why would you say that?

Mr. WOODLEY. We're saying that within the constraints of the amounts that we've been allocated, that the projects we're recommending are the highest priorities but generally, we agree completely that this budget does not fund all of the good things that the Corps of Engineers could accomplish in fiscal year 2008.

Senator DORGAN. So some of the projects that you are not funding do have merit you say?

Mr. WOODLEY. Yes, Mr. Chairman, they certainly do.

General STROCK. Sir, if I could just chime in on that. In my humble opinion, all of those projects do. We have the most rigorous process in government to make recommendations to the administration and Congress on what could be done with our investments. We have a $1.3 billion backlog in O&M right now that should be done but we also have a—if you'd look just at those budgeted projects, we have about a $9 billion backlog in construction and with the full suite of projects, it's about a $50 billion backlog.

So clearly, there is a need there and there is justification. Having said that, sir, I do understand the context in which we're working and I know that the funds are not unlimited, either to the Congress or the President. So we just make our level effort to have a process in which we can prioritize using performance based metrics where the money should be sent, where these investments should be made to produce the highest returns. It is tough but we think we have done about as well as we can, given those constraints on the availability of funds.

Senator DORGAN. Yes, but because you're confronted with a Hobson's choice doesn't justify making the wrong choice, consistently the wrong choice and it seems to me, although I understand your point, that your point is that you're saying to me there are 230 other projects that have merit but we won't go ahead and complete them. We won't work on them this year at all. I mean, is that Byzantine, as my colleagues, Senator Allard suggests? We have 240, roughly 230 ongoing projects that are underway and you say, "Sorry." Tell everybody in the country that is looking at these projects, expecting these projects, that they are not the priority that you thought they were. We're not going to do it.

General STROCK. Sir, the challenge we have on that is that for years, we—as we encountered this situation, we spread the available budget thinner and thinner and thinner and it got to the point that no project was receiving sufficient funds to complete anything. So we decided, with the administration, to try to concentrate the available funding into projects that could be completed and begin to return on those investments. And we've attempted to do that, sir, to pick out those high performing projects that will do that for us. And it is regrettable. They are clearly—all of our projects that I recommend to you will have a 1 to 1 return on investment as a minimum or higher.

Senator DORGAN. Or higher?

General STROCK. Higher, yes sir. Today, in order to reach the funding cutoffs, they had to have at least a 1.5 benefit-to-cost ratio for us, where economics are concerned.

Senator DORGAN. You all can't, I guess, express publicly the frustration I express. I understand what has happened to our fiscal policy. We were told, and I did not support it, "Katy, bar the door.

Let's give very big tax cuts." That reduces our revenue stream and then we have people come, and by the way, the same people who sat at these tables telling us that we're going to have future expected budget surpluses—people representing the President, who knows whether they felt that was the right thing or not, to the table representing the President and say, "We're out of money" so therefore these projects, that have merit and invest in the infrastructure of this country, we can't possibly do them. Why? Well, we gave the store in tax cuts and it didn't quite work out. We had a recession. We had a terrorist attack and two wars. So we pump up $500 billion, $450 billion, none of which we pay for. I mean, it's unbelievable to me. So I know you're here speaking for others and I know that if I ask you a question and ask you to be completely candid about your personal feelings, you will not do that because you're here representing the President's budget.

I'm telling you, I agree with a couple of my colleagues here. This makes no sense and I've just taken over the chairmanship of this committee. I don't have the foggiest idea how we put this together but I'll guarantee this—when we make choices about this, we're not going to take a look at 240 projects and say, yes, those projects are underway. Yes, they have merit. But this country really thinks that it doesn't matter and we'll just stop them. That is not what this committee is going to do.

Now let me just say this. I've seen the Corps of Engineers walking the dikes in Grand Forks. I saw the dikes fail. I watched the Corps of Engineers people working 24 hours a day in a heroic struggle to fight a flood after an entire American city, the largest since the Civil War, was evacuated into big hangers on an Air Force base. I watched all that. I have enormous admiration for the Corps of Engineers and the men and women who work there. By the same token, I am the most frustrated person in the world about the Corps of Engineers for other reasons and General, you know that. I've said that before.

I've watched the Bureau of Reclamation people, over Thanksgiving weekend, work 24 hours a day to try to get water back into the Fort Yates Standing Rock Indian community because the water was gone. The intake silted in because of the Missouri River problems. I watched these people from the Bureau of Reclamation work right through, around the clock. I have great admiration for their dedication and what they've done.

And yet, I have to tell you, I also am very, very frustrated by the Bureau of Reclamation, which brings me to this question of the Missouri River. And it's probably a proxy for a lot of other frustrations and concerns around this country but let me describe it and then I'm going to ask you a couple of questions.

The Missouri River System division built some dams on that river. We didn't go ask somebody if you could build a dam in North Dakota and flood 500,000 acres, the size of Rhode Island, permanently. We didn't go say, "Let's give away 500,000 acres of our State. We'll take a flood that comes and stays so they can play softball in the spring in St. Louis." We didn't do that. The Federal Government came to us and said, you know what? You're a sparsely populated State. You've got the Missouri River. Can you put a dam and create a big old flood there that stays there forever, the size

of Rhode Island and if you do that, we'll give you something. So that's the cost. We got the cost. We got the flood that comes and stays and we'll give you Reclamation, we'll give you a whole irrigation, a whole series of things, rural water and so we got this flood that comes and stays. Then we didn't get the benefits, as you know. We got a miniscule portion of the benefits and incidentally, this budget that is being proposed will continue to diminish the opportunities for us to get the full benefits.

But having said all that, now we have a reservoir, a big reservoir up there that goes up and down like a cork. Now we're in the eighth year of a drought, ninth year for Montana. We should have 55 million acre feet of water in that Missouri River System. There is about 34 million acre feet. Already there should have been sirens going off and bells and whistles and people saying, "Wait a second. We've got a huge drought, a big problem." That has not been the case. There have been a few minor adjustments here and there but we still release gushing water to support a minimum of an industry down south at the expense of a major industry up north.

Having said all that, we're in a situation now, I mentioned the Standing Rock Indian Reservation, where we're out of water over the Thanksgiving Day holiday. The city of Parshall is up there currently trying to figure out, if they are going to have water. Walhalla will be out of water in August.

So I asked the question of the Corps and the Bureau: How are you going to help us deal with this? I know you can't control how much water is in the snow pack and how much is going to come into the system. But the fact is, if it's going to be 20 or 30 percent less again this year, let's deal with these things. Let's not tell the communities, "we're sorry, you're on your own."

Now I noticed that neither of your budgets have any money in it, at least that I can see, for drought issues, to be able to give your agencies the opportunity to deal with the drought issues on the Missouri River, as an example. To Mr. Johnson and Secretary Limbaugh, is there any money in your budget request for drought issues on the Missouri?

Mr. JOHNSON. A small amount for administration. I think it is a little less than $500,000.

Senator DORGAN. Five hundred thousand dollars?

Mr. JOHNSON. Yes, around that ballpark.

Senator DORGAN. For administration?

Mr. JOHNSON. Well, yes, for——

Senator DORGAN. That's not drought. There may be a drought in administration from here to there but I'm talking about drought relief money. There's nothing really requested.

Mr. JOHNSON. Well, the drought—we do—we have two parts to our Drought Act. One is emergency response and the other one is contingency planning.

Senator DORGAN. Let me ask about the emergency——

Mr. JOHNSON. Doing drought planning. So the money would be for helping do drought plans.

Senator DORGAN. You do have an emergency account for drought but there is no money in it and no money requested?

Mr. JOHNSON. That's correct, yes.

Senator DORGAN. All right. And why would that be the case if we're in the eighth year of a drought in our region, in the Missouri River System? Why has there not been a request?

Mr. JOHNSON. Well, I think particularly on the Missouri River Basin, the Dakota Resources Act provides us the ability to deal with the tribes there and the problems that we're having on the Missouri River. So we have another source of funding there to try to deal with that. One of the problems we have—

Senator DORGAN. But you are limited to that because you don't have other drought money?

Mr. JOHNSON. Right. We don't have other money but we do have those funds to help and we have plans in place to address the problems on the reservations if they occur.

Senator DORGAN. All right. General Strock or Secretary Woodley, have you requested money for drought issues on the Missouri River?

General STROCK. Very much like the Bureau, sir, minimal amounts in the funding but we do have the authorities when the emergencies exist, to move money to that account, much like we do in flood control and coastal emergencies. We have those authorities, we have used those in the Upper Missouri and we are watching very closely Walhalla and Parshall. We know there is a danger there. The current projections for snow pack tell us we probably won't have a problem this year but if we do, we have the authorities to go in and help, as we have in the past.

Senator DORGAN. Wouldn't it have made more sense though, for both of your agencies to suggest we put a little money in the accounts? And I'm going to help you, no matter what your response is, I'm going to try to help you this year do that.

General STROCK. Yes, sir.

Senator DORGAN. But again, I'm perplexed why we would not get a budget request that reflects reality.

General STROCK. That is the approach we take in our flood control. We have some money in the account, ready to use if we need it. But I assure you, sir, if there is an emergency, we will be there to do what needs to be done.

Senator DORGAN. Yes but General, I'm telling you, I have meetings out there with all these folks. I just had a meeting 1½ weeks ago, 60 to 80 people come from all the communities up and down and the Bureau and the Corps is there, wonderful people. But you know what they say to me? They say, well, we don't have money in these accounts. That's what they say. And then I come to a budget hearing and realize you're not asking for money in the accounts. That's why there is no money in the accounts.

General STROCK. Sir, we'll look into that. The implication is, therefore we cannot help and I'll make sure that they understand what our authorities are and what we can do to help. But thank you, sir.

Mr. WOODLEY. Senator, we would address that with the $40 million that we have requested for the flood control and coastal emergencies account on the water intake issue. So there is not—it is not specific to North Dakota but it is a flood control and coastal emergencies account request of $40 million to have on hand if the emergency develops, which we all are obviously concerned that it will.

Senator DORGAN. But with due respect, my understanding is that account is not considered overfunded. If anything, it is considered dramatically underfunded, even at $40 million. And we're not exactly a coastal state, as you know.

Mr. WOODLEY. But that is the funding that would be available. It is underfunded today because it was not funded in fiscal year 2006 and I believe that the request in fiscal year 2006 was not supported by the committee and therefore, it is not available for funding under the continuing resolution.

Senator DORGAN. Let me—I guess the vote has started and I will have to depart in a bit. But let me again express to you that none of this is to diminish your service. You come here in good faith, representing a budget from the administration but you understand, I hope, that this has not been one side of the political aisle ragging away at this budget. Almost all of those you have heard from say, this isn't a real request. This must have been knifed badly by the Office of Management and Budget. I know you can't answer the question but I still want to ask the question. I assume that you asked for considerably more money than this budget request comes to us with. I mean, I assume that the budget that you sent up the road in this budget process in the administration requests significantly more, would that be correct, Secretary Woodley?

Mr. WOODLEY. Let me answer that by saying, Senator, that this program offers substantial opportunities for worthwhile investments in water resources that are not reflected in the budget and that is, I think, not a controversial statement. That is something that anyone could demonstrate with a very minimal knowledge and study of the program.

General STROCK. And sir, where the Corps is concerned, we have expressed a capability to do more if more funding were available and expressed what we would do with that money.

Senator DORGAN. I want to make a final point. We, in the upper reaches of the Missouri, and I'm going to be parochial about the Missouri River system, feel aggrieved, as you know, by the management of this system. The river system has had a change in management planning and I did not think that change was particularly constructive because it still flushes far too much water downstream for a very miniscule industry. The barge industry has now shrunk to just a minnow of an industry and yet, instead of during drought retaining water in the upstream reservoir which you would normally do, well you'd easily conclude that during a drought, you try to conserve to the extent you can. Instead of doing that, we're still pursing an antiquated management plan that is almost unbelievable.

You may say that's the fault of Congress. We've got some work to do and I tell you what, I'm determined to make a change there. But I also think that the Corps of Engineers should have long ago decided that you shouldn't have to get down to 31,000 million acre feet before you take the kind of measures you ought to take to retain water in the upper reservoirs. We're at 34,000 million acre feet now. That should long ago have triggered the response that I would have expected from the Corps, General Strock.

General STROCK. Sir, if I might point out, what triggered the revision of the Master Manual was the drought of the 1980's and at

that time, the trigger for navigation preclude was 20 million acre feet. So this revised Master Manual raises that by 10 million acre feet and I think we've tried to accommodate the best we can. And sir, it is not about navigation versus recreation. We're also under a mandate to abide by a biological opinion of the Fish and Wildlife Service that found our operations to be jeopardizing several threatened and endangered species. We have hydropower to consider, sir. All the mission areas of the Corps are involved in the Missouri River and it is one of the largest challenges I've ever dealt with and I've personally dealt with its challenges, you know, sir. We tried to do the best we could to strike the right balance between all the competing problems. The basic challenge for us is that we are in a drought and we're in the business of distributing shortages so no one is happy right now.

Senator DORGAN. The fact is, the President went to Missouri during a campaign and said, I'm with you. With respect to the Missouri River system, the reason we've not made the changes that we should make is because there was a heavy dose of politics involved in it. Now you run the Corps. I know you're not involved in politics. I'm not alleging that but the fact is, the way that Missouri River system has been managed has been much to the detriment of the upstream States. I believe that the change that was made, was made because of substantial pressure over a long period of time and it took 12½ years, even then, 12½ years to revise the Master Manual and even that revision didn't get what I thought was a fair result for the upstream States.

General STROCK. Yes, sir.

Senator DORGAN. General Strock, I didn't mean to make your last day here an unpleasant one.

General STROCK. Sir, it was not at all unpleasant.

Senator DORGAN. But I want to be honest about our feeling about things. I hope that I conveyed to you, you've got men and women in the Bureau and the Corps that we admire. I want to work with your agencies. I want this committee to provide the kind of funding that is necessary to address these serious issues.

ADDITIONAL PREPARED STATEMENT

The subcommittee has received a statement from Reed R. Murray, Program Director, Central Utah Project Completion Act Office, Department of the Interior which will be included for the record.

[The statement follows:]

PREPARED STATEMENT OF REED R. MURRAY, PROGRAM DIRECTOR, CENTRAL UTAH PROJECT COMPLETION ACT OFFICE, DEPARTMENT OF THE INTERIOR

My name is Reed Murray. I serve as the Program Director of the Central Utah Project Completion Act Office under the Assistant Secretary—Water and Science in the Department of the Interior. I am pleased to provide the following information about the President's fiscal year 2008 budget for implementation of the Central Utah Project Completion Act.

The Central Utah Project Completion Act, titles II–VI of Public Law 102–575, provides for completion of the Central Utah Project (CUP) by the Central Utah Water Conservancy District. The act also authorizes funding for fish, wildlife, and recreation mitigation and conservation; establishes an account in the Treasury for deposit of these funds and other contributions; establishes the Utah Reclamation Mitigation and Conservation Commission to coordinate mitigation and conservation activities; and provides for the Ute Indian Rights Settlement.

The act provides that the Secretary may not delegate his responsibilities under the act to the Bureau of Reclamation. As a result, the Department has established an office in Provo, Utah, with a program director to provide oversight, review and liaison with the District, the Mitigation Commission, and the Ute Indian Tribe, and to assist in administering the responsibilities of the Secretary under the act.

The 2008 request for the Central Utah Project Completion Account provides $43 million for use by the District, the Mitigation Commission, and the Department to implement titles II–IV of the act, which is $8.9 million more than 2007. This funding level, if maintained in the out years, will allow the project to be completed by the scheduled date of 2021.

The request for the District includes $39.6 million to fund the designs, specifications, land acquisition, and construction of the Utah Lake System ($23.6 million); to continue construction on the Uinta Basin Replacement Project ($9.5 million); to implement water conservation measures ($5 million); and to implement groundwater conjunctive use projects ($1.5 million).

The request includes $976,000 for the Mitigation Commission to implement the fish, wildlife, and recreation mitigation and conservation projects authorized in title III ($715,000) and to complete mitigation measures committed to in pre-1992 Bureau of Reclamation planning documents ($261,000).

Finally, the request includes $2.4 million for the Program Office for operation and maintenance costs associated with instream flows and fish hatchery facilities ($789,000) and for program administration ($1.6 million).

In conclusion, we appreciate the opportunity to testify before the committee and would be happy to respond to any questions.

ADDITIONAL COMMITTEE QUESTIONS

Senator DORGAN. Additional questions will be submitted 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 JOHN PAUL WOODLEY, JR.

QUESTIONS SUBMITTED BY SENATOR BYRON L. DORGAN

THREE AFFILIATED TRIBES LAND TRANSFER

Question. Secretary Woodley, can you update us on the transfer of lands at Lake Sakakawea to the Three Affiliated Tribes?

Answer. The Corps of Engineers continues to research and develop responses to comments that were received on the draft Effects Report, released in June 2006. All responses will be integrated into the final Effects Report.

Question. What are the remaining steps?

Answer. The Corps is following a three step process. Phase I is called Determination of Authority and will determine if the Corps has been given the authority to declare lands no longer needed for construction, maintenance, and operation as lands to be held in trust for the benefit of the Three Affiliated Tribes. Phase II is called Development and will be where criteria, restrictions, land determination, and agreements will be discussed and determined. Phase III, called Implementation, will be where the decisions made in Phase II will be implemented.

Question. Is there any time schedule for completing the transfer?

Answer. If and when a decision is made to transfer the proposed 24,000 acres it will take approximately 12 to 18 months to complete real estate transfer packages.

ESA COMPLIANCE ISSUES IN O&M

Question. For fiscal year 2008, your budget has again proposed that environmental compliance activities on the Columbia/Snake and Missouri River systems be funded as a part for the individual projects that make up the system in O&M rather than in the construction account which is the tradition.

Secretary Woodley, What is the rational for this change? How does this make your budget more transparent? Wouldn't you agree that including these items in the O&M projects and then aggregating the O&M projects into a region, actually makes the budget more opaque?

Answer. We have made this change to improve accountability and oversight in their appropriate business line categories, reflect the full cost of operating and

maintaining the existing projects, and support an integrated investment strategy for work at operating projects. These are activities, in most part, that are conducted to comply with the Endangered Species Act at operating projects. In addition, their costs are allocated among project purposes rather than to Aquatic Ecosystem Restoration. This explains much of the shift in costs among business programs. The full list and specific reasons are as follows:

Endangered Species Act Biological Opinion compliance at operating projects.—These projects are Columbia River Fish Mitigation, Chief Joseph Dam modifications, Howard Hanson Dam modifications, Willamette River Temperature Control, and Missouri River Fish and Wildlife Recovery.

Renourishment to restore sand lost to shorelines from Federal navigation operation and maintenance.—This includes the specifically authorized Assateague, Maryland, Lower Cape May Meadows, New Jersey, and about eight projects for storm damage reduction. This also includes the section 111 (Mitigation of Shore Damages) CAP program. The funds for this work would be derived from the Harbor Maintenance Trust Fund.

Disposal of material from maintenance dredging.—This includes the program for Dredged Material Disposal Facilities at operating projects, plus the Indiana Harbor disposal facility project. Funds for dredged material disposal facilities will be derived from the Harbor Maintenance Trust Fund.

Rehabilitation Projects.—These are projects that maintain and restore levels of service, but for which the extent of the work is not large enough to constitute a capital replacement. For fiscal year 2008, the ongoing work at Locks and Dams 11, 19, and 24 migrates to the O&M account. Previously unfunded rehabilitation projects at Locks and Dam 27 and Markland Locks and Dam will be initiated in O&M.

Beneficial use of material from maintenance dredging.—For fiscal year 2008, this includes Poplar Island, Maryland. In the future, Houston-Galveston and Hamilton Wetlands island projects will migrate; section 204 (Beneficial Uses of Dredged Material) and section 145 (Placement of Dredged Material on Shores) CAP Programs.

While the placement of funds for these activities have shifted from Construction to O&M the accountability for their performance continues to be monitored on a specific item by item basis through the Project Management review process at their respective Districts. The ESA compliance activities in particular are done to meet very specific milestones and targets for habitat and species improvements as required in BiOp and the law and therefore these specific items must be followed closely or risk failing their checkpoints, regardless in what account they are funded.

Question. What assurance do we have that ESA compliance activity funds provided on these O&M projects won't be siphoned off to fund other maintenance needs at the individual projects?

Answer. The amount proposed in the President's budget is adequate to do both ESA and O&M activities. The O&M program has strict rules and regulations regarding the movement of funds. In addition, any funding reductions would lead to a reprioritization of the ESA and O&M regional needs.

MAJOR REHABILITATIONS IN O&M

Question. Your budget has proposed moving major rehabilitation projects from CG to O&M. As I understand the major rehab projects generally consist of work on aging locks, or power plants where the result may be a project that is operationally improved from its pre-rehab state. Major rehabs do not include constructing additional lock chambers or other major work or simple maintenance.

History has obviously been ignored in this decision. Note that many years ago, major rehabilitations were funded in O&M. Work, at that time, included no operational improvements, just rehabbing the structure as it existed. It was funded with 100 percent O&M funding.

However, due to O&M funding shortages, major rehabs were becoming backlogged. In an effort to resolve this situation, Congress and the administration agreed that major rehabs could be undertaken to not only modernize facilities such as locks, but to provide operational improvements as well.

To help fund navigation rehabs, the administration and Congress agreed that these major rehabs would be funded in the Construction Account, and that half the costs would come from the Inland Waterways Trust Fund. The caveat in this agreement was that these would be considered new investment decisions for the country, and would therefore be considered new construction starts, having to compete with other new starts in the budget. This in not an unreasonable position, considering the rehabbed project would be operationally better than what was originally constructed.

Now we have come full circle, there is a backlog of major rehabs. Your budget proposal recommends moving these projects back to O&M.

Secretary Woodley, what is the basis for this recommendation? Why is O&M a better choice than CG?

Answer. The administration is proposing that rehabilitations be funded out of the Operation & Maintenance, General appropriation when the rehabilitations are limited to work that will repair and restore the capability of a project and will not change the authorized project purpose or operational capability. Since this work is more closely aligned with the existing project authorizations, and the magnitude of the work is less than that of a replacement, the work was moved to the O&M appropriation. Rehabilitations that will result in replacements of locks or improved operational capability will continue to be funded out of the Construction appropriation due to the larger magnitude of the work and change in project outputs.

Another issue that accompanies this for navigation major rehabs is funding. The administration also proposes that the Corps be allowed to use funds from the Inland Waterways Trust Fund (IWTF) in the O&M account. Currently, the IWTF can only be used in the Construction Account. The IWTF was established to pay half the cost of construction projects in the Construction Account. Access to the IWTF is needed in O&M for rehab projects to continue to cost share these projects.

Question. Secretary Woodley, the budget proposal indicates that the administration is concerned that the IWTF may go bankrupt within a few years. How does this proposal improve the situation?

Answer. Section 1405 of the Water Resources Development Act of 1986 makes amounts in the Inland Waterways Trust Fund available for construction and rehabilitation expenditures for navigation projects on the inland and coastal waterways of the United States. The Corps is not proposing to use the IWTF to fund routine operations and maintenance activities. Changing rehabilitations from one appropriation to another (Construction or Operations & Maintenance) would not impact the balance within the IWTF. The amount withdrawn from the IWTF would be the same regardless of what appropriation is used since rehabilitations are eligible for cost sharing from the IWTF whether they are funded from the Construction or the O&M appropriations so the proposal is neutral in that regard.

Question. Secretary Woodley, the administration has committed to proposing legislation to replace the IWTF diesel tax with a user fee later this year. How will this fee be assessed as well as collected? Will there be tollbooths on the inland waterways? Are you going to propose the IWTF to be taken off budget?

Answer. The administration is finalizing the details of its proposal for a new lock user fee and expects to submit its proposal to the Congress in 2008. The Department of the Treasury will be responsible for promulgating regulations for the assessment and collection of the user fee.

REGIONAL O&M BUDGETING

Question. Secretary Woodley, could you explain this concept of Regional O&M budgeting to me? It appears to me that you assigned region numbers to projects and then added the projects together to establish the region amount.

Secretary Woodley, how does aggregating projects in that manner improve O&M budgeting?

Answer. Aggregating Operation & Maintenance, General appropriation (O&M) funding by regions or systems adheres to the principles of managing by watersheds or basins. It will allow O&M needs to be assessed within the regional goals and the resource within a particular region to then be directed to the most critical needs, including those that arise outside the normal budgeting and appropriation cycle. It could also allow more flexibility to address critical needs.

Question. Secretary Woodley, wouldn't you agree that regional budgeting tends to make you lose sight of the unique individual project issues that a project by project budget makes you examine?

Answer. I would respectfully disagree. Although the O&M requirements are developed and then presented on a regional basis, the basic O&M requirements, start at the individual project level as viewed within the control of the required goals and objectives. Thus each project's unique characteristics are the foundation of the budget development and so considered within the larger parameters of the region or system.

Question. Secretary Woodley, why not propose a single river basin as a demonstration and then develop the fiscal year 2009 budget from its inception for this basin as a system?

Answer. We are considering that in the development of the fiscal year 2009 budget. We are thinking about organizing the O&M program by "systems" that better

matches our watershed management principles, operational objectives and performance goals with the budget. We are also considering developing an infrastructure management plan for each system as well that will establish a 5 year plan for that system into the future.

Question. Secretary Woodley wouldn't funding O&M by regions as proposed, limit your flexibility rather than enhance it? As it currently stands you have reprogramming authority for each line item at 50 percent of the appropriated amount or $2 million, whichever is less. Under the proposed reprogramming guidance that changes to a flat $3 million for everything but studies. That appears to limit you to $3 million per region were we to appropriate by region. What are your thoughts on this?

Answer. Budgeting by regions as the administration prepares, would allow more flexibility to address needs. Within a region or system, the overall funding can be better allocated to individual projects based on current needs, once O&M funds are appropriated. A better match of current critical needs to current funding within the region or system can be made during allocations. It would reduce reprogramming actions.

CONTINUING CONTRACTS, CARRYOVER AND REPROGRAMMING

Question. Secretary Woodley, the administration has proposed revisions to current Corps construction contracting authorities. Will you explain the contracting language that your budget proposes?

Answer. In section 103 of the General Provisions of the Budget Appendix, the administration proposes amending section 2306c of title 10, U.S.C. by replacing continuing contracts with multiyear contract authority. The proposal also requires authorization for contracts over $100 million and notification for contracts with contingent liability over $20 million. The advantages to this approach are that the Congress through its oversight, and the agency, through its more intensive management of such large contracts, would have greater control over expenditures. The multiyear contract authority expands an existing multiyear funding authority codified in title 10, United States Code and available within the Department of Defense. It also applies to the National Aeronautics and Space Administration and the Coast Guard.

The proposed legislation would repeal the Corps existing continuing contract authority, effective October 1, 2008. It also would amend an existing title 10 authority for multi-year services contracting to include multi-year civil works contracting. Under this amended provision, the head of an agency may enter into contracts for "services associated with the Civil Works program" and obligate only the amount needed each year plus the amount of expected termination costs. The Corps would need specific statutory authority to use the multi-year contract authority for any contract over $100 million. Furthermore, the Corps would need to notify the specified committees at least 30 days prior to awarding any contract with a contingent liability (i.e., expected termination cost) exceeding $20 million.

The Secretary of the Army must also ensure that the Corps limits the duration of each multi-year contract to the term needed to achieve a substantial reduction of costs on the margin. By law, multiyear contracts under this authority are limited to 5 years, but, the Secretary of the Army may approve a contract period of greater than 5 years if he determines that a period of longer than 5 years is necessary to achieve the substantial cost reduction and if he notifies specified congressional committees at least 30 days prior to contract award.

Question. Secretary Woodley, How much funding did the Corps carryover from fiscal year 2006 due to the limitations imposed by Congress in the fiscal year 2006 E&W Bill? I am not addressing emergency funds, only those provided in regular appropriations bills.

Answer. The Corps carried over a total of $2,445 million, not including Emergency Supplemental funds, from fiscal year 2006 in the four accounts most sensitive to the limitations, i.e. Investigations, Construction, Operation and Maintenance and Flood Control, Mississippi River and Tributaries. Of this amount $1,006 million was obligated and $1,439 million was unobligated. This compares with a total carryover averaging $550 million over the previous 10 years and with $798 from fiscal year 2005 into fiscal year 2006.

Question. In your view, how much of that was due to reprogramming restrictions and how much too contracting restrictions? No matter how you divide it, that is a lot of money. You are basically saying that you were unable to execute nearly 25 percent of your program in fiscal year 2006 due to legislative restrictions. Will this new language improve project execution so that we won't see a repeat of that large of a carryover into fiscal year 2009? How?

Answer. By virtue of the significant increase in carryover compared to other years, the legislative restrictions were a major factor in underutilization of available funds in fiscal year 2006; however, our records are not sufficiently detailed to quantify exactly how much is attributable to the new rules versus other factors. The new language proposed by the administration, if enacted, is expected to allow more realistic scheduling with multi-year contracts as well as provide more flexibility in management of available funds while addressing congressional priorities. Much carryover is a function of funds being in the wrong place plus a need for more careful scheduling and an emphasis on meeting commitments. In addition to the new reprogramming and contracting language proposed by the administration, the Corps has aggressively taken positive steps to write up-to-date guidance and provide increased training for program development, defense and execution. Furthermore, a command emphasis has been placed on meeting commitments, that is, carrying out the schedules upon which the provided funds are based.

Question. Secretary Woodley, Do you believe that the reprogramming language proposed in your budget will improve the ability of the Corps to utilize scarce funds? If so, how?

Answer. Once funds are appropriated; there are physical variables that are unknown until a program, project or activity (PPA) is underway. The O&M program, in particular, is subject to weather-related emergencies, major accidents and structural failures that require immediate action without administrative delays to obtain committee concurrence. The reprogramming language proposed as sections 101a(4) and (5) under General Provisions in the Budget Appendix provide more flexibility to address these unknowns by raising the thresholds from $2 million to $3 million. Section 101a(6) recognizes the urgency of taking action to respond to a flood, hurricane, or other natural disaster.

QUESTIONS SUBMITTED BY SENATOR DIANNE FEINSTEIN

Question. The Office of Management and Budget's fiscal year 2008 cross-cut budget for the California Bay-Delta Restoration Program (CalFed) shows a total of $32.6 million in Army Corps of Engineers CalFed-related spending. This is a significant decrease from $76.6 million in the fiscal year 2007 budget and $80.7 million in fiscal year 2006 obligated funding. This represents a 60 percent decline in Corps CalFed-related spending in just 2 years. Why has the Corps CalFed-related spending declined so sharply?

Answer. The main reason for the sharp decline in the CalFed-related budget in fiscal year 2008 is mainly due to the major decrease in the Santa Ana River portion of this funding. Previous year budgets for the Santa Ana River project ranged from $22 to $57 million; in fiscal year 2008 this has dropped to $7.5 million. This decrease was mainly due to the development of new budget criteria which limited the types of work that we could actually include in the budget. Another contributing factor to this decline were the new rules on the Continuing Authority Program including the moratorium on signing agreements, and limits set by Congress on starting new phases or starting anything not named.

Question. The 2004 CalFed authorization (Public Law 108–361) authorized $90 million for the Corps to improve the stability of the highly vulnerable levees in the Sacramento-San Joaquin Delta. In its May 2006 Report to Congress on the CalFed Levee Stability Program, the Corps described a so-called "Strategy for Action" that proposed $18 million for levee stability funding and several million more in additional feasibility studies for fiscal year 2008.

Nevertheless; despite this major, bipartisan authorization by Congress, and detailed proposals from the Corps on funding, the President's budget proposes no funding for Delta levee stability projects. Why is there no funding proposed in fiscal year 2008 for this major priority?

Answer. Senator, there was a 180 day report that was prepared but contained no specific project details. The report laid out a strategy but was not a decision document per se nor contained specifics about projects to construct. Without any specific details or an administration approved report, the project did not fit into any of the construction guidelines that the administration used in prioritizing projects for this years budget.

Question. Isn't there a similarity here to the Army Corps of Engineers' failure to heed warnings of a potential flood control disaster in New Orleans, given the widespread recognition of the high risk for levee failure that would cut off the drinking water supply for over 20 million people?

Answer. In evaluating this as well as other projects within the universe of those eligible for inclusion in the budget, the guidelines allow for strong consideration of

significant impacts to people in terms of risk to life. The Corps conducts a full screening of the factors involved in this metric such as the velocity and depth of potential flows during a flood event, the warning times for escape, the population at risk within the floodplain. This project did not fit into that guideline category, either for inclusion in the budget.

Question. The Napa River Flood Protection project is a 100-year flood protection project coupled with recreation and the restoration of over 730 acres of San Francisco Bay estuary. The Corps recently analyzed these wetlands and rated them at the highest possible level of ecosystem restoration under Corps guidance.

Upper Newport Bay is one of the last remaining coastal wetlands in Southern California. The Upper Newport Bay Ecosystem Restoration project undertaken by the Corps increases the quality of wetlands habitat, which supports federally endangered species, and improves water quality.

While multipurpose projects such as these are encouraged in the Corps planning process, there is no budget guidance that recognizes the array of project benefits for such projects. Would you consider changing the budgeting process to recognize a project's full array of benefits?

Answer. Evaluating multi-output projects continues to be a challenge and the Corps is advancing the evaluation process for such projects. In particular, they are refining the Environmental benefits evaluation process to incorporate the many facets of environmental project outputs and then combining them with other project outputs to make a comprehensive analysis for the budget prioritization process.

SACRAMENTO RIVER, GLENN-COLUSA IRRIGATION DISTRICT

Question. Funds are needed in fiscal year 2007 to make progress on addressing two outstanding obligations associated with the Sacramento River, Glenn-Colusa Irrigation District, Gradient Facility project: an outstanding obligation associated with a revegetation/mitigation contract of approximately $115,000 and settling a dispute with neighboring Butte County over damages incurred to Butte County roads during the construction process, an obligation that could exceed $300,000. While no funds were appropriated for this project specifically in fiscal year 2006, this is an on-going project and these two project obligations were incurred prior to fiscal year 2006. Therefore, funding these two pre-existing project obligations represents an eligible use of fiscal year 2007 funds. Do you agree, and, if not, why not?

Is it your intent to address both of these pre-existing obligations using funds provided to the Corps of Engineers in fiscal year 2007?

Answer. The fiscal year 2007 work plan guidelines prevented us from providing fiscal year 2007 funds to GCID. We were able to reprogram carried over fiscal year 2006 funding from Hamilton Wetlands to GCID to make the outstanding contract payment. Regarding the dispute/claim, a hearing was held in front of the Armed Services Board of Contract Appeals in February 2007, and we are still awaiting their decision.

QUESTIONS SUBMITTED BY SENATOR MARY L. LANDRIEU

BACKLOG OF AUTHORIZED WORK

Question. The Corps has a backlog of authorized projects that are slowly being constructed or have not even started with construction. Currently, this backlog is $40 billion to $45 billion. Additionally, the next WRDA bill will likely authorize another $12 billion of projects. Therefore, a conservative estimate of the backlog after the WRDA bill will be at least $50 billion. The administration has requested about $1.5 billion for construction in fiscal year 2008.

Based on your current budget request and your 5 year plan, how long will it take for us to catch up on the backlog?

Answer. The administration is proposing to reduce the backlog by the amount in the budget, which is a little over $1.6 billion. Our five-year development plan indicates that, under either of the two scenarios, the funding requirements for projects in the fiscal year 2008 budget will tail off over time, and hundreds of millions of dollars will become available through fiscal year 2011 to finance additional work. Likewise, the requirements of projects in the fiscal year 2008 budget for studies and Preconstruction Engineering and Design tail off, leaving tens of millions of dollars for additional planning and design work to prepare projects for construction.

DECLINING INVESTMENT AS A PERCENTAGE OF GDP

Question. As a percentage of GDP, our current investment in civil works is less than one-tenth of what it was in the mid 1930s and less than one-sixth of what it was in the early 1960s.

This budget puts our Nation at risk. What is your plan for dealing with this gross under-investment in civil works?

Answer. The budget reflects the appropriate level of investment for the Corps Civil Works program. It focuses resources on completing ongoing projects and maintaining our existing investments. The discretionary part of the budget is under extreme pressure due to the many other competing investment needs. The administration believes it must reduce the backlog of ongoing construction projects before we can provide for additional studies. With the funding that is available, we attempt to fund the highest performing projects. Overall, my vision plan is reflected in the Civil Works Strategic Plan, dated March 2004 with the goals being:

—Provide sustainable development and integrated management of the Nation's water resources.
—Repair past environmental degradation and prevent future environmental losses.
—Ensure that operating projects perform to meet authorized purposes and evolving conditions.
—Reduce vulnerabilities and losses to the Nation and the Army from natural and man-made disasters, including terrorism.
—Be a world-class public engineering organization.

The 5-Year Development Plan supports the Strategic Plan by continuing our focus during fiscal year 2008–2012 on the ongoing construction projects and activities that provide the highest net economic and environmental returns on the Nation's investment, as well as on the most productive operation, maintenance, and repair activities, and on activities in the FUSRAP program, the Regulatory Program, and Emergency Management that contribute to performance goals.

BEACH POLICY

Question. Storm damage reduction projects along our coasts provide tremendous benefits to our national economy. Beaches are the leading tourist destination in the United States. California beaches alone receive nearly 600 million tourist visits annually. This is more tourist visits than to all of the lands controlled by the National Park Service and the Bureau of Land Management combined. Beach tourists contribute $260 billion to the U.S. economy and $60 billion in Federal taxes. People from over 400 congressional districts throughout the United States own property in the Bogue Banks Area of North Carolina. Similar ownership is true in other coastal communities demonstrating the national implications of these projects.

Also, these projects are justified on the basis that they provide storm damage reduction benefits. As these are National Economic Development benefits within one of your prime mission areas of flood control it puzzles me as to why both yours and prior administrations refuse to budget for these projects. As more and more of our population migrate towards the coasts, it will become imperative to provide protection to these areas. The only other option is to continue paying disaster payments when these communities are impacted.

Secretary Woodley, with this major impact on our national economy, what is the administration's justification for the proposed change in beach policy? A change, I would note, that Congress has consistently rejected.

What would you recommend to make these projects more competitive in the budget process?

Answer. The administration's budget policy is to put beach nourishment projects on the same footing as other projects, in that the Federal Government would participate financially in initial construction but non-Federal interests would be responsible for follow-on costs, in this case renourishment costs, except where a Federal navigation project has caused the erosion. This policy is a component of the administration's overall efforts to direct Civil Works funds to the most productive uses.

QUESTIONS SUBMITTED BY SENATOR PETE V. DOMENICI

FUNDING FOR THE INLAND WATERWAY TRUST FUND

Question. Secretary Woodley, the budget proposal indicates that the administration is concerned that the Inland Waterway Trust Fund may go bankrupt within

a few years. As a solution, the administration has committed to proposing legislation to replace the existing diesel tax with a user fee later this year.

How will this fee be assessed as well as collected and will this change the way the funds are allocated in the future?

Answer. The details of the nature of the user fee, and how it will be assessed, collected, and allocated have not been developed. The details of the proposal will be developed over the next several months through a process that will include consultation with other interested Federal agencies, the users of the system, and other stakeholders.

Question. Will this proposal seeks to take the waterway trust fund off budget?

Answer. The decision on whether to recommend taking the waterway trust fund off budget has not been made. That issue will be considered as the details of the proposal are developed.

MIDDLE RIO GRANDE PROJECTS

Question. Secretary Woodley, since you have held this position, I have been working on four critical projects along the Rio Grande corridor that include the following four elements.

—*Bosque Restoration Project.*—This project would provide a workable open space for the city of Albuquerque and river habitat restoration.

—*Middle Rio Grande Flood Protection.*—The Corps is currently evaluating the levees to determine if they have reached their design lifetime and to provide assistance in rehabilitation of levees where necessary.

—*Bosque Wildfire Rehabilitation.*—This element provides recovery from a damaging series of fires between Bernalillo and Belen that pose a grave threat to human health, and to construct access points to the river for fire fighting.

—*Middle Rio Grande Endangered Species Collaborative Program.*—A partnership with the Bureau of Reclamation to manage water flows on the Rio Grande and provide endangered species protection and recovery.

Unfortunately the President's fiscal year 2008 budget proposal only provides $311,000 for only one of the four elements. The fiscal year 2006 budget provided $5,847,000 to support the management of all four elements.

Please explain how the Corps plans to meet all four critical obligations with the funding proposed in the fiscal year 2008 budget?

Answer. Sir, funds to complete the feasibility study for the Bosque Restoration Project are in the President's budget for fiscal year 2008. No funds are in the 2008 budget for the Middle Rio Grande Flood Protection Project or the Bosque Wildfire Rehabilitation Project. Work will stop on those projects once fiscal year 2007 funds have been expended. Funds for the Middle Rio Grande Endangered Species Collaborative Program are provided through the Bureau of Reclamation's appropriation.

Question. Although the Corps has proposed a systems management approach to managing major O&M responsibilities, why can't the Corps seem to integrate these activities along middle Rio Grande?

Answer. Sir, the Corps of Engineers is moving towards a systems/watershed approach for preparing our annual budget request and planning and executing work. But, the budget supports only that work that is high-performing and contributes to the Corps main water resources development missions, namely commercial navigation, flood and coastal storm damage reduction, and aquatic ecosystem restoration.

Question. Additionally, what role can the Corps undertake in reformulating the current Biological Assessment for the Rio Grande to bring the management of the river back to a more balanced condition?

Answer. Sir, I believe that the Corps of Engineers, with its expertise in flood control, ecosystem restoration, and water resources planning can greatly contribute to reformulating the Biological Assessment. How the Biological Opinion is reformulated will impact virtually all of the Corps studies, designs, and projects on the Rio Grande. The Bureau of Reclamation is currently the lead agency for the Middle Rio Grande Endangered Species Act Collaborative Program. The Corps is actively participating in efforts to reformulate the Biological Assessment and is providing technical and management support. Funding for these activities performed by the Corps is provided by the Bureau of Reclamation.

ACEQUIAS IRRIGATION SYSTEM

Question. Secretary Woodley, the Acequias Irrigation System Program was established to help small irrigation districts with historic significance to maintain their irrigation facilities. This program also helps mitigate downstream flooding. The Corps has resolved several significant operational issues with the State of New Mex-

ico over the last 5 years. However the President's fiscal year 2008 budget proposal does not include any funding for this critical program.

Please explain how the Corps of Engineers will continue to support these historic irrigation systems without financial resources?

Answer. Sir, the Corps would not be able to support these historic irrigation systems without financial resources. The project was a low priority for funding under the fiscal year 2008 budget construction guidelines. Any additional reconnaissance studies the local sponsor has identified for future rehabilitation may similarly not be a funding priority.

CONTINUING AUTHORITIES BUDGET

Question. The Corps of Engineers has several continuing authority programs. These programs provide the flexibility needed to address relatively small projects throughout the country. I was unsettled to see that the Presidents fiscal year 2008 budget proposal decreased the funding over the 2006 enacted levels by more than 65 percent.

Is the President's budget proposal an attempt to eliminate these programs?

Answer. No Senator, the administration does not intend to eliminate these continuing program authorities. The fiscal year 2008 budget proposes to use available funding to continue ongoing phases for the highest performing projects.

Question. Does the Corps believe that the flexibility provided by these continuing authorities is no longer necessary or important to the Nation?

Answer. No, we value these programs as they have the potential to solve many of our domestic infrastructure and environmental needs. The projects can be implemented in a short period of time and at little cost to address water resources problems.

Question. How can the Corps attempt to meet the anticipated needs of the projects within these programs with the proposed budget?

Answer. The projects in the continuing authority's universe competed for funding using objective metrics that were very similar to those used for specifically authorized projects. The highest performing projects were funded for the phase continuing from the fiscal year 2007 budget.

QUESTIONS SUBMITTED BY SENATOR KAY BAILEY HUTCHISON

HARBOR MAINTENANCE TRUST FUND

Question. My State of Texas has some of the Nation's largest ports and they pay a significant portion of the funds that go into Harbor Maintenance Fund. However, I continue to hear from my ports that the fund is idle. Can you tell me the status of the Harbor Maintenance Fund?

Answer. The Harbor Maintenance Trust Fund (HMTF) was established by the Water Resources Development Act (WRDA) of 1986. The WRDA of 1986 provides for a Harbor Maintenance Tax (HMT) to be collected on the value of cargo imported, moved into a foreign trade zone or moved domestically. The HMT is also assessed on the value of passenger tickets. HMT revenues are collected by the Bureau of Customs and Border Protection and deposited into the U.S. Treasury. The Department of the Treasury maintains accountability for the fund and transfers money out of the fund to reimburse authorized expenditures. The U.S. Army Corps of Engineers (USACE) does not receive direct appropriations from the HMTF and therefore USACE expenditures for navigation projects are limited to Congressional appropriations.

Question. How much does the fund contain today?

Answer. The estimated balance in the HMTF, after anticipated transfers to the U.S. Treasury for fiscal year 2007 expenditures by USACE and other agencies, is approximately $4 billion.

Question. What are the requirements for using funds in the Harbor Maintenance Fund?

Answer. The HMT is used to recover 100 percent of the USACE eligible operations and maintenance (O&M) expenditures for commercial navigation, along with 100 percent of the O&M cost of the St. Lawrence Seaway by the St. Lawrence Seaway Development Corporation. Section 201 of WRDA 96 authorizes the recovery of Federal expenditures for construction of confined disposal facilities required for operation and maintenance of any harbor or inland harbor; dredging and disposal of contaminated sediments that are in or that affect the maintenance of Federal navigation channels; mitigation of operation and maintenance impacts, and operation and maintenance of dredged material disposal facilities. During the 103rd Congress,

legislation was enacted which allows the Department of the Treasury, the USACE, and the Department of Commerce to share a maximum total of $5 million per year for expenses incurred in the administration of the HMT.

Question. How do you prioritize projects for funding?

Answer. There continues to be keen competition for limited Congressional appropriations to perform USACE's navigation mission. USACE therefore prioritizes navigation projects for inclusion in the President's budget in order to reduce the risk of failure and increase the reliability of our projects, and maximize public benefits for the investment. Factors such as volume and value of cargo moved, benefits of the project, criticality of work to be performed, anticipated impacts of not performing the work, legal mandates, safety issues, environmental compliance, etc. are used to prioritize projects.

Question. How much has been paid out of the fund annually over the past 5 years?

Answer. The following table reflects HMT receipts and HMTF transfers to the U.S. Treasury, in thousands of dollars, for fiscal years 2002 through 2006:

HMT RECEIPTS AND HMTF TRANSFERS TO THE U.S. TREASURY FOR FISCAL YEARS 2002 THROUGH 2006

[in thousands of dollars]

Fiscal Year	Harbor Maintenance Tax Receipts	USACE Transfers	Other Agency Transfers	Total Transfers
2002	652.9	639.9	16.3	656.2
2003	758.0	568.9	17.0	585.9
2004	869.7	630.9	17.3	648.2
2005	1,047.9	687.2	18.7	706.0
2006	1,206.5	779.0	19.0	798.1

Question. If funds have not been expended out of the fund, why is that the case?

Answer. Annual reimbursements from the HMTF are limited to congressional appropriations. Annual HMT revenue has consistently exceeded annual expenditures resulting in a growing HMTF balance.

QUESTION SUBMITTED BY SENATOR WAYNE ALLARD

Question. Please share how the Army Corps set its priorities for its budget request this year. I am specifically looking for information that would lead me to understand why funding for the completion of the Fountain Creek Watershed study and funding for the Chatfield Reallocation Study were not included?

Answer. Chatfield was not in the Corps' 2008 budget as it was not in the 2007 budget the initial criteria under the guidelines. Funding priority is given to studies funded in the previous year.

QUESTIONS SUBMITTED TO LIEUTENANT GENERAL CARL STROCK

QUESTIONS SUBMITTED BY SENATOR BYRON L. DORGAN

Question. How will we easily be able to tell how much we are investing in these endangered species recovery efforts?

Answer. To assist us in capturing this information, we will develop a new system to closely monitor and track funds expended for recovery efforts and will make that information available upon request.

Question. General Strock, How have the reprogramming restrictions imposed by the fiscal year 2006 E&W Act affected your ability to effectively and efficiently manage the Civil Works program?

Answer. The reprogramming and contracting guidance contained in the fiscal year 2006 Energy and Water Development Appropriations Act and/or subsequent delays in obtaining approvals have adversely impacted performance rates so that, in some cases, weather or environmental windows were missed, contract options could not be taken advantage of and a larger carryover of unobligated or unexpended funds occurred with work still not accomplished. On the other hand, these restrictions have resulted in greater discipline at all management levels in preparing cost esti-

mates, expressing capabilities and applying available funds as intended by the Congress.

Question. General Strock, You are soon to retire so I'll ask you an unfair question that I know Secretary Woodley would have to avoid or be very careful to answer—as the outgoing Chief, what changes would you recommend to Corps contracting and reprogramming guidance in order to give your successor the flexibility needed to manage the Civil Works program?

Answer. As mentioned earlier, the reprogramming and contracting guidance contained in the Fiscal Year 2006 Energy and Water Development Appropriations Act has effectively brought about greater care in estimating, expressing capabilities and managing funds on hand; however, more flexibility is needed to efficiently utilize available funds for the purposes intended by the Congress. I believe the proposed contracting and reprogramming language set forth in the President's budget, if adopted, provides that flexibility.

MISSOURI RIVER

Question. Gentlemen, it should come as no surprise to you that we are suffering through our eighth year of drought in North Dakota. What is the situation and outlook for Missouri River runoff this year?

Answer. Drought continues to persist in the Missouri River Basin. Moderate to severe drought exists in much of Montana and Wyoming and the western portions of the Dakotas and Nebraska. The remainder of the basin is essentially drought free. Current storage in the Missouri River Mainstem Reservoir System is 37.3 MAF, 17.5 MAF below normal, but 2.6 MAF higher than one year ago. The 2007 runoff forecast above Sioux City, Iowa is for 21.2 MAF, 84 percent of normal.

Question. How will this impact operation of the Missouri River?

Answer. Service to all of the congressionally authorized project purposes is reduced due to the ongoing drought, currently in its eighth year. The upper three reservoirs are drawn down 24 to 34 feet and releases from all projects are much below normal. Due to excellent runoff below the reservoir system, releases from Gavins Point were at record low levels during March, April and May of 2007, and were well below normal the remainder of the year. Power production at the Corps hydropower facilities in 2007 is expected to be a record low 5.0 billion kWh, only half of normal. Lower reservoirs and releases have reduced access at many boat ramps and marinas throughout the region, and have made access for municipal and industrial water supply more difficult. None the less, all municipal water intakes have remained operational throughout 2007, and are expected to remain viable in 2008. Although the Corps made significant efforts on behalf of fish and wildlife during 2007, the drought continues to reduce the benefits of those efforts. All three of the upper reservoirs rose significantly during the forage fish spawn; however reports from the North Dakota Game and Fish Department indicated that the smelt spawn in Garrison was poor due to the lack of proper substrate at the current reservoir level. Efforts to conserve cold water habitat in Garrison reservoir were expanded this year, saving an estimated 800,000 acre-feet of cold water in the reservoir. Fledge ratios for both the interior least tern and piping plover were below the fledge ratio goals outlined in the 2003 Biological Opinion, however there were a record number of terns present in the region during the nesting season. Spring pulses from Gavins Point dam for the benefit of the endangered pallid sturgeon were not implemented in 2007 due to the low system storage.

Question. Do you anticipate a normal navigation season?

Answer. The 2007 navigation season was shortened 35 days and minimum service flow support was provided throughout the shortened season. The 2008 navigation season will start on the normal opening date of April 1 at the mouth with minimum service flow support. The season length will be determined based on the July 1 storage check, but is estimated to range from 17 to 60 days based on studies provided in the draft Annual Operating Plan.

Question. How much more should I expect the level of Lake Sakakawea to drop under the operations of the Master Manual for fiscal year 2008?

Answer. If runoff in 2008 is near lower quartile levels, conditions at Garrison are expected to be similar to those experienced in 2007. With runoff above lower quartile, reservoir levels will improve, averaging about 7 feet higher than in 2007 for median runoff conditions, to as much as 15 to 20 feet higher with upper decile runoff conditions. However, if the drought deepens and runoff declines to lower decile conditions, the reservoir could be 5 feet lower in 2008 than it was in 2007, and could fall below the record low pool of 1,805.8 feet msl by early 2009.

Question. How will this continued fall of Lake Sakakawea affect the Snake Creek Embankment? Will we have to draw down Lake Audubon further than we already have?

Answer. Lake Audubon is historically maintained by the Bureau of Reclamation at a near constant elevation of 1,847.2 feet from spring through Labor Day. After Labor Day, the lake level is lowered to 1,845.0 feet and held constant at this elevation throughout the ice fishing season. Lake Audubon reached its annual winter target elevation of 1,845.0 feet the first week of November 2007. The recently completed draw down was conducted in accordance with normal lake operation and no further drawdown is planned at this time.

The Corps of Engineers implemented a 43 foot maximum water level difference between Lake Audubon and Lake Sakakawea in March 2007 based on the results of an underseepage evaluation. This restriction will remain in effect until additional data is obtained and can be evaluated under more severe lake and reservoir fluctuations.

As of November 6, 2007 Lake Sakakawea was at elevation 1,813.1 feet and Lake Audubon was at elevation 1,845.0 feet, resulting in a water level difference of 31.9 feet. Current forecasts indicate that Lake Sakakawea will continue to slowly recede until the latter part of February 2008 and then rise to its peak elevation around mid-summer. Under the November 1, 2007 basic and lower basic simulations, Lake Sakakawea is projected to recede to 1,809.1 feet and 1,808.0 feet, respectively, by the end of February 2008. Utilizing the lower basic simulation, the projected maximum water level difference at the end of February will be 37.0 feet, which is well below the allowable 43 feet maximum difference.

Question. How will the continued drop in water levels on Lake Sakakawea impact various water intakes that draw from the lake as well as those that draw from the river?

Answer. Under all runoff conditions simulated in the 2007–2008 Annual Operating Plan, all of the water intakes on Garrison reservoir remain operational throughout 2008. Releases from Garrison will be scheduled at a level sufficient for the intakes below the dam to remain operational throughout the year.

Question. Why have you not proposed at least a token amount of funding for drought in your budget, when you know that the west has been suffering an extended drought?

Answer. The Corps has proposed funding for control of noxious weeds associated with lower reservoir levels resulting from the drought. The Corps also provides significant funding for cultural resources within the basin which may be impacted by drought conditions.

Question. What is your funding capability for drought emergency assistance?

Answer. Emergency assistance due to drought is generally requested due to the loss of water meant for human consumption within a community. Under Public Law 84–99 the Corps is authorized to provide technical assistance to a local community facing an emergency. The Corps may also provide temporary emergency water assistance for human consumption/usage to a drought distressed area to meet minimum public health and welfare requirements. Corps assistance is supplemental to State and local efforts. Corps assistance under this authority may include transport of water to local water points, distribution of bottled water, temporary connection of a new supply to the existing distribution system, and installation of temporary filtration. Several areas are considered in determining the amount of Federal direct assistance; such as economic impact to the community, environmental issues, weather impacts, other water sources (wells), long term lake level projections, and good engineering judgment.

A–76 AND HPO

Question. In 2001 and 2002, OMB imposed arbitrary numerical privatization quotas on agencies. The practice was prohibited by Congress in February 2003, unless there was "considered research and sound analysis of past activities (that) is consistent with the stated mission of the executive agency." In July 2003, OMB repudiated the use of government-wide quotas. Nevertheless, the Corps of Engineers (CoE) appears to be following the arbitrary quota imposed by OMB in 2002, according to CoE documents. Why did the Congressional prohibition and the OMB repudiation have no affect on CoE's numerical privatization quota? Was there any of the legally required "considered research and sound analysis of past activities (that) is consistent with the stated mission of the executive agency" done in connection with this? How many additional Federal employees are CoE obligated to OMB to review for privatization under OMB Circular A–76?

Answer. The Corps is not pursuing any privatization activities.

Question. CoE's decision to attempt to review the locks and dams personnel for privatization generated strong bipartisan, bicameral opposition. Even CoE management conceded that at least part of the workload performed by locks and dams personnel is inherently governmental. Would CoE have begun this OMB Circular A–76 privatization review if it had not had a "commitment" to OMB to review for privatization at least 7,500 jobs? Are there actions that CoE can undertake on its own to increase the efficiency of locks and dams operations or operations generally? Do CoE managers believe that they are obligated to strive to generate efficiencies? If there were no A–76 quota for CoE to fulfill, could taxpayers and lawmakers on this subcommittee count on CoE management to always strive to make the agency's operations more efficient?

Answer. The Corps is not studying the locks and dams personnel for A–76 competition. Rather, the Corps has initiated an internal study of business processes to improve efficiency and effectiveness of the Nation's inland waterway system. Any resulting changes will be implemented over a period of 5 years. We do not anticipate any adverse impact on the workforce.

Question. How many months old is the A–76 privatization review of information technology and how many employees are involved? According to an October 12, 2006, GovExec.com story, "Information technology management at the Army Corps of Engineers is being stressed to the breaking point by staff shortages resulting from a stalled public-private job competition, according to senior Corps officials. I have been informed that an early September meeting of senior IT leaders at the agency reflected concern that IT services are suffering from significant attrition at "virtually every Corps [information management] office," according to a summary of the meeting at <http://govexec.com/pdfs/armycorpsimit.pdf> distributed by the agency's Chief Information Officer, Wilbert Berrios. Some have lost as much as 35 percent of their workforce since the inception of a competitive sourcing process more than 2 years ago. "We are one missed signal away from a train wreck," officials warned at the September 6 meeting in Jekyll Island, GA., according to the summary, with staffing levels only "one person deep in several critical areas." Do you agree with that account? If not, why not?

Answer. The Information Management/Information Technology (IM/IT) competition resulted in a win by the in-house team (called the Most Efficient Organization (MEO)). MEO was issued the formal notice in April 2007 and began the transition in May 2007. Currently the MEO are recruiting from the existing IM/IT employees and are well underway to assume full responsibility for IM/IT service delivery by May 2008. We do not foresee any disruption of service during the transition period.

Question. While not quite as long as the infamous Walter Reed privatization review, the CoE information technology A–76 is certainly one of the longest reviews since the circular was revised in May 2003, is it not? And like Walter Reed, if this GovExec.com count is to be believed, the affected workforce has been significantly disrupted. With respect to CoE's information technology privatization review, assume that the contractor's appeal will not prevail. After taking into account the dangerous levels of workforce disruption caused by the privatization review, the costs of carrying out the privatization review, and the costs of transitioning the workforce into the new organization, how much will there be left in unverified, projected savings? Please state each component in detail.

Answer. The court case was settled and, as mentioned above, the MEO started the transition in May 2007. Projected savings is about $500 million over a 6-year period. The savings are based on the MEO's bid and derived from the MEO's technical solution using the best business processes.

Question. How many jobs and what sort of jobs will be reviewed under the new HPO? I understand that the HPO will involve 3,500 employees in the locks and dams, maintenance fleets, and district offices, as opposed to 2,000 employees in the locks and dams? Will the HPO be far more wide-ranging than the A–76 review?

Answer. Under the HPO initiative, the Corps is studying the business processes rather than reviewing jobs. There are approximately 3,000 positions engaged in the operations and maintenance of navigation locks and dams. The Corps does not anticipate any negative impact on employees.

Question. What guidelines are you working under regarding the HPO? I understand that the guidelines from OMB can all fit on one side of a single piece of paper. Would CoE need legislation or for the Congress to undertake any action to plan for or to implement the HPO?

Answer. The Corps is using accepted practices for internal business process reengineering such as Lean Six Sigma. No legislation is required for studying an HPO. However, before implementing the resulting organization, congressional approval may be required.

Question. Will the HPO involve privatization, job loss, or forced reapplications for employment for the in-house workforce? Is the HPO based on any budget assumptions? If so, what are they?

Answer. HPO will not involve privatization, job loss, or forced reapplication. No budget assumptions or targets are driving this initiative.

Question. Has the HPO team begun work? When will the HPO team finish work? How long will it take before the HPO plan is implemented? How will the team incorporate the views of non-management employees? How many non-management employees will be on the HPO team? How many union members will be on the HPO team?

Answer. The HPO team for locks and dams started the study in January 2007 and is scheduled to complete its work in July 2008. After that, there is a 5-year transition to attain the end-state configuration. The team is made up of a typical cross section of the locks and dams personnel, including lock masters, operations managers, and other district employees, The HPO team is totally independent of the Corps management and empowered to do the study without any interference. Team members have been visiting project sites, meeting with employees, and soliciting input by various means from all employees.

Question. It seems that an extraordinary number of important issues could be dealt with by the HPO team, but it is unclear what they might consider or how broad the mandate is. For example, it appears that the HPO plan could propose reducing hours at some locks and dams, reducing capabilities at some CoE district offices, or using one CoE district's maintenance fleet in another CoE district even if that means the first CoE district's maintenance backlog might be ignored. Will such issues or similar issues be seriously considered? Is there any limitation on the consideration of such or similar issues? If so, what are they?

Answer. The main thrust of the HPO study is to provide a safe, reliable, efficient and effective operations and maintenance for the U.S. Inland Marine Transportation System. It is not intended to cut corners or reduce capabilities.

CONTINUING AUTHORITIES PROGRAM

Question. I realize that the Continuing Authorities Program is a sideline to your major mission areas. We annually fund about $150 million to this program, where you usually budget less than $50 million. However, you need to understand that it is a program that is very important to my colleagues and hundreds of local communities across the country. The Congress has been concerned about the management of this program. We recognize that we have contributed to some of the management issues by recommending more projects that funding was available for. In fiscal year 2006 and continuing in fiscal year 2007 there is a moratorium on projects within the CAP program from advancing to the next stage of project development.

What measures have we put in place to more effectively manage the program?

Answer. The following actions have been taken to improve management for CAP.

In February 2006 we established a national Program Manager for CAP to manage and analyze large and complex data and this has greatly improved the overall management of CAP.

In June 2006, we provided Congress with a 5 Year Program Management Plan (PMP) for CAP. The intent is to review and update the PMP annually. Implementation of the PMP will be an improvement action.

Beginning with the fiscal year 2008 budget, we've implemented a performance based method for development of the CAP budget. This is a new approach for CAP budget development. It should help improve CAP by providing a clear and consistent method analyzing CAP for budgetary purposes.

For the fiscal year 2007 program we developed a ranking methodology using appropriate criteria for determining fiscal year 2007 allocations. The method helped improve CAP by providing a clear method for allocating fiscal year 2007 funds.

Question. What is the outlook for fiscal year 2007?

Answer. For fiscal year 2007 CAP funding requests exceeded available funds by $33,069,000. Therefore we developed a ranking methodology using appropriate criteria that was implemented to prioritize requests and optimize use of available funds. CAP funds for fiscal year 2007 are fenced by section. In addition, the moratorium on execution of new FCSA's and PCA's continues in fiscal year 2007. The fencing and moratorium restrictions create challenges in optimal management of CAP funding.

Question. Will all funding provided in each section of the program be utilized in current project development phases and will some projects be ready to move to the next phase?

Answer. The CAP Fiscal Year 2007 Work Plan funds $124,616,000 at this time with a reserve of $13,786,000. The plan provides $89,104,000 to complete 163 project phases, $28,721,000 for continuing work, and $6,791,000 to initiate new phases.

Under the current PCA moratorium, we are only able to move projects into construction if full funding is available to fund the entire construction. This significantly limits the number of CAP projects that can move into construction during fiscal year 2007.

Under the current FCSA moratorium, we are required to limit Federal funding for feasibility work at $100,000. This restriction has caused numerous CAP projects to cease or postpone feasibility work.

Question. Will we propose a package of projects to move forward? When?

Answer. We provided detailed lists of active CAP projects to Congress in June 2006. Those reports showed FCSA and PCA execution status, allocation history, obligation capabilities through fiscal year 2011, and estimated Federal costs. The June 2006 reports did not make specific recommendations regarding which projects should be considered for moving forward. It would be a better management approach if decisions regarding selection of CAP projects to forward were made using the performance based budgeting method and the fiscal year 2007 allocation methods mentioned earlier. The nature of CAP is that these are smaller projects with less certainty regarding costs, scope, and sponsor commitments. Flexibility of management is highly desirable due to the nature of the program.

QUESTIONS SUBMITTED BY SENATOR MARY L. LANDRIEU

LATEST $1.3 BILLION FUNDING NEED

Question. Secretary Woodley, your testimony referred to the administration's request for reprogramming $1.3 billion in emergency supplemental appropriations from last year to cover shortfalls in hurricane protection projects in Louisiana. The Corps is developing estimates of future funding shortfalls with a goal of having complete estimates this summer.

Does the administration intend to request supplemental appropriations when the future shortfalls are identified?

Answer. Emergency authority and funding was provided by Congress and we are executing this mission in that manner. The Corps of Engineers is working with the resources provided to restore and improve the Hurricane Protection System as authorized and funded in fiscal year 2006. This is the number one domestic priority of the Corps of Engineers, and we are committed to executing this mission in the most efficient and expeditious manner possible. The Corps continues to develop new information and incorporate it into our planning process, constantly working to improve the reliability of our cost estimates and construction schedule estimates. We are committed to developing and communicating these estimates in a transparent manner. We will ensure that the Congress and the administration have the information that they require in order to identify an appropriate vehicle for funding the completion of the 100-year system.

Sufficient unobligated funds exist in the 4th supplemental appropriation to cover immediate work on those measures that will reduce the risk for the New Orleans metropolitan area with the proposed $1.3 billion reprogramming. This work includes floodwalls and levees that are ready for contract award. Fiscal Year 2006 4th Supplemental funds proposed for reallocation are not required until later in the year when designs and required environmental documentation are complete. The Corps is currently updating cost-estimates for the remaining work, and it would be premature to request additional funding until the Corps finishes these revisions. Funds reappropriated from the 4th Supplemental will need to be replenished by additional appropriations at some future date, possibly in the fall of 2007.

CRITICAL INFRASTRUCTURE

Question. On March 8, Homeland Security Secretary Michael Chertoff agreed with me that levees should be categorized as critical infrastructure.

I would like to ask the Corps to begin the appropriate conversations and collaboration with the Department of Homeland Security to expedite the inclusion of levees as critical infrastructure and report back to me within 6 weeks on your progress. Can the Corps do this?

Answer. Yes, Senator we can do this. Levees are already included within the framework of the National Infrastructure Protection Plan (NIPP). As established in the Dams Sector Specific Plan released in May 2007: "The Dams Sector is comprised

of the assets, systems, networks, and functions related to dam projects, navigation locks, levees, hurricane barriers, mine tailings impoundments, or other similar water retention and/or control facilities." It is important to highlight that "levees" is used in this context to designate flood damage reduction systems (dikes, embankments, levees, floodwalls, pumping stations, etc.); also including conventional dams that perform critical functions as part of flood damage reduction systems. Therefore levees are clearly part of the Dams Sector as one of the 17 Critical Infrastructure and Key Resources (CI/KR) sectors established by the NIPP. The Dams Sector is currently pursuing the formal establishment of a Levee Sub-Sector which will include the creation of the corresponding Levee Sector-Coordination Council.

QUESTIONS SUBMITTED BY SENATOR DANIEL K. INOUYE

KIKIAOLA HARBOR, ISLAND OF KAUAI, HAWAII

Question. Please provide me with a status of the project.

Answer. Sir, funding for the project is being considered during development of the Civil Works Fiscal Year 2007 Work Plan. The Honolulu District is updating the plans, specifications, and permits in preparation for advertisement and award of a construction contract.

Question. My records indicate that there were five reprogramming actions taken on the project beginning in 1980, 2001, 2002, 2003, and 2005, and totaling $10,045,000. What are the chances of the Corps restoring these funds for the Kikiaola project? If so, does the Corps have a time table as to when these funds can be restored?

Answer. Sir, any funds included for the project in the Corps of Engineers Fiscal Year 2007 Work Plan would be applied toward the Corps' commitment to restore previously reprogrammed funds. The Work Plan will be provided to the Committees shortly.

Question. I understand that $15,000,000 in construction funds is needed in fiscal year 2008. Does this amount take into account the $10,045,000 that was reprogrammed by the Corps since 1980? Please explain how, if any, would the Corps factor in any reprogrammed amounts.

Answer. Sir, whether a project has experienced previous net revocations is a consideration in development of the fiscal year 2007 Work Plan. Any funds allocated to the project would be applied toward the commitment to restore previously revoked funds.

Question. Would the $15,000,000 be sufficient to complete the Kikiaola Light Draft Harbor project?

Answer. Yes, sir. The $15,000,000 would be sufficient to complete the project based on our current cost estimates.

QUESTIONS SUBMITTED BY SENATOR JACK REED

BUDGET REQUEST

Question. The Defense Authorization Act for fiscal year 2007 included a provision directing the Corps to assume responsibility for the annual operations and maintenance of the Fox Point Hurricane Barrier in Providence, Rhode Island. The Corps is to assume responsibility within 2 years after the date of the enactment of the Act, which I believe is October 17, 2008. Could you tell me where the Corps is in the process of taking over operations and control of the hurricane barrier? The Corps did not request funding for this project in the fiscal year 2008 budget, is not funding needed at this time? Do you plan to request funding in the President's budget request for fiscal year 2009?

Answer. We have not received any funding to date for this effort. We have met with the city of Providence to develop a strategy; however, we have not initiated this work because of funding delays and at this time it is unlikely that we will be able to perform all of the tasks necessary to take over operation and maintenance of the project by 17 October 2008. We have Construction funds currently available; however, these funds are for the purpose of reimbursing the city of Providence for the Federal share of their costs in making eligible repairs to the Fox Point Hurricane Barrier. We are not authorized to use these funds for the purpose of completing tasks necessary to take over operation and maintenance of the project. The fiscal year 2009 budget to be released in February 2008 and as of yet have not made any decisions for that budget.

Question. The Corps has a number of ongoing projects in Rhode Island to assist with navigation and aquatic ecosystem restoration. These projects are funded under the Continuing Authorities Programs; yet, there is no funding request in the fiscal year 2008 budget for these projects. Could you tell me why the administration's budget request does not provide a list of these ongoing projects in each State and the amount of funding needed for their completion? Could you provide a national list of projects currently funded under the Corps' Continuing Authorities Program and the cost to complete work on these projects? Also, why does the administration not provide specific funding requests for these projects in its budget?

Answer. Yes, sir the list requested is attached. Competition for Constructions funds is very keen and the budget presented the best allocation of funds among all the competing interest.

FIVE YEAR CAPABILITIES FOR CAP PROJECT PHASES IN FISCAL YEAR 2008 BUDGET

[in thousands of dollars]

Project Name	CAP Section No.	MSC	DISTRICT	Cost to Complete
KWETHLUK, AK	14	POD	POA	100
TALLAHATCHIE RIVER, SITE 3, TALLAHATCHIE COUNTY, MS	14	MVD	MVK	621
14 OLD FORT NIAGARA, YOUNGSTOWN, NY	14	LRD	LRB	100
27TH STREET BRIDGE, GLENWOOD SPRINGS, CO	14	SPD	SPA	322
ALDEN SEWER DISTRICT NO. 2	14	LRD	LRB	100
ARGOSY ROAD BRIDGE, RIVERSIDE, MO	14	NWD	NWK	650
BARNES CO., KATHRYN, ND	14	MVD	MVP	300
BATESVILLE WASTEWATER TREATMENT PLANT, WHITE RIVER, AR	14	SWD	SWL	477
BEAR CREEK, ROLAND, STORY CO., IA	14	MVD	MVR	90
BEAVER CK WASTEWATER TREATMENT PLANT, GREENE, CO	14	LRD	LRL	100
BELLE ISLE, DETROIT, MI	14	LRD	LRE	50
BELPRE, OH SEWER AND WATERLINE PROTECTION	14	LRD	LRH	80
BIG SISTER CREEK, N. COLLINS	14	LRD	LRB	100
BLACK RIVER, RIVER DRIVE	14	MVD	MVP	500
BLANCHARD RIVER, OTTAWA, OH	14	LRD	LRB	.....
BRITTON ROAD BRIDGE, JONES, OK	14	SWD	SWT	40
CANADAWAY SEWERLINE	14	LRD	LRB	250
CASS LAKE, LEECH LAKE TRIBE	14	MVD	MVP	225
CAULKS CREEK, ST. LOUIS COUNTY, MO	14	MVD	MVS	421
CHAGRIN RIVER, GATES MILLS, OH	14	LRD	LRB	.....
CITY OF BLUFFTON, WELLS CO (SEC. 14)	14	LRD	LRL	100
COAL CREEK, ALBIA, MONROE CO., IA	14	MVD	MVR	125
COAL CREEK, ALBIA, MONROE CO., IA	14	MVD	MVR	38
CONWAY, CROWS RUN, PA	14	LRD	LRP	126
CROOKED CREEK, MADISON, IN	14	LRD	LRL	220
CUYAHOGA RIVER, BATH ROAD	14	LRD	LRB	.....
CUYAHOGA RIVER, VAUGHN RD	14	LRD	LRB	100
DEERFIELD TOWNSHIP, WARREN CO	14	LRD	LRL	100
DELAWARE CANAL, PAUNNACUSSING CREEK, BUCKS COUNTY, PA	14	NAD	NAP	750
DES MOINES RVR, KEOSAUGUA, VAN BURNE CO., IA	14	MVD	MVR	90
DUNKARD CREEK, BLACKVILLE, PA	14	LRD	LRP	39
EAST FORK BIG CREEK, BETHANY, MO	14	NWD	NWK	69
EAST LIVERPOOL, OH	14	LRD	LRP	129
EAST POINT, NJ	14	NAD	NAP	360

FIVE YEAR CAPABILITIES FOR CAP PROJECT PHASES IN FISCAL YEAR 2008 BUDGET—Continued

[in thousands of dollars]

Project Name	CAP Section No.	MSC	DISTRICT	Cost to Complete
EAST VALLEY CREEK, ANDOVER	14	LRD	LRB	100
EIGHTEENMILE CREEK, NEWFANE	14	LRD	LRB	100
EIGHTEENMILE CREEK, NORTH CREEK RD	14	LRD	LRB	100
ELIZABETH RIVER, VALLEYVIEW ROAD, HILLSIDE, NJ	14	NAD	NAN	800
ELK RIVER, SHERBURNE CO	14	MVD	MVP	600
ELLICOTT CREEK, NORTH FOREST RD., AMHERST	14	LRD	LRB	100
ERIE BASIN MARINA, BUFFALO, NY	14	LRD	LRB	100
FT. ABERCROMBIE, ND	14	MVD	MVP	960
FT. ABERCROMBIE, ND	14	MVD	MVP	40
GRAND RIVER (NOWS), GRAND HAVEN, MI	14	LRD	LRE	50
GRAND RIVER, PAINESVILLE, OH, SR84 BRIDGE	14	LRD	LRB	
GRAYCLIFF HOUSE, EVANS, NY	14	LRD	LRB	80
GREEN HILL RD., ASHTABULA RIVER, PLYMOUTH TOWNSHIP	14	LRD	LRB	100
HANLOCK RD., ASHTABULA RIVER, PLYMOUTH TOWNSHIP	14	LRD	LRB	100
HIGHWAY A, TURKEY CREEK, MO	14	MVD	MVS	35
HODGENVILLE, KY	14	LRD	LRL	200
HOLMES BAY [STATE HIGHWAY RTE 191], WHITING, ME	14	NAD	NAE	675
HURON RIVER, S.R. 99	14	LRD	LRB	100
IA RVR, IA CITY, JOHNSON CO., IA	14	MVD	MVR	90
IA RVR, SAC & FOX SETTLEMENT, TAMA COUNTY, IA	14	MVD	MVR	348
KANAWHA RIVER, CHARLESTON, WV (MAGIC ISLAND TO PATRICK STREET)	14	LRD	LRH	960
KENOSHA HARBOR, RETAINING WALL, KENOSHA, WI	14	LRD	LRE	700
KEUKA LAKE, HAMMONDSPORT	14	LRD	LRB	100
KINNICKINNIC RIVER STORM SEWER, MILWAUKEE COUNTY, WI	14	LRD	LRE	130
MIDDLE BASS ISLAND, OH, DEIST ROAD	14	LRD	LRB	
MONONGAHELA RIVER, W. ELIZABETH, PA	14	LRD	LRP	70
MT. PLEASANT AVE., MALAPARDIS BROOK, HANOVER, NJ	14	NAD	NAN	650
NOKOMIS RD, TEN MILE CREEK, LANCASTER, TX	14	SWD	SWF	516
NORTH PARK	14	LRD	LRC	1,300
NORTH SHORE DRIVE, SOUTH BEND, IN	14	LRD	LRE	65
OAKLAND SEWAGE FACILITY, TN	14	MVD	MVM	46
OHIO RIVER, HUNTINGTON, WV SEVENTH STREET WEST SEC. 14	14	LRD	LRH	380
OHIO RIVER, HUNTINGTON, WV SEVENTH STREET WEST SEC. 14	14	LRD	LRH	40
OHIO RIVER, HUNTINGTON, WV STAUNTON AVENUE SEC. 14	14	LRD	LRH	140

OHIO RIVER, HUNTINGTON, WV STAUNTON AVENUE SEC. 14	14	LRD	LRH	40
OLD CHAPPELL HILL ROAD, DAVIS CREEK, WASHINGTON COUNTY, TX	14	SWD	SWF	180
OUACHITA RIVER, CITY OF MONROE, LA	14	MVD	MVK	60
PARTRIDGE BROOK, WESTMORELAND, NH	14	NAD	NAE	381
PATUXENT RIVER, PATUXENT BEACH ROAD, MD	14	NAD	NAB	700
PEPPER'S FERRY RWTR, RADFORD, VA SEC. 14	14	LRD	LRH	40
PIPE CREEK, HAYES HOLLOW RD	14	LRD	LRB	100
PLATTE CITY SEWER, PLATTE CITY, MO	14	NWD	NWK	260
PLATTE RIVER BRIDGE, CONCEPTION, MO	14	NWD	NWK	227
POWERS BLVD, COLORADO SPRINGS, CO	14	SPD	SPA	441
QUODDY NARROWS, SOUTH LUBEC ROAD, LUBEC, ME	14	NAD	NAE	202
RANSOM CREEK, HOPKINS ROAD, AMHERST, NY	14	LRD	LRB	730
RED DUCK—NINETH STREET, KY., NO. 14	14	MVD	MVM	595
RED LAKE RIVER, MN	14	MVD	MVP	960
RED LAKE RIVER, MN	14	MVD	MVP	40
ROCKPORT, IN	14	LRD	LRL	200
ROUTE YY, WORTH COUNTY, MO	14	NWD	NWK	227
ROUTE YY, WORTH COUNTY, MO	14	NWD	NWK	99
SALAMANCA, NY	14	LRD	LRP	70
SAND COVE PARK, SACRAMENTO RIVER, CA	14	SPD	SPK	59
SAND HILL BRIDGE, MEDICINE CREEK, GRUNDY CO., MO	14	NWD	NWK	305
SAND HILL BRIDGE, MEDICINE CREEK, GRUNDY CO., MO	14	NWD	NWK	79
SARTELL, MN	14	MVD	MVP	500
SEC. 14 LINCOLN BOROUGH, PA	14	LRD	LRP	70
SHOTWELL CREEK, ST. LOUIS COUNTY, MO	14	MVD	MVS	203
SIX-MILE CREEK, ITHACA, NY	14	LRD	LRB	.....
SOUTH BRANCH, RAHWAY RIVER, WOODBRIDGE, NJ	14	NAD	NAN	550
SOUTH FORK CLEAR CREEK, ROUTE FF, MARYVILLE, MO	14	NWD	NWK	189
SOUTH HARRISON COUNTY, IN	14	LRD	LRL	200
SOUTHERN UNIVERSITY, CAMPUS ROAD, BATON ROUGE, LA	14	MVD	MVN	204
SPRINGDALE CREEK SPRINGDALE CEMETARY PEORIA, IL	14	MVD	MVR	90
ST JOHNS LANDFILL, OR	14	NWD	NWP	809
STRANGER CREEK AT K–32, KS	14	NWD	NWK	428
STRANGER CREEK AT K–32, KS	14	NWD	NWK	73
STURGEON RIVER, HOUGHTON COUNTY, MI	14	LRD	LRE	280
THIEME DRIVE, FORT WAYNE, IN	14	LRD	LRE	60
TONAWANDA CREEK, LOCKWOOD, NIAGARA COUNTY	14	LRD	LRB	100
TONAWANDA CREEK, NEWSTEAD	14	LRD	LRB	100
TONAWANDA CREEK, RIDDLE ROAD, NY	14	LRD	LRB	.....
TONAWANDA CREEK, TONAWANDA CREEK RD., AMHERST	14	LRD	LRB	100

FIVE YEAR CAPABILITIES FOR CAP PROJECT PHASES IN FISCAL YEAR 2008 BUDGET—Continued

[in thousands of dollars]

Project Name	CAP Section No.	MSC	DISTRICT	Cost to Complete
TOWN OF PORTER	14	LRD	LRB	100
TOWN OF WELLS, NY	14	NAD	NAN	500
TUCKER ROAD, COMITE RIVER, LA	14	MVD	MVN	200
TUSCARAWAS CO., RD. 1, (JOHNSON HILL), OH	14	LRD	LRH	295
U.S. HIGHWAY 71 BRIDGE, RED RIVER, OGDEN, AR	14	SWD	SWL	465
WALKER LANE, WASHINGTON, WV, SECTION 14	14	LRD	LRH	80
WALNUT BOTTOM RUN, ING-RICH ROAD, BEAVER FALLS, PA	14	LRD	LRP	77
WEST FORK MEDICINE CREEK, GALT BRIDGE, MO	14	NWD	NWK	119
WEST FORK MEDICINE CREEK, GALT BRIDGE, MO	14	NWD	NWK	11
WESTFIELD RIVER, AGAWAM, MA	14	NAD	NAE	155
WESTFIELD RIVER, OLD RTE. 9, CUMMINGTON, MA	14	NAD	NAE	188
WESTON, WV (US RT 19 S)	14	LRD	LRP	90
WHITE RIVER, AUGUSTA, AR	14	SWD	SWL	100
WHORTON BEND ROAD, ETOWAH CO., AL	14	SAD	SAM	524
UNALAKLEET STORM DAMAGE REDUCTION, UNALAKLEET, AK	103	POD	POA	400
BAYOU TECHE-CHITIMACHA	103	MVD	MVN	200
COMMERCIAL PORT ROAD, GUAM 000	103	POD	POH	1,977
F–1 FUEL PIER, GUAM	103	POD	POH	550
FORT SAN GERONIMO, PR	103	SAD	SAJ	300
GOLETA BEACH, CITY OF GOLETA, CA	103	SPD	SPL	2,015
GOLETA BEACH, CITY OF GOLETA, CA	103	SPD	SPL	300
INDIAN RIVER INLET, SUSSEX COUNTY, DE	103	NAD	NAP	544
LAKE ERIE AT PAINESVILLE	103	LRD	LRB	.....
LAKE ERIE ATHOL SPRINGS, NY	103	LRD	LRB	1,050
LAKEVIEW PARK	103	LRD	LRB	100
LASALLE PARK, BUFFALO, NY	103	LRD	LRB	.....
LELOALOA SHORE PROTECTION, AMERICAN SAMOA	103	POD	POH	1,663
NANTASKET BEACH, HULL, MA	103	NAD	NAE	81
PHILADELPHIA SHIPYARD, PA	103	NAD	NAP	2,802
PLEASURE ISLAND, BALTIMORE COUNTY, MD	103	NAD	NAB	300
PORTER COMMUNITY PARK	103	LRD	LRB	100
PUERTO NUEVO BCH, PR	103	SAD	SAJ	73
TARPON SPRINGS, FL	103	SAD	SAJ	922
VETERAN'S DRIVE SHORELINE, ST. THOMAS, U.S.V.I.	103	SAD	SAJ	281

KAHO'OLAWE SMALL BOAT HARBOR, HI	107	POD	POH	494
MACKINAC ISLAND HARBOR BREAKWATER, MI	107	LRD	LRE	200
APRA SMALL BOAT HARBOR, GUAM	107	POD	POH	620
ARKANSAS RIVER, RUSSELLVILLE HARBOR, AR	107	SWD	SWL	2,746
BASS HARBOR, TREMONT, ME	107	NAD	NAE	144
BLACKWATER RIVER, HAMPTON HARBOR, NH	107	NAD	NAE	144
BLYTHEVILLE HARBOR, AR	107	MVD	MVM	3,280
BUCKS HARBOR, MACHIASPORT, ME	107	NAD	NAE	42
BUFFALO INNER HARBOR, NY	107	LRD	LRB	3,600
CHARLESTOWN BREACHWAY & NINIGRET POND, CHARLESTOWN, RI	107	NAD	NAE	301
CHEFORNAK NAVIGATION IMPROVEMENTS, CHEFORNAK, AK	107	POD	POA	400
CLEVELAND LAKEFRONT STATE PARK, OH	107	LRD	LRB	.....
COLD BAY NAVIGATION IMPROVEMENTS	107	POD	POA	400
COOLEY CREEK, OH	107	LRD	LRB	.....
DOUGLAS HARBOR, AK	107	POD	POA	2,778
EAST BOAT BASIN, SANDWICH, MA	107	NAD	NAE	100
EAST TWO RIVER, TOWER, MN	107	MVD	MVP	350
ELIM NAVIGATION IMPROVEMENTS, ELIM, AK	107	POD	POA	400
ESCANABA, MI	107	LRD	LRE	309
FISHERMANS COVE, NORFOLK, VA	107	NAD	NAO	252
GALVESTON ISLAND HARBOR, GALVESTON, TX	107	SWD	SWG	599
GRAND MARAIS, MN	107	LRD	LRE	200
GRAND PORTAGE HARBOR, MN	107	LRD	LRE	130
GUSTAVUS NAVIGATION IMPROVEMENTS, AK	107	POD	POA	250
IGIUGIG NAVIGATION IMPROVEMENTS, IGIUGIG, AK	107	POD	POA	400
KNIFE HARBOR, MN	107	LRD	LRE	100
KOKHANOK HARBOR, AK	107	POD	POA	400
NANTICOKE HARBOR, MD	107	NAD	NAB	300
NANWALEK NAVIGATION IMPROVEMENTS, AK	107	POD	POA	250
NASSAWADOX CREEK, NORTHAMPTON COUNTY, VA	107	NAD	NAO	608
NEW RIVER INLET, ONSLOW CO., NC	107	SAD	SAW	80
NFTA BOAT HARBOR	107	LRD	LRB	100
NORTH KOHALA NAVIGATION, HI	107	POD	POH	520
NORTHERN MICHIGAN COLLEGE, TRAVERSE CITY, MI	107	LRD	LRE	1,314
NORTHWEST TENNESSEE REGIONAL HARBOR, LAKE COUNTY, TN	107	MVD	MVM	3,110
OAK BLUFFS HARBOR, OAK BLUFFS, MA	107	NAD	NAE	360
OHIO RIVER, PROCTORVILLE, OH., SEC. 107	107	LRD	LRH	200
OLCOTT HARBOR, NEWFANE, NY	107	LRD	LRB	.....
ONTONAGON RIVER, MI	107	LRD	LRE	125
OUTER COVE MARINA, CNMI	107	POD	POH	570

FIVE YEAR CAPABILITIES FOR CAP PROJECT PHASES IN FISCAL YEAR 2008 BUDGET—Continued

[in thousands of dollars]

Project Name	CAP Section No.	MSC	DISTRICT	Cost to Complete
OYSTER POINT MARINA	107	SPD	SPN	650
PALM BEACH HARBOR, FL	107	SAD	SAJ	250
POINT JUDITH HARBOR, NARRAGANSETT, RI	107	NAD	NAE	100
PORT FOURCHON EXTENSION, LAFOURCHE PARISH, LA	107	MVD	MVN	500
PORT GRAHAM NAVIGATION IMPROVEMENTS, PORT GRAHAM, AK	107	POD	POA	160
PORT HUENEME, CA	107	SPD	SPL	4,000
RHODES POINT, MD	107	NAD	NAB	3,600
ROUGE RIVER, MI	107	LRD	LRE	320
ROUND POND HARBOR, BRISTOL, ME	107	NAD	NAE	80
SEWARD MARINE INDUSTRIAL CENTER NAVIGATION IMPROVEMENT, AK	107	POD	POA	400
SHALLOTTE RIVER, BRUNSWICK COUNTY, NC	107	SAD	SAW	49
SMALL NAVIGATION IMPROVEMENTS, ILIAMNA, AK	107	POD	POA	290
ST LAWRENCE, AK	107	POD	POA	9,600
ST. JEROME CREEK, ST. MARY'S COUNTY, MD	107	NAD	NAB	300
ST. JEROME CREEK, ST. MARY'S COUNTY, MD	107	NAD	NAB	100
TATITLEK, AK	107	POD	POA	3,105
TATITLEK, AK	107	POD	POA	294
TELLER NAVIGATION IMPROVEMENTS, TELLER, AK	107	POD	POA	200
TWO HARBORS, MN	107	LRD	LRE	212
WALNUT CREEK ACCESS AREA, ERIE COUNTY, PA	107	LRD	LRB	.....
WALTER SLOUGH, DARE COUNTY, NC	107	SAD	SAW	448
WESTPORT, MA	107	NAD	NAE	531
WOODS HOLE GREAT HARBOR, FALMOUTH, MA	107	NAD	NAE	150
WURTLAND, KY (NAVIGATION CHANNEL IMPROVEMENT)	107	LRD	LRH	7,300
WURTLAND, KY (NAVIGATION CHANNEL IMPROVEMENT)	107	LRD	LRH	50
111 FAIRPORT HARBOR, OH	111	LRD	LRB	100
111 VERMILLION, OH	111	LRD	LRB	100
AGUADILLA COASTLINE, PR	111	SAD	SAJ	3,250
CAMP ELLIS, SACO, MAINE	111	NAD	NAE	247
LORAIN HARBOR, OH	111	LRD	LRB	100
MATTITUCK HARBOR, NY	111	NAD	NAN	300
MOBILE PASS, AL	111	SAD	SAM	777
MOREHEAD CITY HARBOR, NC., SECTION 933	145	SAD	SAW	4,100
21ST AVE WEST CHANNEL, DULUTH, MN	204	LRD	LRE	20

BARATARIA BAY WATERWAY, MILE 6.0–0.0, PLAQUEMINES PH, LA	204	MVD	MVN	100
BLACKHAWK BOTTOMS, DES MOINES COUNTY, IA	204	MVD	MVR	306
CALCASIEU RIVER, MILE 5.0–14.0, CAMERON PARISH, LA	204	MVD	MVN	1,125
ISLE AUX HERBES	204	SAD	SAM	250
MAUMEE BAY HABITAT RESTORATION, OH	204	LRD	LRB	1,500
MRGO MILE -3 TO -9 MARSH RESTORATION, (2001), PLAQUEMINES PH	204	MVD	MVN	1,071
WANCHESE MARSH CREATION AND PROTECTION, NC	204	SAD	SAW	20
WYNN ROAD, OREGON, OH	204	LRD	LRB	600
DAUPHIN ISLAND PARKWAY, AL	204	SAD	SAM	450
HELEN WOOD PARK, AL	204	SAD	SAM	1,600
OTTAWA RIVER, OH	204	LRD	LRB	600
RESTORATION OF THE CAT ISLANDS CHAIN, WI	204	LRD	LRE	205
BEAVER CREEK & TRIBS, BRISTOL, TN	205	LRD	LRN	800
CHIPPEWA RIVER AT MONTEVIDEO, MN	205	MVD	MVP	3,472
EAST PEORIA, IL	205	MVD	MVR	100
FARGO, RIDGEWOOD ADDITION, ND	205	MVD	MVP	2,035
HEACOCK CHANNEL, RIVERSIDE COUNTY, RIVERSIDE, CA	205	SPD	SPL	5,300
205 LIMESTONE CREEK, FAYETTEVILLE, NY	205	LRD	LRB	.....
ABERJONA RIVER, WINCHESTER, MA	205	NAD	NAE	150
AITKIN, MN	205	MVD	MVP	5,673
AITKIN, MN	205	MVD	MVP	216
AMBERLEY CREEK, CINCINNATI, OH	205	LRD	LRL	350
ARCHEY FORK CREEK, CLINTON, AR	205	SWD	SWL	108
ARROYO, PR (205)	205	SAD	SAJ	271
ATHENS, OH RICHLAND AVE. CORRIDOR	205	LRD	LRH	200
BALDWIN CREEK, NORTH ROYALTON, OH	205	LRD	LRB	.....
BANLICK CREEK, KENTON CO., KY	205	LRD	LRL	200
BAYOU CHOUPIQUE CAP 205	205	MVD	MVN	200
BAYOU QUEUE DE TORTUE, VERMILION PARISH, LA	205	MVD	MVN	125
BEAVER CREEK, FRENCHBURG, KY	205	LRD	LRL	150
BEML MILL BROOK HIGHLAND PARK, NJ	205	NAD	NAN	300
BEN HILL COUNTY, GA	205	SAD	SAS	1,200
BEPJ POPLAR BROOK	205	NAD	NAN	850
BIG SISTER CREEK, ANGOLA	205	LRD	LRB	100
BLACK ROCKS CREEK, SALISBURY, MA	205	NAD	NAE	250
BLACKSNAKE CREEK, ST. JOSEPH, MO	205	NWD	NWK	3,639
BLACKSNAKE CREEK, ST. JOSEPH, MO	205	NWD	NWK	6
BLASDELL STP	205	LRD	LRB	100
BOCA DE CACHETA, PR	205	SAD	SAJ	250
BREAKNECK CREEK, FRANKLIN	205	LRD	LRB	100

FIVE YEAR CAPABILITIES FOR CAP PROJECT PHASES IN FISCAL YEAR 2008 BUDGET—Continued

[in thousands of dollars]

Project Name	CAP Section No.	MSC	DISTRICT	Cost to Complete
BRUSH CREEK, GLADY FORK, PRINCETON, WV	205	LRD	LRH	50
BUCKEYE LAKE, OH	205	LRD	LRH	858
BUCKEYE LAKE, OH	205	LRD	LRH	75
BYRUM CREEK, ANDERSON COUNTY, SC	205	SAD	SAS	275
CANE BEND, BOSSIER PARISH, LA	205	MVD	MVK	150
CANISTEO MINE PIT LAKE, MN	205	MVD	MVP	2,300
CANISTEO MINE PIT LAKE, MN	205	MVD	MVP	275
CASHIE RIVER, WINDSOR, NC	205	SAD	SAW	70
CAZENOVIA CREEK, STEVENSON STREET, BUFFALO	205	LRD	LRB	100
CEDAR RIVER, CEDAR FALLS UTILITIES, CEDAR FALLS , IA	205	MVD	MVR	350
CEDAR RUN, PA	205	NAD	NAB	200
CITY OF BLUFFTON, WELLS CO (SEC 205)	205	LRD	LRL	200
CITY OF DELPHI, CARROLL CO (DEER CK LEVEE)	205	LRD	LRL	200
CITY OF FLEMING-NEON, LETCHER, CO	205	LRD	LRL	200
CITY OF WHITTIER, CA	205	SPD	SPL	1,200
CONCORDIA, KS	205	NWD	NWK	125
COSGROVE CREEK FLOOD CONTROL, CALAVERAS COUNTY	205	SPD	SPK	750
COUSHATTA INDIAN RESERVATION FDR PROJECT, ALLEN PARISH, LA	205	MVD	MVN	125
COWSKIN CREEK, WICHITA, KS	205	SWD	SWT	1,100
CROWN POINT BASIN, JEFFERSON PARISH, LA	205	MVD	MVN	350
DAM BREAK EARLY WARNING SYSTEM, SILVERTON, OR	205	NWD	NWP	425
DETROIT BEACH, LAKE ERIE, FRENCHTOWN TOWNSHIP, MI	205	LRD	LRE	1,380
DETROIT BEACH, LAKE ERIE, FRENCHTOWN TOWNSHIP, MI	205	LRD	LRE	50
DRY CREEK, CHEYENNE, WY	205	NWD	NWO	32
DUCK CREEK, OH FWS	205	LRD	LRH	200
EIGHTEENMILE CREEK, BOSTON	205	LRD	LRB	100
EIGHTEENMILE CREEK, HAMBURG	205	LRD	LRB	100
ELIZABETHTOWN, KY	205	LRD	LRL	150
ELKTON, MD	205	NAD	NAB	300
EST LA GRANGE ST. CROIX	205	SAD	SAJ	350
EUREKA CREEK, MANHATTAN, KS	205	NWD	NWK	3,123
FARMERS BRANCH, TARRANT COUNTY, TX	205	SWD	SWF	7,189
FISH CREEK/CUYAHOGA RIVER, KENT	205	LRD	LRB	100
FORT YUKON FLOOD CONTROL, FORT YUKON, AK	205	POD	POA	75

FRED CREEK, TULSA, OK	205	SWD	SWT	350
FULMER CREEK, VILLAGE OF MOHAWK, NY	205	NAD	NAN	1,112
GOOSE CREEK, JACKSON, MO	205	MVD	MVS	109
GRAND RIVER, HARPERSFIELD DAM	205	LRD	LRB	100
GRANDVIEW HEIGHTS, OH	205	LRD	LRH	200
HOODS CREEK, BOYD COUNTY, KY	205	LRD	LRH	37
HAIKEY CREEK, BIXBY, OK	205	SWD	SWT	4,125
HATCH, NM	205	SPD	SPA	400
HEBER SPRINGS, CLEBURNE CO., AR	205	SWD	SWL	50
HESHBON TO HEPBURNVILLE, LOWER LYCOMING CREEK	205	NAD	NAB	600
HESTER, ADAMSON & HEARTSILL CREEKS, GREENWOOD, AR	205	SWD	SWL	166
HIDDEN VALLEY, NEEDMORE BRANCH, GREENE COUNTY, MO	205	SWD	SWL	150
HIGH SCHOOL BRANCH, NEOSHO, MISSOURI	205	SWD	SWL	100
HIGHWAY 164 BRIDGE, LITTLE PINEY, HARGARVILLE, AR	205	SWD	SWL	70
HINKSTON CREEK, MT STERLING, KY	205	LRD	LRL	200
HOMINY SWAMP, WILSON, NC	205	SAD	SAW	100
HOWELL CREEK, WEST PLAINS, MO	205	SWD	SWL	100
HUBBLE CREEK, JACKSON, MO	205	MVD	MVS	106
HUGHES CREEK, KANAWHA COUNTY, WV., SEC. 205	205	LRD	LRH	200
INDIAN CREEK, CEDAR RVR, CEDAR RAPIDS, IA	205	MVD	MVR	408
IRONDEQUOIT CREEK, PENFIELD, NY	205	LRD	LRB	.....
JACKSON BROOK, MORRIS CITY, NJ	205	NAD	NAN	800
JAM UP CREEK, MOUNTAIN VIEW, MO	205	SWD	SWL	100
JEAN LAFITTE, FISHER SCHOOL BASIN, LA	205	MVD	MVN	1,851
JORDAN, MN	205	MVD	MVP	243
KEOPU-HIENALOLI STREAM, ISLAND OF HAWAII, HI	205	POD	POH	6,110
KESHEQUA CREEK, NUNDA	205	LRD	LRB	.....
KINGS POINT, WARREN COUNTY, MS	205	MVD	MVK	135
KNOX COUNTY, KELSO CREEK, IN	205	LRD	LRL	302
KULIOUOU STREAM, OAHU, HI	205	POD	POH	397
LAC QUI PARLE RIVER, DAWSON, MN	205	MVD	MVP	869
LAFAYETTE PARISH, LA	205	MVD	MVN	800
LAMOTTE CREEK, PALESTINE, IL	205	LRD	LRL	95
LEWIS CREEK, BULVERDE, TX	205	SWD	SWF	290
LINE CREEK, CHICKASHA, OK	205	SWD	SWT	350
LITTLE BRAZOS RIVER, TX	205	SWD	SWF	3,500
LITTLE DUCK CREEK, OH	205	LRD	LRL	350
LITTLE FOSSIL CREEK, HALTOM CITY, TX	205	SWD	SWF	4,762
LITTLE RIVER DIVERSION, DUTCHTOWN, MO	205	MVD	MVM	709
LOCKPORT TO LA ROSE, LAFOURCHE PARISH, LA	205	MVD	MVN	2,011

FIVE YEAR CAPABILITIES FOR CAP PROJECT PHASES IN FISCAL YEAR 2008 BUDGET—Continued

[in thousands of dollars]

Project Name	CAP Section No.	MSC	DISTRICT	Cost to Complete
LONG HILL TOWNSHIP	205	NAD	NAN	3,115
LOUISIANA, MO	205	MVD	MVS	113
LOVINGTON, IL	205	MVD	MVS	166
MACOMB COUNTY, MI	205	LRD	LRE	361
MAD CREEK, MUSCATINE, IA	205	MVD	MVR	3,492
MAGAZINE BRANCH, ELK RIVER, CHARLESTON, WV	205	LRD	LRH	75
MAGAZINE BRANCH, ELK RIVER, CHARLESTON, WV	205	LRD	LRH	302
MAGPIE & DON JULIO CREEKS, SACRAMENTO, CALIFORNIA	205	SPD	SPK	1,585
MASCATATUCK RIVER LOG JAM, SCOTT CO, IN	205	LRD	LRL	40
MCKINNEY BAYOU, TUNICA COUNTY, MS	205	MVD	MVK	3,445
MEREDOSIA, IL	205	MVD	MVS	87
MILL CREEK, GARFIELD HEIGHTS	205	LRD	LRB	.....
MILLWOOD, GRASSY LAKE, AR, SECTION 1135	205	SWD	SWL	5
MINNESOTA RIVER, GRANITE FALLS, MN	205	MVD	MVP	6,578
MONTOURSVILLE, LYCOMING COUNTY, PA	205	NAD	NAB	600
MORRIS CREEK, KANAWHA AND FAYETTE COUNTIES, WV., SEC. 205	205	LRD	LRH	200
MOYER CREEK, VILLAGE OF FRANKFURT, NY	205	NAD	NAN	890
NEWPORT, MN	205	MVD	MVP	2,250
NORTH RIVER, PEABODY, MA	205	NAD	NAE	100
OAK CREEK FLORENCE CO BE710	205	SPD	SPA	500
ONONDAGA CREEK, SYRACUSE	205	LRD	LRB	100
PAILET BASIN, JEFFERSON PARISH, LA	205	MVD	MVN	300
PALAI STREAM, HAWAII, HI	205	POD	POH	4,859
PALAI STREAM, HAWAII, HI	205	POD	POH	62
PALO DURO, CANYON, TX (LOCAL FLOOD PROTECTION PROJECT)	205	SWD	SWT	350
PECAN CREEK, GAINESVILLE, TX	205	SWD	SWF	4,091
PLATTE RIVER, FREMONT, NE	205	NWD	NWO	190
PLATTE RIVER, SCHUYLER, NE	205	NWD	NWO	320
PLEASANT CREEK, GREENWOOD, IN	205	LRD	LRL	300
POST OAK CREEK, CORSICANA, TX	205	SWD	SWF	323
PRAIRIE CREEK, RUSSELLVILLE, AR	205	SWD	SWL	155
RANDOLPH, NE	205	NWD	NWO	224
RED DUCK CREEK, KY., NO. 205	205	MVD	MVM	476
RED OAK, IOWA	205	NWD	NWO	276

RICHLAND CREEK, NASHVILLE, TN	205	LRD	LRN	300
RIO CULEBRINAS-AG205	205	SAD	SAJ	230
RIO DESCALABRADO (205)	205	SAD	SAJ	216
RIO EL OJO DE AGUA, PR., BER	205	SAD	SAJ	5,519
RIO GRANDE AND UNNAMED TRIBUTARY, EAGLE PASS, TX	205	SWD	SWF	432
RIO GUAMANI, GUAYANA, PR., BEGUM	205	SAD	SAJ	200
RIO JACAQUAS, PR (205)	205	SAD	SAJ	300
RIO LOCO, GUANICA, PR	205	SAD	SAJ	268
RIO OROCOVIS, PR (205)	205	SAD	SAJ	303
RIO PATILLAS, PR (205)	205	SAD	SAJ	185
ROCKFORD, MN	205	MVD	MVP	200
ROSETHORNE BASIN, JEAN LAFITTE, LA	205	MVD	MVN	2,000
ROSSVILLE, KS., SEC. 205	205	NWD	NWK	100
SALCHA FLOOD DAMAGE REDUCTION, SALCHA, AK	205	POD	POA	150
SANDY CREEK, TN., NO. 205	205	MVD	MVM	8,130
SAUGATUCK RIVER, WESTPORT, CT	205	NAD	NAE	71
SCOTTS CREEK, SC., CAP 205	205	SAD	SAC	156
SEDGEWICK, KS, LITTLE ARK RIVER WATERSHED	205	SWD	SWT	350
SIX MILE CREEK, ITHACA	205	LRD	LRB	100
SNOQUALMIE RIVER, WA (BESNQ)	205	NWD	NWS	75
SOUTH SUBURBAN AREA OF CHICAGO, IL	205	LRD	LRC	300
ST. MARY'S RIVER, FORT WAYNE, IN	205	LRD	LRE	50
STEELE CREEK, VILLAGE OF ILION, NY	205	NAD	NAN	500
STONY CREEK, ROCKY MOUNT, NC	205	SAD	SAW	70
SUN VALLEY, EL PASO, TX	205	SPD	SPA	265
TONGUE & YELLOWSTONE RVRS, MILES CITY, MT	205	NWD	NWO	400
TOOKANY CREEK, CHURCH ROAD, PA	205	NAD	NAP	4,804
TOOKANY CREEK, GLENSIDE ROAD, PA	205	NAD	NAP	4,828
TOWN BRANCH, CORSICANA, TX	205	SWD	SWF	268
TOWN BRANCH, NEWARK, AR	205	SWD	SWL	50
TOWN OF CARENCRO, LAFAYETTE PARISH, LA	205	MVD	MVN	6,000
TUSCARAWAS CO BEAVERDAM CREEK	205	LRD	LRH	200
VILLAGE OF RUSSELLS POINT, LOGAN CO	205	LRD	LRL	200
WAIAHOLE-WAIAKANE VALLEY, OAHU, HI	205	POD	POH	650
WAIAKEA STREAM, HAWAII, HI	205	POD	POH	666
WAILELE STREAM, OAHU, HI	205	POD	POH	961
WEST VIRGINIA STATEWIDE FLOOD WARNING SYSTEM	205	LRD	LRH	2,015
WHITE RIVER, ANDERSON, IN	205	LRD	LRL	340
WHITE SLOUGH BE608	205	SPD	SPN	1,648
WHITEWATER RIVER, AUGUSTA, KS	205	SWD	SWT	380

FIVE YEAR CAPABILITIES FOR CAP PROJECT PHASES IN FISCAL YEAR 2008 BUDGET—Continued

[in thousands of dollars]

Project Name	CAP Section No.	MSC	DISTRICT	Cost to Complete
WILD RICE & MARSH RIVERS, ADA, MN	205	MVD	MVP	3,175
WILLIAMSTOWN, WV	205	LRD	LRH	300
WILLOWWOOD ADDITION, EDMOND, OK	205	SWD	SWT	270
WINNEBAGO RVR, MASON CITY, IA	205	MVD	MVR	225
WV RALEIGH CO., NORTH SAND BRANCH	205	LRD	LRH	100
WYNNE, AR NO. 205	205	MVD	MVM	1,125
ZIMBER DITCH, STARK CO, OH	205	LRD	LRH	350
AQUATIC ECOSYSTEM RESTORATION FOR ROSE BAY, VOLUISIA CO., FL	206	SAD	SAJ	4,362
ARKANSAS RIVER FISHERIES HABITAT RESTORATION, PUEBLO, CO	206	SPD	SPA	25
BOTTOMLESS LAKE STATE PARK, NM	206	SPD	SPA	1,452
CLEAR LAKE, IA	206	MVD	MVR	2
CONFLUENCE POINT STATE PARK, MO	206	MVD	MVS	186
EUGENE DELTA PONDS, OR	206	NWD	NWP	1,485
GOOSE CREEK, CO	206	NWD	NWO	27
JACKSON CREEK, GWINETT CO., GA	206	SAD	SAS	600
LYNCHES RIVER, LAKE CITY, SC	206	SAD	SAC	350
ORLAND PARK, IL	206	LRD	LRC	2,800
ST. HELEN-NAPA RIVER RESTORATION	206	SPD	SPN	150
STORM LAKE, IA	206	MVD	MVR	10
WWTP, STEPHENVILLE, TX	206	SWD	SWF	1,508
5TH AVE DAM REMOVAL, COLUMBUS, OH	206	LRD	LRH	2,250
ALLATOONA CREEK, COBB CO., GA	206	SAD	SAM	300
ALLEN CREEK, HALL CNTY, GA	206	SAD	SAS	275
ARCOLA CREEK, MADISON, OH	206	LRD	LRB	600
ARKANSAS RIVER, ARK CITY, KS	206	SWD	SWT	1,120
ARROWHEAD CREEK AT WILSONVILLE, OR	206	NWD	NWP	1,313
ARROYO LAS POSITAS, CA	206	SPD	SPN	161
BAYOU GROSSE TETE RESTORATION, IBERVILLE PARISH, LA	206	MVD	MVN	125
BEARGRASS CREEK, LOUISVILLE, KY., WETLANDS & REPARIAN RESTORATION	206	LRD	LRL	350
BEAVER RUIN CREEK, GWINETT CO., GA	206	SAD	SAS	345
BELLE ISLE PIERS, DETROIT, MI	206	LRD	LRE	50
BELLE ISLE STATE PARK, LANCASTER COUNTY, VA	206	NAD	NAO	754
BIG COTTON INDIAN CREEK, GA	206	SAD	SAS	275
BIG FISHWIER CREEK, FL	206	SAD	SAJ	163

BIRD ISLAND RESTORATION, MARION, MA	206	NAD	NAE	2,270
BLACK LAKE ECOSYSTEM RESTORATION	206	POD	POA	3,460
BLACK LAKE ECOSYSTEM RESTORATION	206	POD	POA	3,460
BLOOMINGTON, IN, WETLANDS DEVELOPMENT	206	LRD	LRL	150
BLUE HOLE LAKE, NM	206	SPD	SPA	224
BLUE RIVER, CO (SEC. 206)	206	SPD	SPK	213
BOOTHEEL CREEK, FL	206	SAD	SAJ	200
BOQUERON REFUGE, PR	206	SAD	SAJ	345
BRIGHTWOOD LAKE, CONCORD	206	LRD	LRB	100
BROWNSVILLE BRANCH, LONOKE CO, AR	206	MVD	MVM	239
BRUSH NECK COVE, WARWICK, RI	206	NAD	NAE	180
BUTLER CREEK, GA	206	SAD	SAM	3,700
C–1 REDIVERSION/LAGOON RESTORATION, BREVARD COUNTY, FL	206	SAD	SAJ	200
CABIN CREEK, SPALDING CNTY	206	SAD	SAS	275
CABIN CREEK, WEST VIRGINIA	206	LRD	LRH	213
CAMP CREEK, ZUMWALT PRAIRIE PRESERVE, OR	206	NWD	NWW	531
CANOA RANCH AQUATIC RESTORATION, AZ	206	SPD	SPL	362
CANONSBURG LAKE, PA	206	LRD	LRP	300
CARPENTER CREEK, WASHINGTON	206	NWD	NWS	1,754
CARPINTERIA CREEK PARK, CA	206	SPD	SPL	140
CARSON RIVER CITY, NV	206	SPD	SPK	500
CASS RIVER, CITY OF VASSAR, MI	206	LRD	LRE	73
CEDAR LAKE, IN	206	LRD	LRC	7,560
CHAPEL BRANCH, SC	206	SAD	SAC	340
CHAPEL BRANCH, SC	206	SAD	SAC	167
CHARITON RIVER/RATHBUN LAKE WATERSHED, IA	206	NWD	NWK	4,171
CHATTACHOOCHIE RIVER DAM REMOVAL, GA	206	SAD	SAM	2,000
CHENANGO LAKE, NY	206	NAD	NAB	200
CHEROKEE CREEK AQUATIC ECOSYSTEM RESTORATION, OK	206	SWD	SWT	195
CHINO CREEK, CA	206	SPD	SPL	292
CHIPPOKES STATE PARK, SURRY COUNTY, VA	206	NAD	NAO	1,177
CHRISTINE AND HICKSON DAMS	206	MVD	MVP	230
CIENEGA CREEK AQUATIC RESTORATION, AZ	206	SPD	SPL	100
CITY CREEK, UT	206	SPD	SPK	225
CITY CREEK, UT	206	SPD	SPK	145
CLEAR LAKE, IA	206	MVD	MVR	2,467
CLEARWATER LAKE, GOGEBIC COUNTY, MI	206	LRD	LRE	75
CODORUS CREEK, PA	206	NAD	NAB	1,200
COFFEE LAKE AT WILSONVILLE, OR	206	NWD	NWP	250
CONCORD STREAMS RESTORTION, CONCORD, NC	206	SAD	SAW	1,030

FIVE YEAR CAPABILITIES FOR CAP PROJECT PHASES IN FISCAL YEAR 2008 BUDGET—Continued

[in thousands of dollars]

Project Name	CAP Section No.	MSC	DISTRICT	Cost to Complete
CONCORDIA UNIVERSITY, WI	206	LRD	LRE	341
CONFLUENCE GREENWAY	206	MVD	MVS	244
COTTONWOOD CREEK, ARLINGTON, TX	206	SWD	SWF	150
CROW CREEK AQUATIC ECOSYSTEM RESTORATION, TULSA, OK	206	SWD	SWT	195
CRUTCHO CREEK, OKLAHOMA COUNTY, OK., (ECOSYSTEM RESTORATION PR)	206	SWD	SWT	250
CUYAHOGA RIVER STREAM PROJECT, AKRON, OH	206	LRD	LRB	40
DAVIS LAKE RESTORATION	206	SAD	SAJ	300
DEEP RUN/TIBER HUDSON, MD	206	NAD	NAB	400
DENTS RUN, MD	206	NAD	NAB	1,500
DETROIT RIVER, CITY OF TRENTON, MI	206	LRD	LRE	325
DOWAGIAC RIVER, CASSOPOLIS, MI	206	LRD	LRE	909
DRAYTON DAM	206	MVD	MVP	300
DRY BRANCH CK, CITY OF LAWRENCE, MARION, CO	206	LRD	LRL	100
DUCK CREEK/FAIRMOUNT PARK WETLAND RESTOR SCOTT COUNTY, IA	206	MVD	MVR	516
DUCK CREEK/FAIRMOUNT PARK WETLAND RESTOR SCOTT COUNTY, IA	206	MVD	MVR	78
EAST FORK WHITE RIVER, COLUMBUS, IN	206	LRD	LRL	80
EKLUTNA, AK	206	POD	POA	200
EL PASO, RIO BOSQUE WETLANDS RESTORATION, TX	206	SPD	SPA	175
ELIZ RIVER, GRANDY VILLAGE, NORFOLK, VA	206	NAD	NAO	956
ELIZ RIVER, OLD DOMINION UNI DRAINAGE CANAL, NORFOLK, VA	206	NAD	NAO	195
ELIZ RIVER, SCUFFLETOWN CREEK, CHESAPEAKE, VA	206	NAD	NAO	101
ELIZ RIVER, WOODSTOCK PARK, VIRGINIA BEACH, VA	206	NAD	NAO	621
EMIQUON FLOODPLAIN RESTORATION	206	MVD	MVR	4,644
ENGLISH CREEK	206	SPD	SPL	1,122
EUGENE FIELD, IL	206	LRD	LRC	600
FAIRMOUNT PARK AQUATIC ECOSYSTEM RESTORATION, CA	206	SPD	SPL	297
FALL BROOK, PA	206	NAD	NAB	500
FALLS RUN, WHEELING CREEK, BELMONT, OH	206	LRD	LRP	119
FILBIN CREEK, SC	206	SAD	SAC	257
FOREST PARK, ST. LOUIS, MO	206	MVD	MVS	225
FOX RIVER/TICHIGAN LAKE, WATERFORD, WI	206	LRD	LRE	75
FREEBORN COUNTY ECOSYSTEM RESTORATION, MN	206	MVD	MVR	214
FREEMAN LAKE WILDLIFE REFUGE, ELIZABETHTOWN, KY	206	LRD	LRL	181
GALLA CREEK, AR	206	SWD	SWL	793

GALVESTON COUNTY MUD 12 EXOSYSTEM RESTORATION	206	SWD	SWG	200
GIWW-MAD ISLAND MARSH, TX	206	SWD	SWG	4,950
GOOSE POND/MIAMI OXBOW	206	LRD	LRL	98
GRAND (NEOSHO) RIVER ABOVE MIAMI, OK	206	SWD	SWT	206
GRAND MARAIS RIVER, RLWSD	206	MVD	MVP	1,285
GRAND MARAIS RIVER, RLWSD	206	MVD	MVP	200
GRASS LAKE, FOX RIVER, IL	206	LRD	LRC	1,435
GREEN RIVER, UT	206	SPD	SPK	100
GREENBURY POINT, MD	206	NAD	NAB	700
GROVER'S MILL POND, TWP OF WINDSOR, MERCER COUNTY, NJ	206	NAD	NAP	800
GUM THICKET CREEK, NC	206	SAD	SAW	155
HAY CREEK, ROSEAU COUNTY, MN	206	MVD	MVP	3,666
HERON HAVEN, NE	206	NWD	NWO	459
HIGGINS LAKE, MI	206	LRD	LRE	75
HOCKING RIVER WETLANDS, LANCASTER, OH	206	LRD	LRH	662
HOCKING RIVER WETLANDS, LANCASTER, OH	206	LRD	LRH	264
HOFFMAN DAM, IL	206	LRD	LRC	5,522
HOGAN'S CREEK, FL	206	SAD	SAJ	200
HOMER LAKE, ST. JOSEPH RIVER	206	LRD	LRE	469
HORICON MARSH, WI	206	MVD	MVR	300
HORSESHOE LAKE RESTORATION, ALEXANDER COUNTY, IL	206	MVD	MVS	2,193
HORSESHOE LAKE RESTORATION, ALEXANDER COUNTY, IL	206	MVD	MVS	10
HOUGHTON LAKE, ROSCOMMON CO, MI	206	LRD	LRE	517
HUFF RUN, BELDON SITE, OH	206	LRD	LRH	734
HUFF RUN, BELDON SITE, OH	206	LRD	LRH	309
HUNTSVILLE SPRING BRANCH, HUNTSVILLE, AL	206	LRD	LRN	800
HURON RIVER, ROCKWOOD, MI	206	LRD	LRE	75
IA RVR/CLEAR CREEK, JOHNSON COUNTY, IA	206	MVD	MVR	1,580
IA RVR/CLEAR CREEK, JOHNSON COUNTY, IA	206	MVD	MVR	80
INCLINE & 3RD CREEKS, NV	206	SPD	SPK	400
INDIAN CREEK ECOSYSTEM RESTORATION, CALDWELL, ID	206	NWD	NWW	3,664
ISSAQUAH CREEK, WA	206	NWD	NWS	709
JACKSON FISH PASSAGE PROJECT	206	MVD	MVR	83
JANES-WALLACE MEMORIAL DAM, SANTA ROSA, NM	206	SPD	SPA	200
JOHNSON CREEK/SPRINGWATER, OR	206	NWD	NWP	608
JOHNSON POND, LYNDONVILLE, NY	206	LRD	LRB	279
JONESBOROUGH (206), TN	206	LRD	LRN	215
KANKAKEE, KANKAKEE COUNTY, IL	206	MVD	MVR	196
KELLOGG CREEK, OR	206	NWD	NWP	357
KETTLE MORAINE WET PRAIRIE RESTORATION, WI	206	MVD	MVR	300

FIVE YEAR CAPABILITIES FOR CAP PROJECT PHASES IN FISCAL YEAR 2008 BUDGET—Continued

[in thousands of dollars]

Project Name	CAP Section No.	MSC	DISTRICT	Cost to Complete
KEYSTONE HERITAGE PARK WETLAND RESTORATION, EL PASO, TX	206	SPD	SPA	200
KICKAPOO CREEK, CONCHO RIVER, UPPER COLORADO RIVER BASIN, TX	206	SWD	SWF	242
KINNICKINNIC RIVER, WI	206	MVD	MVP	200
KINNICKINNIC RIVER, WI	206	MVD	MVP	50
KOONTZ LAKE, IN (SEC. 206)	206	LRD	LRE	6,302
LA STATE PEN, LAKE KILLARNEY RESTORATION, W FELICIANA PAR, LA	206	MVD	MVN	1,600
LAKE ANNA, LOUISA, ORANGE AND SPOTSYLVANIA COUNTIES, VA	206	NAD	NAO	347
LAKE AUSTIN ECOSYSTEM RESTORATION, AUSTIN, TX	206	SWD	SWF	170
LAKE BELLE VIEW AQUATIC ECOSYSTEM RESTORATION, WI	206	MVD	MVR	3,798
LAKE CONNESTEE, SC	206	SAD	SAC	115
LAKE CONNESTEE, SC	206	SAD	SAC	27
LAKE CYPRESS SPRINGS, FRANKLIN COUNTY, TX	206	SWD	SWF	175
LAKE LOU YAEGER RESTORATION, IL	206	MVD	MVS	175
LAKE MAUVAISTERRE, JACKSONVILLE, IL	206	MVD	MVS	202
LAKE NATOMA, CA	206	SPD	SPK	437
LAKE TSALA APOPKA	206	SAD	SAJ	6
LAKE VERRET RESTORATION, ASSUMPTION PARISH, LA	206	MVD	MVN	706
LEMAY WETLAND RESTORATION (SECTION 206)	206	MVD	MVS	66
LEXINGTON ROAD PARK GREENWAY—JEFFERSON COUNTY	206	LRD	LRL	84
LICKING RIVER DAM REMOVAL, FALMOUTH, KY	206	LRD	LRL	100
LITTLE CUYAHOGA RIVER, AKRON, OH	206	LRD	LRB	60
LITTLE RIVER WATERSHED, HALL COUNTY, GA	206	SAD	SAM	3,918
LOCKPORT PRAIRIE NATURE PRESERVE, WILL COUNTY	206	LRD	LRC	1,171
LONG LAKE, IN	206	LRD	LRC	900
LOWER BLACKSTONE RIVER, RI	206	NAD	NAE	150
LOWER BOULDER CREEK, CO	206	NWD	NWO	811
LOWER HEMPSTEAD HARBOR, VILLAGE OF SEA CLIFF, NY	206	NAD	NAN	500
LOWER MENOMONEE RIVER VALLEY, MILWAUKEE, WI	206	LRD	LRE	75
LOWER TRUCKEE RIVER, PAIUTE	206	SPD	SPK	100
LOWER WHITE ROCK CRK, DALLAS, TX	206	SWD	SWF	250
LYNCHES RIVER, LAKE CITY, SC	206	SAD	SAC	1,250
MALDEN RIVER ECOSYSTEM, MA	206	NAD	NAE	81
MALLETT'S CREEK, WASHTENAW COUNTY, MI	206	LRD	LRE	388
MANHAN DAM, EASTHAMPTON, MA	206	NAD	NAE	410

MANHASSET BAY, TOWN OF NORTH HEMPSTEAD, NY., ECOSYSTEM RESTORATION	206	NAD	NAN	350
MARION MILL POND, VILLAGE OF MARION, OSCEOLA COUNTY, MI	206	LRD	LRE	414
MARYVILLE, TN	206	LRD	LRN	275
MENOMONEE, WI	206	LRD	LRE	150
MENTOR MARSH	206	LRD	LRB	100
MILFORD POND, MILFORD, MA	206	NAD	NAE	4,300
MILL CREEK ECOSYSTEM RESTORATION	206	SAD	SAW	25
MILL CREEK RESTORATION AT MOREA, SCHUYLKILL COUNTY, PA	206	NAD	NAP	215
MILL POND RESTORATION, NASHUA, NH	206	NAD	NAE	150
MILL POND, LITTLETON, MA	206	NAD	NAE	100
MILL RIVER, STAMFORD, CT	206	NAD	NAE	2,988
MINERAL BAYOU, DURANT, OK	206	SWD	SWT	133
MISSION CREEK, CA	206	SPD	SPL	406
MISSOURI STREAM RESTORATION, MO	206	NWD	NWK	100
MOKUHINIA/MOKUULA ECOSYSTEM RESTORATION, MAUI, HI	206	POD	POH	1,356
MONGAUP WATERSHED ENVIRON. RESTORTION, LIBERTY, SULLIVAN, NY	206	NAD	NAP	165
MOSES LAKE ECOSYSTEM RESTORATION, TEXAS CITY, TX	206	SWD	SWG	30
MUD CREEK, GREAT SOUTH BAY, PATCHOGUE, NY	206	NAD	NAN	250
MULBERRY PLANTATION, SC	206	SAD	SAC	197
NANTICOKE CREEK, LUZERNE COUNTY, PA	206	NAD	NAB	830
NARROWS RIVER, NARRAGANSETT, RI	206	NAD	NAE	180
NASHAWANNUCK POND, EASTHAMPTON, MA	206	NAD	NAE	715
NC OYSTER RESTORATION, NC	206	SAD	SAW	130
NEPONSET RIVER, BOSTON, MA	206	NAD	NAE	200
NFTA OUTER HARBOR	206	LRD	LRB	100
NINIGRET & CROSS MILLS PONDS, CHARLESTOWN, RI	206	NAD	NAE	800
NIPPERSINK CREEK	206	LRD	LRC	750
NOISETTE CREEK, SC	206	SAD	SAC	194
NORTH BEACH, MD	206	NAD	NAB	600
NORTH FORK GUNNISON, CO (206)	206	SPD	SPK	3,725
NORTH OTTAWA, MN	206	MVD	MVP	4,597
NORTH OTTAWA, MN	206	MVD	MVP	100
NORTH PARK, ALLEGHENY COUNTY	206	LRD	LRP	3,272
NORTH SATUS DRAIN, YAKIMA, WA	206	NWD	NWS	135
NORTHWEST BRANCH, ANACOSTIA RIVER, MD	206	NAD	NAB	2,500
OAKS BOTTOM, OR	206	NWD	NWP	103
OHIO RIVER GARVIN BROWN NATURE PRESERVE, JEFFERSON COUNTY, K	206	LRD	LRL	302
OHIO RIVER, HAYS KENNEDY PARK, LOUISVILLE, KY	206	LRD	LRL	100
OLMOS CREEK, RESTORATION, SAN ANTONIO, TX	206	SWD	SWF	749
ORE KNOB, NC AQUATIC RESTORATION	206	LRD	LRH	900

FIVE YEAR CAPABILITIES FOR CAP PROJECT PHASES IN FISCAL YEAR 2008 BUDGET—Continued

[in thousands of dollars]

Project Name	CAP Section No.	MSC	DISTRICT	Cost to Complete
OSGOOD POND RESTORATION, MILFORD, NH	206	NAD	NAE	65
OTSEGO LAKE, MI	206	LRD	LRE	75
PAINT BRANCH FISH PASSAGE, MD	206	NAD	NAB	400
PAINTERS CREEK, MN	206	MVD	MVP	2,787
PARADISE CREEK, CITY OF MOSCOW, ID	206	NWD	NWW	2,717
PAUL DOUGLAS WOODS, SOUTH BARRINGTON, IL	206	LRD	LRC	597
PECK LAKE, GENEVA, IL	206	LRD	LRC	475
PIGS EYE LAKE	206	MVD	MVP	410
PITCHER LAKE OXBOW RESTORATION	206	LRD	LRL	99
POCOTALIGO RIVER AND SWAMP ECOSYSTEM RESTORATION, SC	206	SAD	SAC	494
PORT OF SUNNYSIDE, WA	206	NWD	NWS	4,365
PORT OF SUNNYSIDE, WA	206	NWD	NWS	68
POTASH BROOK, NY	206	NAD	NAN	500
QUINCY BAY, IL	206	MVD	MVR	300
QUONOCHONTAUG POND, CHARLESTOWN, RI	206	NAD	NAE	70
RANSOM CREEK, AMHERST	206	LRD	LRB	100
RED OAK CREEK TRIBUTARY, RED OAK, TX	206	SWD	SWF	175
REEDY RIVER, SC	206	SAD	SAC	674
REEDY RIVER, SC	206	SAD	SAC	247
REEVES CREEK, CLAYTON CNTY	206	SAD	SAS	275
RINCON CREEK	206	SPD	SPL	393
RIO GRANDE, LAREDO, TX	206	SWD	SWF	2,277
RIO GRANDE, LAREDO, TX	206	SWD	SWF	61
ROSCOE'S CUT, MACINTOSH	206	SAD	SAS	150
RUN POND COASTAL ECOSYSTEM RESTORATION, MA	206	NAD	NAE	195
SALMON RIVER, CHALLIS, ID	206	NWD	NWW	3,315
SALT RIVER RESTORATON, CA	206	SPD	SPN	350
SAN MARCOS RIVER, SAN MARCOS, TX	206	SWD	SWF	439
SAV HARBOR ECOSYSTEM RESTORATION	206	SAD	SAS	275
SAXIS ISLAND, ACCOMACK COUNTY, VA	206	NAD	NAO	1,503
SAXMAN RUN	206	LRD	LRP	188
SECORD AND SMALLWOOD LAKES, GLADWIN COUNTY, MI	206	LRD	LRE	381
SHAMROCK LAKE, CITY OF CLARE, MI	206	LRD	LRE	75
SHERADEN PARK & CHARTIERS CR, PA	206	LRD	LRP	500

SHIREY BAY/RAINEY BRAKE WMA	206	SWD	SWL	50
SOUNDVIEW PARK, CITY OF BRONX, NY	206	NAD	NAN	400
SOUTH FORK NOOKSACK RIVER, WA	206	NWD	NWS	82
SOUTH NEWPORT RIVER 207	206	SAD	SAS	300
SOUTH PARK LAKE	206	LRD	LRB	.....
SOUTHAMPTON CREEK, ENVIRONMENTAL RESTORATION	206	NAD	NAP	139
SPRING CREEK, NY	206	NAD	NAN	350
SPRING LAKE, MI	206	LRD	LRE	75
SPRING LAKE, SAN MARCOS, TX	206	SWD	SWF	1,241
SPRINGFIELD MILLRACE, OR	206	NWD	NWP	3,134
SQAW CREEK, IL	206	LRD	LRC	2,947
SQUAK VALLEY PARK RESTORATION, WA	206	NWD	NWS	619
STEVENSON CREEK, CLEARWATER, FL	206	SAD	SAJ	2,867
STORM LAKE, IA	206	MVD	MVR	2,172
SULPHUR CREEK AQUATIC RESTORATION, LAGUNA NIGUEL, CA	206	SPD	SPL	1,200
SWEETWATER ECOSYSTEM RESTORATION, CA	206	SPD	SPL	1,585
SWEETWATER ECOSYSTEM RESTORATION, CA	206	SPD	SPL	285
SYRACUSE LAKEFRONT, ONONDAGA, NY	206	LRD	LRB	.....
TAMARISK ERADICATION, CO	206	SPD	SPK	304
TEN MILE RIVER, RI	206	NAD	NAE	935
THOMPSON CREEK RESTORATION	206	SPD	SPN	400
THREE CREEKS ENVIRONMENTAL RESTORATION, OH	206	LRD	LRH	902
THREE CREEKS ENVIRONMENTAL RESTORATION, OH	206	LRD	LRH	412
TIDAL MIDDLE BRANCH, MD	206	NAD	NAB	500
TILLAMOOK BAY & ESTUARY, OR	206	NWD	NWP	150
TOLEDO BEND RESERVOIR, TX & LA	206	SWD	SWF	300
TREATS POND, COHASSET, MA	206	NAD	NAE	700
TURKEY CREEK REST., FL	206	SAD	SAJ	320
TURTLE BAY, CA	206	SPD	SPK	250
UNDERWOOD CREEK, WAUWATOSA, WI	206	LRD	LRE	295
UNIVERSITY LAKES RESTORATION, EAST BATON ROUGE PARISH, LA	206	MVD	MVN	1,000
UPPER JORDAN RIVER ECOSYSTEM RESTORATION, UT	206	SPD	SPK	3,270
UPPER YORK CREEK DAM REMOVAL, CA	206	SPD	SPN	550
VALLEY CREEK PARK WETLAND RESTORATION, EL PASO, TX	206	SPD	SPA	175
VERMILLION RIVER ECOSYSTEM RESTORATION, LAFAYETTE PARISH, LA	206	MVD	MVN	1,000
WALNUT BRANCH, SEGUIN, TX (SEC. 206)	206	SWD	SWF	1,488
WANAMAKER WETLANDS, KS	206	NWD	NWK	150
WATAUGA, NC, AQUATIC RESTORATION	206	LRD	LRH	2,240
WATAUGA, NC, AQUATIC RESTORATION	206	LRD	LRH	230
WATKINS CREEK, ST. LOUIS, MO	206	MVD	MVS	200

FIVE YEAR CAPABILITIES FOR CAP PROJECT PHASES IN FISCAL YEAR 2008 BUDGET—Continued

[in thousands of dollars]

Project Name	CAP Section No.	MSC	DISTRICT	Cost to Complete
WEBER RIVER, UT (SEC. 206)	206	SPD	SPK	100
WEST JORDAN RIVER, UT	206	SPD	SPK	480
WEST JORDAN RIVER, UT	206	SPD	SPK	7
WESTERN BRANCH, PATUXENT, MD	206	NAD	NAB	1,200
WESTERN CARY STREAMS RESTORATION, CARY, NC	206	SAD	SAW	30
WESTMORELAND PARK, OR	206	NWD	NWP	1,661
WHITE SLOUGH WATER POLLUTION CONTROL FACILITY, LODI, CA	206	SPD	SPK	200
WHITEBREAST WATERSHED ECOSYSTEM RESTORATION, IA	206	MVD	MVR	3,945
WHITEBREAST WATERSHED ECOSYSTEM RESTORATION, IA	206	MVD	MVR	121
WILSON BAY RESTORATION, JACKSONVILLE, NC	206	SAD	SAW	2,356
WILSON BRANCH, SC	206	SAD	SAC	44
WILSON PARK CREEK, MILWAUKEE COUNTY, WI	206	LRD	LRE	75
WINDOM FISH PASSAGE, MN	206	MVD	MVR	225
WINNAPAUG POND, WESTERLY, RI	206	NAD	NAE	1,120
WISWALL DAM, DURHAM, NH	206	NAD	NAE	.....
WOLF PEN CREEK, COLLEGE STATION, TX	206	SWD	SWF	300
WOOD CANYON AQUATIC RESTORATION, LAGUNA NIGUEL, CA	206	SPD	SPL	661
WOOD CANYON AQUATIC RESTORATION, LAGUNA NIGUEL, CA	206	SPD	SPL	50
WWTP, MERIDIAN, TX	206	SWD	SWF	246
ZEMUARRY PARK LAKE RESTORATION, TANGIPAHOA PARISH, LA	206	MVD	MVN	225
BLACKWELL LAKE, BLACKWELL, OK	208	SWD	SWT	310
DICKENSON COUNTY, VA., SEC. 208	208	LRD	LRH	60
ALLIN'S COVE, BARRINGTON, RI	1135	NAD	NAE	5
BAYOU DESIARD, MONROE, LA	1135	MVD	MVK	1,707
BOYD'S SALT MARSH RESTORATION, RI	1135	NAD	NAE	203
DELAWARE BAY OYSTER RESTORATION, NJ	1135	NAD	NAP	783
ECOSYSTEM REVITALIZATION @ ROUTE 66	1135	SPD	SPA	3,637
KANAHA POND WILDLIFE SANCTUARY RESTORATION, MAUI, HI	1135	POD	POH	1,690
LAKE ST. JOSEPH, TENSAS PARISH, LA	1135	MVD	MVK	142
LOWER KINGMAN ISLAND	1135	NAD	NAB	110
PRISON FARM SHORELINE HABITAT, ND	1135	NWD	NWO	74
RATHBUN LAKE HABITAT RESTORATION PROJECT, IA	1135	NWD	NWK	858
BENNINGTON LAKE DIVERSION DAM, WA	1135	NWD	NWW	338
BLOOMINGTON AREA RESTORATION, LONG BRANCH LAKE, MO	1135	NWD	NWK	25

BLUE VALLEY WETLANDS, JACKSON CO., MO	1135	NWD	NWK	19
FERN RIDGE LAKE MARSH RESTORATION, OR	1135	NWD	NWP	30
GREEN RIVER DAM, OUTLET WORKS MODIFICATIONS, KY	1135	LRD	LRL	200
LOWER COLUMBIA SLOUGH, OR	1135	NWD	NWP	1,605
STEEP BANK CREEK, FELSENTAL NWR, AR	1135	MVD	MVK	59
WALLA WALLA RIVER SECTION 1135, OR	1135	NWD	NWW	824
ACADEMY CREEK, HALL CNTY	1135	SAD	SAS	275
AGUA FRIA RIVER RIPARIAN RESTORATION	1135	SPD	SPL	96
AMITE RIVER DIVERSION SPOIL BANK GAPPING, LIVINGSTON PH, LA	1135	MVD	MVN	125
AQUATIC HABITAT RESTORATION @ PUBLO OF SANTA ANA, NM	1135	SPD	SPA	335
ARK. RVR ENV REST, LK DARDANELLE, RUSSELLVILLE & FT. SMITH, AR	1135	SWD	SWL	10
ARKANSAS RIVER, GARDEN CITY, KS	1135	SWD	SWT	145
ASHLEY CREEK ECOSYSTEM RESTORATION, UT	1135	SPD	SPK	259
ASSUNPINK CREEK, ENVIRONMENTAL RESTORATION	1135	NAD	NAP	2,976
AUGRES RIVER, ARENAC COUNTY, MI	1135	LRD	LRE	284
BACK RIVER, CHATHAM COUNTY, GA	1135	SAD	SAS	275
BATTLE ISLAND, WI	1135	MVD	MVP	530
BATTLE ISLAND, WI	1135	MVD	MVP	50
BAYOU MACON, E&W CARROLL & FRANKLIN PARISHES, LA	1135	MVD	MVK	2,647
BAYOU MACON, LAKE VILLAGE, AR	1135	MVD	MVK	600
BELHAVEN HARBOR ENVIRON, NC	1135	SAD	SAW	170
BELLEVIEW WETLANDS, CO	1135	NWD	NWO	150
BIG LAKE ECOSYSTEM RESTORATION, OK	1135	SWD	SWT	408
BIG SUNFLOWER RIVER, CLARKSDALE, MS	1135	MVD	MVK	168
BLOOMINGTON AREA RESTORATION, LONG BRANCH LAKE, MO	1135	NWD	NWK	150
BLUE VALLEY WETLANDS, JACKSON CO., MO	1135	NWD	NWK	941
BRAIDED REACH	1135	NWD	NWS	4,765
BRAIDED REACH	1135	NWD	NWS	256
BROAD MEADOWS MARSH RESTORATION, MA	1135	NAD	NAE	1,888
BUFFALO RIVER HABITAT	1135	LRD	LRB	.....
BULL CREEK CHANNEL ECOSYSTEM RESTORATION, CA	1135	SPD	SPL	2,090
C–102/103 RESTORATION, DADE COUNTY, FL	1135	SAD	SAJ	200
C–7 MIAMI-DADE, FL	1135	SAD	SAJ	224
C–9, MIAMI-DADE, FL	1135	SAD	SAJ	250
CALOOSAHATCHEE OXBO	1135	SAD	SAJ	330
CANNON BRAKE/LOWER VALLIER, ARK & JEFFERSON COUNTIES, AR	1135	MVD	MVK	1,157
CAYUGA LAKE INLET, ITHACA	1135	LRD	LRB	200
CDF NO. 3, OREGON, OH	1135	LRD	LRB	100
CITY OF RICHLAND ECOSYSTEM RESTORATION, WA	1135	NWD	NWW	1,327
CONNEAUT HARBOR, OH	1135	LRD	LRB	225

FIVE YEAR CAPABILITIES FOR CAP PROJECT PHASES IN FISCAL YEAR 2008 BUDGET—Continued

[in thousands of dollars]

Project Name	CAP Section No.	MSC	DISTRICT	Cost to Complete
CROCKERY CREEK LAMPREY BARRIER, MI	1135	LRD	LRE	100
CUCAMONGA AND DEER CREEK CHANNELS ECOSYSTEM RESTORATION, CA	1135	SPD	SPL	152
DADE COUNTY, FL	1135	SAD	SAJ	217
DILLON LAKE, OH., SECTION 1135	1135	LRD	LRH	900
DUCK CREEK, STODDARD COUNTY, MO	1135	MVD	MVM	3,243
DUMP LAKE, YAZOO COUNTY, MS	1135	MVD	MVK	116
EAGLELAND HABITAT RESTORATION, SAN ANTONIO, TX	1135	SWD	SWF	328
EAST HARBOR STATE PARK, WEST HARBOR, OH	1135	LRD	LRB	96
ESTRAL BEACH, NEWPORT, MI	1135	LRD	LRE	75
FAIRMOUNT DAM, PA	1135	NAD	NAP	1,452
FLINT RIVER AND SWARTZ CREEK, FLINT, MI	1135	LRD	LRE	390
FRAZIER/WHITEHORSE OXBOW LAKE WEIR, LA	1135	MVD	MVK	1,269
GERRITESEN CREEK, BROOKLYN, NY	1135	NAD	NAN	3,700
GULL POINT, PRESQUE ISLE, ERIE, PA	1135	LRD	LRB	.....
HNC MILE 12–31.4 RESTORATION, TERREBONNE PARISH, LA	1135	MVD	MVN	2,500
HOOSIC RIVER, TOWN OF ADAMS, MA	1135	NAD	NAN	400
HOVEY LAKE WILDLIFE AREA HABITAT DEVELOPMENT, IN	1135	LRD	LRL	480
HOYT LAKE—SCAJAQUADA CREEK, BUFFALO, NY	1135	LRD	LRB	100
INDIAN RIDGE MARSH, CHICAGO, IL	1135	LRD	LRC	1,244
JOE CREEK HABITAT RESTORATION, TULSA, OK	1135	SWD	SWT	3,775
JOPPA PRESERVE RESTORATION, TX	1135	SWD	SWF	3,905
KALAMAZOO RIVER, BATTLE CREEK, MI	1135	LRD	LRE	409
KAUNAKAKAI STREAM ENVIRONMENTAL RESTORATION, MOLOKAI, HI	1135	POD	POH	342
KAWAINUI MARSH ENVIRONMENTAL RESTORATION, OAHU, HI	1135	POD	POH	4,034
KEITH LAKE FISH PASS, JEFFERSON COUNTY, TX	1135	SWD	SWG	200
KIDS CREEK, TRAVERSE CITY, MI	1135	LRD	LRE	50
LAKE CHAMPLAIN SEA LAMPREY BARRIERS	1135	NAD	NAN	200
LAKE FAUSSE POINT ECOSYSTEM RESTORATION, ST. MARY PARISH, LA	1135	MVD	MVN	250
LAKE GEORGE RESTORATION, YAZOO COUNTY, MS	1135	MVD	MVK	1,160
LAKE JESSUP	1135	SAD	SAJ	2,862
LAKE POYGAN, WI	1135	LRD	LRE	627
LAKE ST. JOSEPH, TENSAS PARISH, LA	1135	MVD	MVK	3,329
LAS CRUCES DAM ENVIRONMENTAL RESTORATION, DONA ANA COUNTY, NM	1135	SPD	SPA	450
LEWISVILLE LAKE, FRISCO, TX	1135	SWD	SWF	1,430

LONG BRANCH LAKE ECOSYSTEM RESTORATION	1135	NWD	NWK	174
LONGWOOD COVE WETLANDS, GAINESVILLE, GA	1135	SAD	SAM	2,250
LOWER CACHE RIVER, AR., 1135	1135	MVD	MVM	750
LOWER DECATUR BEND, NE., IA	1135	NWD	NWO	2,392
LOWER DEER CREEK, MS	1135	MVD	MVK	171
LOWER OBION RIVER & VICINITY, DYER COUNTY, TN	1135	MVD	MVM	2,709
LOWER ROUGE, ROTUNDA DR. AND I–94, MI	1135	LRD	LRE	2,710
MANISTEE RIVER LAMPREY BARRIER, MI	1135	LRD	LRE	100
MAPES CREEK, WA	1135	NWD	NWS	1,961
MARK TWAIN LAKE FISH HABITAT, MO	1135	MVD	MVS	150
MILLWOOD, GRASSY LAKE, AR., SECTION 1135	1135	SWD	SWL	50
MONROE LAKE, IN, MOIST SOIL UNITS	1135	LRD	LRL	100
MORDECAI ISLAND COASTAL WETLANDS, NJ	1135	NAD	NAP	750
MORGANZA FOREBAY RESTORATION, POINTE COUPEE PH, LA	1135	MVD	MVN	225
MT. ETNA/MT. HOPE WETLANDS, SALAMONIE LAKE, IN	1135	LRD	LRL	142
MURPHY SLOUGH, CA	1135	SPD	SPK	291
NB PENTWATER RIVER LAMPREY TRAP, MI	1135	LRD	LRE	100
NFTA OUTER HARBOR	1135	LRD	LRB	100
NMLC, BUZZARD BAY, MA	1135	NAD	NAE	430
NORFORK TAILWATER RESTORATION, AR	1135	SWD	SWL	50
NORTH NASHUA RIVER, FITCHBURG, MA	1135	NAD	NAE	110
NORTHPORT HARBOR, TOWN OF HUNTINGTON, NY	1135	NAD	NAN	350
O.C. FISHER LAKE ECOSYSTEM RESTORATION, TX	1135	SWD	SWF	3,791
OLD MAIN STEM TRINITY ECOSYSTEM RESTORATION, DALLAS, TX	1135	SWD	SWF	175
OLD RIVER NORTH, CONCORDIA PARISH, LA	1135	MVD	MVK	175
OLD TRINITY RIVER CHANNEL WILDLIFE RESTORATION, DALLES, TX	1135	SWD	SWF	1,949
PALM RIVER RESORATION	1135	SAD	SAJ	356
PINE MOUNT CREEK	1135	NAD	NAP	2,900
PONCE DE LEON AIWW	1135	SAD	SAJ	109
POND CREEK, NJ	1135	NAD	NAP	750
RAHWAY RIVER, CITY OF RAHWAY, NJ	1135	NAD	NAN	300
RATHBUN SHORELINE SITE RESTORATION APPANOOSE & MONROE CO., IA	1135	NWD	NWK	412
RESTORATION OF GRASS DALE, DE	1135	NAD	NAP	1,012
ROCHESTER HARBOR NAVIGATION CHANNEL, NY	1135	LRD	LRB	.....
ROCK CREEK @ BOYLE PARK, LITTLE ROCK, AR	1135	SWD	SWL	660
ROCK CREEK @ BOYLE PARK, LITTLE ROCK, AR	1135	SWD	SWL	150
ROUGE RIVER OXBOW, WAYNE CO., MI	1135	LRD	LRE	415
RUFFY BROOK AND CLEARWATER RIVER	1135	MVD	MVP	1,054
SALT CEDAR INVASIVE SPECIES ERADICATION/RESTORATION, NE	1135	NWD	NWK	125
SAND HILL RIVER	1135	MVD	MVP	818

FIVE YEAR CAPABILITIES FOR CAP PROJECT PHASES IN FISCAL YEAR 2008 BUDGET—Continued

[in thousands of dollars]

Project Name	CAP Section No.	MSC	DISTRICT	Cost to Complete
SARASOTA BAY RESTORATION, FL	1135	SAD	SAJ	400
SCHMIDT CREEK, PRESQUE ISLE COUNTY, MI	1135	LRD	LRE	50
SEA LAMPREY BARRIER, MANISTIQUE, MI	1135	LRD	LRE	349
SEA LAMPREY BARRIER, PAW PAW, MI	1135	LRD	LRE	725
SHELBYVILLE WILDLIFE MANAGEMENT AREA RESTORATION, IL	1135	MVD	MVS	3,530
SHELDON'S MARSH, HURON/SANDUSKY, OH	1135	LRD	LRB	151
SHORTY'S ISLAND	1135	NWD	NWS	4,365
SHORTY'S ISLAND	1135	NWD	NWS	679
SMITHVILLE ACQUATIC PLANTINGS	1135	NWD	NWK	520
SMOKES CREEK, ERIE COUNTY, NY	1135	LRD	LRB	499
SPUNKY BOTTOMS ECOSYSTEM RESTORATION, IL	1135	MVD	MVS	97
STEAMBOAT CREEK, WASHOE COUNTY, NV	1135	SPD	SPK	120
STEAMBOAT CREEK, WASHOE COUNTY, NV	1135	SPD	SPK	129
STEEP BANK CREEK, FELSENTAL NWR, AR	1135	MVD	MVK	739
SUCKER RIVER, ALGER COUNTY, MI	1135	LRD	LRE	87
TAPPAN LAKE, OH., SEC. 1135	1135	LRD	LRH	826
TAYLOR BAY, WOODRUFF COUNTY, AR	1135	SWD	SWL	124
TAYLORS BAYOU, PORT ARTHUR, TX	1135	SWD	SWG	370
TIMES BEACH ENVIRONMENTAL IMPROVEMENT, BUFFALO, NY	1135	LRD	LRB	.....
TRAIL CREEK, LAPORTE COUNTY, IN	1135	LRD	LRE	50
TUJUNGA WASH ENVIRONMENTAL RESTORATION, CA	1135	SPD	SPL	500
UMBRELLA CREEK, CAMDEN CNTY	1135	SAD	SAS	200
UPPER DEER CREEK, MS. DELTA, MS	1135	MVD	MVK	161
UPPER ROUGE, MICHIGAN AVE. TO ROTUNDA DR., MI	1135	LRD	LRE	2,710
VIRGINIA BEACH KEY, FL (SEC. 1135)	1135	SAD	SAJ	300
WELLS LOCK AND DAM, ELIZABETH, WV	1135	LRD	LRH	250
WHITNEY POINT LAKE, NY	1135	NAD	NAB	4,300
WHITTIER NARROWS NATURE CENTER & WILDLIFE REFUGE RESTORATION	1135	SPD	SPL	1,559
WHITTIER NARROWS NATURE CENTER & WILDLIFE REFUGE RESTORATION	1135	SPD	SPL	270
WILLS CREEK, MASON MINE 280, OH	1135	LRD	LRH	1,150
WILLS CREEK, MASON MINE 280, OH	1135	LRD	LRH	50
WOOD DUCK MARSH, IA	1135	NWD	NWK	100
WOODSON BRIDGE, CA (SEC. 1135)	1135	SPD	SPK	300
WOODSON BRIDGE, CA (SEC. 1135)	1135	SPD	SPK	150

Additional information in the form of Budget Justification Sheets is posted at: http://www.usace.army.mil/cw/cecwb/just_states/just_states.html

The CAP projects approved for fiscal year 2008 budgeting are listed under the FDR, NAV, and ENV business line sections in the justifications.

QUESTIONS SUBMITTED BY SENATOR PETE V. DOMENICI

REBUILDING THE GULF COAST

Question. General Strock, can you please provide an update on the progress the Corps making with regard to levee improvements, canal upgrades and increased pumping capacity in New Orleans?

Answer. Sir, we are making steady progress on the environmental assessments, designs and initiation of levees and floodwall improvements throughout the Greater New Orleans area. For the hurricane protection system we have awarded 34 construction contracts to date for levees and floodwalls, and pump station repairs. We are prepared to award 30 more contracts within the next 60 days subject to favorable bids and availability of funds.

We have completed construction of temporary gates on the outfall canals at Lake Pontchartrain which provide protection from hurricane surge. These temporary gates provide protection to the canals beginning this hurricane season.

The previously installed pumps at the three outfall canals are being modified to achieve their full design capacity. All pumps will be modified, reinstalled and tested by June 1. By 1 June with the addition of portable pumps at 17th Street Canal, we will achieve a capacity of 5,200 cubic feet per second at 17th Street Canal, 2,200 cubic feet per second at Orleans Canal, and 2,800 cubic feet per second at London Avenue Canal.

Work is underway to install additional pumps at 17th Street Canal and London Avenue Canal. By mid-August we will achieve pumping capacity of 7,600 cubic feet per second at 17th Street Canal and 5,000 cubic feet per second at London Avenue canal.

Question. Can you also address the issue of poor quality control by contractors supporting the rebuilding effort?

Answer. Sir, any allegation of poor quality control is taken very seriously and immediately addressed by the Corps. For the rebuilding effort we have a comprehensive quality management plan for all phases of the ongoing work. This is the basis for assuring that we deliver the hurricane protection system to meet all safety, regulatory, environmental and legal requirements. We implemented quality control and quality assurance procedures from the outset. These procedures were thoroughly reviewed by representatives of the Army Audit Agency embedded with Task Force Guardian. Army Audit Agency auditors reported very favorably on those procedures, which continue today and will continue through completion of hurricane protection system.

Question. Are you confident the Corps is doing its best to control costs on this massive project?

Answer. Sir, we are aware of increases in construction costs in the Greater New Orleans area in the post-Katrina environment. The Corps is aggressively seeking ways to manage construction costs by using innovative acquisition strategies including "Design-Build" and "Best Value" approaches to encourage innovation. We are implementing value engineering and earned-value management, and are seeking external reviews by industry experts and academia to ensure we do all we can to deliver this system in a cost efficient manner.

ALBUQUERQUE LEVEES

Question. General. Strock, the Corps of Engineers abruptly announced 122 levees of concern in a press event last month. This public event highlighted the national concern about the adequacy of flood control, changes in levee design requirements, and the efficacy of the Corps inspection of completed works program.

For 3 years, I have supported evaluation of levees in New Mexico with focus on the Albuquerque system and I am anticipating completion of a project report outlining rehabilitation needs this summer.

However, the lack of coordination of the Corps national communication approach and the New Mexico specific activities was disconnected and has created a great deal of local confusion.

Please explain how the Corps proposes to approach the need for rehabilitation of flood control in New Mexico and the Nation as a whole that was highlighted by the recent levee restoration program announcements?

Answer. Sir, there has been a recent surge of concern regarding the condition of levees throughout the Nation as a result of Hurricane Katrina. Following release of the listing of national levees of concern, the Corps has notified levee project owners/sponsors and the appropriate local, State, and Federal agencies of projects with unacceptable inspection ratings. The Corps is currently working to ensure maintenance requirements are being met and will permit sponsors to have a one-year maintenance deficiency grace period to make repairs and corrections before a levee is removed from the Rehabilitation and Inspection Program under Public Law 84–99.

On a national and regional level, the Corps is coordinating its levee inventory information with the Federal Emergency Management Agency (FEMA) for its use in making decisions in the National Flood Insurance Program. Although these are separate programs, data from the levee inventory will be available to support levee certification as part of FEMA's National Flood Insurance Program.

In 2005, Congress provided the Corps of Engineers with authorization and funding to evaluate the condition of the Albuquerque Levees. This evaluation, scheduled for completion in May 2007, will describe the existing condition of the levee system and determine the extent and costs of rehabilitation needed. Additional authorization and funding would be required to proceed with levee rehabilitation.

Question. Please explain how the Corps will balance competing Federal requirements for endangered species issues and habitat protection and flood control along the Middle Rio Grande?

Answer. Sir, the Corps will coordinate with the U.S. Fish and Wildlife Service (USFWS), the State of New Mexico and our numerous stakeholders regarding threatened and endangered species within any project location in relation to the Albuquerque Levees. Species potentially occurring within proposed project areas include the Southwestern Willow Flycatcher, Rio Grande silvery minnow Critical Habitat, and the Bald Eagle.

Based on this coordination, a formal consultation with the USFWS and a Biological Assessment regarding these species may be required. Additional coordination with the USFWS for preparation of a Fish and Wildlife Coordination Act Report would also be required.

The Corps would work closely with USFWS as well as other stakeholder agencies such as the Middle Rio Grande Conservancy District, City of Albuquerque, New Mexico Department of Game and Fish, U.S. Bureau of Reclamation, Environmental Protection Agency and local villages and pueblos as well as interested parties such as Tree New Mexico, Hawks Aloft, and others to coordinate issues and comments in order to protect species and their habitat while implementing proposed construction.

Most of the potential construction areas would be located within and adjacent to the existing levee alignment. Much of the vegetation in these areas consists of native cottonwood, Gooding's willow and non-native vegetation such as salt cedar, Russian olive, Siberian elm and Tree of Heaven. Currently, these species are not being removed while the levee integrity is being evaluated. If the proposed action were to remove trees within a certain distance of the levee, many of them would be non-native species but some would be the native species listed above. These native species, and future woody species that would have occupied this space, would potentially need to be mitigated for in some way.

CENTRAL NM ENVIRONMENTAL INFRASTRUCTURE PROGRAM (SEC. 593) AND NEW MEXICO ENVIRONMENTAL INFRASTRUCTURE PROGRAM

Question. In what way will the Corps accelerate the resolution of these administrative issues so that the section 593 and 595 programs can proceed and be effective?

Answer. Sir, we have recently resolved the administrative issues regarding the use of State grant funds for section 593 and 595 projects that have executed Project Cooperation Agreements (PCAs). Subject to the availability of funds and consistent with administration policy, a three party Memorandum of Agreement (MOA) can be executed for each such project to permit use of the State of New Mexico funding. For future projects, we are negotiating with the State on the use of a modified section 593/595 PCA format that will include the State as a limited participant, for purposes of reviewing and commenting on documents, and providing and receiving funds. This should meet the needs of both the State and the Government.

R&D

Question. Can you please provide my office a briefing on the results of these multiple demonstration programs, plans for continued development and propagation of

these advanced decision approaches, and an assessment of whether additional authorities are needed to fully implement the program in IWR and the R&D programs?

Answer. Yes Senator, we can arrange a briefing for you. A representative from my staff will contact your office in the near future.

Question. Flooding, levee management, supplying water resources, maintaining irrigation works, reducing storage loss in reservoirs, and ecological restoration are all dependent on sound understanding of sediment movement. The Corps has an advanced program for research for eastern river systems. It is time to expand this program dramatically for rivers in the arid southwest.

Can you please provide my office a briefing on the status of the Southwest Flood Damage Development and Demonstration Program, an overall program plan for continued research and expansion of the program as well as an assessment of any authorities needed to continue this critical work?

Answer. Yes Senator, we can arrange a briefing for you. A representative from my staff will contact you office in the near future.

QUESTION SUBMITTED BY SENATOR ROBERT F. BENNETT

Question. Although the committee has provided specific funding to the Rural Utah § 595 account, the Army Corps has on two separate occasions reprogrammed nearly $1.5 million dollars to spend on projects in other States. These missing funds could complete several infrastructure projects in Utah that are now on hold because of lack of funding for this program. The Army Corps has assured me that these "borrowed" funds will be replaced, but has not given a timeline. Will you please provide your timeline for replacing these funds?

Answer. Sir, due to restricted funding levels and the Army Corps' limited ability to reprogram funds, there is no existing timeline to reprogram funds to the Rural Utah & 595 account to replace funds that were reprogrammed out of the program in prior years. However, we are committed to reviewing funding opportunities in future years to identify possible methods for reprogramming funds back into the Rural Utah program. For the current fiscal year (2007), we believe that there are sufficient unobligated funds available within the Rural Utah program to support any funding needs that may arise.

QUESTIONS SUBMITTED BY SENATOR LARRY CRAIG

SNAKE RIVER PROGRAMMATIC SEDIMENT

Question. Does the fiscal year 2008 budget request provide sufficient funding to complete the Snake River Programmatic Sediment Management Plan by its 2009 due date? If not: How does the Corps intend to provide potential navigation maintenance if it is needed prior to completion of the plan?

Answer. The fiscal year 2008 budget does not provide sufficient funding to complete the plan by the date identified in the settlement agreement, which was December 2009. There was no funding budgeted for fiscal year 2006 and the entire fiscal year 2007 was spent in a CRA. Walla Walla District was only able to fund some scoping activities and minor base-line condition evaluations during this period. However, the bulk of the cost and schedule for the development of the management plan is associated with base-line conditions data collection in the areas of sediment transport and deposition, aquatic habitat, and water quality. To date, we have not been able to initiate any of this data collection. It has been determined that 3-years worth of data is required to obtain valid information in these areas. This information is critical to ensure that the results of the plan are credible and defensible. As a result of funding limitations the past 2 years, the schedule for this plan has slipped 2 years. The current schedule for the completion of this plan is now December 2011, subject to the availability of funding.

The Corps typically dredges within the Snake River navigation channel every 3 to 5 years, the last time was in 2006. We are aware of two areas in the Snake River navigation channel that are already experiencing some sediment deposition. As a result, we fully recognize that some dredging of the navigation channel may be required to maintain adequate navigation prior to completing the management plan in 2011. Therefore, we are closely monitoring the areas currently experiencing problems, and are developing contingency plans in case interim dredging is necessary.

Question. I'm curious about the Corps' position on whether or not intrastate waters are jurisdictional under 404?

Answer. Some intrastate waters may be found jurisdictional under the Clean Water Act (CWA) where they are in accordance with the Rapanos decision (2006). For example, lakes that are determined to waters of the State (i.e., the Great Salt Lake) are jurisdictional under the CWA. Waters that are determined to navigable waters will also be jurisdictional. Where the water body (i.e., lake) flows into a tributary system that flows into traditional navigable water are also likely to be jurisdictional. Truly isolated waters, including wetlands that are non-navigable, intrastate and lack a link to interstate or foreign commerce are not jurisdictional under the CWA, as per the SWANCC decision (2001).

Question. When can we expect new "Waters of the U.S." guidance in relation to the Rapanos decision?

Answer. The Corps and EPA have signed an implementation memo explaining the Rapanos decision and the new program requirements. This document and other supporting documents can be found at: http://www.usace.army.mil/cw/cecwo/reg/cwa_guide/cwa_guide.htm. We are inviting public comments on case studies and experiences applying the guidance during the first 6 months of implementation. Furthermore, we, within 9 months from the date of issuance, will reissue, revise, or suspend the guidance after carefully considering the public comments received and field experiences with implementing the guidance. We will determine our course of action following a review of the comments.

ENERGY AND WATER QUESTIONS

Question. During the hearing were raised to suggest that upstream lake levels are low. Is it not true that there currently is an historic drought in the basin and can you describe the extent of the drought?

Answer. The Missouri River Basin is currently experiencing its 8th consecutive year of drought. Total System Storage is currently 37.3 million acre-feet (MAF). Since operation of the System began in 1967, the Basin has experienced two extended drought periods; the drought which extended from 1989–1993 and the current drought. Total System Storage reached a record low of 33.9 MAF on February 8, 2007. The three upper Mainstem reservoirs, Fort Peck, Garrison, and Oahe experienced record low pools levels of 2,196.2 mean sea level (msl) 1,805.8 msl, and 1,570.2 msl respectively.

Question. The Corps undertook a decade-plus long process to revise the Master Manual. Did the Corps not modify the manual to provide additional water for lake storage at the expense of traditional downstream needs deemed priorities by the 8th Circuit Court of Appeal in the case of Operation of the Missouri River System Litigation (421 F. 3d 618) decided on August 6, 2005, which the Supreme Court refused to consider on appeal and issued that decision on April 24, 2006?

Answer. Following the 14-year Missouri River Mainstem Reservoir System Master Water Control Manual Review and Update Study, in March of 2004 the Corps of Engineers modified the Master Water Control Manual (Master Manual) to include more stringent drought conservation measures. Since 2004 these measures have resulted in shorter navigation seasons and lower releases to support navigation as compared to what would have occurred under the provisions of the previous Master Manual. The shorter navigation seasons and lower releases have retained more water in the System since 2004 than would have been the case under the previous Master Manual.

The navigation preclude level in the previous Master Manual was set at 21 MAF. The 2004 Master Manual revision increased that level to 31 MAF. The water stored in the System has not fallen below the 31 MAF navigation precludes since the revision in 2004. Therefore that change to the previous Master Manual has had no effect during the current drought.

The Master Manual was again revised in 2006 to include provisions for a "spring pulse," as required by the 2003 Amended Biological Opinion for the Missouri River Mainstem System.

On June 21, 2004, the United States District Court for the District of Minnesota issued a decision in a series of consolidated cases by Basin States, tribes and stakeholders challenging the 2004 Revised Master Manual and the 2003 Amended Biological Opinion for the Missouri River Mainstem System. The District Court's decision by Judge Paul A. Magnuson upheld both the revised Master Manual and 2003 Amended Biological Opinion. On August 6, 2005 the United States Court of Appeals in a consolidated opinion affirmed Judge Magnuson's decision. Subsequent petitions for certiorari were denied by the United States Supreme Court.

Question. It was suggested that water releases exist to provide Missouri River navigation. While that is also true, can you please describe how releases are also provided to support endangered species protection, drinking water supply, hydro en-

ergy production, downstream energy production cooling capacity, and Mississippi River navigation . . . not only Missouri River navigation as suggested?

Answer. Releases are made from the System to support numerous downstream economic uses and protect environmental resources. Along with navigation, these economic uses include river recreation, municipal and industrial water supply (including cooling water for thermal power plants); and irrigation. Access to water has been a challenge during the current drought due to low river levels. These low river levels have also raised concerns related to the ability of thermal power plants to meet water quality standards for cooling water discharges to the river. Considerable investments have been made by several entities to modify their intake structures to deal with these low water conditions. Releases are also managed to protect threatened and endangered bird species that nest below the System during the summer months. And the spring pulse is designed to benefit the endangered pallid sturgeon.

Question. Are these multiple uses a reality that the Assistant Secretary may consider mentioning when discussing the suggestion that lake levels should be maximized?

Answer. Yes, the multiple uses are a reality that the Assistant Secretary mentions in discussions regarding reservoir levels. The Assistant Secretary has not proposed that the System be operated to maximize reservoir levels. Rather, the System is managed to serve the multiple project purposes authorized by Congress.

Question. During this drought, is it true that very significant reductions have imposed upon navigation, and that pain is not limited to recreational fishing?

Answer. The extended drought has negatively impacted all project purposes throughout the Basin, with the exception of flood control, and many of the people that live and work in the Basin. This includes impacts to navigation, water supply from both the river reaches and the reservoirs (including irrigation), hydropower, upstream fisheries and recreation along the river reaches and the reservoirs.

Question. During this drought, is it true that reductions have placed burdens on large urban downstream water supply and all other downstream needs?

Answer. Considerable investments have been made by water supply entities in the lower river to modify their intake structures to deal with the low water conditions during drought. Water supply entities in St. Joseph, Missouri and in both Kansas City, Missouri and Kansas City, Kansas have modified their intakes to ensure operation at lower river levels.

The thermal power, municipal and industrial water intake owners downstream of Gavins Point Dam identified expenditures of $18.77 million from 2000 to 2004 to access the river at the lower drought operations. They estimated that by 2010 they will have invested $286.1 million in new structures, enhancements or other measures to access water during critical low water conditions especially during the non navigation periods and also during ice periods.

QUESTION SUBMITTED BY SENATOR WAYNE ALLARD

Question. I appreciate that the Albuquerque District office has been working closely with the two communities—Grenada and Creede—who are likely to be facing compliance letters related to some maintenance issues with their levees. I would just like to request a commitment from you that the Corps will continue to work with those communities and will keep my office fully informed as this process continues to move along.

I understand that the Corps' tamarisk removal project in Colorado has been very successful and is nearing completion. Could you please give me an update on that project?

Because this project has been so successful and because tamarisk poses such a problem in Colorado, does the Corps have any plans to conduct additional removal projects in the State?

Answer. Our section 206 Tamarisk Eradication project is in Feasibility phase. We anticipate completing the Detailed Project Report (including the Environmental Assessment, Engineering Report, and Real Estate Report) in December 2008. If the moratorium on new CAP phases is lifted by that time, SPD would then request funding to go to 100 percent plans and specs. The PCA would also be prepared and ready for signatures at that time.

QUESTION SUBMITTED TO MARK LIMBAUGH

QUESTION SUBMITTED BY SENATOR BYRON L. DORGAN

RURAL WATER

Question. Secretary Limbaugh, Your budget proposes $55 million for rural water projects. This amount seems to go down annually. How are we ever going to finish any of these projects with such meager funding?

Answer. Reclamation is making significant progress in funding rural water projects throughout North and South Dakota and Montana. The Mid-Dakota rural water project was completed in fiscal year 2006. Also, numerous rural water projects serving nearly 150,000 people in North Dakota have been completed as part of the Garrison Diversion Unit.

QUESTIONS SUBMITTED BY SENATOR WAYNE ALLARD

Question. Secretary Limbaugh, can you explain why drought assistance was given so little funding in your budget?

Answer. Reclamation prepares its budgets 2 years in advance. Consequently, we are unable to forecast this kind of emergency. However, we make every effort to address the greatest need with the funds available and to put our efforts into funding on-the-ground activities.

Question. What drought assistance can you offer?

Answer. The Reclamation States Emergency Drought Relief Act of 1991 (Public Law 102–250) as amended, authorizes the Bureau of Reclamation to undertake drought relief measures through emergency assistance (Title I) and planning activities (Title II). Title I provides for construction, management and conservation measures to alleviate the adverse impacts of drought, including the mitigation of fish and wildlife impacts. Title I also authorizes temporary contracts to make available project and nonproject water and to allow for the use of Reclamation facilities for the storage and conveyance of water.

Under Title I authority, Reclamation has constructed many wells for drinking water for smaller financially-strapped entities (towns, counties, tribes) that do not have the financial capability to deal with the impacts of drought. In many cases, Reclamation is the "last resort" for these communities.

Question. Are the communities suffering from drought aware of the assistance that you can offer?

Answer. Each of Reclamation's regional offices and many of the area offices have collateral duty personnel involved with the Drought Program. Additionally, regional directors and area managers are in communication with their stakeholders to remain current on the emerging needs of their areas. Information about the various programs Reclamation has is made available for consideration.

QUESTIONS SUBMITTED TO ROBERT W. JOHNSON

QUESTIONS SUBMITTED BY SENATOR BYRON L. DORGAN

MINNOW SANCTUARY

Question. The Reasonable and Prudent Alternatives specified in the 2003 Fish and Wild life Service's Biological Opinion on the Rio Grande Silvery Minnow required the construction of two minnow refugia. In order to comply with this mandate, I have secured funding for the construction of a minnow sanctuary.

What is the status of the sanctuary's construction and when will it be completed?

Answer. Reclamation awarded a contract for the third, and final, phase of construction in 2007, and expects to complete construction by the summer of 2008.

Question. Does the USBR have sufficient funding in fiscal year 2007 to complete construction of the Minnow Sanctuary or will additional fiscal year 2008 funds be required?

Answer. Sufficient funds have been appropriated in fiscal year 2008 to complete construction of the minnow sanctuary. A contract for the final phase of construction was awarded on December 6, 2007, and construction is expected to be completed by October 2008.

Question. Will you please provide my office with a long-term operations plan for the Sanctuary?

Answer. Yes, Reclamation and the Fish and Wildlife Service are developing an operations plan and will provide it to your office once finalized.

Question. Can the BOR commit to provide my office monthly reports on the progress of the Sanctuary construction similar to those provided for the Tularosa Basin Desalination Facility?

Answer. Yes, Reclamation will provide these reports to your office.

CARLSBAD IRRIGATION DISTRICT

Question. The Carlsbad Irrigation District faces significant rehabilitation needs on Brantley, Avalon and Sumner Dams along the Pecos River. The President's budget proposal for fiscal year 2008 is only $2,891,000, a decrease of over $700,000 from the current year representing a decrease of 50 percent in the operations and rehabilitation component of the budget.

How can these rehabilitation activities progress with decreasing operations and maintenance budgets?

Answer. Rehabilitation planning and implementation on the Carlsbad Project is the responsibility of the Carlsbad Irrigation District with Reclamation as a cost-share partner. Sufficient appropriated funds have been requested by Reclamation for its estimated cost-share amount for the rehabilitation.

Question. Can the BOR commit to transfer the funding for the Pecos River Basin Water Salvage program to the Carlsbad Irrigation District for implementation of the invasive species control activities?

Answer. Yes, BOR transfers both Federal and State funds based on monthly costs submitted by the Carlsbad Irrigation District.

EXCESS GOVERNMENT PROPERTY ISSUES

Question. Historically the Bureau of Reclamation allowed irrigation districts to access excess Government equipment to implement maintenance on federally managed facilities. Two years ago this policy was abruptly reversed. Equipment acquired this way avoids waste and abuse of Government resources and has been instrumental in dealing with southern New Mexico flooding this last summer.

Will the BOR rectify this situation by restoring the ability of the irrigation districts to access the Excess Government Equipment list?

Answer. Public Law 89–48, June 14, 1965, states in part ". . . In order to encourage the assumption of irrigation districts . . . of the operation and maintenance or works constructed to furnish or distribute a water supply, the Secretary is authorized to use appropriated funds available for the project involved to acquire movable property for transfer under the terms and conditions hereinbefore provided, at the time operation and maintenance (O&M) is assumed."

The Reclamation Supplement to Federal Property Management Regulations further provides direction if additional equipment is required at the time of transfer, by allowing it to be obtained in the same manner and from the same sources as prescribed for the initial O&M requirement but with a 1-year time frame. Thus Reclamation allows the water user organizations to still acquire needed excess property for 1 year after the O&M transfer to them. The provisions of this authority does not include the replacement or upgrade of equipment previously transferred to a water users' organization. The irrigation districts will continue to have access to the Excess Government Equipment list with a 1-year time frame provision, which will require irrigation districts to compete with other entities for acquisition of Excess Government Equipment.

CHIMAYO AND ESPANOLA WATER SYSTEMS

Question. The two rural northern New Mexico communities of Chimayo and Espanola are currently developing and rehabilitating their water systems. Under Public Law 108–354 both communities may receive support from the BOR to complete their water systems. The President's fiscal year 2008 budget does not include funds to support these two rural programs.

Can the BOR explain their approach to support this type of rural community and the specific decision to not provide funding in fiscal year 2008?

Answer. Public Law 108–354 requires that a feasibility study be completed within 3 years of the legislation. Work has only just begun on the plan. Until the entities can provide a comprehensive plan for the projects including cost sharing it is felt that a request for Federal dollars can be delayed. The $1,000,000 already obligated to the City of Espanola under this authority remains unexpended.

ANIMAS-LA PLATA PROJECT

Question. Despite past claims of mismanagement and poor planning and oversight, the A–LP project is now proceeding at an acceptable rate. The President's budget calls for $58 million for the project in fiscal year 2008. However, some of the project beneficiaries claim that the project requires $75 million in fiscal year 2008 to keep it on schedule and to keep total project costs to a minimum.

Do you believe that the $58 million requested is adequate to keep the project on schedule?

Answer. Yes, the amount requested is adequate to maintain the current schedule. This schedule reflects a "projected" delay to the overall project completion of approximately 1 to 1½ years as compared to earlier project schedules. The most significant impact to a single feature is a delay of 1¾ years in delivering water to The Navajo Nation at Shiprock, New Mexico.

Question. What precautions are being taken to ensure that there are not further cost overruns with the project?

Answer. We have refined and streamlined reporting within Reclamation for the A–LP. The Four Corners Construction Office is responsible for all matters pertaining to the construction of the project. This office is managed by a Project Construction Engineer who reports directly to the Regional Director of the Upper Colorado Region in Salt Lake City, Utah. The construction office continually evaluates ways to save costs and still maintain the project features. Cost tracking procedures implemented in 2004 now relate all project costs to the cost estimate (indexed for inflation) for early detection of problems. This cost information is shared with the Project Sponsors on a bi-monthly basis.

Question. Will providing greater appropriations in the near-term keep down the total cost of the project?

Answer. Yes. The project schedule is driven by available funds. The more funds that are available, the sooner the project can be completed. Future costs driven by inflation will be kept in check.

LOAN GUARANTEE

Question. What progress have you made with respect to the Aamodt, Abeyta, and Navajo settlements?

Answer. The Aamodt and Abeyta settlements both seek Federal contributions of water or funding to acquire water. The Bureau of Reclamation has completed a study of evaporation surplus at Cochiti reservoir to determine if additional water from that source would be available to supplement un-contracted San Juan Chama supplies, and we have met with the parties and provided draft copies of the study to them and asked for comments. The study showed that some surplus is available. At the direction of the Secretary, Counselor Bogert has met with the parties to both settlements in New Mexico several times since this spring, most recently in October 2007, to discuss water supply issues. The United States has presented the parties with a proposed level of Federal contribution in Aamod and Abeyta. In the meantime, consultations with the President's Office of Management and Budget and Department of Justice are on-going.

With respect to the Navajo settlement, the Department has been working to develop information to assist in developing a possible solution, including a draft environmental impact statement on the proposed pipeline and the hydrologic determination on water availability in New Mexico. The Department will have an updated appraisal-level estimate of the costs of constructing the pipeline completed this year.

Question. When do you anticipate you will complete your study to determine if there is additional water available from the San Juan-Chama Project as a result of an over-estimation of evaporative loss from Cochiti Reservoir?

Answer. The Bureau of Reclamation has completed a study of evaporation surplus at Cochiti reservoir to determine if additional water from that source would be available to supplement un-contracted San Juan Chama supplies. The Department provided copies of the study to the parties and asked for their comments. The study showed that some surplus is available.

Question. When will you provide the parties to the Abeyta settlement an official administration position on their proposed settlement?

Answer. The administration provided the position on this settlement at the beginning of September 2007.

Question. Please explain why the San Joaquin Settlement and the Arizona Water Settlement received favorable treatment from OMB while the New Mexico Indian water rights settlements have not.

Answer. OMB's analysis of Indian water rights settlements is predicated upon the "Criteria and Procedures for the Participation of the Federal Government in Nego-

tiations for the Settlement of Indian Water Rights Claims" (55 FR 9223). With respect to Federal contributions, the Criteria and Procedures provide that Federal contributions to a settlement should not exceed the sum of the calculable legal exposure and additional costs related to Federal trust or programmatic responsibilities. Of particular interest to the administration in determining calculable legal exposure is the liability facing the United States if no legislative settlement is reached. In the case of the Arizona Water Rights Settlement Act, the settlement concluded a lawsuit over the financial repayment obligation of Arizona water users for the Central Arizona Project (CAP), with significant amounts of money at stake. The San Joaquin Settlement referred to in this question was not an Indian water rights settlement, but the calculable legal exposure was part of the analysis. The San Joaquin settlement would bring to an end a multiyear lawsuit, and continued litigation would expose the parties to the risk of significant costs. In situations where the proposed Federal contribution outweighs the litigation exposure, administration support for a settlement requires that the additional contribution be closely related to programmatic responsibilities.

Question. Do you believe that your proposed budget of $34 million for the Indian Land and Water Claims Settlement Fund is adequate to settle unresolved Indian land and water claims in fiscal year 2008?

Answer. The Indian Land and Water Claims Settlement Fund line item in the budget is adequate for its intended purpose of fulfilling BIA's commitment under enacted Indian land and water settlements. Funding for ongoing negotiations to settle unresolved Indian land and water claims is provided under several other items in the DOI budget, including Water Resources Management in BIA's budget.

Question. How do you plan to secure a commitment from OMB that a reasonable Federal contribution will be made available for the New Mexico Indian water rights settlements?

Answer. We will continue to meet within the Office of Management and Budget and the Department of Justice to keep them informed of developments in the New Mexico settlements and identify approaches to these settlements that are fair to taxpayers as well as the settling parties.

RURAL WATER

Question. Fifty years after Garrison Dam was constructed and Lake Sakakawea was impounded, many of my constituents are still without a good source of drinking water. I am not talking about people far removed from the project; I am talking about people whose homes are within sight of Lake Sakakawea. These people do not have good water when there is a lake right in front of them that could provide for their needs. That was part of the bargain that we thought we made. We gave up land in return for water when and where we need it. We gave up the land, but you still haven't come through with the water.

Costs continue to escalate on these projects. Benefits to the public are deferred. What do you recommend to make these projects more of a budget priority for Reclamation?

Answer. Reclamation balances many priorities including funding ongoing construction projects such as rural water, while maintaining existing infrastructure and other ongoing priorities, all within the budget targets that have been established.

Question. As you recall, The Fort Yates intake was silted over in 2003 and left the Standing Rock Sioux Tribe with no water source. Thanks to considerable efforts of the tribe and your personnel, a temporary water intake was installed. It is still in use today?

Are there plans for a permanent fix?

Answer. The Tribe's engineering firm has studied several alternate plans for intakes that serve Fort Yates as well as the future needs of the entire Reservation.

Question. What are they?

Answer. As a result of the fiscal year 2008 appropriations, the Standing Rock Sioux Tribe water treatment plant near Wakpala, South Dakota will have the capacity to serve the entire reservation. Reclamation concurs with this decision as it provides for the intake location that should remain viable under nearly any lake condition and will also minimize operation and maintenance costs.

Because it is estimated to take 3 years to allow enough funding and time to construct the new Wakpala intake, water treatment plant and connecting pipeline to the Fort Yates system, the existing water treatment plant and temporary intake that serves Fort Yates will need to remain in service for the same time period. Reclamation is working with the tribe to take some precautionary measures to ensure these current features at Fort Yates remain operational until such time as the new source of water from Wakpaka is made available.

Question. Is there a schedule for this work?

Answer. As a result of the fiscal year 2008 appropriations, the Standing Rock Sioux Tribe water treatment plant near Wakpaka, South Dakota will have the capacity to serve the entire reservation. Reclamation concurs with this decision as it provides for an intake location that should remain viable under nearly any lake condition and will also minimize operations and maintenance costs.

Because it is estimated to take 3 years to allow enough funding and time to construct the new Wakpala intake, water treatment plant and connecting pipeline to the Fort Yates system, the existing water treatment plant and temporary intake that serves Fort Yates will need to remain in service for the same time period. Reclamation is working with the Tribe to take some precautionary measures to ensure these current features at Fort Yates remain operational until such time as the new source of water from Wakpaka is made available.

Question. Lake Oahe has essentially retreated out of North Dakota, thanks to the mismanagement of the river by the Corps of Engineers, so that this intake is now a river intake, instead of the lake intake they had. Unfortunately, there appears to be a migrating sandbar that could cut-off the tribe's intake from the river.

What measures is Reclamation prepared to take to ensure that this intake does not get cut-off from the river?

Answer. Reclamation has developed and exercised contingency plans with the tribe in the event the existing river intake stops functioning. These plans include connecting portable pumps to the intake. Further measures include excavation and/or dredging the material to reconnect the intake to the river. We continue to evaluate additional measures that would redirect river flow towards the intake, preventing sandbars from forming.

Question. Do you have sufficient funding for these measures?

Answer. Reclamation has developed cost estimates for dredging this material in the event it blocks the intake. Reclamation estimates dredging cost to be approximately $150,000. Work would need to be reprioritized and funds shifted to cover this type of extraordinary operation and maintenance work.

Question. On a similar note, the intake at Wakpala on the Reservation is in serious danger of being out of the water this year. Have you developed contingency plans to deal with this contingency?

Answer. Reclamation has prepared contingency plans to address the loss of water supply to the Wakpala water treatment plant. Since this plant serves a relatively small population, the immediate response is to truck water from the City of Mobridge to the water treatment plant. Further options are being investigated including installing backup groundwater wells and extending the intake as the lake recedes.

Question. What is the most likely scenario?

Answer. The Army Corps of Engineers reservoir forecast for Lake Oahe through February 2008 predicts sufficient water depth over the top of the Wakpala Intake to sustain normal operations.

Question. Is there a permanent solution that could solve both of these problems?

Answer. The tribe's engineering firm has studied options to serve the entire reservations needs (including both Fort Yates and Wakpala). Based on these studies, the tribe's preferred long-term solution is to construct a new surface water intake near the Indian Memorial Recreation Area, south of Wakpala, and a new water treatment plant to serve the entire southern portion of the reservation. Their preferred plan also includes improvements to the existing Fort Yates intake and water treatment plant to serve the northern portion of the reservation. The Wakpala intake and water treatment plant facilities are estimated to cost $23.9 million and the Fort Yates intake and water treatment plant improvements are estimated to cost $2.3 million. The highest priority and first phase of the Wakpala facilities will involve construction of the new intake and raw water pipeline at an estimated cost of $4.5 million to address the immediate low water conditions. The Supplemental Appropriations Act signed on May 27, 2007 appropriated $4.5 million to begin design and construction of the new Wakpala Intake. Designs have been completed and the contract is expected to be advertised and awarded in December 2007. Construction is scheduled to begin in the spring of 2008 and the intake should be operational by the end of the year.

Question. What is the range of costs that we would be considering for a permanent fix?

Answer. The tribes preferred plan to meet the reservation-wide needs, as described above, is estimated to cost a total of $26.2 million. Reclamation has advised the tribe that the Fort Yates well field, with a capacity to meet the needs of the northern portion of the reservation, may be a more reliable option and is estimated to cost $9.2 million. This option at Fort Yates together with the tribes preferred

plan at Wakpala would result in a total cost to secure a reservation-wide water supply of $33.1 million. A new intake and water treatment plant to completely replace the existing Wakpala and Fort Yates facilities and meet the full reservation-wide needs was also evaluated. This alternative would consist of a new intake near the Indian Memorial Recreation Area, a new water treatment plant, storage facilities, and additional transmission pipelines to interconnect the southern and northern portions of the reservation-wide system. This alternative is estimated to cost over $50 million.

Question. Is there work on this that could be undertaken in fiscal year 2007 and fiscal year 2008? Could you provide me with this additional funding amount?

Answer. In fiscal year 2007, work continued on the groundwater investigations in the Fort Yates area. These investigations, including drawdown tests and pilot wells, are expected to be complete in 2008. If the project is found to be feasible and sufficient funds are made available, design and specifications for the $9.2 million project to serve the northern portion of the reservation could begin in fiscal year 2008. Construction of the well field and treatment facilities could start, pending the availability of funds, in the later part of 2008 and extend into 2009. If the Tribe continues to prefer the Fort Yates intake improvement alternative at a cost of $2.3 million, design and construction could be initiated in fiscal year 2008.

Designs and specifications for the $4.5 million replacement intake and raw water pipeline at Wakpala were completed in fiscal year 2007. Construction is expected to begin in the spring of 2008.

Question. Could you provide me with this additional funding amount?

Answer. Sufficient funds are currently available to complete construction of the new Wakpala Intake in 2008. After a final decision is made in early 2008 on the preferred Fort Yates water source, Reclamation will look at the funding needs.

QUESTIONS SUBMITTED BY SENATOR DIANNE FEINSTEIN

SACRAMENTO VALLEY INTEGRATED REGIONAL WATER MANAGEMENT PLAN

Question. The Sacramento Valley Integrated Regional Water Management Plan received $2,000,000 in fiscal year 2006, as well as, an allocation of $1,200,000 in the House reported bill and $2,000,000 in the Senate reported bill during the fiscal year 2007 appropriations process. As you know, preliminary California Department of Water Resources' study results suggest Sacramento Valley's groundwater formations may offer, as much as, several hundred thousand acre-feet in additional water supplies for agricultural, environmental, and municipal uses. The funds approved by the committees in fiscal year 2007 are needed to continue the efforts begun in fiscal year 2006 to better characterize the process for groundwater recharge of and production from the main groundwater aquifer systems. Do you agree that the work underway in this initiative holds great promise for increasing the available water supply for agricultural, environmental and municipal uses?

Answer. Yes, Reclamation believes the Stony Creek Fan/Lower Tuscan Investigation Project (an element of the Sacramento Valley Integrated Regional Water Management Plan) holds promise for increasing the available supply of water for agricultural, municipal and environmental purposes, by providing additional conjunctive use capability and by laying a foundation for future development of water banking capacity in the Sacramento Valley.

Question. In your fiscal year 2007 work program, will the Bureau of Reclamation support an allocation of $2,000,000, again, the same level approved in the fiscal year 2006 appropriations process, for the Sacramento Valley Integrated Regional Water Management Plan, and, if not, what level of funding is the Bureau of Reclamation recommending for this initiative?

Answer. Reclamation would need a report from the project proponents showing supporting analysis and data demonstrating the potential water supply benefits of this project. In addition, Reclamation assumes that cost-sharing would be a condition of any such funding.

QUESTIONS SUBMITTED BY SENATOR PETE V. DOMENICI

DROUGHT

Question. When do you anticipate the remaining wells will be completed?

Answer. In keeping with the work initiated in 2006, we have completed well drilling for the communities of Las Vegas, Ruidoso, and Ruidoso Downs, New Mexico. Drilling on the well for Capitan, New Mexico, will be completed within weeks. An

equipment breakdown has caused a minor delay. As you know, we were not as successful with the well in Cloudcroft, New Mexico. Although drilling was completed, the quality of the water was not fit for human consumption and the yield was insufficient. Consequently, that well has been abandoned.

Question. Please explain why completion of the wells has taken as long as it has.

Answer. Ruidoso Downs was the only community of the five who had a plan in place. Consequently, it was necessary to procure the services of a contractor for the permitting, design, and monitoring of the wells, along with a well driller. Severe geologic formations, equipment breakdowns requiring competition with oil drillers for the same kind of equipment, and well conditions contributed to the time required for completion.

Question. Is additional funding necessary for their completion?

Answer. No additional funding is required. Funding for the five well projects has been sufficient.

Question. What additional emergency drought activities should the Bureau of Reclamation undertake to address yet another year of devastating drought in the Southwest?

Answer. The Reclamation States Emergency Drought Relief Act of 1991 (Public Law 102–250) as amended, is specific in authorizing the kinds of activities the Bureau of Reclamation can undertake. Public Law 102–250 authorizes the Bureau of Reclamation to undertake drought relief measures through emergency assistance (Title I) and planning activities (Title II). Title I provides for construction, management and conservation measures to alleviate the adverse impacts of drought, including the mitigation of fish and wildlife impacts. Title I also authorizes temporary contracts to make available project and nonproject water and to allow for the use of Reclamation facilities for the storage and conveyance of water.

Reclamation's regional offices will identify and prioritize specific projects to be undertaken with drought program funding. Reclamation staff understands the on-the-ground impact of the drought conditions currently affecting parts of the West, and has the technical expertise to evaluate the priority of projects proposed to cope with those conditions. Projects will be selected for funding based on their priority and the availability of funds.

WATER 2025

Question. Please describe Reclamation's future vision for the Water 2025 program and any necessary authorities needed to implement the program.

Answer. Reclamation envisions the Water 2025 program as a tool to meet the challenge of preventing crises and conflict over water in the West. This is being accomplished through the most effective low-cost options for increasing water supplies that are available, including: (1) water efficiency and conservation; (2) water markets; (3) collaboration; and (4) technology. In order to move forward, Reclamation needs Water 2025 program authority. On April 13, 2007, the administration transmitted a draft bill titled Reclamation Water Management Improvement Act that would authorize the Water 2025 program.

Question. Please describe the major accomplishments of the Water 2025 after its 4 years of existence.

Answer. Since the inception of the program, the Water 2025 program has experienced many achievements that assist water managers in stretching scarce water supplies, thereby reducing the likelihood of conflicts over water.

Over 122 Challenge Grants in 17 western States have leveraged $25.5 million in Federal funding with local partnerships into $96 million in water management improvements. In 2007 alone, Secretary Kempthorne announced $9.2 million in Water 2025 Challenge Grants, targeting 44 new projects across the Nation that will conserve water resources and modernize water storage and delivery systems.

The projects selected for award through the Challenge Grant program incorporate the following improvements:

—Forty-two of the projects, collectively, will convert 134 miles of earthen canals to pipeline.

—Seventy-four of the projects include installation of water measurement devices, Supervisory Control and Data Acquisition (SCADA) systems and automated water delivery systems.

—Thirty-six of the projects include water marketing plans.

—The 122 projects, upon completion, will save approximately 400,000 acre-feet per year.

In fiscal year 2008, Reclamation initiated a process to provide System Optimization Review grants, which are intended to fund a broad analysis of system-wide efficiency rather than project-specific planning. The final product of each grant will be

a report with a plan of action that focuses on improving efficiency and system operations on a regional or basin perspective.

Question. Specifically, how have funds that have been appropriated for the program reduced conflict amongst water users?

Answer. To date, 16 projects are complete. Each Water 2025 project results in water better managed or saved and collaborative relationships developed that will reduce crisis and conflict over water in the west. Below are some specific examples.

—In Lewiston, Idaho, the Lewiston Orchards Irrigation District—serving 18,000 customers—will save 450 acre-feet per year as a result of a Water 2025 project. The saved water will reduce the impact from a settlement with the Nez Perce Tribe over instream flows in the Sweetwater Creek.

—The Central Oregon Irrigation District, a fiscal year 2004 and fiscal year 2006 Challenge Grant recipient, established a water bank in the Deschutes Basin and formed an alliance of seven irrigation districts, six cities, three tribes and the Deschutes Resource Conservancy (the "Deschutes Water Alliance" or the "Alliance").

—In Utah, the Sevier River Water Users Association, a partnership of canal companies and river commissioners, used their fiscal year 2005 Challenge Grant to enlarge the existing Supervisory Control and Data Acquisition (SCADA) system to allow for expansion of real-time monitoring and control systems in a five-county area.

—A fiscal year 2005 Challenge Grant to the Yuma County Water User's Association will save 8,500 acre-feet per year that benefit the junior water users of the Central Arizona Project, which serves fast growing metropolitan areas. The 8,500 acre-feet per year is enough to serve approximately 25,000 households.

MIDDLE RIO GRANDE PROJECT

Question. The USBR is tasked with providing water in order to comply with the Fish and Wildlife Service's 2003 Biological Opinion. However, it is unclear where the USBR will obtain this water once the Albuquerque-Bernalillo County Water Utility Authority begins diverting its allocation of San Juan-Chama Project water. The President's fiscal year 2008 USBR budget proposes a 17 percent decrease to the Middle Rio Grande Project from fiscal year 2006 enacted levels. Additionally, the needs in the basin are increasing dramatically, including:

—Repairs on high-priority irrigation system levees;

—Meeting Endangered Species Act requirements;

—Developing an intergraded management plan; and

—Modernizing stream gagging.

At the same time, the administrations fiscal year 2008 request is 17 percent below the fiscal year 2006 budget for the Middle Rio Grande Project.

How can the Bureau of Reclamation meet all these increasingly important obligations with a decrease in Federal spending?

Answer. For fiscal year 2008 the request for priority site levee maintenance of $10,195,000 is more than what was enacted in fiscal year 2007 ($7,382,000) and should be sufficient to continue repairs. In developing its budget request, Reclamation anticipated funding contributions from Federal partners for the non-water ESA activities of the Collaborative Program such as minnow rescue, species and water quality monitoring and research, and habitat planning, construction, and monitoring activities.

Question. Does the Department of the Interior support authorization of the Middle Rio Grande Endangered Species Collaborative Program?

Answer. Yes, DOI supports the authorization of the Middle Rio Grande Endangered Species Collaborative Program. The success of the Program will depend on the non-Federal and other Federal partner contributions in addition to Reclamation.

Question. San Juan-Chama Project water cannot be used for meeting the requirements of the ESA unless it is acquired by a "willing seller or lessor." If water cannot be acquired from project contractors, where do you anticipate you will get the water to meet the requirements of the ESA in 2008?

Answer. Some San Juan-Chama Project water will be available for Reclamation to lease on a voluntary basis in 2008. Most of the supplemental supply that will help meet Biological Opinion flow requirements is previously leased SJ–C water that is still in storage. In addition, operational flexibilities by the Middle Rio Grande Conservancy District, U.S. Army Corps of Engineers contribution to silvery minnow spawning/recruitment flows, and other voluntary contributions will collectively assist in meeting ESA requirements.

Question. What are you doing to address this potential problem?

Answer. Reclamation in cooperation with the Collaborative Program stakeholders is working on development of a sustainable biological opinion which will contain shared responsibilities for water management among all of the stakeholders.

TITLE XVI

Question. Secretary Limbaugh, You requested $11 million for Water 2025 in your budget. How do you reconcile requesting funding for this unauthorized program when you have so many unmet authorized needs in the Title XVI program?

Answer. The Water 2025 program is a high priority program to address the critical need for funding to prevent crises and conflicts over water in the West. Through the Water 2025 program, the $11 million requested will result in over $40 million of water infrastructure investment. The Bureau of Reclamation must balance competing priorities for funding within the Federal Government and within Reclamation. Reclamation's budget reflects this balance.

Question. How much did you provide for these projects in your budget?

Answer. The overall fiscal year 2008 budget request for the Title XVI Water Reclamation and Reuse Program is $10.1 million and provides $9.3 million in funding for nine authorized projects, including eight construction projects and one desalination demonstration project. The funding level reflects Reclamation's balance of the many competing priorities for funding within the Federal Government and within Reclamation.

Question. Why is this program so unpopular?

Answer. The administration continues to support the Title XVI Water Recycling and Reuse Program when it is focused on using Federal funds to develop innovative ways to recycle or reuse water and to construct projects that will help alleviate water crises or shortages in the West. Budget requests reflect a priority of completing those projects that have already been authorized for construction.

Question. Is there anything Congress can do to modify this program to make it more likely to be funded?

Answer. Public Law 102–575, Title XVI, as amended, gives Reclamation ample authority to investigate and identify opportunities for reclamation and reuse of wastewater and to conduct research for the reclamation of wastewater and naturally impaired ground and surface waters. In making its budget requests, Reclamation has placed priority on meeting funding obligations for projects authorized in previous years.

QUESTIONS SUBMITTED BY SENATOR LARRY CRAIG

LOAN GUARANTEE

Question. Can you please describe in more detail the new loan guarantee program? For instance, what kinds of strings are attached to these loans and what kind of interest rates and loan duration?

Answer. Title II of Public Law 109–451 provides the Secretary of the Interior authority to issue loan guarantees to assist in financing rural water supply projects; extraordinary maintenance and rehabilitation of Reclamation project facilities; and improvements to infrastructure directly related to a Reclamation project. Borrowers would apply for a loan from private lending institutions as defined in the statute. Interest rates for the guaranteed portion of the loan would not exceed a level that the Secretary determines to be appropriate with consideration of the private sector prevailing rate. For example, the Federal funds rate or higher. Loans may be provided for terms of up to 40 years. The Bureau is continuing to address the administrative requirements and the potential benefits of the program. We will keep the Committee informed of our progress.

MINIDOKA SPILLWAY REPLACEMENT

Question. I'm concerned with what is occurring at the Minidoka Dam in Idaho. This is an aging dam that wasn't built to standard. This project supplies water for a lot of farmers, and assessments are already fairly expensive. Now the Bureau wants to replace the dam structure, leaving the irrigation district with a $10 million plus bill to pay back in about 3 years. Is this a situation where the loan guarantee can help or is there another way we can keep from bankrupting these farmers?

Answer. Minidoka dam was built to the standards of the day in 1906. The structure has been modified three times to provide additional benefits such as power generation and flood control. After over 101 years of service, the spillway portion of the dam is in need of replacement. Over the past 10 years, Reclamation has endeavored to address these concerns including repayment options with the appropriate Dis-

tricts. As you are aware, the Rural Water Act of 2006 (Public Law 109–451), was enacted on December 22, 2006. Among other things, this law directs the Secretary of the Interior to promulgate a regulation prior to issuing loan guarantees. Instead of relying on a loan guarantee, the districts have the option of raising their water assessments to users, thus giving them the adequate funds to begin construction or acquire non-Federal funding.

QUESTIONS SUBMITTED BY SENATOR KAY BAILEY HUTCHISON

DESALINATION RESEARCH

Question. I am interested in the process and the schedule the administration will undertake to develop both a short and long-term strategy within your desalination research program for a viable R&D program that will enable communities to utilize saline aquifers.

Please describe what the guiding principles/goals of the program would include.

Answer. Over the past 10 years, as the demand for water quality and water quantity has increased, desalination technologies have improved and costs have been reduced. More and more western rural and larger communities are implementing groundwater desalination facilities to augment their water supplies. Reclamation believes there are opportunities to further reduce the hurdles that limit the wide use of existing technology, such as the problems of inland concentrate management, and high energy consumption.

Within this setting, Reclamation's vision is to provide opportunities that expand water supplies in a sustainable manner for western rural communities, Native Americans, and the western basins supporting Reclamation projects. Our goal is to advance the state of the art in high risk, applied research and development to reduce the cost of treating impaired waters, consistent with the administration's R&D investment criteria, and to use partnerships to accelerate the implementation of improved technology.

Question. Please describe which broad BOR mission areas would be supported by the desalination research.

Answer. The research serves our broad mission of increasing the usable water supplies for Reclamation projects, rural communities, and Native Americans.

Question. What portion of the funds do you intend to provide for in-house research vs. extramural grants?

Answer. Reclamation's R&D request for desalination research conducted in-house consists of about $1 million through the Science and Technology Program and an additional $680,000 through the Colorado River Basin Salinity Control Project (Title I). Reclamation's request for extramural desalination research consists of about $2.3 million through the Desalination and Water Purification Research Program and an additional $500,000 through the Water Reclamation and Reuse Program (Title XVI).

Question. Please describe how you intend to coordinate with other Federal/State/local and commercial entities within the desalination research program.

Answer. Reclamation has contracted with the National Academy of Sciences (NAS) to provide a contemporary assessment of the potential for desalination technologies to meet current and future water supply needs. The NAS report will also recommend appropriate roles for the Federal Government, private sector, State, and local communities in pursuing future research.

The report was slated for completion in December 2007. By mid-2008, Reclamation plans to evaluate the NAS findings and update Reclamation's research strategies as appropriate. We will continue to work within existing water research coordination forums such as the Subcommittee on Surface Water Availability and Quality within the White House Office of Science and Technology, interagency groups such as the Interagency Consortium for Desalination Research and the Multi-State Salinity Coalition, as well as research and industry associations such as the American Membrane Technology Association, the International Desalination Association, the WateReuse Foundation, and the International Water Association—North American Membrane Research Conference.

BUREAU OF RECLAMATION—GILA RIVER SETTLEMENT

Question. Please explain why USBR funds for participating in this process are not included in the fiscal year 2008 budget.

Answer. Reclamation's fiscal year 2008 budget request does include $250,000 within the Colorado River Basin Project-Central Arizona Project item to continue collecting and evaluating necessary preliminary environmental data to assist the State of New Mexico in deciding whether to build a New Mexico Unit. Current ef-

forts focus on supporting New Mexico's collaborative efforts to create a planning process for evaluating the best use of potential withdrawals and funding provided under the Central Arizona Project, as modified by the Arizona Water Settlement Act, for the southwestern planning region of New Mexico.

Question. How do you respond to the claim that the USBR and Fish and Wildlife have been less than cooperative in participating in the development of an environmental assessment?

Answer. Reclamation is an active participant in the state of New Mexico decisionmaking process and has been since the Arizona Water Right Settlement Act was passed. A formal environmental assessment under NEPA and other environmental compliance activities including those under the Endangered Species Act will be performed when specific alternatives are proposed. Based on New Mexico's process for finalizing their decision to the Secretary by 2014, we anticipate the evaluation of alternatives and associated environmental compliance activities to begin in approximately 2010.

Reclamation is an active participant in the State of New Mexico's decisionmaking process and has been since the AWSA was passed. Both Reclamation and FWS signed a Memorandum of Understanding with the New Mexico Interstate Stream Commission, the Southwest New Mexico Water Planning Group, and the New Mexico Office of the Governor in March 2006 creating the Gila-San Francisco Coordinating Committee (GSFCC) to collaboratively evaluate the environmental effects of potential water withdrawals. Reclamation is a member of the GSFCC, one of the co-chairs of the Technical Subcommittee, a member of the Public Involvement Subcommittee, a member of Sandia National Laboratories decisionmaking model development team to assist in regional planning efforts, and an active participant in other collaborative efforts including the Gila Science Forums.

Question. How do you plan to improve the Department's participation in the development of an environmental assessment?

Answer. Reclamation is identified as the lead agency for environmental compliance with New Mexico as joint lead if they so request. In this role, Reclamation will continue to actively participate in all activities associated with the New Mexico Unit of the Central Arizona Project under the terms of the Arizona Water Settlements Act, and with the Gila-San Francisco Coordinating Committee and other committees as appropriate as New Mexico works through the collaborative decisionmaking process to determine the viability of a New Mexico Unit and other water utilization alternatives to meet water supply demands in the Southwest Water Planning Region of New Mexico. The Fish and Wildlife Service's support of Reclamation's environmental compliance activities is a key element in successfully fulfilling Reclamation's role.

RURAL WATER

Question. What is the status of the USBR development of eligibility criteria that are due no later than December 22, 2007?

Answer. Public Law 109–451, the Rural Water Act of 2006 (the "Act"), requires Reclamation to develop three sets of criteria to implement the Rural Water Program, within specified timeframes. The criteria include eligibility and prioritization criteria, which are due within 1 year after enactment of the Act; criteria for the evaluation of appraisal investigations, due within 1 year after enactment; and criteria for the evaluation of feasibility studies, due within 18 months after enactment. Based on the language in the Act, Reclamation has determined that it is required to follow the rulemaking process in the Administrative Procedures Act in developing the criteria. Instead of conducting three separate rulemakings, Reclamation will include all three sets of criteria in a single rule. We believe this is a more timely and efficient option than conducting multiple rulemakings. However, because of the specific procedural requirements associated with the rulemaking process—which includes a 60-day public comment period—Reclamation will not be able to publish the rule by December 22, 2007. Reclamation has developed a comprehensive draft of the rule, which includes all three sets of criteria. The draft rule is being reviewed internally, and we expect to publish it as an Interim Final Rule in the summer of 2008.

Question. When does the USBR anticipate initiating the assessment of rural water needs?

Answer. Section 104 of Public Law 109–451 requires the Secretary, in consultation with several other Federal departments and agencies, to undertake a comprehensive assessment of rural water programs and activities, to be completed by December 2008. Reclamation has begun this effort and expects to have the Assessment completed by the December 2008 deadline.

LOAN GUARANTEE

Question. What progress has been made in implementing the loan guarantee program authorized under title II?

Answer. The Bureau is continuing to address the administrative requirements of the program including proposed rules and eligibility requirements. We will keep the Committee informed of our progress.

QUESTIONS SUBMITTED BY SENATOR WAYNE ALLARD

Question. There is potential that projects will be forced to return O&M to Reclamation when they cannot fund necessary replacement. Should this happen, how will Reclamation address problems at projects that fail?

Answer. Reclamation continues to proactively seek assistance for responsible operating entities to be able to fund necessary replacements of project facilities and avoid the return of facilities to Reclamation for operation.

Reclamation works with the local operators of our facilities to provide recommendations to reduce the risk of failure and to keep those facilities operable. However, if such entities are unable to afford the full cost of operation, maintenance and replacement (OM&R) of the facilities, then Reclamation has a limited set of options. If the entity cannot meet its OM&R responsibility (to fund necessary rehabilitation work), as stated in the provisions of its contract, Reclamation would have the option of reassuming the OM&R responsibility of the project facilities and billing the entity for all associated OM&R costs. In the extreme, Reclamation could choose to stop operation of the facility indefinitely and minimize OM&R costs for the local beneficiaries.

Question. Does it not make sense for the Bureau to assist these projects before failures actually occur?

Answer. In accordance with Reclamation law and contractual arrangements, Reclamation cannot directly provide financial assistance to the responsible operating entities in the OM&R of these project facilities. However, through its existing oversight and administrative activities, Reclamation can and will continue to provide some limited engineering and technical support in maintaining these project facilities for delivery of authorized project benefits. Additionally, Reclamation has been actively involved in seeking financial assistance for these entities.

Question. Some Bureau projects utilize an off-river reservoir which depends largely on "connecting structures"—often a canal system—to get water in and out of the reservoir. At such projects, without the canals, the dam would be useless and unnecessary. Why does the Bureau of Reclamation seem to place lower importance on these connecting structures even though they are a vital part of the project itself?

Answer. Historically, since 1948, Reclamation has consistently provided formal, routine condition assessments/inspections of all such "connecting structures" under Reclamation's "Review of Operation and Maintenance Program." Reclamation is acutely aware of the operational importance of these canal systems and structures to convey and deliver project benefits, whether it is to a dam/reservoir or directly to a canal distribution system. However, high- and significant-hazard dams, which have the potential to cause loss of life or significant property damage should they fail, receive a deservedly higher level of condition assessment attention.

Question. Given geographical and geological uniqueness and varied construction dates I find it difficult to believe all Bureau of Reclamation projects are identical. Is it the opinion of the Bureau of Reclamation that all repayment contracts include "replacement" even when it is not stated in the contracts?

Answer. All Reclamation projects are indeed not identical, as you state. However, Reclamation laws and authorities do provide a generally consistent way in which to administer contracts relative to these projects and related O&M of these facilities. Under the terms of O&M contracts (not repayment contracts) with operating entities and project beneficiaries, replacements and rehabilitation are considered "maintenance." Within the context of managing Reclamation's infrastructure, the O&M of project works involves a wide range of activities. These O&M activities encompass those actions necessary to achieve continued structural integrity and operational reliability in delivering authorized project benefits. Maintenance tasks include major repairs, rehabilitation, and equipment/facility replacements and additions.

Question. I would like to ask that you answer this question to my office in writing, as a follow-up to this hearing: What is the Bureau of Reclamation's official definition of "operations and maintenance" and "operations, maintenance and replacement"?

Answer. Within the context of managing Reclamation's water and power infrastructure, the operation and maintenance of project works involves a wide range of

activities. These operations and maintenance activities encompass those actions necessary to achieve continued structural integrity and operational reliability in delivering authorized project benefits. Additionally, as stated in Reclamation's "Report to the Congress, Annual Costs of Bureau of Reclamation Project Operation and Maintenance for fiscal years 1993–97," dated September 1998, "the most visible maintenance tasks are the major repairs and rehabilitations, equipment and facility replacements, and facilities additions that are accomplished at every project over time." As such, the "maintenance" term includes "replacements" and, therefore, the definitions for both "operations and maintenance" and "operations, maintenance, and replacement" are considered to be synonymous. Similarly, for contract administration purposes within Reclamation, replacements have always been included as part of maintenance responsibilities and costs.

DROUGHT

Question. Commissioner Johnson, what are the drought conditions in the west like today?

Answer. All of Reclamation's 17 western States are experiencing some level of drought conditions ranging in intensity from abnormally dry to extreme. Areas of concern include the southern third of California through Arizona which has experienced rainfall under 50 percent of normal over the past 60 days. In the upper portion of the Great Plains including portions of North and South Dakota, drought conditions are spreading. Much of the West is experiencing above normal temperatures.

Question. Commissioner Johnson, How much funding could you utilize for the remainder of fiscal year 2007 and early fiscal year 2008 for drought assistance?

Answer. The funding provided in the supplemental appropriations, U.S. Troop Readiness, Veterans' Care, Katrina Recovery, and Iraq Accountability Appropriations Act, 2007, Public Law 110-28, May 25, 2007, is sufficient for the needs of the Drought program.

Question. Commissioner Johnson, how much funding could you utilize for the remainder of fiscal year 2007 and early fiscal year 2008 for drought assistance?

Answer. The funding provided in the supplemental appropriations, U.S. Troop Readiness, Veterans' Care, Katrina Recovery, and Iraq Accountability Appropriations Act, 2007, Public Law 110–28, May 25, 2007, is sufficient for the needs of the Drought program.

LOAN GUARANTEE PROGRAM

Question. I have noticed in your budget that you are providing $1 million to initiate implementation of the Loan Guarantee Program for rural water projects. As more than half of your projects are more than 50 years old, I expect that this program has raised considerable interest in the West. How do you envision this program working?

Answer. The law provides authority to issue loan guarantees for three categories of projects: (a) rural water supply projects; (b) repair and rehabilitation of Reclamation facilities; and (c) improvements to water infrastructure directly related to Reclamation projects.

The Bureau is continuing to address the administrative requirements and the potential benefits of the program. We will keep the committee informed of our progress.

Question. What will be the eligibility criteria?

Answer. Eligibility criteria, developed through the formal rulemaking process, would include factors such as financial capability for repayment, engineering need and feasibility, historical diligence in performing routine operation and maintenance, environmental impacts, and efficiency opportunities.

Question. Will this solve the recapitalization problems for many of the older projects in the West?

Answer. This would not likely solve the recapitalization problems of older projects in the West, but will be a valuable tool to assist in meeting this challenge.

Question. Will this serve the small water districts?

Answer. Yes, smaller water districts would be an important focus of the program.

SUBCOMMITTEE RECESS

Senator DORGAN. I thank all of you for being here. I'm sorry about the brevity but I must now go run and catch this vote. This hearing is recessed.

[Whereupon, at 4:04 p.m., Thursday, March 15, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2008

WEDNESDAY, MARCH 21, 2007

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

The subcommittee met at 2:03 p.m., in room SD–138, Dirksen Senate Office Building, Hon. Byron L. Dorgan (chairman) presiding.

Present: Senators Dorgan, Murray, Domenici, Craig, and Allard.

DEPARTMENT OF ENERGY

OFFICE OF SCIENCE

STATEMENT OF HON. RAYMOND L. ORBACH, DIRECTOR

OPENING STATEMENT OF SENATOR BYRON L. DORGAN

Senator DORGAN. The hearing will come to order. This is the Senate Appropriations Committee, the Subcommittee on Energy and Water Development. We are reviewing today the fiscal year 2008 budget request for the Department of Energy's Office of Science. Mr. Orbach, we welcome you. Thank you for being here.

The proposed budget for the Office of Science is $4.397 billion. That represents 18 percent of the Department of Energy's total budget and an increase of $600 million above the Office of Science's budget in the year 2007.

Mr. Orbach, perhaps sometime you can whisper to us the secret of your relationship with OMB, that you come here with a proposed $600 million budget increase. You, indeed, are a rare species in this coming fiscal year. However it happened, though, we think this is a good outcome. We're committed to improving our Nation's ability to compete in the ever-changing global market place and we recognize that we have to improve our Nation's capabilities in mathematics and the sciences if we're going to continue to lead the way in innovation.

This is particularly true in the physical science fields, where the Department of Energy is the leader among Federal agencies. In the future our country will have to maintain leadership in innovation and development and the Office of Science will be one of the keys in our success in doing that.

A substantial increase in funding raises some different questions than when programs face significant decreases. But underlying both circumstances is the basic question of whether there is a plan

to accommodate the change in funding and, if so, what is that plan? A doubling of funding over 9 years, for example, is an admirable goal, but we have to make sure there exists a plan that meets a defined goal.

Further, we have to have a plan to maintain our base infrastructure in order to take advantage of investments in new instruments and new facilities. It's not enough to make investments in new instruments and facilities here at home, or in partnerships abroad, if we don't maintain our base programs and facilities.

So the Office of Science is exploring the development of a number of new projects that also could have significant future costs, significant costs if taken to construction. And we need to know that out year budgeting will assume, or is assuming the construction, operation, and the research cost associated with each of those projects.

So, Dr. Orbach, thank you for your work. I look forward to hearing your testimony. But, first, I will turn to my colleagues for any opening statements they have.

Senator Domenici.

OPENING STATEMENT OF SENATOR PETE V. DOMENICI

Senator DOMENICI. Thank you very much.

We're moving in a direction—this small office becoming a very large and powerful one. Maybe it can stay small and be powerful and you've alluded to how that might be done in early parts of your comments. But, in any event it's going to have a much bigger impact, somewhere, somehow, that seems quite obvious to me.

I think you would be interested to know that Chairman Bingaman and I introduced an amendment to the budget resolution to increase funding for science research by $1 billion. In addition to fully funding the President's budget request, it also adds funding to funds like the America Competes Act. Mr. Chairman, I hope that you will look at this amendment.

Dr. Orbach, you have had a very important job. It is your responsibility to challenge our labs with new and exciting scientific goals, as well as making investment in facilities and infrastructure to ensure U.S. leadership. The Energy Policy Act included a provision elevating your position from Director to Under Secretary to give you responsibility to set the science policies for the labs, including all of the NNSA facilities. And you will note that, the labs continue to support the best science in the world. Unfortunately, the funding provided by the Office of Science to these labs remains disproportionately low. The NNSA labs have great facilities that have been exclusively tools of the weapons program that should be incorporated into the Office of Science programs. Facilities, such as the Z machine and the MESA at Sandia will be open to tremendous new research opportunities to scientists and must be thought of as national user facilities.

I understand that you are making some progress to develop a multi-agency board that will develop a high energy density plasma program consistent with the direction that I included in the 2006–2007 Energy and Water bills.

I want you to know that I appreciate this bill. I still expect to see a viable research program that supports non-weapons research on facilities like NIF and Z. I would also like to remind you of the

tremendous computational capability and experience at the NNSA labs. As you know, it was the NNSA stockpile stewardship mission that fostered the undeveloped, high performance computing architecture that enabled this country to be the world leader in computing. Unfortunately, I don't believe the Department has dedicated sufficient resource, nor demonstrated its commitment to developing the next generation of architecture that will enable our country to sustain its world leadership in this field.

Finally, let me say that I believe we need to work hard to address our climate challenges, and science will play a critical role in this, I believe. And, I believe we have two paths to reduce the man-made greenhouse gas emissions. And unless we pursue both, we won't be effective at all.

First, of course, is to reduce our dependence on foreign oil with biomass and alternative energy as well as developing low emission energy sources such as nuclear power. Implementation of EPACT and the American Competitiveness Initiative will ensure we are on the right path.

The second is to ensure that large, fast growing economies like China and India adopt these same technologies. We need to join with these countries as full partners to ensure that technology development and adoption occurs. Without it, we won't be successful. I'm committed to developing a full partnership with China and India, but they need to recognize that this isn't a free ride. It is a partnership. They need to dedicate the resources to solving this problem.

Thank you, Mr. Chairman.

[The statement follows:]

PREPARED STATEMENT OF SENATOR PETE V. DOMENICI

Dr. Orbach, it is a pleasure to welcome you back to the subcommittee. I am pleased with the fiscal year 2008 budget request for the Office of Science because it continues to support objectives provided for in EPACT and sustains the President's commitment to double funding for basic science research over the next decade.

This research is vital to our economic competitiveness and our ability to reduce our dependence on foreign energy, including solving some of the long term R&D challenges associated with solar, biomass, hydrogen and nuclear power.

Dr. Orbach, you have another important responsibility and that is to challenge our labs with new and exciting scientific goals as well as making investments in facilities and infrastructure to ensure U.S. leadership.

The Energy Policy Act included a provision elevating your position from Director to Under Secretary to give you the responsibility to set the science policy for all the labs, including NNSA facilities.

As you well know, NNSA labs continue to support some of the best science in the world and have been recognized with Nobel prizes, E.O. Lawrence Awards and dozens of R&D 100 Awards. Unfortunately, the funding provided by the Office of Science remains disproportionately low.

The NNSA labs have great facilities that have been the exclusive tools of the weapons program that should be incorporated into the Office of Science research programs. Facilities such as the Z machine and MESA at Sandia will open up tremendous new research opportunities to scientists and must be thought of as national user facilities.

I understand that you are making some progress to develop a multi-agency advisory board that will develop the high energy density plasma program consistent with the direction that I included in the fiscal year 2006 and fiscal year 2007 Energy and Water bills.

I want you to know that I appreciate this effort, but I still expect to see a viable research program that supports non weapons research on facilities like NIF and Z.

I would also like to remind you of the tremendous computational capability and experience at NNSA labs. As you know, it was NNSA's Stockpile Stewardship mission that necessitated the development of the current high performance computing architecture that has enabled this country to be the world leader in computing.

As a result, this has also enabled the Office of Science to deploy some of the fastest computers in the world at Oak Ridge, Berkeley and Argonne National labs.

Unfortunately, I don't believe the Department has dedicated sufficient resources, nor demonstrated its commitment to developing the next generation architecture that will enable our country to sustain its leadership in this field.

We continue to have two separate computing programs and this budget diverts resources to DARPA to support a separate R&D program. That must change.

These problems can be solved, but it will force the Office of Science and NNSA to work together on improving scientific research at all of our labs.

Dr. Orbach, I hope I can count on your support to breakdown the walls of bureaucracy to solve this problem.

Thank you, Mr. Chairman.

Senator DORGAN. Senator Craig.

STATEMENT OF SENATOR LARRY CRAIG

Senator CRAIG. Mr. Chairman, I'll be brief. Mr. Secretary, thank you, for being here and thank you for coming to the Idaho lab, the INL, last August. We appreciated your presence there, and I am told you left impressed with the resource and the talent that is available. We have some phenomenal assets and when I'm sitting here listening to Senator Domenici, I'm thinking about the old admonishment in front of the United Nations, "swords into plow shares." And, the ability for us to use these phenomenal laboratories that were once, in part, related to the cold war, some of them more so than others.

Now with assets that they have, that were once for war, can not only be made for peace, but we've already begun to use the tremendous capabilities and talents that are there for those purposes. We have, at our laboratory, some of those unique resources, as you know, the advanced test reactor, the ability to relate it, not just to a Federal mission, but to private and quasi-public relationships, I think is extremely valuable. It is a national asset, unique in many ways, that—something I'll discuss with you later on in questioning, but making it a user facility, I think, becomes increasingly important as we work with and—I was just visiting with Clay Sell today and Dennis Spurgeon. New partnerships between the Federal Government and the private sector. The Federal Government used to be this great black box and DOE especially, into which all things went, especially money.

Today we have phenomenal demand for what can be produced. We don't have the resources, unless we partner and we leverage with the private sector. Not just our private sector, but the world's private sector. Because most of what we want to do needs to be very transparent and available to the rest of the world, whether it's clean energy sources, whether it's human health, and all of those types of things. I'm pleased to see that we're focusing. We've spent a lot of money, appropriately so directed at, by the biological sciences over the last decade. Now I think it's time we pony up on the physical sciences because they're merging out there in a way that probably we could never predicted a decade ago. And, in that is great opportunity.

Thank you.

Senator DORGAN. Senator Allard.

STATEMENT OF SENATOR WAYNE ALLARD

Senator ALLARD. Mr. Chairman, thank you for holding this hearing. And, welcome, Mr. Secretary. As you know, Mr. Chairman, you and I are co-chairmen of the Senate Renewable Energy and Energy Efficiency Caucus. And, I represent a State, which, we have the National Renewable Energy Laboratory. They're doing a lot of good work. They're working on basic technologies, moving those into the marketplace. I think that's a proper focus. And as a scientist, myself, I consider myself an applied scientist. Being a veterinarian, I understand how good basic research has to be done in order for me as a veterinarian, to be able to take care of the livestock industry, or pet animals, whether it's working for the CDC Lab, or FDA, or whatever. And, it all comes down to a lot of good basic research that has to be done.

I note that the Office of Science is the primary agency in the Federal Government in energy-related basic research. I think this a very important distinction that should be pointed out. While basic scientific research is the basis for applied sciences and leads to scientific advancement, it is often not profitable, so industry struggles to invest in basic research. This is where the government comes in, by funding basic research. It is picked up by industry and the advanced science communities.

I've had time to go and visit many of our laboratories, been out to Lawrence Livermore, been to Sandia Laboratory that Senator Domenici mentioned, Los Alamos Lab, and have been following much of the research in MOx Plus, for example. And, I feel that this is where it all starts.

We heard a presentation this morning from Ron Sega who was talking about our satellite program. He talked about his cycle of development. It all starts with good scientific basic research. And then you develop it to applied, then you get your prototype level, and then you get into the production stage. And, so I really can't stress how important I think your job is and responsibilities are.

More attention today is being focused on clean energy and energy efficiency technologies due to ever-increasing supply constraints and demand increases, diversification of our energy portfolios becoming more important than ever. This means the development of alternative energy sources is also more important than ever. Renewable energy is a very important way that we can begin to reduce the demand for oil, and thereby help to make our country more secure. Research and the input of both government and industries are very important allowing these opportunities to live up to their potential.

We must continue to provide incentives for the implementation of renewable technologies and for the infrastructure necessary to support these renewable sources. These technologies are a necessary step in balancing our domestic energy portfolio, increasing our Nation's energy security, and advancing our country's technological excellence.

So, I look forward to working with the committee to ensure research and development, in all fields of energy technology, are funded in a manner that is responsible, but sufficient to ensure

that the development and implementation of new technologies continues.

Thank you, Mr. Chairman.

Senator DORGAN. Senator Murray.

STATEMENT OF SENATOR PATTY MURRAY

Senator MURRAY. Mr. Chairman, thank you to you and Senator Domenici for having this important hearing. I think the Office of Science is very important and investment in research and development is obviously critical. Dr. Orbach, I'm glad to see you again. This hearing gives us another opportunity to talk about the Capability Replacement Laboratory for PNNL. This project is a top priority for the lab and I have a couple of questions regarding the funding for that project. As you know there were no funds in the fiscal year 2007 budget request but Congress added $10 million to the Office of Science for the effort. I was pleased to hear from you recently that the additional $10 million would be included in the fiscal year 2007 work plan. However, I understand that funding is being held in reserve and can't be utilized until OMB approves the third party financing package. I also understand the fund requested in the fiscal year 2008 budget will also be held in reserve pending OMB approval.

Would you share with the committee what you intend to do to prevent delay of this critical project?

Senator DORGAN. Senator, actually, Mr. Orbach has not yet given his opening statement.

Senator MURRAY. Oh, I apologize. I came in late and didn't realize we had not heard Dr. Orbach's opening statement.

Senator DORGAN. I would like to give him the opportunity to give his opening statement.

All right. Thank you very much.

Senator Cochran has submitted a statement that he would like placed in the record.

[The statement follows:]

PREPARED STATEMENT OF SENATOR THAD COCHRAN

Mr. Chairman, I am pleased to join you in welcoming the Under Secretary for Science, Dr. Raymond Orbach. I am pleased that we were able to increase the budget for the Office of Science under the Continuing Resolution for fiscal year 2007.

As Under Secretary for Science and Director of the Office of Science, Dr. Orbach has had the responsibility of overseeing research and development at 17 national laboratories across the country, including both the National Nuclear Security Laboratories and the Office of Science Laboratories. I am pleased that the fiscal year 2008 budget includes funding to continue the American Competitiveness Initiative, a program that has become increasingly important to our scientific community in America.

Of particular interest to me is the Basic Energy Sciences program which supports the Advanced Energy Initiative and biomass production research. Mississippi has much to contribute in the emerging biomass arena, and it is my hope that the universities and scientists in Mississippi might work with your researchers in the Office of Science to further develop this field.

It is a pleasure to welcome you to the committee. I look forward to hearing your testimony.

Senator DORGAN. Secretary Orbach, thank you very much. Please proceed. Your entire statement will be a part of the permanent record, and you may summarize.

STATEMENT OF HON. RAYMOND L. ORBACH

Dr. ORBACH. Thank you, Chairman Dorgan, Senator Domenici, members of the committee. And, indeed, I will answer those questions.

I'm very grateful. Thank you for this opportunity for me to present the President's fiscal year 2008 budget request for the Department of Energy's Office of Science.

As some of you noted, we are the primary agency in the Federal Government for energy-related basic research. Our office interfaces with the Department's applied research and defense programs upon which our Nation relies for both energy security and national defense. Our goal is to underpin the applied research programs with the finest basic science and, at the same time, to energize our basic research with the insights and opportunities that come from advanced applied research.

Transformational basic science discoveries are essential for the success of the Department's efforts in such renewable energy sources as hydrogen, solar power, and bio-fuels. And in electrical energy storage, which is critical for many renewable energy sources because they are intermittent. We are one department and we have been working very hard to strengthen the relationship between the Department's basic and applied research programs.

Let me say a few words this afternoon about the critical role that basic science plays in addressing our Nation's energy challenge and the role of the Office of Science. First, cellulosic ethanol. To make this bio-fuel truly cost effective, we must produce ethanol from cellulose efficiently. The problem is that the lignins surrounding the cellulose in plants inhibit currently available enzymes from breaking down the cellulose to sugars that then are fermented into ethanol.

The Office of Science will be deploying three new innovative bioenergy research centers, studying both microbes and plants, developing new methods, based on processes actually found in nature, to create the breakthroughs we need.

I can give you an example. Our Department of Energy Joint Genome Institute recently announced in conjunction with the U.S. Forest Service, the identification of the metabolic pathway in a fungus found in the bowels of insects that holds the secret to effective fermentation of the sugar xylose, a key to making cellulosic ethanol cost-effective.

Second, intermittent sources of electricity, such as solar and wind. The key to base-load electrical generation from these intermittent renewable sources is electrical energy storage. In April of this year, we'll be bringing together leading scientists, technologists, and industry at a major workshop to chart a transformational path forward for electrical energy storage. We shall be considering super-capacitors and other innovative approaches based on the latest advances in material science and nanotechnology to change the way we approach electrical energy storage. Solving this problem is a key to enabling renewable energy to make major contributions to electric base-load generation.

These are examples of our mission in the Office of Science. To invest in basic research designed to create transformational break-

throughs for our Nation. Supporting transformational research also means providing cutting-edge scientific facilities through our national laboratories that will allow scientists from universities and the private sector to do the analysis that will give them an advantage over their colleagues in other countries, thereby contributing to American competitiveness. It means educating, training, and sustaining a world-class scientific workforce, thousands strong, 25,500 in our fiscal year 2008 budget in universities and laboratories across our Nation for the sake of our country's future.

PREPARED STATEMENT

We are not doing this in a vacuum. Other nations are increasing their investment in basic research because they know those who dominate science will dominate the 21st century global economy. The President's fiscal year 2008 budget request for the Office of Science totals $4.4 billion, an increase of 15.8 percent or $600 million over the fiscal year 2007 appropriation. It is an important milestone on the path towards doubling Federal support for basic research and the physical sciences over the next 10 years.

And, in my view, an indispensable investment in our Nation's energy security and America's continued competitiveness in the global economy.

Thank you.

[The statement follows:]

PREPARED STATEMENT OF HON. RAYMOND L. ORBACH

Mr. Chairman and members of the committee, thank you for the opportunity to testify today on the Office of Science's fiscal year 2008 budget request. I appreciate your support for the Office of Science and basic research in the physical sciences, Mr. Chairman, and your understanding of the importance of this research to our Nation's energy security and economic competitiveness. I also want to thank the members of the committee for their support. I believe this budget will enable the Office of Science to deliver on its mission and enhance U.S. competitiveness through our support of transformational science, national scientific facilities, and the scientific workforce for the Nation's future.

The Office of Science requests $4,397,876,000 for the fiscal year 2008 Science appropriation, an increase of $600,582,000 over the fiscal year 2007 appropriated level. The fiscal year 2008 budget request for the Office of Science represents the second year of the President's commitment to double the Federal investment in basic research in the physical sciences by the year 2016 as part of the American Competitiveness Initiative. It also represents a continued commitment to maintain U.S. leadership in science and recognition of the valuable role research in the physical sciences plays in technology innovation and global competitiveness.

With the fiscal year 2008 budget request the Office of Science will continue to support transformational science—basic research for advanced scientific breakthroughs that will revolutionize our approach to the Nation's energy, environment, and national security challenges. The Office of Science is the Nation's steward for fields such as high energy physics, nuclear physics, heavy element chemistry, plasma physics, magnetic fusion, and catalysis. It also supports unique components of U.S. research in climate change and geophysics.

Researchers funded through the Office of Science are working on some of the most pressing scientific challenges of our age including: (1) Harnessing the power of microbial communities and plants for energy production from renewable sources, carbon sequestration, and environmental remediation; (2) Expanding the frontiers of nanotechnology to develop materials with unprecedented properties for widespread potential scientific, energy, and industrial applications; (3) Pursuing the breakthroughs in materials science, nanotechnology, biotechnology, and other fields needed to make solar energy more cost-effective; (4) Demonstrating the scientific and technological feasibility of creating and controlling a sustained burning plasma to generate energy, as the next step toward making fusion power a commercial reality; (5) Using advanced computation, simulation, and modeling to understand and pre-

dict the behavior of complex systems beyond the reach of some of our most powerful experimental probes, with potentially transformational impacts on a broad range of scientific and technological undertakings; (6) Understanding the origin of the universe and nature of dark matter and dark energy; and (7) Resolving key uncertainties and expanding the scientific foundation needed to understand, predict, and assess the potential effects of atmospheric carbon dioxide on climate and the environment.

U.S. leadership in many areas of science and technology depends in part on the continued availability of the most advanced scientific facilities for our researchers. The Office of Science builds and operates national scientific facilities and instruments that make up the world's most sophisticated suite of research capabilities. The resources available for scientific research include advanced synchrotron light sources, the new Spallation Neutron Source, state-of-the-art Nanoscale Science Research Centers, supercomputers and high-speed networks, climate and environmental monitoring capabilities, particle accelerators and detectors for high energy and nuclear physics, and genome sequencing facilities We are in the process of developing new tools such as an X-ray free electron laser light source that can image single large macromolecules and measure in real-time changes in the chemical bond as chemical and biological reactions take place, a next generation synchrotron light source for X-ray imaging and capable of nanometer resolution, and detectors and instruments for world-leading neutrino physics research. SC will also select and begin funding in fiscal year 2007 for three Bioenergy Research Centers to conduct fundamental research on microbes and plants needed to produce biologically-based fuel.

Office of Science leadership in support of the physical sciences and stewardship of large national research facilities is directly linked to our historic role in training America's scientists and engineers. In addition to funding a diverse portfolio of research at more than 300 colleges and universities nationwide, we provide direct support and access to research facilities for thousands of university students and researchers. Facilities at the national laboratories provide unique opportunities for researchers and their students from across the country to pursue questions at the intersection of physics, chemistry, biology, computing, and materials science. About half of the annual 21,000 users of the Office of Science's scientific facilities come from universities. The fiscal year 2008 budget will support the research of approximately 25,500 faculty, postdoctoral researchers, and graduate students throughout the Nation, an increase of 3,600 from fiscal year 2006, in addition to supporting undergraduate research internships and fellowships and research and training opportunities for K–14 science educators at the national laboratories.

The approximate $600 million increase in fiscal year 2008 from the fiscal year 2007 appropriated level will bring manageable increases to the Office of Science programs for long planned for activities. The fiscal year 2008 request will allow the Office of Science to increase support for high-priority DOE mission-driven scientific research and new initiatives; maintain optimum operations at our scientific user facilities; continuing major facility construction projects; and enhance educational, research, and training opportunities for the Nation's future scientific workforce. The budget request will also support basic research that contributes to Presidential initiatives such as the Hydrogen Fuel Initiative and the Advanced Energy Initiative, the Climate Change Science and Technology Programs, and the National Nanotechnology Initiative.

The following programs are supported in the fiscal year 2008 budget request: Basic Energy Sciences, Advanced Scientific Computing Research, Biological and Environmental Research, Fusion Energy Sciences, High Energy Physics, Nuclear Physics, Workforce Development for Teachers and Scientists, Science Laboratories Infrastructure, Science Program Direction, and Safeguards and Security.

OFFICE OF SCIENCE FISCAL YEAR 2008 PRESIDENT'S REQUEST SUMMARY BY PROGRAM

[In thousands of dollars]

	Fiscal Year 2006 Approp.	Fiscal Year 2007 Request	Fiscal Year 2007 Approp.[1]	Fiscal Year 2008 Request	Fiscal Year 2008 Request vs.	
					Request	Approp.
Basic Energy Sciences	1,110,148	1,420,980	.....	1,498,497	+77,517	.....
Advanced Scientific Computing Research	228,382	318,654	.....	340,198	+21,544	.....
Biological and Environmental Research	564,077	510,263	.....	531,897	+21,634	.....
High Energy Physics	698,238	775,099	.....	782,238	+7,139	.....
Nuclear Physics	357,756	454,060	.....	471,319	+17,259	.....
Fusion Energy Sciences	280,683	318,950	.....	427,850	+108,900	.....
Science Laboratories Infrastructure	41,684	50,888	.....	78,956	+28,068	.....
Science Program Direction	159,118	170,877	.....	184,934	+14,057	.....
Workforce Development for Teachers and Scientists	7,120	10,952	.....	11,000	+48	.....
Safeguards and Security	68,025	70,987	.....	70,987	.....	.....
SBIR/STTR	116,813	.....	.....	.....	.....	.....
Total, Office of Science	3,632,044	4,101,710	3,797,294	4,397,876	+296,166	+600,582

[1] Fiscal year 2007 program allocation plan not yet finalized.

FISCAL YEAR 2008 SCIENCE PRIORITIES

The challenges we face today in energy and the environment are some of the most vexing and complex in our history. Our success in meeting these challenges will depend in large part on how well we maintain this country's leadership in science and technology because it is through scientific and technological innovation and a skilled workforce that these challenges will be solved.

President George W. Bush made this point in his State of the Union Message on January 23, 2007, when he stated,

"It's in our vital interest to diversify America's energy supply—the way forward is through technology . . . We must continue changing the way America generates electric power, by even greater use of clean coal technology, solar and wind energy, and clean, safe nuclear power. We need to press on with battery research for plug-in and hybrid vehicles, and expand the use of clean diesel vehicles and biodiesel fuel. We must continue investing in new methods of producing ethanol—using everything from wood chips to grasses, to agricultural wastes . . .

"America is on the verge of technological breakthroughs that will enable us to live our lives less dependent on oil. And these technologies will help us to be better stewards of the environment, and they will help us confront the serious challenge of global climate change."

In 2006, the President announced a commitment to double the budget for basic research in the physical sciences at key agencies over 10 years to maintain U.S. leadership in science and ensure continued global competitiveness. This commitment received bipartisan support in both the House of Representatives and the Senate and the fiscal year 2008 budget request for the Office of Science represents the second year of this effort. Through the fiscal year 2008 budget, the Office of Science will build on its record of results with sound investments to keep U.S. research and development at the forefront of global science and prepare the scientific workforce we will need in the 21st century to address our Nation's challenges.

Determining and balancing science and technology priorities across the Office of Science programs is an ongoing process. Several factors are considered in our prioritization, including scientific opportunities identified by the broader scientific community through Office of Science sponsored workshops; external review and recommendations by scientific advisory committees; DOE mission needs; and national and departmental priorities. In fiscal year 2008, we will support the priorities in scientific research, facility operations, and construction and laboratory infrastructure established in the past few years and outlined in the Office of Science Strategic Plan and Twenty-year Facilities Outlook, in addition to national and departmental priorities and new research opportunities identified in recent workshops.

National initiatives in hydrogen fuel cell and advanced energy technologies will be supported through our contributions to basic research in hydrogen, fusion, solar energy-to-fuels, and production of ethanol and other biofuels from cellulose. We will also continue strong support for other administration priorities such as nanotechnology, advanced scientific computation, and climate change science and technology.

The Office of Science will support three Bioenergy Research Centers in fiscal year 2008 as part of the broader Genomics: GTL program. These centers, to be selected in fiscal year 2007 and fully operational by the end of 2008, will conduct comprehensive, multidisciplinary research programs focused on microbes and plants to drive scientific breakthroughs necessary for the development of cost-effective biofuels and bioenergy production. The broader GTL program will also continue to support fundamental research and technology development needed to understand the complex behavior of biological systems for the development of innovative biotechnology solutions to energy production, environmental mitigation, and carbon management.

The Office of Science designs, constructs, and operates facilities and instruments that provide world-leading research tools and capabilities for U.S. researchers and will continue to support next generation tools for enabling transformational science. For example, the Spallation Neutron Source (SNS), the world's forefront neutron scattering facility, increases the number of neutrons available for cutting-edge research by a factor of 10 over any existing spallation neutron source in the world. SNS was completed and began operations in 2006 and in fiscal year 2008 full operations are supported and additional experimental capabilities continue to be added.

When it comes on line, the Linac Coherent Light Source (LCLS) at the Stanford Linear Accelerator Center (SLAC) will produce X-rays 10 billion times more intense than any existing X-ray source in the world, and will allow structural studies on individual nanoscale particles and single biomolecules. Construction of LCLS continues in fiscal year 2008.

A next generation synchrotron light source, the National Synchrotron Light Source-II (NSLS–II), would deliver orders of magnitude improvement in spatial resolution, providing the world's finest capabilities for X-ray imaging and enabling the study of material properties and functions, particularly at the nanoscale, at a level of detail and precision never before possible. Its energy resolution would explore dynamic properties of matter as no other light source has ever accomplished. Support for continued R&D and project engineering and design (PED) are provided in fiscal year 2008.

All five of DOE's Nanoscale Science Research Centers (NSRCs) will be operating in fiscal year 2008. These facilities are the Nation's premier nanoscience user centers, providing resources unmatched to the scientific community for the synthesis, fabrication, and analysis of nanoparticles and nanomaterials.

We will fully fund the programs for advanced scientific computing, including: continued support for high-performance production computing at the National Energy Research Scientific Computing Center (NERSC), which will increase capacity to 100–150 teraflops in fiscal year 2007; support for advanced capabilities for modeling and simulation of scientific problems in combustion, fusion, and complex chemical reactions at Oak Ridge National Laboratory's Leadership Computing Facility, which should deliver 250 teraflops computing capability by the end of fiscal year 2008; and support for the upgrade to 250–500 teraflop peak capacity of the IBM Blue Gene P system at Argonne National Laboratory's Leadership Computing Facility to extend architectural diversity in leadership computing.

The Office of Science continues to be a partner in the interagency Climate Change Science Program focusing on understanding the principal uncertainties of the causes and effects of climate change, including abrupt climate change, understanding the global carbon cycle, developing predictive models for climate change over decades to centuries, and supporting basic research for biological sequestration of carbon. We also continue to support research in geosciences and environmental remediation towards the development of scientific and technological solutions to long-term environmental challenges.

The Office of Science will continue to actively lead and support the U.S. contributions to ITER, the international project to build and operate the first fusion science facility capable of producing a sustained burning plasma to generate energy on a massive scale without environmental insult. The historic international fusion energy agreement to build ITER with six other international partners was signed in November 2006.

We continue strong support for experimental and theoretical high energy physics and the study of the elementary constituents of matter and energy and interactions at the heart of physics. Full operations at the Tevatron Collider at Fermilab and the B-factory at SLAC are supported to maximize the scientific research and data derived from these facilities. Full operation of the neutrino oscillation experiment at Fermilab and start of fabrication of a next generation detector are supported to provide a platform for a world-leading neutrino program in the U.S. International Linear Collider (ILC) R&D and superconducting radio frequency technology R&D are supported to enable the most compelling scientific opportunities in high energy physics in the coming decades.

Our research programs in nuclear physics continue to receive strong support. Operations at the Relativistic Heavy Ion Collider (RHIC) and additional instrumentation projects for RHIC are supported for studies of the properties of hot, dense nuclear matter, providing insight into the early universe. We will also support operations at the Continuous Electron Beam Accelerator Facility (CEBAF), the world's most powerful "microscope" for studying the quark structure of matter, and project engineering and design and R&D for doubling the energy of the existing beam at CEBAF to 12 gigaelectron volts (GeV). Support for R&D to develop advanced rare isotope beam capabilities for the next generation U.S. facility for nuclear structure and astrophysics is also provided.

The standard of living we enjoy and the security of our Nation now and in the future rests on the quality of science and technology education we provide America's students from elementary through graduate school and beyond. The fiscal year 2008 budget will provide support for over 25,500 Ph.D.s, graduate students, engineers, and technical professionals, an increase of 3,600 over the number supported in fiscal year 2006. The Office of Science will also support the development of leaders in the science and mathematics education community through participation of K–14 teachers in the DOE Academies Creating Teacher Scientists program, formerly the Laboratory Science Teacher Professional Development program. This immersion program at the national laboratories is an opportunity for teachers to work with laboratory scientists as mentors and to build content knowledge, research skills, and lasting connections to the scientific community, ultimately leading to more effective

teaching that inspires students in science and math. The year 2008 will also mark the 18th year of DOE's National Science Bowl® for high school students. National Science Bowl® events for high school and middle school students, which will involve 17,000 students across the Nation this year, provide prestigious academic competitions that challenge and inspire the Nation's youth to excel in math and science.

SCIENCE ACCOMPLISHMENTS

For more than 50 years, the Office of Science (SC) has balanced basic research, innovative problem solving, and support for world-leading scientific capabilities, enabling historic contributions to U.S. economic and scientific preeminence. American taxpayers have received good value for their investment in basic research sponsored by the Office of Science; this work has led to significant technological innovations, new intellectual capital, improved quality of life, and enhanced economic competitiveness. The following are some of the past year's highlights:

Nobel Prize in Physics.—The 2006 Nobel Prize in physics was awarded to Dr. George Smoot (DOE Lawrence Berkeley National Laboratory and University of California, Berkeley) and Dr. John Mather (NASA Goddard Space Flight Center) for their discovery of "the blackbody form and anisotropy of the cosmic microwave background radiation," the pattern of minuscule temperature variations in radiation which allowed scientists to gain better understanding of the origins of galaxies and stars. These two American scientists led the teams of researchers who worked on the historic 1989 NASA COBE satellite. The results of their work provided increased support for the "Big Bang" theory of the universe and marked the inception of cosmology as a precise science. SC supported Dr. Smoot's research during the period in which he worked on the COBE experiment, and continues to support his research today. One of the principal instruments used to make the discoveries was built at SC-supported facilities at Lawrence Berkeley National Laboratory and DOE's National Energy Research Scientific Computing Center supercomputers were used to analyze the massive amounts of data and produce detailed visual maps.

Advancing Science and Technology for Bioenergy Solutions.—Harnessing the capabilities of microbes and plants holds great potential for the development of innovative, cost-effective methods for the production of biofuels and bioenergy. Sequencing of the poplar tree genome was completed as part of a DOE national laboratory-led international collaboration; the information encoded in the poplar genome will provide researchers with an important resource for developing trees that produce more biomass for conversion to biofuels and trees that can sequester more carbon from the atmosphere. The DOE Joint Genome Institute (JGI) marked a technical milestone this year with the 100th microbe genome sequenced; Methanosarcina barkeri fusaro is capable of living in diverse and extreme environments, produces methane from digesting cellulose and other complex sugars, and provides greater understanding of potential new methods for producing renewable sources of energy. A chemical imaging method developed using a light-producing cellulose synthesizing enzyme allowed researchers to observe the enzyme as it deposited cellulose fibers in a cell, providing greater understanding of the mechanism for cellulose formation.

Delivering Forefront Computational and Networking Capabilities for Science.—Several 2006 advances in computing, computational sciences, and networking enabled greater opportunities for computational research and effective management of data collected at DOE scientific user facilities. NERSC began to increase its peak capacity by a factor of 100 and the Oak Ridge National Laboratory (ORNL) Leadership Computing Facility doubled its capability to 54 teraflops to provide additional resources for computationally intensive, large-scale projects. The Energy Sciences Network expanded in 2006 to include the Chicago and New York-Long Island metropolitan area networks (MANs), bringing dual connectivity at 20 gigabits per second and highly reliable, advanced network services to accommodate next-generation scientific instruments and supercomputers. Chemistry software using parallel-vector algorithms developed by researchers at ORNL has enabled computations 40 times more complex and 100 times faster than previous state-of-the-art codes. The development of a multiscale mathematical framework for simulating the process of self-organization in biological systems has led to the discovery of a previously unidentified cluster state, providing possible applications to modeling microbial populations.

Advances in Basic Science for Energy Technologies.—Current and future national energy challenges may be partially addressed through scientific and technological innovation. Some recent accomplishments in basic science that may contribute to future energy solutions include the following. Basic research on the molecular design and synthesis of new polymer membranes has lead to the discovery of a new fuel cell membrane that is longer lasting and three times more proton conductive than the current gold standard for proton exchange membrane fuel cells. Computational

studies showing that in titanium-coated carbon nanotubes a single titanium atom can adsorb four hydrogen molecules opens new ways that the control of matter on the nanoscale can lead to the creation of novel materials for hydrogen storage. Recent work demonstrating that visible light can split carbon dioxide into carbon monoxide and a free oxygen atom, the critical first reaction in sunlight-driven transformation of carbon dioxide into methanol, makes it feasible to consider harnessing sunlight to drive the photocatalytic production of methanol from carbon dioxide. Demonstration of the effect known as carrier multiplication in which a single photon creates multiple charge carriers during the interaction of photons with a nanocrystalline sample could lead to substantial increases in solar cell conversion efficiency.

Maintaining World-leading Research Tools for U.S. Science.—The Office of Science continues to construct and maintain powerful tools and research capabilities that will accelerate U.S. scientific discovery and innovation. The following highlight a few recent accomplishments. Construction and commissioning of the Spallation Neutron Source (SNS), an accelerator-based neutron source that will provide the most intense pulsed neutron beams in the world for scientific research and industrial development, was completed and began operations. Full operation of four of the five DOE Nanoscale Science Research Centers began in 2006, providing resources unmatched anywhere in the world for the synthesis, fabrication, and analysis of nanoparticles and nanomaterials. A nanofocusing lens device at the Advanced Photon Source at Argonne National Laboratory has set a world's record for line size resolution produced with a hard X-ray beam and enables such capabilities as three-dimensional visualization of electronic circuit boards, mapping impurities in biological and environmental samples, and analyzing samples inside high-pressure or high-temperature cells. A new record for performance, a 77 percent increase in peak luminosity in 2006 from the previous year, was achieved at the Tevatron, the world's most powerful particle collider for high energy physics research at Fermilab. Evidence of the rare single top quark was observed at Fermilab in 2006, bringing researchers a step closer to finding the Higgs boson. The Large Area Telescope (LAT), a DOE and NASA partnership and the primary instrument on NASA's GLAST mission, was completed in 2006 and will be placed in orbit in the fall of 2007 to study the high energy gamma rays and other astrophysical phenomena using particle physics detection techniques. During the 2006 operation of the Relativistic Heavy Ion Collider (RHIC), polarized protons were accelerated to the highest energies ever recorded—250 billion electron volts—for world-leading studies of the internal quark-gluon structure of nucleons.

PROGRAM OBJECTIVES AND PERFORMANCE

The path from basic research to technology development and industrial competitiveness is not always obvious. History has taught us that seeking answers to fundamental questions can ultimately result in a diverse array of practical applications as well as some remarkable revolutionary advances. Working with the scientific community, the Office of Science invests in the promising research and sets long-term scientific goals with ambitious annual targets. The intent and impact of our performance goals may not always be clear to those outside the research community. Therefore the Office of Science has created a website (www.sc.doe.gov/measures) to better communicate to the public what we are measuring and why it is important.

Further, the Office of Science has revised the appraisal process it uses each year to evaluate the scientific, management, and operational performance of the contractors who manage and operate each of its 10 national laboratories. This new appraisal process went into effect for the fiscal year 2006 performance evaluation period and provides a common structure and scoring system across all 10 Office of Science laboratories. The performance-based approach focuses the evaluation of the contractor's performance against eight Performance Goals (three Science and Technology Goals and five Management and Operation Goals). Each goal is composed of two or more weighted objectives. The new process has also incorporated a standardized five-point (0–4.3) scoring system, with corresponding grades for each Performance Goal, creating a "Report Card" for each laboratory.

The fiscal year 2006 Office of Science laboratory report cards have been posted on the SC website (http://www.science.doe.gov/News__Information/News__Room/2007/Appraisa__%20Process/index.htm).

Basic Energy Sciences

Fiscal Year 2007 Request—$1,421.0 Million; Fiscal Year 2008 Request—$1,498.5 Million

Basic research supported by the Basic Energy Sciences (BES) program touches virtually every aspect of energy resources, production, conversion, efficiency, and waste mitigation. Research in materials sciences and engineering leads to the development of materials that may improve the efficiency, economy, environmental acceptability, and safety of energy generation, conversion, transmission, and use. Research in chemistry leads to the development of advances such as efficient combustion systems with reduced emission of pollutants; new solar photo-conversion processes; improved catalysts for the production of fuels and chemicals; and better separations and analytical methods for applications in energy processes, environmental remediation, and waste management. Research in geosciences contributes to the solution of problems in multiple DOE mission areas, including reactive fluid flow studies to understand contaminant remediation and seismic imaging for reservoir definition. Research in the molecular and biochemical nature of photosynthesis aids the development of solar photo-energy conversion and biomass conversion methods. BES asks researchers to reach far beyond today's problems in order to provide the basis for long-term solutions to what is one of society's greatest challenges—a secure, abundant, and clean energy supply. In fiscal year 2008, the Office of Science will support expanded efforts in basic research related to transformational energy technologies. Within BES, there are increases to ongoing basic research for the hydrogen economy and effective solar energy utilization. The fiscal year 2008 budget request also supports increased research in electric-energy storage, accelerator physics, and X-ray and neutron detector research.

BES also provides the Nation's researchers with world-class research facilities, including reactor- and accelerator-based neutron sources, light sources (soon to include an X-ray free electron laser), nanoscale science research centers, and electron beam micro-characterization centers. These facilities provide outstanding capabilities for imaging and characterizing materials of all kinds from metals, alloys, and ceramics to fragile biological samples. The next steps in the characterization and the ultimate control of materials properties and chemical reactivity are to improve spatial resolution of imaging techniques; to enable a wide variety of samples, sample sizes, and sample environments to be used in imaging experiments; and to make measurements on very short time scales, comparable to the time of a chemical reaction or the formation of a chemical bond. With these tools, we will be able to understand how the composition of materials affects their properties, to watch proteins fold, to see chemical reactions, and to understand and observe the nature of the chemical bond. For fiscal year 2008, BES scientific user facilities will be scheduled to operate at an optimal number of hours.

Construction of the Spallation Neutron Source (SNS) was completed in fiscal year 2006 ahead of schedule, under budget, and meeting all technical milestones. In fiscal year 2008 fabrication and commissioning of SNS instruments will continue, funded by BES and other sources including non-DOE sources, and will continue to increase power towards full levels. Two Major Items of Equipment are funded in fiscal year 2008 that will allow the fabrication of approximately nine to ten additional instruments for the SNS, thus nearly completing the initial suite of 24 instruments that can be accommodated in the high-power target station.

All five Nanoscale Science Research Centers will be fully operational in fiscal year 2008: the Center for Nanophase Materials Sciences at Oak Ridge National Laboratory, the Molecular Foundry at Lawrence Berkeley National Laboratory, the Center for Nanoscale Materials at Argonne National Laboratory, the Center for Integrated Nanotechnologies at Sandia National Laboratories and Los Alamos National Laboratory, and the Center for Functional Nanomaterials at Brookhaven National Laboratory. In fiscal year 2008, funding for research at the nanoscale increases for activities related to the hydrogen economy and solar energy utilization.

The Linac Coherent Light Source (LCLS) at the Stanford Linear Accelerator Center (SLAC) will continue construction at the planned levels in fiscal year 2008. Funding is also provided for primary support of the operation of the SLAC linac. This marks the third year of the transition of linac funding from the High Energy Physics program to the Basic Energy Sciences program. The purpose of the LCLS Project is to provide laser-like radiation in the X-ray region of the spectrum that is 10 billion times greater in peak power and peak brightness than any existing coherent X-ray light source and that has pulse lengths measured in femtoseconds—the timescale of electronic and atomic motions. The LCLS will be the first such facil-

ity in the world for groundbreaking research in the physical and life sciences. Funding is provided separately for design and fabrication of instruments for the facility. Project Engineering and Design (PED) and construction for the Photon Ultrafast Laser Science and Engineering (PULSE) building renovation begins in fiscal year 2008. PULSE is a new center for ultrafast science at SLAC focusing on ultrafast structural and electronic dynamics in materials sciences, the generation of attosecond laser pulses, single-molecule imaging, and understanding solar energy conversion in molecular systems. Support continues for PED and R&D for the National Synchrotron Light Source-II (NSLS–II), which would be a new synchrotron light source, highly optimized to deliver ultra-high brightness and flux and exceptional beam stability. This would enable the study of material properties and functions with a spatial resolution of one nanometer (nm), an energy resolution of 0.1 millielectron volt (meV), and the ultra-high sensitivity required to perform spectroscopy on a single atom, achieving a level of detail and precision never possible before. NSLS–II would open new regimes of scientific discovery and investigation.

The Scientific Discovery through Advanced Computing (SciDAC) program is a set of coordinated investments across all Office of Science mission areas with the goal of using computer simulation to achieve breakthrough scientific advances that are impossible using theoretical or laboratory studies alone. The SciDAC program in BES consists of two activities: (1) characterizing chemically reacting flows as exemplified by combustion and (2) achieving scalability in the first-principles calculation of molecular properties, including chemical reaction rates.

Advanced Scientific Computing Research

Fiscal Year 2007 Request—$318.7 Million; Fiscal Year 2008 Request—$340.2 Million

The Advanced Scientific Computing Research (ASCR) program is expanding the capability of world-class scientific research through advances in mathematics, high performance computing and advanced networks, and through the application of computers capable of many trillions of operations per second (terascale to petascale computers). Computer-based simulation can enable us to understand and predict the behavior of complex systems that are beyond the reach of our most powerful experimental probes or our most sophisticated theories. Computational modeling has greatly advanced our understanding of fundamental processes of nature, such as fluid flow and turbulence or molecular structure and reactivity. Soon, through modeling and simulation, we will be able to explore the interior of stars to understand how the chemical elements were created and learn how protein machines work inside living cells to enable the design of microbes that address critical energy or waste cleanup needs. We could also design novel catalysts and high-efficiency engines that expand our economy, lower pollution, and reduce our dependence on foreign oil. Computational science is increasingly important to making progress at the frontiers of almost every scientific discipline and to our most challenging feats of engineering. Leadership in scientific computing has become a cornerstone of the Department's strategy to ensure the security of the Nation and success in its science, energy, environmental quality, and national security missions.

The demands of today's facilities, which generate millions of gigabytes of data per year, now outstrip the capabilities of the current Internet design and push the state-of-the-art in data storage and utilization. But, the evolution of the telecommunications market, including the availability of direct access to optical fiber at attractive prices and the availability of flexible dense wave division multiplexing (DWDM) products gives SC the possibility of exploiting these technologies to provide scientific data where needed at speeds commensurate with the new data volumes. To take advantage of this opportunity, the Energy Science Network (ESnet) has entered into a long term partnership with Internet 2 to build the next generation optical network infrastructure needed for U.S. science. To fully realize the potential for science, however, significant research is needed to integrate these capabilities, make them available to scientists, and build the infrastructure which can provide cybersecurity. ASCR is leading an interagency effort to develop a Federal Plan for Advanced Networking R&D. This plan will provide a strategy for addressing current and future networking needs of the Federal Government in support of science and national security missions and provide a process for developing a more detailed roadmap to guide future multi-agency investments in advancing networking R&D.

ASCR supports core research in applied mathematics, computer sciences, and distributed network environments. The applied mathematics research activity produces fundamental mathematical methods to model complex physical and biological systems. The computer science research efforts enable scientists to perform scientific computations efficiently on the highest performance computers available and to store, manage, analyze, and visualize the massive amounts of data that result. The

networking research activity provides the techniques to link the data producers with scientists who need access to the data. Results from enabling research supported by ASCR are used by scientists supported by other SC programs. This link to other DOE programs provides a tangible assessment of the value of ASCR's core research program for advancing scientific discovery and technology development through simulations. In fiscal year 2008 expanded efforts in applied mathematics will support critical long-term mathematical research issues relevant to petascale science, multiscale mathematics, and optimized control and risk analysis in complex systems. Expanded efforts in computer science will enable scientific applications to take full advantage of petascale computing systems at the Leadership Computing Facilities.

In addition to its research activities, ASCR plans, develops, and operates supercomputer and network facilities that are available 24 hours a day, 365 days a year to researchers working on problems relevant to DOE's scientific missions. Investments in the ESnet will provide the DOE science community with capabilities not available through commercial networks or the commercial internet to manage increased data flows from petascale computers and experimental facilities. In fiscal year 2008 ESnet will deliver a 10 gigabit per second (gbps) core Internet service as well as a Science Data Network with 20 gbps on its northern route and 10 gbps on its southern route. Delivery of the next generation of high performance resources at the National Energy Research Scientific Computing Center (NERSC) is scheduled for fiscal year 2007. This NERSC–5 system is expected to provide 100–150 teraflops of peak computing capacity. The NERSC computational resources are integrated by a common high performance file storage system that enables users to use all machines easily. Therefore the new machine will significantly reduce the current oversubscription at NERSC which serves nearly 2,000 scientists annually.

In fiscal year 2008, the Oak Ridge National Laboratory (ORNL) Leadership Computing Facility (LCF) will continue to provide world leading high performance sustained capability to researchers through the Innovative and Novel Computational Impact on Theory and Experiment (INCITE) program. The acquisition of a 250 teraflop Cray Baker system by the end of fiscal year 2008 will enable further scientific advancements in areas such as combustion simulation for clean coal research, simulation of fusion devices that approach ITER scale, and quantum calculations of complex chemical reactions. In addition, further diversity with the LCF resources will be realized with an acquisition by Argonne National Laboratory (ANL) of a high performance IBM Blue Gene/P with low-electrical power requirements and a peak capability of up to 100 teraflops in 2007, and further expansion to 250–500 teraflops in fiscal year 2008 will bring enhanced capability to accelerate scientific understanding in areas such as molecular dynamics, catalysis, protein/DNA complexes, and aging of material. With the ORNL and ANL LCF facilities SC is developing a multiple set of computer architectures to enable the most efficient solution of critical problems across the spectrum of science, ranging from biology to physics and chemistry.

The Scientific Discovery through Advanced Computing (SciDAC) program is a set of coordinated investments across all SC mission areas with the goal of using computer simulation and advanced networking technologies to achieve breakthrough scientific advances via that are impossible using theoretical or laboratory studies alone. In fiscal year 2006 ASCR recompeted its SciDAC portfolio, with the exception of activities in partnership with the Fusion Energy Sciences program that were initiated in fiscal year 2005. The new portfolio, referred to as SciDAC–2, enables new areas of science through Scientific Application Partnerships; Centers for Enabling Technologies (CET) at universities and national laboratories; and University-led SciDAC Institutes to establish centers of excellence that complement the activities of the CETs and provide training for the next generation of computational scientists.

Advancing high performance computing and computation is a highly coordinated interagency effort. ASCR has extensive partnerships with other Federal agencies and the National Nuclear Security Administration (NNSA). Activities are coordinated with other Federal efforts through the Networking and Information Technology R&D (NITR&D) subcommittee of the National Science and Technology Council Committee on Technology. The subcommittee coordinates planning, budgeting, and assessment activities of the multi-agency NITR&D enterprise. DOE has been an active participant in these coordination groups and committees since their inception. ASCR will continue to coordinate its activities through these mechanisms and will lead the development of new coordinating mechanisms as needs arise such as the ongoing development of a Federal Plan for Advanced Networking R&D.

Biological and Environmental Research

Fiscal Year 2007 Request—$510.3 Million; Fiscal Year 2008 Request—$531.9 Million

Biological and Environmental Research (BER) supports basic research with broad impacts on our energy future, our environment, and our health. By understanding complex biological systems, developing computational tools to model and predict their behavior, and developing methods to harness nature's capabilities, biotechnology solutions are possible for DOE energy, environmental, and national security challenges. An ability to predict long-range and regional climate enables effective planning for future needs in energy, agriculture, and land and water use. Understanding the global carbon cycle and the associated role and capabilities of microbes and plants can lead to solutions for reducing carbon dioxide concentrations in the atmosphere. Understanding the complex role of biology, geochemistry, and hydrology beneath the Earth's surface will lead to improved decision making and solutions for contaminated DOE weapons sites. Understanding the biological effects of low doses of radiation can lead to the development of science-based health risk policy to better protect workers and citizens. Both normal and abnormal physiological processes—from normal human development to cancer to brain function—can be understood and improved using radiotracers, advanced imaging instruments, and novel biomedical devices.

The fiscal year 2008 BER request continues expansion of the Genomics: GTL program. This program employs a systems approach to biology at the interface of the biological, physical, and computational sciences to determine the diverse biochemical capabilities of microbes, microbial communities, and plants, with the goal of tailoring and translating those capabilities into solutions for DOE mission needs. In fiscal year 2005 BER engaged a committee of the National Research Council (NRC) of the National Academies to review the design of the Genomics: GTL program and its infrastructure plan. The NRC committee report, Review of the Department of Energy's Genomics: GTL Program was released in fiscal year 2006 and provided a strong endorsement of the GTL program, recommending that the program's focus on systems biology for bioenergy, carbon sequestration, and bioremediation be given a "high priority" by DOE and the Nation. The report also recommended that the program's plan for new research facilities be reshaped to produce earlier and more cost-effective results by focusing not on particular technologies, but on research underpinning particular applications such as bioenergy, carbon sequestration, or environmental remediation.

In response, SC revised its original single-purpose user facilities plan to instead develop and support vertically-integrated GTL Research Centers to accelerate systems biology research. BER will support the development of three Bioenergy Research Centers to be selected and initiated in fiscal year 2007, and fully operational by the end of 2008. All three centers will conduct comprehensive, multidisciplinary research programs focused on microbes and plants to drive scientific breakthroughs necessary for the development of cost-effective biofuels and bioenergy production. These centers will not only possess the robust scientific capabilities needed to carry out their broad mission mandates, but will also draw upon the broader GTL program for technology development and foundational research. The vertically-integrated GTL Research Centers will not require construction of facilities. Moreover, the competition to establish and operate them is open to universities, non-profit research organizations, the national laboratories, and the private sector—an approach that is new for the Department. The first three research centers will focus on bioenergy research. The Department announced the solicitation for Bioenergy Research Centers in August 2006, and proposals were due on February 1, 2007.

Development of a global biotechnology based energy infrastructure requires a science base that will enable scientists to control or redirect genetic regulation and redesign specific proteins, biochemical pathways, and even entire plants or microbes. Renewable biofuels could be produced using plants, microbes, or isolated enzymes. Understanding the biological mechanisms involved in these energy producing processes will allow scientists and technologists to design novel biofuel production strategies involving both cellular and cell free systems that might include defined mixed microbial communities or consolidated biological processes. Within the Genomics: GTL program, BER supports basic research aimed at developing the understanding needed to advance biotechnology-based strategies for biofuel production, focusing on renewable, carbon-neutral energy compounds like ethanol and hydrogen, as well as understanding how the capabilities of microbes can be applied to environmental remediation and carbon sequestration.

In 2003, the administration launched the Climate Change Research Initiative (CCRI) to focus research on areas where substantial progress in understanding and

predicting climate change, including its potential causes and consequences, is possible over the next 5 years. In fiscal year 2008, BER will contribute to the CCRI by focusing on (1) helping to resolve the North American carbon sink question (i.e., the magnitude and location of the North American carbon sink); (2) deployment and operation of a mobile ARM facility to provide data on the effects of clouds and aerosols on the atmospheric radiation budget in regions and locations of opportunity where data are lacking or sparse; (3) using advanced climate models to simulate potential effects of natural and human-induced climate forcing on global and regional climate and the potential effects on climate of alternative options for mitigating increases in human forcing of climate, including abrupt climate change; and (4) developing and evaluating assessment tools needed to study costs and benefits of potential strategies for reducing net carbon dioxide emissions.

In fiscal year 2008, BER will continue to support research aimed at advancing the science of climate and Earth system modeling by coupling models of different components of the earth system related to climate and by significantly increasing the spatial resolution of such models. SciDAC-enabled activities will allow climate scientists to gain unprecedented insights into interactions and feedbacks between, for example, climate change and global cycling of carbon, the potential effects of carbon dioxide and aerosol emissions from energy production and their impact on the global climate system. BER will also add a SciDAC component to GTL and Environmental Remediation research. GTL SciDAC will initiate new research to develop mathematical and computational tools needed for complex biological system modeling and for analysis of complex data sets, such as mass spectrometry metabolomic or proteomic profiling data. Environmental Remediation SciDAC will provide an opportunity for subsurface and computational scientists to develop and improve methods of simulating subsurface reactive transport processes on "discovery class" computers.

Research emphasis within BER's Environmental Remediation Sciences subprogram will focus on issues of subsurface cleanup such as defining and understanding the processes that control contaminant fate and transport in the environment and providing opportunities for use or manipulation of natural processes to alter contaminant mobility. In fiscal year 2008, BER will support the development of two additional field research sites (for a total of 3), providing opportunities to validate laboratory findings under field conditions. The resulting knowledge and technology will assist DOE's environmental clean-up and stewardship missions. Funding for the William R. Wiley Environmental Molecular Sciences Laboratory (EMSL) at Pacific Northwest National Laboratory (PNNL) will be increased in fiscal year 2008 to maintain operations at full capacity.

Also continuing in fiscal year 2008 is BER support for fundamental research in genomics, medical applications and measurement science, and the health effects of low dose radiation in fiscal year 2008. Resources are developed and made widely available for determining protein structures at DOE synchrotrons, and for DOE-relevant high-throughput genomic DNA sequencing. Building on DOE capabilities in physics, chemistry, engineering, biology and computation, BER supports fundamental imaging research, maintains core infrastructure for imaging research and develops new technologies to improve the diagnosis and treatment of psycho-neurological diseases and cancer and to improve the function of patients with neurological disabilities like blindness. Funding for Ethical, Legal, and Societal Issues (ELSI) associated with activities applicable to SC, increases to support research on the ecological and environmental impacts of nanoparticles resulting from nanotechnology applied to energy technologies.

High Energy Physics

Fiscal Year 2007 Request—$775.1 Million; Fiscal Year 2008 Request—$782.2 Million

The High Energy Physics (HEP) program provides over 90 percent of the Federal support for the Nation's high energy physics research. This research advances our understanding of the basic constituents of matter, deeper symmetries in the laws of nature at high energies, and mysterious phenomena that are commonplace in the universe, such as dark energy and dark matter. Research at these frontiers of science may uncover new particles, forces, or undiscovered dimensions of space and time; explain how matter came to have mass; and reveal the underlying nature of the universe. HEP supports particle accelerators and very sensitive detectors to study fundamental particle interactions at the highest possible energies as well as non-accelerator studies of cosmic particles using experiments conducted deep underground, on mountains, or in space. These research facilities and basic research supported by HEP advance our knowledge not only in high energy physics, but increasingly in other fields was well, including particle astrophysics and cosmology. Re-

search advances in one field often have a strong impact on research directions in another. Technology that was developed in response to the pace-setting demands of high energy physics research has also become indispensable to other fields of science and has found wide applications in industry and medicine, often in ways that could not have been predicted when the technology was first developed.

In fiscal year 2008 HEP supports core experimental and theoretical research to maintain strong participation in the Tevatron, Large Hadron Collider (LHC) at CERN (the European Organization for Nuclear Research), and B-factory physics program, and supports research activities associated with development of potential new initiatives such as International Linear Collider (ILC) R&D, neutrinos, dark energy, and dark matter. HEP places a high priority on maximizing scientific data derived from the three major HEP user facilities: the Tevatron Collider and Neutrinos at the Main Injector (NuMI) beam line at Fermilab, and the B-factory at SLAC. HEP will continue to lead the international scientific community with these world-leading user facilities at Fermilab and SLAC in fiscal year 2008, but these facilities will complete their scientific missions by the end of the decade. Thus, the longer-term HEP program supported in fiscal year 2008 begins to develop new cutting-edge facilities in targeted areas (such as neutrino physics) that will establish U.S. leadership in these areas in the next decade, when the centerpiece of the world HEP program will reside at CERN.

In fiscal year 2008 HEP continues to support software and computing resources for U.S. researchers participating in the LHC program at CERN as well as pre-operations and maintenance of the U.S.-built systems that are scientific components of the LHC detectors. R&D in support of the proposed ILC is maintained in fiscal year 2008 to support U.S. participation in a comprehensive, coordinated international R&D program and to provide a basis for U.S. industry to compete successfully for major subsystem contracts, should the ILC be designed and then built. The long-term goal of this effort is to provide robust cost and schedule baselines to support design and construction decisions for an international electron-positron linear collider. The ILC would provide unprecedented power, clarity, and precision to unravel the mysteries of the next energy frontier, which we will just begin to discover with the LHC. In 2006 the ILC Reference Design Report was completed, and in fiscal year 2007 further work toward the design, including some site-specific studies and detector studies, will be performed. In fiscal year 2008 further work on both accelerator systems and detector studies will be performed.

To provide a nearer-term future HEP program, and to preserve future research options, R&D for accelerator and detector technologies, particularly in the growing area of neutrino physics, will continue in fiscal year 2008. With Tevatron improvements completed, much of the accelerator development effort at Fermilab in fiscal year 2008 will focus on the neutrino program to study the universe's most prolific particle. The Neutrinos at the Main Injector (NuMI) beam allows studies of the fundamental physics of neutrino masses and mixings using the proton source section of the Tevatron complex. The NuMI beam has begun operations and will eventually put much higher demands on that set of accelerators. A program of enhanced maintenance, operational improvements, and equipment upgrades is being developed to meet these higher demands, while continuing to run the Tevatron. Fabrication of the NuMI Off-axis Neutrino Appearance (NOνA) Detector, which was originally proposed as a line item construction project in fiscal year 2007 under the generic name of Electron Neutrino Appearance (EνA) Detector, is funded in fiscal year 2008 and will utilize the NuMI beam. This project includes improvements to the proton source to increase the intensity of the NuMI beam. Meanwhile, fabrication will begin for the Reactor Neutrino Detector and two small neutrino experiments, the Main Injector Experiment ν-A (MINERνA) in the MINOS near detector hall at Fermilab and the Tokai-to-Kamioka (T2K) experiment using the Japanese J–PARC neutrino beam. R&D will continue for a large double beta decay experiment to measure the mass of a neutrino. These efforts are part of a coordinated neutrino program developed from an American Physical Society study and a joint HEPAP/Nuclear Sciences Advisory Committee (NSAC) subpanel review.

To exploit the unique opportunity to expand the boundaries of our understanding of the matter-antimatter asymmetry in the universe, a high priority is given to continued operations and infrastructure support for the B-factory at SLAC. Final upgrades to the accelerator and detector are scheduled for completion in fiscal year 2007, and B-factory operations will conclude in fiscal year 2008. HEP support of SLAC operations decreases in fiscal year 2008 as the contribution from BES increases for SLAC linac operations in preparation for the Linac Coherent Light Source (LCLS).

As the Large Hadron Collider (LHC) accelerator nears its turn-on date in 2007, U.S. activities related to fabrication of detector components will be completed and

new activities related to commissioning and pre-operations of these detectors, along with software and computing activities needed to analyze the data, will ramp-up significantly. Support of an effective role for U.S. research groups in LHC discoveries will continue to be a high priority of the HEP program. R&D for possible future upgrades to the LHC accelerator and detectors will also be pursued.

Enhanced support for R&D on ground- and space-based dark energy experimental concepts, begun in fiscal year 2007, will be continued in fiscal year 2008. These experiments should provide important new information about the nature of dark energy, leading to a better understanding of the birth, evolution, and ultimate fate of the universe. For example, the Super Nova/Acceleration Probe (SNAP) will be a mission concept proposed for a potential interagency-sponsored experiment with NASA, and possibly international partners: the Joint Dark Energy Mission (JDEM). DOE and NASA are jointly funding a National Academy of Sciences study to determine which of the proposed NASA "Beyond Einstein" missions should launch first, with technical design of the selected proposal to begin at the end of this decade. JDEM is one of the candidate missions in this study. In fiscal year 2008, fabrication for the Dark Energy Survey Project will begin.

The HEP program re-competed its SciDAC portfolio in fiscal year 2006. Major thrusts in theoretical physics, astrophysics, and particle physics grid technology will be supported through the SciDAC program in fiscal year 2008, as well as proposals in accelerator modeling and design to be selected in fiscal year 2007. These projects will allow HEP to use computational science to obtain significant new insights into challenging problems that have the greatest impact in HEP mission areas.

Nuclear Physics

Fiscal Year 2007 Request—$454.1 Million; Fiscal Year 2008 Request—$471.3 Million

The Nuclear Physics (NP) program is the major sponsor of fundamental nuclear physics research in the Nation, providing about 90 percent of Federal support. Scientific research supported by NP is aimed at advancing knowledge and providing insights into the nature of energy and matter and, in particular, at investigating the fundamental forces which hold the nucleus together and determining the detailed structure and behavior of the atomic nuclei. NP builds and supports world-leading scientific facilities and state-of-the-art instrumentation to carry out its basic research agenda—the study of the evolution and structure of nuclear matter from the smallest building blocks, quarks and gluons, to the stable elements in the universe created by stars, to unique isotopes created in the laboratory that exist at the limits of stability and possess radically different properties from known matter. NP also trains a workforce needed to underpin the Department's missions for nuclear-related national security, energy, and environmental quality.

Key aspects of NP research agenda include understanding how the quarks and gluons combine to form the nucleons (proton and neutron), what the properties and behavior of nuclear matter are under extreme conditions of temperature and pressure, and what the properties and reaction rates are for atomic nuclei up to their limits of stability. Results and insight from these studies are relevant to understanding how the universe evolved in its earliest moments, how the chemical elements were formed, and how the properties of one of nature's basic constituents, the neutrino, influences astrophysics phenomena such as supernovae. Knowledge and techniques developed in pursuit of fundamental nuclear physics research are also extensively utilized in our society today. The understanding of nuclear spin enabled the development of magnetic resonance imaging for medical use. Radioactive isotopes produced by accelerators and reactors are used for medical imaging, cancer therapy, and biochemical studies. Advances in cutting-edge instrumentation developed for nuclear physics experiments have relevance to technological needs in combating terrorism. The highly trained scientific and technical personnel in fundamental nuclear physics who are a product of the program are a valuable human resource for many applied fields.

The fiscal year 2008 budget request supports operations of the four National User Facilities and research at universities and laboratories, and makes investments in new capabilities to address compelling scientific opportunities and to maintain U.S. competitiveness in global nuclear physics efforts. In fiscal year 2008 support continues for R&D on rare isotope beam development, relevant to the next-generation facilities that will provide capabilities for forefront nuclear structure and astrophysics studies and for understanding the origin of the elements from iron to uranium.

When the universe was a millionth of a second old, nuclear matter is believed to have existed in its most extreme energy density form called the quark-gluon plasma. Experiments at the Relativistic Heavy Ion Collider (RHIC) at Brookhaven National

Laboratory (BNL) are searching to find and characterize this new state and others that may have existed during the first moments of the universe. These efforts will continue in fiscal year 2008. The NP program, together with the National Aeronautics and Space Administration (NASA), will continue construction of a new Electron Beam Ion Source (EBIS) to provide RHIC with more cost-effective, reliable, and versatile operations. Research and development activities, including the development of an innovative electron beam cooling system for RHIC, are expected to demonstrate the feasibility of increasing the luminosity (or collision rate) of the circulating beams by a factor of 10, which would increase the long-term scientific productivity and international competitiveness of the facility. Support for participation in the heavy ion program at the Large Hadron Collider (LHC) at CERN allows U.S. researchers the opportunity to search for new states of matter under substantially different initial conditions than those provided at RHIC. The interplay of the different research programs at the LHC and the ongoing RHIC program will allow a detailed tomography of the hot, dense matter as it evolves from the "perfect fluid" (a fluid with zero viscosity) discovered at RHIC.

Operations of the Continuous Electron Beam Accelerator Facility (CEBAF) at Thomas Jefferson National Accelerator Facility (TJNAF) in fiscal year 2008 will continue to advance our knowledge of the internal structure of protons and neutrons. By providing precision experimental information concerning the quarks and gluons that form protons and neutrons, the approximately 1,200 experimental researchers who use CEBAF, together with researchers in nuclear theory, seek to provide a quantitative description of nuclear matter in terms of the fundamental theory of the strong interaction, Quantum Chromodynamics (QCD). In fiscal year 2008, the accelerator will provide beams simultaneously to all three experimental halls and funding is provided for engineering design activities for the 12 GeV CEBAF Upgrade Project. This upgrade is one of the highest priorities for NP and would allow for a test of a proposed mechanism of "quark confinement," one of the compelling, unanswered puzzles of physics.

Efforts at the Argonne Tandem Linear Accelerator System (ATLAS) at ANL and the Holifield Radioactive Ion Beam Facility (HRIBF) at ORNL will be supported in fiscal year 2008 to focus on investigating new regions of nuclear structure, studying interactions in nuclear matter like those occurring in neutron stars, and determining the reactions that created the nuclei of the chemical elements inside stars and supernovae. The GRETINA gamma-ray tracking array, which continues fabrication in fiscal year 2008, will revolutionize gamma ray detection technology and offer dramatically improved capabilities to study the structure of nuclei at ATLAS, HRIBF, and elsewhere. The Fundamental Neutron Physics Beamline (FNPB) under fabrication at the SNS will provide a world-class capability to study the fundamental properties of the neutron, leading to a refined characterization of the weak force. Support continues in fiscal year 2008 for the fabrication of a neutron Electric Dipole Moment experiment, to be sited at the FNPB, in the search for new physics beyond the Standard Model.

Funds are provided in fiscal year 2008 to initiate U.S. participation in the fabrication of an Italian-led neutrino-less double beta decay experiment, the Cryogenic Underground Observatory for Rare Events (CUORE). A successful search for neutrino-less beta decay will determine if the neutrino is its own antiparticle and provide information about the mass of the neutrino. Neutrinos are thought to play a critical role in the explosions of supernovae and the evolution of the cosmos. A successful search for neutrino-less beta decay will determine if the neutrino is its own antiparticle and provide information about the mass of the neutrino.

Following the re-competition of SciDAC projects in fiscal year 2006, NP currently supports efforts in nuclear astrophysics, grid computing, Lattice Gauge (QCD) theory, and low energy nuclear structure and nuclear reaction theory. NP is also supporting R&D in an international effort to develop a larger, more sensitive neutrino-less beta decay experiment.

Fusion Energy Sciences

Fiscal Year 2007 Request—$319.0 Million; Fiscal Year 2008 Request—$427.9 Million

The Fusion Energy Sciences (FES) program advances the theoretical and experimental understanding of plasma and fusion science, including a close collaboration with international partners in identifying and exploring plasma and fusion physics issues through specialized facilities. The FES program supports research in plasma science, magnetically confined plasmas, advances in tokamak design, innovative confinement options, non-neutral plasma physics and high energy density laboratory plasmas (HEDLP), and cutting edge technologies. FES also leads U.S. participation in ITER, an experiment to study and demonstrate the sustained burning of fusion

fuel. This international collaboration will provide an unparalleled scientific research opportunity with a goal of demonstrating the scientific and technical feasibility of fusion power. Fusion is the energy source that powers the sun and stars. Fusion power could play a key role in U.S. long-term energy plans and independence because it offers the potential for plentiful, safe, and environmentally benign energy. On November 21, 2006, the DOE signed the ITER agreement with its counterparts in China, the European Union, India, Japan, the Republic of Korea and the Russian Federation, formalizing this historic arrangement for international scientific cooperation.

The U.S. Contributions to ITER project is being managed by the U.S. ITER Project Office (USIPO), established as an Oak Ridge National Laboratory (ORNL)/ Princeton Plasma Physics Laboratory (PPPL) partnership. The fiscal year 2008 request for the U.S. Contributions to ITER project reflects a significant increase in procurement, fabrication activities, and delivery of medium- and high-technology components, assignment of U.S. personnel to the International ITER Organization abroad, and the U.S. share of common costs at the ITER site in Cadarache, France, including installation and testing. These costs are part of the Total Estimated Cost (TEC) for the U.S. Contributions to ITER project. There is a second category of costs, Other Project Costs (OPC), which is for the supporting research and development activity for our U.S. Contributions. Together the TEC and OPC make up the overall Total Project Cost which is $1,122,000,000.

In support of ITER and U.S. Contributions to ITER, FES has placed an increased emphasis on its national burning plasma program—a critical underpinning to the fusion science in ITER. FES has enhanced burning plasma research efforts across the U.S. domestic fusion program, including: carrying out experiments on our national FES facilities that are exploring new modes of improved or extended ITER performance with diagnostics and plasma control that can also be extrapolated to ITER; developing safe and environmentally attractive technologies that could be used in future upgrades of ITER; exploring fusion simulation efforts that examine the complex behavior of burning plasmas in tokamaks; and integrating all that is learned into a forward-looking approach to future fusion applications. The U.S. Burning Plasma Organization has been established to coordinate these efforts.

Section 972(c)(5)(C) of the Energy Policy Act (EPAct) of 2005, required the Secretary of Energy to provide "a report describing how United States participation in the ITER will be funded without reducing funding for other programs in the Office of Science (including other fusion programs) . . .". This report as well as all the other requirements for FES in EPAct have been or are in the process of being completed. The Department's fiscal year 2008 budget provides for modest increases for all programs within the Office of Science and supports the ITER request of $160,000,000 from new funds in the FES budget request.

FES supports the operation of a set of experimental facilities. These facilities provide scientists with the means to test and extend our theoretical understanding and computer models—leading ultimately to improved predictive capabilities for fusion science. Research and facility operations support for the three major facilities is maintained in fiscal year 2008. Experimental research on tokamaks is continued with emphasis on physics issues of interest to the ITER project. The DIII–D tokamak at General Atomics will operate for 15 weeks in fiscal year 2008 to conduct research relevant to burning plasma issues and topics of interest to the ITER project as well as maintain the broad scientific scope of the program. The Alcator C-Mod at the Massachusetts Institute of Technology will operate for 15 weeks and the National Spherical Torus Experiment (NSTX) at the Princeton Plasma Physics Laboratory (PPPL) will operate for 12 weeks. Fabrication of the major components of the National Compact Stellarator Experiment (NCSX) at PPPL continues and assembly of the entire device will be completed in fiscal year 2009.

Funding for the FES SciDAC program continues in fiscal year 2008 for the development of tools that facilitate international fusion collaborations and initiate development of an integrated software environment that can accommodate the wide range of space and time scales and the multiple phenomena that are encountered in simulations of fusion systems. Within SciDAC, the Fusion Simulation Project is a major initiative involving plasma physicists, applied mathematicians, and computer scientists to create a comprehensive set of models of fusion systems, combined with the algorithms required to implement the models and the computational infrastructure to enable them to work together.

FES will issue a joint solicitation in fiscal year 2008, with the National Nuclear Security Administration (NNSA), focused on academic research in high energy density laboratory plasmas, which supports the Department's programmatic goals in inertial confinement fusion science.

Workforce Development for Teachers and Scientists

Fiscal Year 2007 Request—$10.9 Million; Fiscal Year 2008 Request—$11.0 Million

The Department of Energy has played a role in training America's scientists and engineers for more than 50 years, making contributions to U.S. economic and scientific pre-eminence. The Nation's current and future energy and environmental challenges may be solved in part through scientific and technological innovation and a highly skilled scientific and technical workforce. The Workforce Development for Teachers and Scientists (WDTS) program acts as a catalyst within the DOE for the training of the next generation of scientists. WDTS programs create a foundation for DOE's national laboratories to provide a wide range of educational opportunities to more than 280,000 educators and students on an annual basis. WDTS's mission is to provide a continuum of educational opportunities to the Nation's students and teachers of science, technology, engineering, and mathematics (STEM).

WDTS supports experiential learning opportunities that compliment curriculum taught in the classroom and: (1) build links between the national laboratories and the science education community by providing funding, guidelines, and evaluation of mentored research experiences at the national laboratories to K–12 teachers and college faculty to enhance their content knowledge and research capabilities; (2) provide mentor-intensive research experiences at the national laboratories for undergraduate and graduate students to inspire commitments to the technical disciplines and to pursue careers in science, technology, engineering, and mathematics, thereby helping our national laboratories and the Nation meet the demand for a well-trained scientific/technical workforce; and (3) encourage and reward middle and high school students across the Nation to share, demonstrate, and excel in math and the sciences, and introduce these students to the national laboratories and the opportunities available to them when they go to college.

In fiscal year 2008, the DOE Academies Creating Teacher Scientists (DOE ACTS) program, formerly the Laboratory Science Teacher Professional Development (LSTPD) program, will support the participation of approximately 300 teachers. All 17 of DOE's national laboratories will participate in this program. Each national laboratory can elect to implement either or both of the two types of teacher professional development models in DOE ACTS: (1) Teachers as Investigators (TAI) is geared towards novice teachers typically in the elementary to intermediate grade levels; and (2) Teachers as Research Associates (TARA) for teachers with a stronger background in science, mathematics, and engineering.

The Science Undergraduate Laboratory Internship (SULI) program, which provides mentor intensive research experiences for undergraduates at the national laboratories, will support approximately 340 students in fiscal year 2008. The Albert Einstein Distinguished Educator Fellowships, the College Institute of Science and Technology (CCI) program, the Pre-Service Teacher activity for students preparing for teaching careers in a STEM discipline, and the National and Middle School Science Bowls will all continue in fiscal year 2008.

Science Laboratories Infrastructure

Fiscal Year 2007 Request—$50.9 Million; Fiscal Year 2008 Request—$79.0 Million

The mission of the Science Laboratories Infrastructure (SLI) program is to enable the conduct of DOE research missions at the Office of Science laboratories by funding line item construction projects and the clean up for reuse or removal of excess facilities to maintain the general purpose infrastructure. The program also supports Office of Science landlord responsibilities for the 24,000 acre Oak Ridge Reservation and provides Payments in Lieu of Taxes (PILT) to local communities around ANL, BNL, and ORNL.

In fiscal year 2008, SLI will fund four construction subprojects: Seismic Safety Upgrade of Buildings, Phase I, at the Lawrence Berkeley National Laboratory (LBNL); Modernization of Building 4500N, Wing 4, Phase I, at ORNL; Building Electrical Services Upgrade, Phase II, at ANL; and Renovate Science Laboratory, Phase I, at BNL. Funding for fiscal year 2008 includes $35,000,000 held in reserve pending resolution of issues related to capability replacement and renovation at PNNL. If the issues are resolved, DOE will initiate a reprogramming request to use these funds to replace and/or upgrade mission-critical facilities currently located in the Hanford Site 300 Area. The SLI program continues funding for demolition of the Bevatron at LBNL in fiscal year 2008, and funding is also provided for the demolition of several small buildings and trailers at ORNL.

Science Program Direction

Fiscal Year 2007 Request—$170.9 Million; Fiscal Year 2008 Request—$184.9 Million

Science Program Direction (SCPD) enables a skilled, highly motivated Federal workforce to manage the Office of Science's basic and applied research portfolio, programs, projects, and facilities in support of new and improved energy, environmental, and health technologies. SCPD consists of two subprograms: Program Direction and Field Operations.

The Program Direction subprogram is the single funding source for the Office of Science Federal staff in headquarters responsible for managing, directing, administering, and supporting the broad spectrum of Office of Science disciplines. This subprogram includes planning and analysis activities, providing the capabilities needed to plan, evaluate, and communicate the scientific excellence, relevance, and performance of the Office of Science basic research programs. Additionally, Program Direction includes funding for the Office of Scientific and Technical Information (OSTI) which collects, preserves, and disseminates DOE research and development (R&D) information for use by DOE, the scientific community, academia, U.S. industry, and the public to expand the knowledge base of science and technology. The Field Operations subprogram is the funding source for the Federal workforce in the Field responsible for management and administrative functions performed within the Chicago and Oak Ridge Operations Offices, and site offices supporting the Office of Science laboratories and facilities.

In fiscal year 2008, Program Direction funding increases by 8.2 percent from the fiscal year 2007 request. Most of the increase will support an additional 29 FTEs, to mange the increase in the SC research investment that is a key component of the President's American Competitiveness Initiative; four new FTEs to support NSLS–II, and ITER project office activities; and 35 FTEs—the staff of the New Brunswick Laboratory—transferring from the Office of Security and Safety Performance Assurance. Twenty-four FTEs are reduced across the SC complex in fiscal year 2008 consistent with SC's corporate workforce planning strategy. The SCPD fiscal year 2008 increase also supports a 2.2 percent pay raise; an increased cap for SES basic pay; other pay related costs such as the Government's contributions for employee health insurance and Federal Employees' Retirement System (FERS); escalation of non-pay categories, such as travel, training, and contracts; and increased e-Gov assessments and other fixed operating requirements across the Office of Science complex.

Safeguards and Security

Fiscal Year 2007 Request—$71.0 Million; Fiscal Year 2008 Request—$71.0 Million

The Safeguards and Security (S&S) program ensures appropriate levels of protection against unauthorized access, theft, diversion, loss of custody, or destruction of DOE assets and hostile acts that may cause adverse impacts on fundamental science, national security, or the health and safety of DOE and contractor employees, the public, or the environment. The Office of Science's Integrated Safeguards and Security Management strategy uses a tailored approach to safeguards and security. As such, each site has a specific protection program that is analyzed and defined in its individual Security Plan. This approach allows each site to design varying degrees of protection commensurate with the risks and consequences described in their site-specific threat scenarios. The fiscal year 2008 budget includes funding necessary to protect people and property at the 2003 Design Basis Threat (DBT) level. In fiscal year 2008, funding for the Cyber Security program element addresses the promulgation of new National Institute of Standards and Technology (NIST) requirements that are statutorily required by the Federal Information Security Management Act (FISMA) to improve the Federal and Office of Science laboratory cyber security posture.

CONCLUSION

I want to thank you, Mr. Chairman, for providing this opportunity to discuss the Office of Science research programs and our contributions to the Nation's scientific enterprise and U.S. competitiveness. On behalf of DOE, I am pleased to present this fiscal year 2008 budget request for the Office of Science.

This concludes my testimony. I would be pleased to answer any questions you might have.

SCIENTIFIC RESEARCH AT NREL

Senator DORGAN. Dr. Orbach, thank you very much. I want to ask a series of questions and then I will turn to my colleagues.

First and foremost, my colleague from Colorado mentioned that NREL, I had the opportunity to be in Golden, Colorado recently, is also working on issues like cellulosic ethanol. Tell me what the relationship is between your Office of Science and the three facilities you're going to designate, how that relates to NREL, what the coordination is, and so on?

Dr. ORBACH. We work very closely, Mr. Chairman, with NREL, and, in fact, we fund research at NREL. And, very generally, we support the basic end of the research continuum that leads to market placement of these new technologies. NREL focuses on the applied research, the step needed to take the basic ideas and convert them to the market. It's not a sharp division. In order to communicate, we need to understand the applied sector and they also do basic research, so that we can communicate most effectively. So, our relationship with NREL is a very close one, we work very closely with the program in the Department, Energy Efficiency and Renewable Energy for joint workshops and joint enterprises.

Senator DORGAN. So the significant difference here is applied versus basic?

Dr. ORBACH. That's correct.

ADVANCED SCIENTIFIC COMPUTING RESEARCH

Senator DORGAN. In 2008 the budget proposes $340 million for advanced scientific computing research. These funds will help complete the acquisition of a 250 teraflop system at Oak Ridge. What's the relationship between the computing facility at Oak Ridge, when it's completed, with the computing facility at Argonne or at Berkeley, for example?

Dr. ORBACH. Well, the one at Berkeley is what we call a capacity machine, which services about 2,500 users. The machine at Oak Ridge is what we call a capability machine. We reserve it for a smaller number so they can get larger amounts of time. There are only about 400 users at Oak Ridge.

Also, the architectures are different. We're exploring speeds that have never been achieved before. Nobody knows which scientific problems are most efficient on which architecture. So, at Oak Ridge, you'll find an architecture which is a Cray architecture. At Argonne, you'll find a Blue GeneP architecture and you'll find a Power5 architecture at NERSC at Berkeley. We believe that different science problems will be solved more efficiently on different machines. We don't know. So, we want to have the opportunity to explore which machine is best for which class of scientific problems.

CARBON SEQUESTRATION

Senator DORGAN. Let me also ask you about the role of the Office of Science in carbon sequestration. You're doing research in those areas?

Dr. ORBACH. Yes, we are.

Senator DORGAN. Again, basic research as opposed to applied research?

Dr. ORBACH. That's correct, sir. We have it in two of our programs: biological and environmental research and basic energy sciences. The latter focuses on the geologic issues associated with carbon storage. The former talks about the earth and the ability to store carbon in roots, in the surface, also with biological microbes, for example, that will absorb carbon dioxide. It looks at the biological side for sequestration.

TRANSITION OF RESEARCH INTO THE MARKETPLACE

Senator DORGAN. You know, there's a phrase that people refer to. I was unaware of it, but it is called the DOE's valley of death. Have you heard of that?

Dr. ORBACH. Yes.

Senator DORGAN. And, it's a phrase that people use to describe, I guess, how too little research really translates into new technologies that move to the marketplace. And, therefore, the valley of death. There seems to me to be a fair question about how effectively we translate the product of research into practical applications in the marketplace. Tell us a little about your view of that.

Dr. ORBACH. Well, it's very difficult. We're not the only country that struggles with that transition. The applied programs, in fact, are charged with that responsibility, but we're trying something new. The bioenergy research centers are a construct where we hope that the private sector will join with us in the basic research. The Federal money buys down the risk for the private capital so they can invest smaller amounts with this very high risk, as it is basic research. But, what we're hoping is that with the private sector as a partner, that when basic research pays off, they will then transfer that to the marketplace. So, we're looking at new methods. The Energy Policy Act gave us the Other Transactions Authority, so we have new funding structures now, that we can use with the private sector. We are attempting to come up with innovative ways to cross the "valley of death."

Senator DORGAN. Mr. Orbach, sometimes those of us without strong science backgrounds have difficulty visiting with scientists because we don't always understand exactly what they're saying. We have great respect for those that work in the sciences, obviously, but would you do me a favor? Would you send the committee a list, with an analysis, of a dozen or so of the most interesting, promising, perhaps some controversial, but breathtaking research projects that you see in your agency and in the future of your agency so that we can try to understand? If you can translate all that into the kind of thing that those of us who are non-scientists can understand I think it would give us a better idea of what you are doing and what you see ahead of you. But, I for one, appreciate your being here and appreciate especially the importance of this office. It is not the highest profile office in the Federal Government, but in many ways it holds the key to tomorrow's opportunities for our country.

[The information follows:]

INTERESTING AND PROMISING RESEARCH PROJECTS IN DOE AND IN THE FUTURE OF DOE

We are very grateful to the chairman for giving us this opportunity to explain the significance of what we do in terms that non-scientists can understand. Before we describe some of the projects we view as most promising, just a few words to put our answer into context:

To describe the far-reaching impact of DOE Office of Science-supported research on our economy, our technology, and our national life over the past five decades—and to predict the potential of Office of Science-supported research to transform Americans' lives for the better in the decades ahead—is an exciting task. Numbers only begin to tell the story. Forty-five Nobel laureates. Scores of fundamental discoveries in a wide array of fields from high energy physics, to biological research, to high-speed computing (the Office of Science website lists just a "top 100"). Countless new products, technologies, and even whole industries owe their existence to scientific research first supported by the Office of Science. But lists alone barely convey the true scope of the transformation we have generated, or the potential for new discoveries to transform our Nation's future.

Our lives have been fundamentally reshaped by Office of Science-supported discoveries. The entire field of nuclear medicine arose largely as an outgrowth of "accelerator science" spearheaded by the Office of Science and its predecessor agencies to support research in high energy and nuclear physics. At the core of MRIs are superconducting magnets, a technology first successfully developed by Office of Science-supported scientists at Fermilab to build the atom-smashing Tevatron. PET Scans grew out of pioneering advances by the Office of Science and predecessor agencies in particle accelerators, biological radiotracer molecules, photodetectors, and high-speed computers. Today particle accelerators producing X-rays, protons, neutrons, or heavy ions—once built mainly as research tools for physicists—provide advanced cancer treatment for millions of patients and are found at every major medical center in the United States.

The Information Age itself would have been impossible without the fundamental breakthroughs produced by research supported by the Office of Science—including key discoveries essential to the development of the Standard Model of high energy physics. Our world of "smart" cellular phones, cameras, music players, and appliances rely on the utilization of such phenomena and tools as the giant magnetoresistive effect and plasma chambers first investigated by Office of Science-sponsored researchers.

In short, Office of Science-sponsored discoveries are part of the very fabric of our contemporary high-tech world—a legacy of its historic role as the primary Federal sponsor of basic research in the physical sciences.

Here are some of the most promising major areas of research we are pursuing today:

Harnessing Nature for New Sources of Energy.—Since initiating the Human Genome Project in 1986, DOE has played a leading role in advancing modern biotechnology. We are applying these advances and sophisticated new tools to the task of probing microbes for solutions to energy production, carbon capture, and environmental cleanup. One of the most promising potential applications of biotechnology today lies in bioenergy production. Microbes are experts at harvesting energy from almost any form, from solar radiation to photosynthesis-generated organic chemicals to minerals in the deep subsurface. For example, there are some 200 microbes in the hindgut of the termite. They contribute to the termite's super-efficiency in breaking down cellulose into sugars that can be fermented into fuel. We now have at our disposal the tools and insights for cracking nature's code for accomplishing these marvels. Developing cost-effective ways of producing ethanol from cellulose is the key to making ethanol truly commercially viable, and biotech likely holds the solution to this challenge; biofuels also are one major means of reducing net carbon dioxide emissions into the atmosphere.

Our Joint Genome Institute is already sequencing the DNA in these microbes to identify the metabolic pathways by which these micro-organisms accomplish their mission. To seize upon these and other scientific opportunities, the Office of Science is establishing three new Bioenergy Research Centers, funded at $25 million each per year for 5 years, to bring together multidisciplinary teams of top scientists to accelerate the breakthroughs necessary for the development of cost-effective production of cellulosic ethanol and other biofuels. Universities, national laboratories, nonprofit organizations, and private firms have been invited to compete for these grants, singly or in partnerships. Proposals were due on February 1, 2007; awards will be announced this June; and Centers will be underway by early in fiscal year 2008. We estimate biofuels can replace 30 percent of the transportation fuels we

currently consume, reducing our dependence on imported oil, and providing energy security for our Nation.

Making Fusion Power a Reality.—Fusion powers the sun and the stars. Through our participation in ITER, a major international fusion research project, we are seeking to overcome the technical barriers to bringing fusion energy to the electric grid. In November 2006, the United States signed an agreement with 6 other partners. Scientists supported by the DOE Office of Science will be working side by side with counterparts from China, the European Union, India, Japan, the Republic of Korea and the Russian Federation to build and operate a reactor that demonstrates the scientific and technological feasibility of fusion energy.

The fusion process occurs in the sun or stars when lighter elements, hydrogen for example, fuse together under incredibly high temperatures (10–100 million degrees Celsius) to make heavier elements, thereby releasing energy and forming a stew of charged subatomic particles known as plasma. The key challenge is containing this plasma on earth. ITER will contain the plasma through use of extremely powerful magnetic fields. ITER, if successful, will put the world one step away from construction of a commercial fusion power plant. Fusion has the potential to provide abundant, clean, carbon-free energy for the world's growing electricity needs.

Extending the Frontiers of Science with the World's Fastest Computers.—The supercomputer is science's newest and most powerful tool, enabling researchers to model and simulate experiments that could never be performed in a laboratory. Some see computer modeling and simulation as a new "third pillar" of scientific discovery, side by side with scientific experiment and scientific theory. Supercomputing has enormous implications for U.S. competitiveness, for it holds out the promise of enabling U.S. industry to perform "virtual prototyping" of complex systems and products, substantially reducing development costs and shortening time to market. The Office of Science has been leading the way in developing the Nation's civilian supercomputing capabilities, acquiring ever-faster machines, nurturing the complex software development knowledge necessary to take advantage these unprecedented processing capabilities, and helping to bootstrap the U.S. supercomputer industry. Thousands of scientists from DOE labs and universities are taking advantage of these capabilities. Two private firms, Pratt & Whitney and Boeing, won time on the Office of Science fastest computer as part of the INCITE competition—in which national laboratory, university, and corporate researchers vie for time on Office of Science machines—and are performing important simulations of turbine operation and aerodynamic design. This has reduced their cost of production and time to market, giving them more of a competitive edge over their rivals on the international scene.

The Office of Science is building the world's most powerful supercomputing centers for open science. The Oak Ridge National Laboratory Leadership Computing Facility includes a Cray XT4 system that will be upgraded to 250 teraflop (trillions of calculations per second) peak capability. The Argonne National Laboratory Leadership Computing Facility will acquire an IBM Blue Gene/P this year with a peak capability of 100 teraflops. We are exploring these two different computer system architectures because we believe that different architectures will be better suited for different types of scientific problems. The National Energy Research Computing Center will reach 100–150 teraflop peak capacity this year and will serve over 2,500 scientists from DOE laboratories, universities, and companies, nationwide. Office of Science computing capabilities are expected to reach a petaflop (1,000 teraflops) by the end of 2008, far ahead of any foreign competition.

Leading the Nanotech Revolution.—The Office of Science is positioning the United States as the global leader of the nanotechnology revolution, perhaps the most economically promising technological revolution of our era. Our five Office of Science-supported Nanoscale Science Research Centers (four of which are now operational, with a fifth coming on line this year) provide our Nation's research community with the world's most advanced tools for exploring and manipulating matter at the nanoscale. Coupled with the world-leading high-intensity light sources at our National Laboratories, which enable scientists to image matter at the molecular level, these capabilities will have a dramatic impact on our national economy and energy security in the coming years. Fundamental research at the nanoscale may lead to methods to split water with sunlight for hydrogen production; technologies for harvesting solar energy with greater power efficiency and lower costs; super-strong lightweight materials to improve efficiency of vehicles; "smart materials" that respond dynamically to their environment; and low-cost fuel cells, batteries, supercapacitors, and thermoelectronics.

Manipulating matter at the atomic scale takes us into the realm where the chemical, physical, optical, and mechanical properties of materials can be dramatically different, creating the potential for the basis of new technologies. For example, both

diamonds and graphite found in pencil lead are made of the same element—carbon. Their vastly different properties arise from differences in the arrangement of carbon atoms at the atomic scale. Carbon nanotubes (where the carbon atoms are arranged in a tube shape, a nanometer in diameter and with walls a single atom thick) have the right properties to be the building blocks for a range of novel energy technologies and electronic devices: they are incredibly tiny, stronger than steel, can withstand high temperatures, and have a range of controllable electronic properties. Nanotubes are already finding applications in energy technologies such as novel Lithium-ion batteries and supercapacitors; but realizing the full potential of nanotubes will require addressing challenges associated with fabricating and manipulating these molecular scale objects.

The Big Bang Machine.—Researchers at Brookhaven National Laboratory's Relativistic Heavy Ion Collider (RHIC) are pushing the frontiers of human knowledge by using a powerful particle accelerator to recreate conditions as they existed in the universe just microseconds after the Big Bang. In a headline-making development, RHIC has identified a new and entirely unexpected form of matter, a "perfect liquid" composed of quarks and gluons, the tiny components that make up the core of atoms. Work at RHIC will provide scientists with a deeper fundamental understanding of nuclear matter and its interactions, knowledge that is likely to prove invaluable not only to research in nuclear physics, but also to research in energy, materials science, astrophysics, and national security.

RHIC accelerates two beams of gold nuclei to high energies and brings them into head-on collisions inside state-of-the-art detectors designed to observe the particles that emerge. The collision disintegrates the nuclei and momentarily produces the unimaginably hot and dense matter called the quark-gluon plasma.

Understanding our Climate.—The Office of Science leads Federal agencies in the field of climate modeling. Office of Science-supported researchers are advancing climate models through the use of sophisticated field measurement tools as well as the Office of Science's supercomputing resources, the fastest in the world available for civilian research. Ultimately we need to be able to understand the factors that determine the Earth's climate well enough to predict climate and climate impacts decades or even centuries in the future. Advanced climate and Earth system models are needed to describe and predict the roles of oceans, the atmosphere, sea ice, and land masses on climate, including the interactions and feedbacks between the various components of the climate system. The role of clouds and aerosols in controlling solar and terrestrial radiation onto and away from the Earth also needs to be better understood if we are to reduce uncertainty in climate prediction. The Office of Science is addressing this need through the Atmospheric Radiation Measurement (ARM) program which is providing scientists new insights into the effect of aerosols from air pollution on clouds and the consequent heating and cooling of the atmosphere.

Restoring Sight to the Blind.—Diseases of the retina are the leading cause of blindness in the United States. The Artificial Retina Project, involving six DOE national laboratories, three universities, and an industrial partner, is utilizing the DOE labs' unique expertise in materials science, advanced microelectronics, and micro-fabrication to design and construct the most advanced device to restore sight to the blind. The pliable, biocompatible 60-electrode artificial retina has been approved by the FDA for human trials. Plans call for 30 patients to receive artificial retinas this year.

The artificial retina captures visual signals and sends them to the brain in the form of electrical impulses. The device is a miniature disc that contains an array of electrodes that can be implanted in the back of the eye to replace the damaged retina. Visual signals are captured by a small video camera located in eyeglasses worn by the blind person and processed through a microcomputer worn on a belt. The signals are transferred to the electrode array in the eye. The array stimulates the optical nerves which then carry a signal to the brain. The Office of Science goal for the project is to develop the technology to fabricate a 1000-electrode device that should allow a blind person to read large print and recognize faces. Technologies developed for this project may also be applicable to the general field of neuron prostheses.

The Elusive Higgs . . . Solving the Mystery of Mass.—The Standard Model of particle physics, developed with the contributions of numerous Office of Science-supported scientists and Office of Science experimental facilities over many years, is an extraordinarily powerful, accurate, and far-reaching physical theory that explains the behavior of matter down to the level of tiny quarks. Yet a critical piece of this theory—the so-called Higgs particle—has never been observed. According to the Standard Model, the Higgs particle and its associated field are actually responsible for giving all matter its mass. Yet the Higgs remains the only particle predicted by

the Standard Model that has not yet been detected. Discovery of the Higgs and its properties—or discovery of some tantalizing alternative possibilities instead of the Higgs—would open new vistas in particle physics and provide new clues to some of the deepest mysteries of space, time, and matter. Recently, work at the Tevatron at Fermilab in Illinois—currently the world's most powerful particle accelerator—zeroed in on a lower range for the Higgs mass that suggest it might conceivably be detected at the energies achieved at the Tevatron. This would be the crowning discovery of the Standard Model and would mark the birth of a "new physics" with the potential to transform our basic understanding of the physical universe.

Using Microbes to Clean-up the Environment.—The Office of Science is looking at ways microbes can be used to degrade or transform contaminants such as toxic metals and radionuclides. Microbes have evolved over 3.5 billion years as masters at living in almost every environment. Thriving in some of the harshest environments on the planet, these single-celled organisms have developed powerful and diverse capabilities that, if harnessed through biotechnology, may provide cost-effective restoration strategies for many of the contaminated sites DOE is committed to cleaning up. Through research in areas such as genomics, geochemistry, imaging, and modeling and simulation, Office of Science-sponsored scientists are studying the complex interactions of microbes with contaminants in the subsurface environment and exploring remediation methods that rely on naturally occurring microbes. Several potential candidates are already being tested in the field. Geobacter species, for example, can transform uranium from a soluble form to an insoluble form, effectively removing it from groundwater and preventing its further mobility. A Shewanella species commonly found in soils is capable of reducing a wide range of organic compounds, metal ions, and radionuclides to less toxic forms or forms that are immobilized in the soil.

Building New Tools for Basic Science.—The world-leading large scale instruments designed, built, and operated by the Office of Science and its predecessor agencies—synchrotron light sources, neutron scattering facilities, and particle colliders—have not only driven entire fields like high energy and nuclear physics, but have also become essential tools for studying and understanding the arrangement of atoms in biological molecules, pharmaceuticals, and materials from metals to ceramics to plastics. Particle accelerators have been the primary sources of light and other forms of radiation for these facilities. Critical to development of the next generation of scientific user facilities—ones that will allow researchers to observe matter (and its components) at increasingly smaller scales and follow atomic motions and chemical reactions in real time—are advances in accelerator sciences such as superconducting radiofrequency (SCRF) technology.

The Office of Science is leading a national effort at several national laboratories and universities aimed at developing SCRF accelerator technology. This technology utilizes the remarkable properties of superconducting materials to greatly reduce the size and cost of accelerators while increasing their efficiency. These advances are being driven, in part, by the scientific opportunities at the very highest energies—SCRF is critical to realizing the proposed International Linear Collider, a thirty kilometer long particle collider which will be capable of exploring fundamental physics questions such as the physics responsible for the origin of mass as well as the nature of dark matter. However, the impact of this technology will be far wider, enabling next generation accelerator-based facilities such as free electron lasers (FELs), which will provide world-leading tools for transformational basic science in areas such as materials, nanotechnology, and biotechnology in the coming decades. The many applications of FELs include industrial processes such as laser penning to toughen ship propellers, high power laser weapons systems for naval defense, laser surgery, as well as imaging fundamental chemical and biological processes.

Basic research in science pursues the frontiers of discovery. While we expect discoveries to follow our instincts, we are often surprised, sometimes with wonderful consequences. What we have listed above is our present understanding of things to come, but there will be more—opportunities that we did not anticipate. With sufficient investment and consistent support, we can discover, apply, and improve the quality of our lives.

Senator DORGAN. Senator Domenici.

CLIMATE CHANGE RESEARCH

Senator DOMENICI. Let me just echo what you just said. You will find within the Federal Government and outside the Federal Government are gigantic research institutions and researchers that

will be knocking at your door and trying to become part of the success that is, what they hope it's going to be because of what you have and what we have made available to you and what we're going to give you and the challenge we are going to place upon you. We wish you very, very much success.

Climate research, which is being spoken of very, very heavily by many, many people. The Department has requested $138 million to support climate change research. It is my understanding that this supports DOE's role in the administration's multi-agency climate change research initiative. It appears, from budget documents, that the Department has primary responsibility for carbon science cycle and the climate impacts. That doesn't mean you're in charge of the whole program, but obviously this does give you a very big role in climate change research by the United States and on behalf of the Department of Energy.

We very much want to help you with that as the source of your money, the source of your policy direction. There are so many things that one would ask, but this is not the time. This is, sort of, an opening round here. Staff will initiate a number of other ones and many will be submitted on behalf of both sides of the isle. So, we won't be trying for one-side to get up on, take over from the other. This is going to be a very wonderful venture together. And, I look forward to it and I hope you do. We have some great laboratories that you are going to be working with and when they see the relationship that is given to them in this legislation, in this funding, they will be very, very surprised.

Mr. Chairman, thank you for yielding to me and I appreciate the opportunity to work with you on this committee with him and other people in these areas.

Senator DORGAN. Senator Craig.

IMPORTANCE OF NEUTRON SOURCES

Senator CRAIG. Thank you very much, Mr. Chairman. And, again, Mr. Secretary, we thank you for being here. As you can hear by our chairman and ranking member, there are tremendously high levels of expectation and we're all very excited about getting more heavily involved in both basic research and then its application.

I had mentioned earlier, you were at the National Lab in Idaho. You visited and you saw, it's my understanding, the Advanced Test Reactor. It's a valuable national asset and the question is, how to make the ATR a successful national user facility. You manage many user facilities successfully and because of your experience in this area, I would like to ask that you work very closely with DOE NE too, and Assistant Secretary Dennis Spurgeon, in an effort to make the ATR a world-class user facility.

You know and I'm told that all neutrons are not created equally. The Office of Science uses HFIR at Oak Ridge for basic neutron physics research, while Navy DOE NE uses the ATR for nuclear energy research. How important is it for science that you have access to these complementary neutron sources for varying fluxes and energies?

Dr. ORBACH. It's extraordinarily important because the excitations we look at, in various structures, have different energies.

And they also are sometimes very difficult to see with low fluxes. The power of the ATR is exceptional and it's an exceptional resource in that regard.

Senator CRAIG. Well, I look forward to working with you and you working with the lab. As I say, we have these marvelous resources at hand, and now we're in the business of transforming them into plow shares. And that's an exciting opportunity for us and for the world and we thank you.

Senator DORGAN. Senator Allard.

Senator ALLARD. Thank you, Mr. Chairman.

EARMARKS

Senator ALLARD. I want to cover the renewable energy lab there in Colorado at Golden. They do basic research and as well as applied research. And one of the criticisms I've gotten from the lab is that they begin to count on a certain amount of money and then all of sudden earmarks come in and take away from what they were counting on in the budget process. What portion of your budget is dispersed based on earmarks and what portion is given out in grants?

Dr. ORBACH. Well, I can only give you the fiscal year 2006 numbers, because the fiscal year 2007 grants are still underway.

In 2006, we had $129 million that were congressionally directed out of a total budget of $3.6 billion.

Senator ALLARD. Three-point-six billion dollars?

Dr. ORBACH. Yes.

Senator ALLARD. Okay. All right. And, how much of your proposed funding will be directed to programs—well, let me see, no—and how has that split changed over the last 5 to 10 years?

Dr. ORBACH. It's increased quite substantially. In previous years it was around $60 million, but it more than doubled in fiscal year 2006.

Senator ALLARD. So, you're saying from fiscal year 2005 to fiscal year 2006 that earmarks doubled?

Dr. ORBACH. Yes.

Senator ALLARD. Really. That is a very significant increase. And, then in the bill that we had last year I think there was a lot of earmarks in that again. So, that trend was continuing. It started out that way at least, didn't it?

Dr. ORBACH. The fiscal year——

Senator ALLARD. It never made it to the floor, maybe, did it?

Dr. ORBACH. I'm sorry.

Senator ALLARD. Did it make it to the floor? I was trying to remember, on the Energy Bill. I don't think it did.

Dr. ORBACH. Well, the Senate bill did not make it to the floor. The House bill passed.

What we are doing is that I sent out a letter, actually today and tomorrow, to all those who received congressionally directed funds in fiscal year 2006 and gave them the opportunity to apply through our normal process of peer review in fiscal year 2007.

Senator ALLARD. Based on ability to do the research?

Dr. ORBACH. Based on the mission of the Department and the quality of the research that will be determined through peer review.

Senator ALLARD. Research institutions in Colorado and agencies seem very comfortable with the grant process where you're rewarded the grant based on your ability to do the research and your proven record of performance. And so, I'm very comfortable with that grant process. And, you know, we'll be looking at ways with what we can do to make sure we sustain the grant process.

Dr. ORBACH. Thank you.

Senator ALLARD. Now, as I mentioned, renewable energy and energy efficiency are important to me and the chairman has a specific interest in that too. How much of your proposed funding will be directed to programs that involve research in renewable energies and conservation?

Dr. ORBACH. I can give you some specific numbers, but it's a very complex calculation. And the reason is that many of our research programs support renewable research, but indirectly. For example, our light sources for structures for biological systems, the Joint Genome Institute. I would prefer to answer that for the record, if I could, in detail, but also to go into the richness of the way in which we support renewable energy. The AEI, the Advanced Energy Initiative, that's one crosscut that we've done, is around $700 million. That includes fusion energy. And so, part of this depends on how you define renewables. And, I would prefer that, so as not to mislead you, to give you the numbers for the record, but the numbers in our biology and environmental research exceed $100 million in the 2008 budget, $75 million of which are the three bioenergy centers that we'll be funding in fiscal year 2008.

Senator ALLARD. Well, I'm interested in how much goes toward renewable energy. I assume maybe the chairman of the committee might be too. So, I would get those figures to me and I think the committee——

Dr. ORBACH. It's a very significant fraction, but I would urge you to include the resources that we use for the purposes of renewable energy.

[The information follows:]

PROPOSED FUNDING FOR RESEARCH PROGRAMS IN RENEWABLE ENERGIES AND CONSERVATION

The DOE Office of Science supports an enormous range of basic scientific research relevant to renewable energy and energy efficiency. To convey the full scope of this research and the relevant funding, I would like to take a moment to explain the complex process by which basic research ultimately informs, shapes, and transforms our energy economy by providing new technologies, approaches, and products.

Basic research differs from applied research in a key respect: in basic research there is often no one-to-one correspondence between a discovery or breakthrough, on the one hand, and an application, on the other. Breakthroughs often lead to multiple applications. Applications often rely on multiple breakthroughs. The relationship between the explicit goal of a basic research program and its ultimate impact on the energy economy may be quite unexpected and surprising.

For example, as I pointed out in my opening remarks, one of the major breakthroughs needed to make intermittent renewable energy sources such as solar and wind power part of electrical baseload is a major improvement in our methods of electrical storage. A major breakthrough in electrical storage would likely change the entire technological and economic calculus affecting solar and wind power. It could bring solar and wind into their own.

But, for budget purposes, analysts would not tend to classify funding for research in electrical storage as research in renewable energy—even though it could have a far more profound effect on the technological and commercial viability of these renewables than some of the research that is focused more explicitly on solar and wind technologies themselves.

There is a second and related point. Basic research in the physical sciences today is critically dependent on advanced facilities and instruments. The materials research sponsored by our Basic Energy Sciences (BES) program—which has enormous implications for both energy efficiency and the development of more effective solar and other renewable energy sources—relies on a set of advanced, high-intensity light and neutron sources. These light sources—and we own and are building the very best in the world—are expensive to create, and a large portion of BES's budget goes to the construction and operation of these facilities. Yet they provide the critical tools our scientists need to push the boundaries in such areas of research. BES's four Nanoscale Science Research Centers (soon to become five) provide tools that will revolutionize materials, create vast new energy efficiencies throughout the economy, and also enable us to overcome at the nanoscale many of the barriers that prevent solar and other renewable energy sources from being truly efficient. Our Joint Genome Institute (JGI), built and operated by our Biological and Environmental Research (BER) program, is playing a critical role in the biofuels revolution. JGI is using its high-throughput capabilities to sequence the genomes of key bioenergy crops such as the poplar tree and key organisms, such as the 200 microbes in the hindgut of the termite, which hold Nature's secret to the super-efficient breakdown of cellulose, a critical step in producing cellulosic ethanol.

Yet if a conventional budget analyst were asked to identify our funding for renewable energy and energy efficiency, none of these facilities might show up in the analyst's total, because they are not classified in that way—even though they are playing a critical role in our ability to make progress in these fields.

A third point is that many of the breakthroughs we achieve in the search for more efficient materials and motors, or more effective conversion of solar energy to fuels, will have multiple applications throughout the economy, improving quality of life for Americans and strengthening U.S. global economic competitiveness. The National Energy Policy noted that the U.S. economy grew by 126 percent since 1973, but energy use increased by only 30 percent. Half to two-thirds of these energy savings came from technological improvements throughout the American economy, but of course these technological improvements also had a major effect on the strength of the U.S. economy and Americans' quality of life.

So I want to encourage the committee to view this basic research and its relevance in its totality.

With that preface, here is a programmatic profile of where our transformational basic research relevant to renewable energy and energy efficiency is to be found.

Basic Energy Sciences ($1.5 billion under the fiscal year 2008 request). BES is our largest "use-inspired" energy-related research program. Virtually every research program under BES's Materials Science and Engineering Division is pursuing research relevant to increased efficiency in energy production and use through the development of lighter-weight, stronger materials, more efficient engines, and more effective transmission and storage of electrical power, to name only a few examples. The Chemical Sciences, Geosciences, and Biosciences Division is also providing transformational research aimed at efficiencies through improved catalysis and combustion. In addition, within the BES program, $94.6 million is specifically directed toward research in renewable energy, including solar, biomass, hydrogen, and wind.

Biological and Environmental Research (Genomics: GTL Program: $154.8 million under the fiscal year 2008 request; Joint Genome Institute: $60 million under the fiscal year 2008 request). BER's GTL program is devoted to basic research aimed primarily at discoveries relevant to renewable energy, providing the Nation's major thrust toward basic science breakthroughs leading to the development of cost-effective commercially viable cellulosic ethanol and other forms of biofuels. GTL is the heir to the Human Genome Project, which the DOE Office of Science (then known as Energy Research) initiated in 1986. GTL has been applying the major advances in biotechnology that have grown out of that monumental effort to the advanced study of microbes and plants for energy production, environmental remediation, and carbon sequestration. This includes $75 million for the establishment of three new Bioenergy Research Centers, for which proposals have been received; results of this competition will be announced in June. In addition, as mentioned, BER's Joint Genome Institute is playing a critical role by providing high throughput sequencing of the plants and microbes for biofuels.

Fusion Energy Sciences (FES) ($427.9 million under the fiscal year 2008 request). Fusion is not usually classified as a renewable energy source, but it offers essentially the same benefits: a theoretically almost limitless supply of energy with minimal impact on the environment. Fusion holds out the promise of delivering plentiful, clean, carbon-free energy using elements that are available in abundant quantities on earth with virtually no adverse environmental impact. As the planet's consumption of energy rapidly increases, fusion holds out one of the most formidable poten-

tial solutions to growing global energy demand; and, like renewables, fusion will produce energy that is carbon dioxide and greenhouse gas free. Side by side with renewables and greater energy efficiencies throughout our economy, fusion in all likelihood will play a major role in our energy portfolio of the future. The request includes $160 million for the U.S. contribution to ITER, the major international fusion reactor that the United States has joined with the European Union, Japan, China, the Russian Federation, South Korea, and India to build, starting this year.

Advanced Scientific Computing Research (ASCR) (approximately 25 percent of the $340.2 requested for the program in fiscal year 2008). Finally, though the amounts are difficult to quantify because of the in-kind nature of the contribution, the Advanced Scientific Computing Research program contributes substantially to Office of Science efforts on renewable energy, energy efficiency, and fusion energy by providing computer time, resources, and technical assistance at its supercomputing facilities. ASCR provides a very small amount (a few million dollars) of direct support for renewables research but provides a significant amount for relevant research (about 25 percent of the program) through partnerships with BES, BER, and FES. These partnerships include the Fusion Simulation Project, computational chemistry, materials simulations, computational biology, and supporting efforts in computer science and applied mathematics. In addition, the National Energy Research Scientific Computing (NERSC) facility provides computing time to researchers supported by the Office of Science. Over 60 percent of the fiscal year 2007 allocations at NERSC are to BES (chemistry, materials, geosciences, and engineering), FES, or BER researchers. The ASCR Innovative and Novel Computational Impact on Theory and Experiment (INCITE) program provides access and computing time to the best research from academe, industry, and government labs without regard to source of support. In 2007, nearly half of the INCITE projects are in fusion, materials, chemistry, engineering, or biology representing over 35 million hours of computer time for research in these areas.

This answer necessarily excludes crucial areas of basic science research for which the Office of Science is steward, including climate modeling, research toward environmental remediation of DOE sites, and fundamental research in nuclear and high energy physics, among others. Furthermore, it is reasonable to expect some of the fundamental research in nuclear and high energy physics to also have energy implications, but on a much longer time scale. This very fundamental research provides the broader scientific foundation for our "use-inspired" basic research related to energy.

Senator ALLARD. That would be fine.

Dr. ORBACH. Good.

Senator ALLARD. Thank you, Mr. Chairman.

Senator DORGAN. Senator Murray.

300 AREA AT PNNL

Senator MURRAY. Thank you, Mr. Chairman. And, we'd love to have you come out and visit PNNL and see some of those great research projects. It really is amazing what they're doing. And, going back to my questioning. You know that the replacement of the 300 Area is top priority for PNNL, and as I said, it's apparently hung up over this third party financing that OMB is demanding. If you can share with this committee how you're dealing with that, I would really appreciate it.

Dr. ORBACH. Well, it's important to us too. What we have done, and thanks to you for the help you have given us in fiscal year 2007, is to steer $10 million in 2007, which would complete the $20 million that fits the profile for the physical sciences facility and the 325 building. The replacement process is a package and it relies on the third party financing of two buildings. We have worked very closely with the laboratory and we believe we now have a package that will meet the requirements for third party financing. We have had to take into account market prices. It's really a good value for the taxpayer and we believe that we now have a package which the taxpayer will find valuable.

Senator MURRAY. And will OMB approve it?

Dr. ORBACH. We will be submitting it to OMB. We hope to have final release from our department by the end of this week and then submit it to OMB. We have an understanding with them that within a month we will get a response. So that we can release those funds, hopefully, by the end of April or beginning of May.

Senator MURRAY. Okay. Do you have a contingency plan if they say no?

Dr. ORBACH. We would probably go back to the drawing board and try and fix the third party financing. We think this will work, but third party financing of two parts is essential to successful departure from the 300 Area. And, I'd hate to give them up. We have both a biology and a computational facility. PNNL's role in computation is going to be very important in the future and that building is a stand alone building, which primarily will be Department of Homeland Security, large data sets. I think that's essential for the future of the laboratory. So, I'm going to do the best I can to get those third party packages approved.

Senator MURRAY. Okay. Well, so within 1 month we should hear from OMB on——

Dr. ORBACH. Yes. My best estimate is that it will leave the Department, hopefully, by the end of this week and then we have an understanding with OMB that we'll get a response within roughly 1 month.

Senator MURRAY. Well, there are two other Federal partners, NNSA and DHS, DHS you mentioned. Neither of them have any funds in the fiscal year 2008 budget request, and I was told that if funds were added by Congress to the Department of Homeland Security budget in 2007, which I was able to do, that they would include funds in 2008. We added $2 million, yet there are no funds in the budget request. Are you working with NNSA and DHS to ensure adequate funds are included?

Dr. ORBACH. Yes. We're working very closely with them. We have an MOU that you're aware of. The funding in 2007 has $7.9 million from NNSA and $2 million from DHS in addition to our $10 million. The $2 million is set, so is the $7.9 million, so I think we can deliver on the 2007 committment. We're sort of taking one year at a time. In 2008, for the reasons you understand——

Senator MURRAY. They did not include any money in the 2008 request.

Dr. ORBACH. Yes. I have spoken with Admiral Cohen about that and we hope that some resolution will be found.

Senator MURRAY. Will be found. Okay, that's not a very definitive answer. I hope that as a steward of the PNNL and all the laboratories that you really take a leadership role and push them in coming together with us on that.

Dr. ORBACH. I will promise you that. I have been doing it and I will continue to do that.

5-YEAR PLAN

Senator MURRAY. Okay. I also was disconcerted that the 5-year plan made no mention of this project either. And I was curious if this is a priority and we're all moving toward, why it wasn't part of the 5-year plan?

Dr. ORBACH. Well, the 5-year plan came to us at a bizarre time. We didn't have a 2007 budget and we were trying to put together the 5-year plan. So we didn't know how the 2007 budget would fit into the 2008 and then, from then on. It's not a one-year-at-a-time, but a continuum. And, frankly, we had no time to go through the review process with OMB that we normally would in a 5-year plan. So, what you have, as you noted, is really just a simple extrapolation of the 2008 budget out for 5 years on a proportional basis. It's not a 5-year plan, it's 2008——

Senator MURRAY. It's a budget based on current numbers and it's not a plan.

Dr. ORBACH. That's correct. It's based on the President's request for 2008 and then extrapolated out.

Senator MURRAY. It's disconcerting to see that because we need that kind of leadership in the 5-year plan to make sure we're all——

Dr. ORBACH. Absolutely, and in the previous year, in fiscal year 2007, we had a 2006 budget so we could put a 5-year plan together. But, the budget process this year just didn't give us the opportunity to do that.

Senator MURRAY. Thank you, Mr. Chairman.

[The statement follows:]

PREPARED STATEMENT OF SENATOR PATTY MURRAY

Thank you Chairman Dorgan for holding this hearing today and giving us the opportunity to discuss these important DOE programs.

I'm very pleased the Administration is continuing to increase funding for basic and physical sciences. It is vital to build robust research and development budgets and to maintain a healthy level of investment in our national laboratory system in order to attract the best and brightest minds in the sciences.

If the United States is to remain on the cutting edge of research and development, the work of the Office of Science is a resource we can not afford to under fund. As a long time advocate of increased funding for the Office of Science, I'm pleased to see the administration has requested $4.4 billion for fiscal year 2008. These investments are necessary to keep us on track as leaders in discovery and technology advancements.

I also take great pleasure in representing one of our national laboratories. The Pacific Northwest National Laboratory does cutting edge work that is an integral part of the future growth of Washington State and our Nation. It's important to make full use of all our resources to advance science, and the national lab system should play a key role.

One critical project the PNNL has been working on in Washington State is the capability replacement project. I look forward to getting the opportunity to ask you several questions on that project shortly and other matters vital to the Hanford cleanup project.

Thank you for coming today to testify, Dr. Orbach.

Senator DORGAN. Senator Murray, thank you very much.

RENEWABLE ENERGY

Secretary Orbach, my colleague Senator Allard is absolutely correct that many of us will be interested in the issue of renewable energy and the work that you're doing in those areas and will want to keep abreast of the relationship with the other parts of the Energy Department that are doing research in those areas as well.

Senator Domenici, did you have additional questions?

Senator DOMENICI. Mr. Chairman, I believe that if we do, and I would prefer to submit them through my staff to the Secretary if you don't mind and then back to the committee. I would wrap it

up from my standpoint by saying, while your office has been kind of put in the limelight, by the President's remarks in his State of the Union Address and some that followed. For many of us, we now know that you have a very broad charter. You are not limited to one thing or another. You have a very broad base of activities that come within your jurisdiction and in your power. And, I hope, and from what I can see, I think I'm right, that our chairman is going to be looking for places where we can make a real contribution to America's energy unpreparedness, in terms of our being too heavily committed and too big a user of petroleum products for our lifestyle, which carries with it significant negative baggage. And, you have been given an opportunity to do, to lead a research effort in a number of areas to change that situation that exists and is not doing us a bit of good as a people.

That's a fun situation to be in, if in fact you are given some tools.

Dr. ORBACH. Senator, thank you. We have an opportunity here that I think we have not had before. The scientific community understands exactly your words and has made decisions, personal decisions to get involved in energy research. What we are going to do is the best basic research in the world that, as I said in my opening remarks, will make renewables contribute in a significant fashion, not at the 1 and 2 percent, but at the 30 percent level in our economy.

Senator DOMENICI. That's your goal, you say.

Dr. ORBACH. Yes.

MAJOR CONSTRUCTION PROJECTS

Senator DORGAN. Secretary Orbach, I too am going to send you a list of questions and I'm interested in visiting some of the laboratories and to try to see some of the work, visit with the scientists, and so on. It must be almost nirvana to be able to hire scientists to operate a department like yours and just inquire what's happening in the universe. So, I imagine that you have some unbelievably bright staff, some of America's best, working on some breathtaking scientific projects. I'm also going to be asking our staff here to do some visits to the laboratories and will keep in close touch with you.

I want to ask, you don't have any major construction projects in your 2008 budget request, but we know of course that you have several projects envisioned in the longer term. The International Linear Collider, the ITER and the National Synchrotron Light Source II, apparently. Do you have the out-year cost estimates for these projects? How confident are you in the estimates? Will you be able to accommodate, you think, in future budgets, large construction projects? Are these projects or other projects, in your 20-year facilities plan or is that 20-year facilities plan being modified to accomplish these projects? So, these are, I'll let you answer that question, but these are the kind of questions we're also going to submit to you because we want to work with you to make sure that you have a funding plan for the longer term, not just 2008, a funding plan that works.

Dr. ORBACH. Yes, actually, we take pride in that. The Spallation Neutron Source was just finished last year. It was $1.4 billion. It came in slightly under budget and slightly ahead of schedule.

Project management is very, very serious to us. In terms of ITER, we can give you the explicit numbers out to 2014 when the construction is intended to end. And, we have been the primary driver for project management in the ITER construction process.

Senator DORGAN. What does ITER look like physically?

Dr. ORBACH. It's huge. It's about eight stories high. It looks like a donut. It's a way of containing a fusion plasma at 200 million degrees of sufficient density to generate half a gigawatt of power. So, it's a big donut. If you imagine a donut and you put your hand in the middle and open up your fingers, you have a d-like cross section, and that's now thought to be the appropriate geometry for stability of these plasmas at these huge temperatures. It will burn deuterium and tritium. These are two isotopes of hydrogen. It's the way the sun works. And, they will produce nothing but energy and helium gas. It's completely benign.

Senator DORGAN. You know, Secretary Orbach, your personality changes when I ask you a question that allows you to provide an answer you know I won't understand.

Dr. ORBACH. I'm sorry. I think——

ADDITIONAL COMMITTEE QUESTIONS

Senator DORGAN. But, let me tell you something. I hope I speak for Senator Domenici as well. If he understood all that, then I'm in serious trouble as a chairman. We really are very interested in these things and interested in what our scientists are doing. And, I asked the question to elicit your response. I hope that our subcommittee, all of the members of our subcommittee will be interested in working with you on these really fascinating projects.

[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 DIANNE FEINSTEIN

BIOLOGICAL AND ENVIRONMENTAL RESEARCH

Question. The Department of Energy's Office of Biological and Environmental Research (DOE–OBER) has a robust program for monitoring carbon cycles on land, but does not address ocean carbon. DOE traditionally has not examined ocean acidification in the context of global warming. Increases in atmospheric carbon dioxide make the ocean more acidic, and ocean acidification has a large impact on global carbon cycles. Please answer the following questions:

Do you believe that monitoring of oceanic carbon cycles is within the scope of the Office of Biological and Environmental Research?

Answer. The uptake of carbon dioxide by the ocean has a chemically well-understood effect on the acidity of ocean water. Since the industrial revolution, the pH of the ocean has been reduced slightly. This fact was brought to the attention of the scientific community in part through global ocean carbon cycle modeling carried out at DOE laboratories, with the support of the Biological and Environmental Research (BER) program. Changes in ocean pH may have an effect on the ocean carbon cycle in the future, and the BER climate modeling program will attempt to account for those effects in the development of the coupled climate-carbon cycle models supported by the program. The BER climate change research program conducts basic research and develops advanced climate modeling. Supported research includes studying the effects of climate change on important terrestrial ecosystems, but does not include environmental monitoring. Monitoring of the oceanic carbon cycle is outside the present scope of BER; however, it is supported by other Federal agency partners in the Climate Change Science Program (CCSP), including the National Oceanic and Atmospheric Administration (NOAA) and the National Science Foundation (NSF).

Question. If so, how much of the 17 percent increase in funding provided by the President's fiscal year 2008 budget would be needed to initiate such a program? Is more funding needed? If so, how much?

Answer. As stated above, environmental monitoring is outside the scope of the BER basic research program. Monitoring of ocean carbon cycles is supported by other Federal agencies.

Question. If not, how can other Federal agencies best take advantage of DOE's expertise in this realm? What types of programs do you envision where the Office of Biological and Environmental Research provides important support to this national need?

Answer. One of the most robust methods of studying the carbon cycle of the entire ocean, and the chemistry of ocean water, including its acidity, is through detailed, three-dimensional models of the biogeochemistry of the ocean. When such a model is coupled to a model of the atmosphere, uptake of atmospheric carbon dioxide by the ocean is accounted for. This approach is central to the BER climate modeling program, which includes leading-edge three-dimensional modeling of the coupled atmosphere-ocean system. Other Federal agencies can best take advantage of DOE's expertise in this realm by communicating their process research results to the modeling teams so that the models account for the most up-to-date scientific results.

Question. The Department of Energy's Office of Biological and Environmental Research (DOE–OBER) has developed unique capabilities to monitor and predict chemical and physical interactions between fluids and subsurface environments. This capability is essential to understanding the behavior of carbon dioxide in the deep subsurface; and the application of this knowledge to the permitting and monitoring of carbon sequestration sites. Please answer the following questions:

In addition to technology development, what efforts are you making to improve our scientific understanding of the behavior of carbon dioxide at potential sites for geologic carbon sequestration?

Answer. Within the Office of Science, the Basic Energy Sciences (BES), Biological and Environmental Research (BER), and Advanced Scientific Computing Research (ASCR) programs support research that underpins efforts to understand the behavior of carbon dioxide sequestered in deep geological formations. BES-supported research focuses on areas where improved understanding is needed to evaluate the potential for deep underground sequestration, including understanding the mechanical stability of porous and fractured reservoirs/aquifers, understanding multiphase fluid flow within the aquifers, and understanding the geochemical reactivity within the reservoirs/aquifers. BER supports research towards the development of methods or strategies to enhance carbon sequestration in long-term stable forms in plants and soils. This research includes the development of functional genomic, genetic, and proteomic approaches that may lead to improved biomass systems for carbon fixation and sequestration. ASCR leads the development of high-performance computers for related scientific applications and supports research in multiscale mathematics and computation science needed to develop optimal codes for modeling complex systems such as subsurface biogeochemical processes. ASCR has also partnered with BER to support research on groundwater reactive transport modeling and simulation through the Scientific Discovery through Advanced Computing (SciDAC) program.

Additionally, the Office of Science has led a series of workshops that engaged the broader scientific community to identify the challenges associated with terrestrial and subsurface geological carbon sequestration and promising research areas that, if pursued, could lead to further understanding of related biochemical and geochemical processes and enable the development of long-term sequestration technology options. More information on these workshops can be found in the subsequent reports: "GTL: Genomics Roadmap—Systems Biology for Energy and Environment," August 2005 (http://genomicsgtl.energy.gov/roadmap); the Basic Research Needs for Geosciences: Facilitating 21st Century Energy Systems workshop held in February 2007, (report to be released soon); and Computational Subsurface Sciences Workshop, held in January 2007 (http://subsurface2007.labworks.org/report/).

Question. At the current level of investment, how long before we have sufficient scientific knowledge to begin permitting various sites around the country in the near future?

Answer. Sufficient scientific understanding currently exists to support planned large-scale demonstrations of carbon sequestration in depleted oil and gas reservoirs. Only after these large-scale demonstrations are conducted will there be sufficient understanding of the long-term stability and environmental impacts of geological storage of carbon dioxide in such reservoirs. DOE's Office of Fossil Energy is pursuing this applied research and development path. Knowledge about deep saline aquifers is far less extensive, and many substantial issues need to be addressed

through research and demonstration before it will be possible to permit sequestration in saline aquifers at a commercial scale.

Question. In addition to current efforts in carbon capture and sequestration technology; what additional programs are needed to develop carbon sequestration science to the point where we can safely permit and monitor sequestration sites? How much additional funding is needed to implement these programs?

Answer. The Office of Science, in coordination with the Office of Fossil Energy, is supporting a range of basic research activities that will provide a sound scientific basis for carbon sequestration. Such research includes the study of geophysical imaging methods needed to measure and monitor below-ground reservoirs of carbon dioxide resulting from geological sequestration, multiscale modeling to understand and visualize saline aquifers and other geological reservoirs, and studies to enhance long-term sequestration processes and the stability of stored carbon in terrestrial vegetation and soils. The recent Office of Science-led workshops on Basic Research Needs for Geosciences: Facilitating 21st Century Energy Systems, February 2007, and Computational Subsurface Sciences Workshop, January 2007, identified priority research areas needed to develop carbon sequestration science. The results of these workshops will help inform ongoing research planning and future budget requests.

Question. In fiscal year 2007, some compromises had to be made for new facility construction and for user facility operations in the synchrotron radiation/photon science area. How do you see the fiscal year 2008 budget addressing the objective of maintaining the on-time, on-budget completion of major construction projects and also achieving a level of funding for facility operations which is needed to ensure scientific accomplishment commensurate with the large investments that have been made in major scientific user facilities?

Answer. To support users and to maintain the facilities and instruments, the fiscal year 2008 budget funds facility operations generally at or near optimal levels, with the exception of Fusion Energy Sciences facilities, which would be operated at about half of optimal levels as part of a balanced fusion program, consistent with the fiscal year 2007 request and fiscal year 2006 appropriation. The fiscal year 2008 budget provides funding for the major construction projects and major items of equipment at a level that assumes full funding of construction in fiscal year 2007; i.e., the fiscal year 2008 budget was submitted to Congress prior to passage of the final fiscal year 2007 appropriation. Therefore, impacts on construction projects from the fiscal year 2007 appropriation are not addressed in the fiscal year 2008 budget.

Question. California is, and has been an R&D leader, contributing greatly to the U.S. economy through its scientific and technical talent. The challenge is sustaining this talent with increasing pressures on the Federal budget. The Nation needs to leverage its investments across agencies and throughout the U.S. scientific enterprise to effectively and synergistically apply its world-class R&D capabilities. I am interested in how the DOE plans to leverage the investments and accomplishments of the NNSA complex, such as its tremendous supercomputing capability and the fusion capability of the National Ignition Facility, to support our civilian science programs? Will you and the Office of Science be able to reap benefits from the investments made to develop NNSA's scientific capabilities to support DOE's national security mission? How do you plan to leverage the capabilities at universities, Office of Science laboratories, and the NNSA laboratories to capitalize on the strengths and capabilities across the DOE complex?

Answer. The Office of Science (SC) utilizes investments made by NNSA in the field of High Energy Density Physics (HEDP) as well as in high-performance computing in a number of ways.

Increased cooperation between these two programs will have benefits for both. The NNSA HEDP infrastructure, represented by facilities such as the National Ignition Facility (NIF) in California, OMEGA at the University of Rochester, and the Z-Pinch at Sandia, are all used by SC funded researchers to advance the field of High Energy Density Laboratory Plasmas (HEDLP), which is a subset of HEDP. These facilities will be used by SC to perform research on extreme states of matter, for example, simulating in a laboratory physical properties of phenomena that once could only be viewed from afar by telescope. These facilities may also serve to move forward research on inertial fusion energy.

Many of the facilities that NNSA uses for stockpile stewardship, including Z-Pinch, Omega, and NIF (which will begin operations in 2010), can be used for both national security and energy-related HEDP research. The joint NNSA–SC Fusion Energy Sciences (FES) HEDLP program is currently being put together. A workshop to consider integration of NNSA and FES program elements is planned for May 2007. Details of the joint HEDLP program are contained in the DOE NNSA and SC fiscal year 2008 President's Budget Request narratives.

In the area of computation, there has been a high level of collaboration to advance the state-of-the art in computation. NNSA is a world leader in mission-driven computation for its stockpile stewardship program. SC laboratories have assisted in the development of software codes, for instance, and have also benefited from NNSA's experience in running machines like Cray's Red Storm and the IBM BlueGene/L.

Researchers from NNSA and SC labs as well as university researchers are already reaping benefits from the array of facilities within the DOE complex. We are examining ways to increase collaboration with NNSA facilities without compromising national security or NNSA's mission. We expect this collaboration to develop further and help keep the United States at the forefront of many areas of physical science.

QUESTIONS SUBMITTED BY SENATOR PETE V. DOMENICI

LOW DOSE RADIATION EFFECTS RESEARCH

Question. Dr. Orbach, you and I have worked on understanding the effects of low dose radiation for some time. It appears that the science indicates that the linear no-threshold model theory does not hold up scientifically.

Can you tell me what the conclusions of the Department's research indicate and when you will complete this evaluation?

Answer. Until recently, biophysical models of response to radiation exposure have assumed independent action of ionization events in cells and tissues. The models assume that the single cell is the unit of function. The models also assume that every ionization event increases the probability of DNA breaks. Together, these physical/biological assumptions supported linear, no-threshold models of radiation risk and cancer. Historically, measurements of initial radiation damage such as cell death, chromosome aberrations, or micronuclei formation in cellular systems showed a fairly linear response with dose, but these experiments seldom encompassed the lower doses of interest.

New research from DOE's Low Dose Program directly challenges the old fundamental assumptions. The new findings provide compelling evidence that ionization events in cells and tissues are not completely independent and that tissues have surveillance mechanisms that dramatically affect the development of cancer and the behavior of cancer cells. The research is establishing the importance of studying a tissue's biological response to an exposure, rather than studying just the initial events within an individual cell.

This new research includes recent studies that highlight biological signaling between irradiated cells and nearby non-irradiated cells. This crosstalk cannot be explained with the older biophysical paradigms, which assume that the single cell is the unit of function. These data also show that cells within a tissue are not independent of each other in a multi-cellular organism. Indeed, the signaling from non-irradiated cells can actually eliminate damaged cells from a tissue. These and other results are consistent with the conclusions of the recent French National Academy Report "Dose-effect Relationships and Estimation of the Carcinogenic Effects of Low Doses of Ionizing Radiation" (March 2005).

We believe that investments being made to study the effects of low doses of radiation in 3 dimensional tissues, a significant advance over traditional isolated cell approaches, will provide substantial results in the next 3 to 5 years. Research to understand the variability and genetic susceptibility of individuals to low doses of radiation is much more difficult but will have significant payoffs in 5 to 7 years.

Question. How will you work to see that this information is used to make informed decisions about environmental and worker safety?

Answer. In addition to verifying and expanding research findings, we are working to communicate the new biological paradigms to the larger scientific communities in the United States and around the world. We feel that the quickest and most appropriate route to establish the need for reconsideration of risk estimate models is to gain understanding and acceptance from the scientific community first, while informing the regulating agencies and the general public along the way.

The growing body of research from the Low Dose Program now provides a scientific basis for reconsideration of models used to set regulatory standards. The Low Dose Program is supporting research to help in the development of new mechanistic models that would incorporate all aspects of radiation biology, from cellular and molecular actions within tissues, to the evolution of cancer as a multi-cellular disease. Ongoing research in the Low Dose Program and advances in systems biology hold promise in providing this modeling framework, which can facilitate moving new biological paradigms into the regulatory process.

SCIENTIFIC INTERACTION WITH CHINA

Question. I have been talking for quite some time about the need for a U.S. global climate change policy that incorporates all world economies, including the developing world. The foundation of our success will be the development of affordable technologies.

Today, the United States is the largest emitter of greenhouse gases, but China will soon overtake us in this regard. I believe it is critical that we engage China as a partner in our efforts to curb reductions in greenhouse gases. We need to launch a serious, ambitious effort to reduce greenhouse gas emissions in both of our nations through technology deployment and other coordinated efforts.

Please tell me about the current collaborative efforts between the United States and China to advance technologies that will reduce greenhouse gas emissions, including any bilateral R&D programs.

Answer. The fossil energy protocol is a bilateral agreement on energy technology cooperation that has a goal of reducing the impact of China's growing demand on global hydrocarbon markets; some of the activities in the Protocol relate to modeling and technologies for control of greenhouse gas emissions in China. Additionally, both China and the United States are charter members of the Carbon Sequestration Leadership Forum (CSLF), which is an international climate change initiative focused on development of improved cost-effective technologies for the separation and capture of carbon dioxide for its transport and long-term safe storage. The United States and China are co-sponsors of a CSLF-recognized project for "Regional Opportunities for CO_2 Capture and Storage in China".

Question. Can you please tell me what additional steps this administration plans to take to address this important issue?

Answer. The fossil energy protocol was renewed in 2006 for an additional 5 years.

WORKFORCE DEVELOPMENT FOR TEACHERS AND SCIENTISTS

Question. I am pleased to see that the fiscal year 2008 budget request would increase this account to $11 million, an increase of 57 percent over the operating plan for fiscal year 2007.

I believe the Department of Energy can make an important contribution to the quality of math and science teaching in this country, which is so critical to our Nation's continued economic competitiveness.

I understand that the Department is developing a strategic plan for the scale-up of its activities in this area.

Could you describe the main elements you are including in this strategic plan?

Answer. A strategic plan is being developed in the Office of Science for its Office of Workforce Development for Teachers and Scientists (WDTS). It is not a Departmental-wide blueprint for this program area. As the strategic plan is under development, I regret that I am unable to provide a substantive answer to your question at this time. As to a "scale-up" of our activities, I point you to recommendation number five of the just-released interagency Academic Competitiveness Council report (located at http://www.ed.gov/about/inits/ed/competitiveness/acc-mathscience/index.html), which states that "funding for Federal STEM education programs designed to improve STEM education outcomes should not increase unless a plan for rigorous, independent evaluation is in place, appropriate to the types of activities funded." We have begun working with the other members of the Council under the auspices of the National Science and Technology Council to implement the recommendation in this report. Overall, the fiscal year 2008 request to Congress of $11.0 million is an increase of 38 percent over the fiscal year 2007 appropriated level of $8.0 million.

Question. How will you ensure that the expanded program will include the widest possible cross-section of our Nation's educational system?

Answer. In January 2007, WDTS held a series of 9 focus groups designed to gather advice and information from a very wide cross-section of STEM education leaders from universities, educational associations, under-represented populations, the private sector, other Federal agencies, and other groups. These entities remain part of the planning process for WDTS and will help ensure that the program includes the widest possible cross-section of participants from our Nation's educational system.

HIGH ENERGY DENSITY PHYSICS

Question. Dr. Orbach, as you are aware, this subcommittee has carried language in the fiscal year 2006 and draft fiscal year 2007 bill directing the Department to integrate the Federal research in High Energy Density Physics among DOE's Office of Science and the NNSA and other Federal agencies.

I want to thank you for supporting the multi agency effort to establish the High Energy Density Laboratory Plasmas program, including the establishment of a multi agency advisory group to oversee the establishment of research priorities and goals.

One objective of my proposal was to expand the use of critical NNSA facilities such as the Z machine for non weapons research.

What is the DOE's plan to maintain the United State's leadership in this area of science?

Answer. As part of the new joint program on High Energy Density Laboratory Plasmas (HEDLP), SC and NNSA are initiating a series of focused workshops to engage the research community in identifying promising research opportunities that merit increased investment as the joint program is implemented. The first workshop is scheduled for this May. These workshops will examine the use of NNSA facilities for world-class HEDLP science. The workshops will be used to guide development of new research efforts in fiscal year 2009, which will be competitively solicited and peer reviewed, to ensure top-quality science for this investment.

Question. Has the Department included any funding for this scientific research as a joint program? If not, why not?

Answer. Funding will be provided from existing support for HEDLP within SC's Fusion Energy Sciences (FES) program and NNSA in fiscal year 2008. As the program matures, it is expected to compete for funding against the other programs in SC and NNSA.

Question. What is the Department's plan for stewardship of this important area of scientific research?

Answer. HEDLP will be nurtured under the joint program by NNSA and FES to steward this emerging field of physics. DOE plans to establish a new advisory committee to give technical advice and help develop a scientific roadmap for the joint program.

INTEGRATION OF SCIENCE AND THE NNSA

Question. With passage of the Energy Policy Act of 2005, your position has been elevated to the Under Secretary level. In this position, you now have responsibility for setting the scientific agenda for both the Office of Science labs as well as integrating the capabilities of the NNSA facilities, which have tremendous scientific capabilities and facilities. This budget is the first year that you would have had to integrate the research at all labs.

How has this budget request changed to integrate research of NNSA and Office of Science facilities?

Answer. The Office of Science (SC) and NNSA have always had a high level of collaboration in a number of areas, including high-performance computing and high-energy density physics (HEDP). These collaborations are being expanded, and new areas are currently being added. I think the key to any collaboration is to take advantage of both NNSA and SC strengths. Increased cooperation between these two programs will have benefits for both.

In the area of computation, there has been a high level of collaboration to advance the state-of-the-art in computation. NNSA is a world leader in mission-driven computation for its stockpile stewardship program. SC laboratories have assisted in the development of software codes, for instance, and in turn have benefited from NNSA's experience in running machines such as Cray's Red Storm and the IBM BlueGene/L.

Many of the facilities NNSA uses for stockpile stewardship, including Z–Pinch, Omega, and the National Ignition Facility (which will begin operations in 2010) can be used for HEDP and energy-related HEDP research. The joint NNSA–SC Fusion Energy Sciences (FES) program in High Energy Density Laboratory Plasmas (HEDLP) is currently being put together. A workshop to consider the integration of NNSA and FES program elements is planned for May 2007. Details of the joint HEDLP program are contained in the NNSA and SC fiscal year 2008 President's Budget Request narratives.

Question. Which NNSA research facilities do you believe offer the best opportunity to support the Science research priorities?

Answer. There are a number of ongoing collaborations between NNSA in computation and HEDLP. With the start of the joint program in HEDLP, and the workshop planned for May, we expect to learn more about how to maximize the potential for collaboration. At a minimum, I expect this cooperation will improve the effectiveness of both programs' missions and use of facilities.

HIGH PERFORMANCE COMPUTING

Question. High Performance Computing developed by the NNSA to support the weapons stockpile stewardship program, and the research within the Office of Science has enabled breakthrough advances in science and engineering in the United States. These advances contribute to the Nation's economic competitiveness. Even today, industry looks to the Department to define future computing architecture and code development.

What is the DOE long term strategy to keep the Nation at the forefront of High Performance Computing?

Answer. As a partner in the President's American Competitiveness Initiative, we are committed to keeping America at the forefront of High Performance Computing (HPC) and the computational sciences. The first petascale computer resource for open science will be operating at the Leadership Computing Facility (LCF) at Oak Ridge National Laboratory in late 2008. Experts expect that, for at least the next decade, chip transistor counts will continue to follow Moore's law, but fundamental physics will significantly limit chip speeds. Consequently, increased parallelism will be essential for continued chip performance improvement, and increased transistor counts will allow radical departures from traditional CPU designs. To prepare for future systems, we are partnering with the National Nuclear Security Administration (NNSA), the Defense Advanced Research Projects Agency (DARPA), and the National Security Agency (NSA) through the High Productivity Computer Systems program to foster development of the next generation of hardware. Further, SC and NNSA have entered into a research contract with IBM to develop the next generation of the IBM Blue Gene.

In addition, we will redirect a portion of our computer science research portfolio to address major obstacles constraining the ability of a broad range of computational scientists to use petascale computers effectively in areas important to DOE missions. Also, our Scientific Discovery through Advanced Computing (SciDAC) program has created a powerful, integrated research environment for advancing scientific understanding through modeling and simulation. Through SciDAC, applied mathematicians, computer scientists and computational scientists are working in teams to create the comprehensive, scientific computing software infrastructure needed to enable scientific discovery in the physical, biological, and environmental sciences at the petascale and to develop efficient and scalable data management and knowledge discovery tools for large data sets. Further, SciDAC–2 expanded the original program by collaborating with the NNSA and the National Science Foundation as new funding partners.

Finally, we will continue the successful Computational Science Graduate Fellowship with NNSA to develop the next generation of computational science leaders.

Question. What is the DOE doing to establish a R&D roadmap with industry and labs to support long term research of advanced computing architecture concepts, algorithms, and software in order to meet the next technological changes?

Answer. The 2004 report of the Federal High-End Computing Revitalization Task Force (HECRTF) coordinated by the National Science and Technology Council (NSTC) established the R&D roadmap, which we are actively pursuing through government-wide interagency working groups. Both the Office of Science (SC) and NNSA are formal mission partners in Phase III of the DARPA High Productivity Computing Systems (HPCS) research program. Phase III of the HPCS program is focused on the generation of HPC systems that will be available from Cray and IBM in the 2011 timeframe. In addition, both SC and NNSA will participate in an NSA workshop which is intended to bring together key experts across related interdisciplinary fields to consider and define the opportunities and challenges in six technical thrusts for improving power efficiency, chip input/output (I/O), interconnect, resilience, productivity, and file system I/O.

The long term architectural strategy for system vendors is in a period of significant change. Both SC and NNSA are working with vendors to help them better understand our mission needs. Examples include working with Cray on its XMT multithreaded architecture and with IBM on the Road Runner architecture and the design of the next generation of the Blue Gene architecture.

SC and NNSA continue to work together in the area of HPC software environments. A recent example is SC participation in the NNSA workshop on its TriLab L2 petascale user environment milestone that was held after the 2007 Advanced Simulation and Computing principal investigator meeting. As a next step, SC and NNSA are co-sponsoring a workshop on petascale tools in Washington, DC this August. Results from this workshop will inform SC funding plans in petascale tool research to meet both SC and NNSA needs.

INTEGRATION OF HIGH PERFORMANCE COMPUTING AMONG SCIENCE AND NNSA

Question. Both the DOE/Office of Science (SC) and NNSA have national High Performance Computing programs for their respective missions. Both offices support acquisition plans with decidedly different goals. The Office of Science seeks to expand computing capacity to other labs, while the NNSA is seeking to reduce the number of labs with High Performance Computing from 3 to 2 labs.

What is the plan within DOE to acquire new high performance computing platforms and how is it integrated and coordinated between the Office of Science and the NNSA?

Answer. To support open scientific discovery, we must maintain our balanced high performance computing (HPC) resources portfolio that includes two types of HPC facilities. In the case of the National Energy Research Scientific Computing (NERSC) Center, we have established a mission-critical high performance production computing center. NERSC provides HPC resources for open science to support the needs of the Office of Science program offices. Currently, NERSC supports over 400 projects with 2,500 users and is predominately characterized by capacity computing. Within the current NERSC funding profile we have established a stable 3-year upgrade cycle which is consistent with the life cycle of HPC production resources.

The second priority in our "Facilities for the Future of Science: A Twenty Year Outlook" is establishment of HPC capability computing facilities. In contrast to NERSC, which supports thousands of users with small allocations of time, the high performance computing resources at the Leadership Computing Facilities (LCFs) at Oak Ridge and Argonne provide large allocations to a small number of projects with the potential for breakthrough scientific impact. Because access to capability computing is so important to our national competitiveness, we have made the HPC resources at the LCFs available to the open scientific community, including industry, through the Innovative and Novel Computational Impact on Theory and Experiment (INCITE) program. Over the past 3 years we have focused our efforts on establishing capability computing centers to provide a variety of HPC resources for open science.

In 2003, we signed a memorandum of understanding with NNSA to establish a framework for planning and coordinating research, development, engineering, and test and evaluation activities related to high-end technical computing. The acquisition of both the Red Storm (Cray XT3) computer at the LCF at Oak Ridge National Laboratory and the proposed IBM Blue Gene/P at the Argonne LCF were a result of a partnership between NNSA Advanced Simulation and Computing (ASC) and the Office of Science. More recently, Lawrence Livermore National Laboratory, Argonne National Laboratory, and IBM have entered a research and development contract to develop the next generation of Blue Gene-based products. Oak Ridge is working with Sandia National Laboratories and Cray to develop a quad-core version of the Catamount operating system. As we go forward, we will continue to rely on our close collaboration with NNSA in the area of high performance computing research and testbeds. However, NNSA's requirements for classified computing are inconsistent with the Office of Science's mission to support open science; therefore, ASCR does not share production systems with NNSA–ASC.

GENOME RESEARCH

Question. Are we making sufficient investments in the scientific underpinnings that would support our Nation's biofuels goals?

Answer. The Department recognizes the significant scientific and technological barriers that need to be overcome in order to achieve our Nation's biofuels goals, and is investing a significant portion of our research budget to support fundamental research underpinning microbial and plant research relevant to biofuels. Three GTL Bioenergy Research Centers, representing a total investment of $375 million over the next 5 years, will conduct comprehensive, multidisciplinary, and integrated basic research programs in bioenergy-related systems and synthetic biology. Research at the Centers will focus on developing the science underpinning biofuel production that will ultimately lead to technology deployable in the Nation's energy economy. The Centers will draw heavily on technology and basic science generated in the entire portfolio of Genomics: GTL activities. The Department also provides significant investments in a broad suite of scientific user facilities, such as the Production Genomics Facility and structural biology user stations at DOE synchrotrons and neutron sources, with unique instrumentation, computational capabilities, and experimental capacity to enable scientists in universities, Federal laboratories, and industry to conduct research underpinning the goals of biofuels production.

Question. With the need to support the DNA characterization of many more plants to support our biofuels goals, why has the Department reduced funding for the Joint Genome Initiative?

Answer. The DOE Joint Genome Institute (JGI) receives a significant fraction of the overall budget for Biological and Environmental Research (BER), indicating our commitment to provide genome sequencing resources supporting the Department's missions and its biofuels goals. The level of fiscal year 2008 funding has increased significantly relative to that of fiscal year 2006. The budget request for the JGI, in addition to reflecting a realistic funding balance among the entire portfolio of BER research supporting our biofuels goals, also reflects the need to replace aging sequencing equipment with more advanced instrumentation capable of greater throughput. JGI receives funds from sources other than the "operating" line in the budget. In fiscal year 2008, $10 million is requested for JGI from the Genomics: GTL Sequencing portion of the BER budget. JGI also receives funding from external sources. In fiscal year 2006, JGI received $2.9 million for sequencing from "work for others"; about $1.3 million of which was from the intelligence community and the rest from a variety of other sources.

CLIMATE RESEARCH

Question. Dr. Orbach, the Department has requested $138 million to support Climate Change Research. It is my understanding that this supports DOE's role in the Administration's multi agency Climate Change Research Initiative. It appears from budget documents, the Department has primary responsibility for carbon cycle science and climate impacts.

Can you please explain the administration's research priorities and how the Department supports those efforts?

Answer. The administration's Climate Change Research Initiative (CCRI) is a set of cross-agency activities in areas of high priority climate change research where substantial progress is anticipated over the next 2 to 4 years. The specific focus areas include: climate forcing (atmospheric concentrations of greenhouse gases and aerosols); climate observations, climate feedbacks, and sensitivity; climate modeling, including enabling research; regional impacts of climate change, including environment-society interactions; and climate observations.

In fiscal year 2008, the Biological and Environmental Research (BER) program will continue to participate in specific research areas of the CCRI. These areas include climate forcing, climate modeling, and climate change observation. Climate forcing, which includes modeling carbon sources and sinks, especially those in North America and quantifying the magnitude and location of the North American carbon sink, is a high priority need identified in the interagency Carbon Cycle Science Plan. In climate modeling, DOE's contribution to the CCRI will continue to involve the production of future potential climate scenarios for use in assessing the environmental implications of different future possible climate states. In the climate observations area of the CCRI, the DOE Atmospheric Radiation Measurement (ARM) program mobile facility will be deployed to a location where data are needed to fill gaps in understanding key atmospheric properties and processes, and their effect on the Earth's radiation balance and climate. The Integrated Assessment Research contribution to the CCRI will continue to be the development of tools for use in assessing the costs and benefits of human-induced climate change, including those associated with different policy options for mitigating such change. The requested BER budget to support these specific CCRI activities in fiscal year 2008 is $23.7 million. The remainder of BER's $138 million climate change research request supports research in the long-standing U.S. Global Change Research Program (USGCRP) and climate change mitigation research.

Question. Does the Office of Science support climate research modeling to determine what effect climate change may have on regional rainfall patterns? What does the DOE research tell us?

Answer. The BER climate modeling program supports the development and testing of coupled ocean-atmosphere-land surface climate models. Those models are used to project climatic change based on specified atmospheric greenhouse gas concentrations. Those model runs are performed at horizontal grid cell resolution of about 150 kilometers (or about 90 miles). There are systematic biases in the precipitation patterns in these model runs, particularly in the tropics due to processes like convection that are apparently not being represented accurately in the atmospheric component of the model. Researchers are working in a concerted way to address these systematic biases. Such biases notwithstanding, results such as earlier spring snow melt over large parts of the Southwestern United States and a northward shift of storm-tracks are fairly robust results in the climate change projections so far.

CARBON SEQUESTRATION

Question. The Department plays a large role in supporting carbon research, including the possibility for long term sequestration within the Climate Change Research program.

What is your opinion of the technological potential for this country to safely sequester large amounts of carbon?

Answer. Carbon capture and storage technologies through geological storage and terrestrial sequestration provide options for reducing greenhouse gas emissions. Successful research, development, and demonstration are expected to result in widespread, safe deployment of these technologies.

Question. How long do you believe it will be before we will be able to utilize large scale carbon sequestration in this country?

Answer. Although several commercial-scale projects currently operate outside the United States, we believe it will be several years before the United States will be able to utilize large-scale carbon sequestration. Sufficient scientific understanding currently exists to support planned large-scale demonstrations of carbon sequestration in depleted oil and gas reservoirs. Only after these demonstrations are conducted, however, will there be sufficient understanding of the long-term stability and environmental impacts of geological storage of carbon dioxide in these reservoirs to proceed on a large scale. Knowledge about deep saline aquifers is far less extensive, and many substantial issues must be addressed through research and demonstration before we could consider permitting the injection of carbon dioxide into saline aquifers at a commercial scale.

Question. What does the scientific data indicate about our domestic capacity to store CO_2?

Answer. Scientific data indicate that the United States has a large number of geological formations amenable to storage of large quantities of carbon dioxide—e.g., oil and gas reservoirs, unminable coal seams, and deep saline reservoirs. Current estimates indicate that hundreds of years of total domestic carbon dioxide emissions could be stored in such formations. In a recent Department study led by the National Energy Technology Laboratory (NETL)—"Carbon Sequestration Atlas of the United States and Canada"—the DOE Regional Carbon Sequestration Partnerships identified over 3.5 trillion tons of possible carbon dioxide storage capacity in the U.S. and Canada. Again, greater scientific understanding and demonstration of feasibility are needed before use of such storage capacity on a commercial scale can be safely implemented. There is also significant potential for terrestrial carbon sequestration in soils and plants, which is an ongoing area of research for the Office of Science as well as other Federal agencies.

OFFICE OF SCIENCE—ENERGY-WATER PROGRAM

Question. The Energy Policy Act of 2007 included in section 979 an authority for the Office of Science to pursue research, development, demonstration, and commercial applications to address issues associated with the management and efficient use of water in the production of energy. As you are well aware, water plays a big role in the production of electricity, and the development of technologies to minimize water usage will be critical in areas facing drought conditions.

Unfortunately, the budget request doesn't provide any funding to support this important activity.

Can you tell me what if anything the Department is doing to carry out the direction in section 979?

Answer. The Department is undertaking activities responsive to section 979. For example, Science (SC), Energy Efficiency and Renewable Energy (EERE), and Environmental Management staff are working together to track existing DOE-wide research, development, and demonstration projects relevant to water needs in energy production. SC and EERE representatives participate in the National Science and Technology Council's Water Availability and Quality Subcommittee. SC and EERE representatives are working with the national laboratories to develop a broad-based understanding of technology and development needs that could improve water efficiency for energy production. Lastly, the Department is in the process of preparing a report to Congress responsive to section 979(f).

BIOLOGICAL AND ENVIRONMENTAL RESEARCH FUNDING

Question. I understand there has been discussions about changing the funding model for the Office of Biological and Environmental Research to adopt a block funding model that would send the bulk of research funding to a single "core lab." I believe this would discourage competition among labs to come up with creative re-

search and discourage the development of broad multidisciplinary approach at each lab.

Is the Department considering changing the BER program to a block funding model?

Answer. BER will transition its research and technology development portfolio at the national laboratories into one with three key thrusts. First, BER will maintain its use of and reliance on rigorous merit-review for research selection. Second, it will focus on support of team-based research efforts. Third, it will fund a portfolio of laboratory research focused on one or more BER Scientific Focus Areas. There is no plan to support a Scientific Focus Area exclusively at a single "core" national laboratory. The purpose of this new funding strategy is to better align BER's approach with that used by the other major DOE Office of Science programs.

Question. Would this approach impede the other DOE labs from promoting relevant new ideas and quickly responding to emerging national problems when a single lab has been designated for funding as the lead lab?

Answer. Impeding competition is contrary to the principles in the Administration's R&D Investment Criteria, and any new approach should encourage, not impede, competition.

JOINT DARK ENERGY MISSION

Question. Over the past few years, this committee has consistently demonstrated its strong support for the Joint Dark Energy Mission. However, other priorities in the Office of Sciences 20 Year Facilities Plan are moving forward, even some ranked lower than the Joint Dark Energy Mission (JDEM). This program seems to be stuck and moving nowhere—especially in light of the Department's budget priorities.

I am specifically concerned that the Administration's fiscal year 2008 request for JDEM will hinder the Department's capacity to move forward aggressively either in partnership with NASA or as a single agency mission in 2008.

Unfortunately, this budget reduction may also discourage international collaborations interested in a near term launch.

What do you and the Office of Science plan to do in the remainder of 2007 and in 2008 to get JDEM moving? What can Congress do to help you ensure that JDEM doesn't become a missed opportunity?

Answer. The DOE fiscal year 2007 appropriation and the President's fiscal year 2008 budget request have allocated resources for continuing the dark energy program, including funding R&D for the SuperNova/Acceleration Probe (SNAP), a concept for JDEM. In addition, there is funding for mid-term or longer-term ground- or space-based dark energy R&D of approximately $3 million in fiscal year 2007 and $5.8 million requested for fiscal year 2008. This research will be competitively selected.

In fall 2006, DOE and NASA began jointly funding a National Research Council (NRC) study, to be completed by September 2007, to advise NASA on which of the 5 proposed NASA Beyond Einstein missions, including JDEM, should be developed and launched first. If the recommended top priority by the NRC study is JDEM, DOE and NASA could request to proceed jointly on this mission, leading to construction and launch during the next decade.

In response to a Congressional directive for DOE to begin planning for a single-agency dark energy mission and explore other launch options, DOE has been investigating a scenario of participation with international partners, in particular France and Russia.

There are also other international efforts towards a space-based dark energy mission. CNES is supporting an equivalent amount of R&D towards DUNE, a French dark energy concept. The European Space Agency (ESA) has recently completed a feasibility study for a dark energy mission and is planning to have a competition and decision in 2009 for its next mission.

DOE and CNES officials have discussed a possible partnership and have agreed to work together until fall 2007 to document possible cooperation on the SNAP mission. Whether CNES will eventually participate in SNAP, DUNE, or other missions depends on the results of the NRC study and other policy considerations. DOE officials have also discussed possible Russian collaboration with the Federal Agency for Science and Innovations of the Russian Federation. The Department's path forward will be determined following the results of the NRC study and we continue to support dark energy R&D.

CLIMATE MODELING

Question. The DOE plays a leadership role in the Nation's Climate Change Science Program that includes self-consistent modeling of the world's atmosphere,

land, and oceans. For more than 20 years, Los Alamos National Laboratory scientist [sic] have utilized their substantial know-how and computational facilities to develop the best ocean and sea ice models, and have applied them to the coupled earth system models. This is a strong successful collaboration among the best and brightest from almost every national laboratory. What is the Office of Science program strategy for modeling and remote sensing in response to recent observations of the Greenland ice melt? Isn't there a sense of urgency to produce even more accurate sea ice predictions as Arctic ice thins, and also to build a model of Greenland glacial melting?

Answer. The BER strategy is to continue its support for the leading-edge coupled ocean-sea ice modeling (COSIM) group at LANL as part of BER's broader climate change research subprogram. DOE researchers examined Arctic sea-ice under various emission scenarios for the IPCC Fourth Assessment Report using the Community Climate System Model. Because Arctic sea-ice is already in the ocean, its melting does not directly affect sea level, though it does affect navigability of the northern ocean. Researchers at LANL are currently examining the Greenland ice melt using an interactive ice-sheet model coupled to the other components of the climate model: land surface, sea-ice, and atmosphere. Ice-sheet models need to resolve fast-flow features such as ice streams, subglacial process physics, and marine processes, and also to include stress coupling. Thus, the challenge to get all these extremely complex processes well-represented in the models is immense. For glacial melt, the increased lubrication of glacier beds by increased summer melt water that drains down crevasses and moulins to the beds needs to be represented in the land-ice models. DOE does not carry out remote sensing, but we do use the results of remote sensing supported by other Federal agencies to evaluate or test the results of our modeling activities.

COMPUTER QUESTIONS

Question. These big parallel supercomputers have always been very difficult to program and the knowledge to do so is only understood by specialists that exist in our Nation's National Laboratories and Universities. Now that computer manufacturers have started to produce multi-core processors, the technology needed for advancement in scientific understanding has become even more complicated and inaccessible.

Can you describe the complete DOE investment strategy in this area, and speak specifically to how these investments go beyond simply supporting procurement of large hardware and represent tangible investments in the specialized scientists needed to make these machines available to the country?

Answer. As a partner in the President's American Competitiveness Initiative, we are committed to keeping the United States at the forefront of High Performance Computing (HPC) and the computational sciences. In addition to acquiring large high performance computing resources that will generate millions of gigabytes per year of data, ESnet has entered into a long term partnership with Internet 2 to build the next generation optical network infrastructure needed for U.S. science. Further, SC will redirect a portion of its computer science and research portfolio to address major obstacles that would constrain the ability of a broad range of computational scientists to use petascale computers effectively in areas important to DOE's missions. Within our Applied Mathematics research program, for example, we are conducting a petascale data workshop to identify the next-generation mathematical techniques that will enable scientists to extract the scientific phenomena buried in massive complex data sets.

Through our Scientific Discovery through Advanced Computing (SciDAC) program, applied mathematicians, computer scientists, and computational scientists are working in teams to create the comprehensive, scientific computing software infrastructure needed to enable scientific discovery in the physical, biological, and environmental sciences at the petascale and to develop efficient and scalable data management and knowledge discovery tools for large data sets. In 2006, we re-competed SciDAC (SciDAC–2) and introduced the concept of SciDAC Institutes to increase the presence of the program in the academic community and to complement the efforts of the SciDAC Centers. Our SciDAC Institutes will infuse new ideas and community focus into the SciDAC program, as well as provide students with valuable computational science experiences. In addition to SciDAC Institutes, SciDAC–2 expanded the original program by collaborating with the NNSA and the National Science Foundation as new funding partners.

Finally, SC and NNSA will continue the successful Computational Science Graduate Fellowship to develop the next generation of computational science leaders.

Question. There is a trend toward managing and extracting actionable knowledge from very large amounts of data. This trend has grown faster than traditional scientific simulation and has immediate importance in national security matters.

How do you plan to ensure that your investment strategy is applicable to these new trends?

Answer. Using the NSTC High-End Computing Revitalization Task Force report as our roadmap, we are undertaking a broad investment strategy for the deployment and utilization of new HPC resources. Our Leadership Computing Facilities provide architectural diversity so that researchers have the resources they need to tackle challenging scientific questions. The first petascale computer resource for open science will be operating at the Leadership Computing Facility (LCF) at Oak Ridge National Laboratory in late 2008. Additionally, the HPC resources at NERSC have undergone a significant upgrade so that they can continue to meet SC mission-critical needs and help prepare our researchers to make optimum use of the Oak Ridge LCF, as well as the LCF at Argonne National Laboratory. Because access to capability computing is so important to our national competitiveness, we have made the HPC resources at the LCF available to the open scientific community across Federal agencies and national laboratories, in universities, and in industry, through the Innovative and Novel Computational Impact on Theory and Experiment (INCITE) program.

We are coupling our investment in hardware with a corresponding investment in our base computer science and applied mathematics research programs to develop system software and tools as well as new algorithms for analysis of multi-scale and complex data. Through our SciDAC Outreach Center we are disseminating SciDAC accomplishments to the broader HPC community.

Within DOE, NNSA and SC have entered a research and development contract with IBM to develop the next generation of Blue Gene-based products. Oak Ridge is working with Sandia National Laboratories and Cray to develop a quad-core version of the Catamount operating system. Although the two programs are managed differently because of the NNSA's requirements for classified data, SC and NNSA will continue and grow our close collaboration in high performance computing research and testbeds.

Within the broader community, we closely coordinate our activities with other Federal agencies through the Networking and Information Technology Research and Development (NITRD) subcommittee of the National Science and Technology Council (NSTC). Lastly, both SC and NNSA are formal mission partners in Phase III of the DARPA High Productivity Computing Systems (HPCS) research program. Phase III of the HPCS program is focused on the generation of HPC systems that will be available from Cray and IBM in the 2011 timeframe.

Question. DOE has two major programs in computational sciences: the Office of Science program and the NNSA ASC program. These two programs seem to be managed very differently, and I am struck by the lack of synergy between them. Further, NSF and DARPA are pushing their own computer initiatives.

Why isn't the DOE maintaining its leadership for the country in terms of a national investment strategy for technology and scientific investment for computing, computational sciences, and computer sciences for the future?

Answer. DOE continues to maintain a leadership role in computational science and high end computing systems for open science. The first petascale computer resource for open science will be operating at the Leadership Computing Facility at Oak Ridge National Laboratory in late 2008. Within SciDAC we created a powerful, integrated research environment for advancing scientific understanding through modeling and simulation. NSF and NNSA have joined SC as funding partners for SciDAC–2. Through the INCITE program, we are making 80 percent of the leadership computing facilities available to the open science community through a peer-reviewed process.

Question. It appears that there is very little mission coordination among the various agencies in order to sustain a long term R&D program that goes beyond the purchase of a faster computer.

How are you going to bring these various pieces together?

Answer. Through the American Competitiveness Initiative, we will continue to work with our partners within DOE and NITRD on a national roadmap for the future. In addition, the Office of Science has focused partnerships with the mission agencies including NNSA, NSA, DOD, and DARPA.

SUPERCONDUCTIVITY

Question. Given the fundamental science challenges inherent in superconductivity and recent successes in technology demonstration projects using second generation

coated conductors, what is the Office of Science investment strategy for seizing basic and applied research opportunities in this area?

Answer. In May, 2006, SC's Office of Basic Energy Sciences sponsored a workshop entitled Basic Research Needs for Superconductivity. The workshop identified seven "priority research directions" and two "crosscutting research directions" that capture the promise of revolutionary advances in superconductivity science and technology. The first seven directions set a course for research in superconductivity that will exploit the opportunities uncovered by the workshop panels in materials, phenomena, theory, and applications. These research directions extend the reach of superconductivity to higher transition temperatures and higher current-carrying capabilities, create new families of superconducting materials with novel nanoscale structures, establish fundamental principles for understanding the rich variety of superconducting behavior within a single framework, and develop tools and materials that enable new superconducting technology for the electric power grid that will dramatically improve its capacity, reliability, and efficiency for the coming century. The seven priority research directions identified by the workshop take full advantage of the rapid advances in nanoscale science and technology of the last 5 years. Superconductivity is ultimately a nanoscale phenomenon. Its two composite building blocks—Cooper pairs mediating the superconducting state and vortices mediating its current-carrying ability—have dimensions ranging from a tenth of a nanometer to a hundred nanometers. Their nanoscale interactions among themselves and with structures of comparable size determine all of their superconducting properties.

The workshop participants found that superconducting technology for wires, power control, and power conversion had already passed the design and demonstration stages. Second generation (2G) wires have advanced rapidly; their current-carrying ability has increased by a factor of 10, and their usable length has increased to 300 meters, compared with only a few centimeters five years ago. However, while 2G superconducting wires now considerably outperform copper wires in their capacity for and efficiency in transporting current, significant gaps in their performance improvements remain. The fundamental factors that limit the current-carrying performance of 2G wires in magnetic fields must be understood and overcome to produce a five- to tenfold increase in their performance rating.

SUBCOMMITTEE RECESS

Senator DORGAN. We thank you very much for coming here today and thank you for your work.

This hearing's recessed.

[Whereupon, at 2:54 p.m., Wednesday, March 21, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2008

WEDNESDAY, APRIL 11, 2007

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

The subcommittee met at 2:33 p.m., in room SD–138, Dirksen Senate Office Building, Hon. Byron L. Dorgan (chairman) presiding.

Present: Senators Dorgan, Murray, Reed, Domenici, Craig, Bond, Allard, and Stevens.

DEPARTMENT OF ENERGY

STATEMENT OF HON. DENNIS R. SPURGEON, ASSISTANT SECRETARY NUCLEAR ENERGY

OPENING STATEMENT OF SENATOR BYRON L. DORGAN

Senator DORGAN. We'll call the hearing to order. This is the Senate Appropriations Subcommittee on Energy and Water Development. We thank our witnesses for being here today. This is a hearing on the Office of Nuclear Energy, the Office of Energy Efficiency and Renewable Energy, the Office of Fossil Energy and the Office of Electricity Delivery and Energy Reliability.

We're here to take testimony from the four program offices I've just described within the Department of Energy which oversee major aspects of the U.S. Government's energy R&D demonstration and deployment programs. I have a great deal of interest in these issues, as do others on this subcommittee, and I look forward to hearing today from our witnesses.

Passage of the Energy Policy Act of 2005 (EPACT), thanks to my colleagues, Senator Domenici and Senator Bingaman and their leadership, was, I think, a step in the right direction. I was pleased to be on the authorizing committee and to be a part of the work in the passage of that legislation.

But it was only a step. More needs to be done and we will continue to work in the authorization process to do that. The Energy Policy Act, however, only has its full impact if it is properly funded and implemented. Our ability to meet head on the challenges that we tried to describe in our Energy Policy Act will be hobbled by continued baby steps if we do not fully fund many of the issues that we care about. We need to be more deliberate, I believe, in addressing the major challenges that are associated with energy,

since it is the central underpinning of our other economic, social, environmental, and foreign policy goals.

So I believe we should set goals. We need to know where we are going and how we are going to get there; so there are two points that I think are very relevant to this hearing.

First, we need to do a much better job of investing in our energy future. Second, we need to begin making these investments within and across entire energy systems rather than picking and choosing pieces of an energy puzzle.

Note chart 1. In December 2006, a Government Accountability Office (GAO) study gave us this information. The total budget authority for energy research and development has dropped by over 85 percent in real terms between 1978 and 2005. We need to put our energy challenges front and center and we will never be able to move forward with declining investments like that. Research and development figures in a chart like this should indicate increasing funding but regrettably, that has not been the case.

Chart 2 shows that of the Energy Department's $24.3 billion budget request for 2008, only $3.1 billion is directed toward energy matters. Let me say that again: Of $24.3 billion in the Department of Energy budget request, $3.1 billion is directed toward energy matters and of that only $2.5 billion is directed at energy technology programs. While I realize the Department has very broad and important mandates, this means that, in simple terms, only $1 in $8 in the Department of Energy request is actually going toward energy issues.

On the second point, energy systems have many elements to them and we must undertake improvements along the R&D chain to these systems as wholes. We have two major systems at work, the transportation system and a power generation system. We must be prepared to understand these systems and address them at every stage, not just in bits and pieces.

For example, if we want to promote renewable fuels, and I do, then we need to look at feed stocks, bio-refineries, fuel transportation, infrastructure, vehicles, public education, and marketplace acceptance. The Department of Energy suggests it does not pick winners and losers but I think in many ways that's very disingenuous.

We can see many examples where, with tight budgets and different priorities, some areas have been done well and others not so well. One needs to look only at the Department's fiscal year 2007 spending plan. It demonstrates that two of our witnesses' programs had windfall budget increases while two saw cutbacks.

The Department's consistency in those areas, I think, is an inconsistency in following through on long-term commitments and recognizing the Government's role in investing and directing policies along each stage of the energy system. I understand that we have limited resources and nearly unlimited wants. But we must find a way of addressing those key areas that are crucial to our energy success in the future.

If our energy policy is going to be central to our Nation's future, and energy will be central to our Nation's future, then we're not going to be able to do it on the cheap or do it at the margins. I'm very interested in hearing today from the four witnesses, whose di-

rect activities in the Department of Energy are, I believe, essential and central to the question of whether we will succeed in meeting our energy needs.

Senator Domenici.

OPENING STATEMENT OF SENATOR PETE V. DOMENICI

Senator DOMENICI. Mr. Chairman, I realize that we have a full load of witnesses and many people here to hear what they have to say, including Senators but I would like to give just a brief opening statement. It will not be long.

First let me say, I greatly appreciate the statement you made. I listened to it attentively. Obviously, I'm not sure that I agree with the conclusions that were arrived at by you and your helpers. But I do agree wholeheartedly with the premise and the thesis of what you've said.

Actually, Mr. Chairman, we didn't have a Department of Energy for a long time. It was a Department put together by just piecing all kinds of agencies and then for a long time, nobody knew what the Department of Energy was supposed to do. You knew that from afar. I knew it from inside. We didn't know whether we were supposed to be for nuclear power. We didn't even know if there should be nuclear power mentioned within the Department of Energy for a number of years, Senator Bond. It just wasn't even thought of. So that accounts for many of the ups and downs that you have spoken of.

Today, these four witnesses from the Department of Energy represent major energy supply R&D accounts. They've developed innovative research initiatives such as cellulosic biomass programs, the Global Nuclear Energy Partnership (GNEP), FutureGen and Solar America, which have the potential of deploying cleaner burning fossil fuel technology as well as zero emission technologies such as nuclear, solar and wind generation.

This budget supports many of the research priorities included in EPACT, the bill you alluded to that we passed 2½ years ago. One important goal of EPACT has been to make sure that innovative energy technology doesn't stay in the lab but will be deployed to reduce our greenhouse gas emissions as well as our country's less dependence on foreign energy sources.

It is a fact that our energy markets are based on low cost, conventional generation. High cost renewable energy technologies face a serious challenge in the cost competitive environment.

In addition to supporting additional R&D efforts, I've been focused on implementing the title XVII Loan Guarantee Program. This initiative can be effective—an effective tool in the leveraging of the Federal balance sheet to make the first of a kind renewable and alternative energy technology cost competitive.

I've been surprised by the challenges facing the implementation of loan guarantee programs that we provided in the energy bill, especially in light of the fact that the export/import bank provides $18 billion in loan coverage to support U.S. commercial investments overseas. This is twice the level provided to support DOE's title XVII.

I know investment overseas is important but I believe we have a serious problem when the administration provides greater assist-

ance to support the sale of nuclear reactors to China than it provides for the deployment of nuclear reactors in our own country. I believe that's wrong and I think somehow we must fix it. It is very hard for us to fix it. I mean, we are going to have to pass specific laws that specifically direct whatever it is we want in this area that we're talking about in terms of loan guarantees.

I'd like to also make a brief point about the Global Nuclear Energy Partnership—GNEP. This is a very exciting initiative. It proposes to close the nuclear fuel cycle. I understand there could be questions about it but I think once it gets on the table, let's the daylight see it all and see how it comes out. It is apt to be a very exciting thing that we should put together and work on.

PREPARED STATEMENTS

I ask that the balance of my statement be made a part of the record and thank you, Mr. Chairman, for giving me an opportunity to address these issues and thank you, witnesses. It's good to have you all here.

Senator DORGAN. Without objection. Senator Reed has also submitted a statement for the record.

[The statements follow:]

PREPARED STATEMENT OF SENATOR PETE V. DOMENICI

Mr. Chairman, today we have four witnesses representing the Department of Energy's major energy supply R&D accounts. These offices have developed innovative research initiatives such as the cellulosic biomass program, GNEP, FutureGen and Solar America, which have the potential of deploying cleaner burning fossil fuel technology as well as zero emission technologies such as nuclear, solar, and wind generation.

This budget supports many of the research priorities included in EPACT. One important goal of EPACT has been to make sure that innovative energy technology doesn't stay in the lab but will be deployed to reduce our greenhouse gas emissions as well as make our country less dependent of foreign energy sources.

It is a fact that our energy markets are based on low cost, conventional generation and that high cost, renewable energy technologies face a serious challenge in a cost competitive environment.

In addition to supporting additional R&D efforts, I have been focused on implementing the title 17 loan guarantee program. This initiative can be an effective tool in leveraging the Federal balance sheet to make the first of a kind renewable and alternative energy technologies cost competitive.

I have been surprised by the challenges facing the implementation of the loan guarantee program, especially in light of the fact that the Export-Import Bank provides $18 billion in loan coverage to support U.S. commercial investment overseas. This is twice the level provided to support DOE's title 17 program.

I know investment overseas is important, but I believe we have a serious problem when the administration provides greater assistance to support the sale of nuclear reactors to China, than it provides for the deployment of nuclear reactors in our own country.

Mr. Chairman, I would like to make a brief point about the Global Nuclear Energy Partnership (GNEP). This is a very exciting initiative. It proposes to close the nuclear fuel cycle and make a significant reduction on our spent fuel inventories.

The world has begun to embrace nuclear power as a cost effective energy solution that does not contribute to greenhouse gases. Today, there are plans to build an additional 200 new nuclear plants in countries all across the world.

I commend the administration for their efforts to develop a comprehensive plan that will address spent fuel management and to optimize this energy resource in a safe and secure manner.

This issue is not going away and this country should be part of the global solution.

I am looking forward to hearing from our witnesses, who are working very hard to make our country more energy independent and to reduce greenhouse gas emission to the lowest levels possible.

Gentlemen, I appreciate your service very much.

PREPARED STATEMENT OF SENATOR JACK REED

Chairman Dorgan and Senator Domenici, I want to thank you for holding this hearing to review the Department of Energy's fiscal year 2008 budget request. Federal funding for energy efficiency and renewable energy programs is very important to me. I want to express my disappointment at the Department of Energy's budget proposal for the Office of Energy Efficiency and Renewable Energy. The fiscal year 2008 budget proposes only $1.24 billion for EERE—a $230 million decrease compared to the fiscal year 2007 Continuing Resolution funding level.

Our Nation faces significant challenges as we strive to ensure our energy security, reduce the economic risks of high energy prices, and address global climate change. Energy efficiency and renewable energy programs that improve technologies for our homes, our businesses, and our vehicles must be the "first fuel" in the race for secure, affordable, and clean energy.

Energy efficiency is the Nation's greatest energy resource. We now save more energy each year from energy efficiency than we get from any single energy source, including oil, natural gas, coal, and nuclear power. A 2001 National Research Council report found that for every dollar invested in the 17 Department of Energy energy-efficiency research and development programs, nearly $20 is added to the U.S. economy in the form of new products, new jobs, and energy cost savings to American homes and businesses.

Unfortunately, under this administration, efficiency funding has fallen alarmingly since 2002. Adjusting for inflation, funding for efficiency has been cut by one-third. The fiscal year 2007 Continuing Resolution provided $1.473 billion for efficiency and renewable energy. I want to thank Senators Dorgan and Domenici for this increased funding. The $300 million added in fiscal year 2007 will help to restore the cuts of recent years, but increased investment is necessary. The Energy Policy Act of 2005 authorized over $3.8 billion for the EERE account. In order to reduce our dependency on fossil fuels and enhance our energy security, this is a time to grow our Nation's investment in energy efficiency, not cut funding.

I want to add that I am disappointed that the Department of Energy's fiscal year 2007 spending plan submitted to Congress cut funding to the Weatherization program. The Senate passed an amendment to the Supplemental Appropriations bill to restore funding to $237 million. While I hope this amendment will prevail in conference, it is my hope that the Department will reconsider its spending plan and restore the funding for weatherization while maintaining funding for other programs in the intergovernmental account.

In closing, I want to say that I am glad to see the administration's support for cellulosic ethanol and an increase in funding to support cost-shared projects with industry for enzyme development to produce low cost sugars from biomass and for improved organism development for converting those sugars to ethanol. I want to make sure that the Department of Energy is aware of important research being conducted by the University of Rhode Island and Brown University in this field. Researchers in my State are developing biotechnology strategies to increase biomass of native grasses and enzymes for post-harvest digestion of cellulose to improve efficiency of cellulosic ethanol production.

Senator DORGAN. My colleagues, I would prefer to go to the witnesses but if you have a very brief opening statement that you feel like you must make, I'd certainly be happy to respect that.

Senator BOND. That's a challenge, Mr. Chairman. I was going to spend most of my time praising you and the ranking member for the money you put in, the $300 million increase in funding through the continuing resolution.

Senator DORGAN. Take as much time as you want.

Senator BOND. For efficiency of renewable energy. I strongly support renewable energy, nuclear power, clean coal research. We have a lot of problems in Missouri if we have carbon caps or taxation. For low-income people, LIHEAP only covers one-sixth of them. We've lost jobs overseas from the increased cost of natural gas.

These impose tremendous burdens and the best way we can work, I think, for the future, is through clean coal technology be-

cause right now, I just heard—I don't know, I just heard this fact that by 2012, the timeframe when Kyoto is going to go into place—by that time, China and India will build almost 800 new coal-fired powerplants. The combined carbon emissions from those plants will be five times as much as the total reductions mandated by the Kyoto Accords and even though nobody is meeting them and we can't get China and India to meet them and curb their growth unless we are able to provide them the technology. I commend the President's Asia Pacific Partnership because that—developing the technology here, making it comparable in cost to current technology for coal-fired energy is absolutely essential. We've got to get over the foot dragging and the bureaucracy, get the money released for the EPA Act and I support your efforts and more authorization. I just think this is a critical element if we're going to take care of the needs in our country and not see our efforts overwhelmed by the growth in new coal-powered plants in China and India.

Senator DORGAN. Thank you, Senator Bond. Others?

Senator CRAIG. With reason and concern, I will only accept a slight bump up in the Idaho Lab budget. Other than that, I'll make my comments during the questioning period.

Senator DORGAN. Thank you, Senator Craig.

Senator CRAIG. Dennis, did you hear that?

Mr. SPURGEON. Yes, sir, I heard that.

Senator CRAIG. Thank you very much.

Senator DORGAN. Senator Allard.

PREPARED STATEMENT

Senator ALLARD. Mr. Chairman, I have some comments. I'll just submit them in the record.

Senator DORGAN. Without objection.

[The statement follows:]

PREPARED STATEMENT OF SENATOR WAYNE ALLARD

Mr. Chairman, thank you for holding this hearing today. I think it is very appropriate that you have asked the offices that are responsible for dealing with some of the most common ways of producing electricity to be here with the Office of Delivery and Reliability. And as we are all aware, no amount of electricity does us any good if we cannot get it to where it is needed.

No one can argue that we are dangerously reliant on foreign sources of energy. We must decrease our reliance on foreign sources of energy by diversifying our energy sources and increasing conservation. I have long felt that a balanced energy portfolio that takes no technology off of the table is what is best for this Nation.

For this reason I am a strong supporter of nuclear energy. Nuclear generation facilities produce vast and reliable quantities of electricity. I am pleased with the recent movement toward increasing our nuclear capacity, which has been the result of the Energy Policy Act passed in 2005. I am hopeful that we can continue this progress.

I would like to extend a special welcome to Mr. Karsner, who oversees the Office of Energy Efficiency and Renewable Energy, which in turn oversees the National Renewable Energy Laboratory in Colorado. NREL makes a major contribution to the development of renewable energy technology and the technologies that are developed at NREL will remain vital to our Nation's energy progress.

Renewable energy is a very important way that we can begin to reduce the demand for oil and, thereby, help make our country more secure. There are great opportunities for solar, wind, geothermal, biomass, fuel cells and hydro to make significant contributions. Research and the input of both government and industry partners are very important to allowing these opportunities to live up to their potential.

Finally, fossil energy will remain important to energy production in this country. Technological advancements have made the use of coal cleaner and more efficient than ever before. In the United States we have vast amounts of domestic resources from traditional oil, coal and gas resources to unconventional sources such as oil shale. I firmly believe that we can and must continue to use these resources responsibly.

I look forward to working with the committee to ensure that research and development in all fields of energy technology are funded in a manner that is responsible, but sufficient to ensure that the development and implementation of new technologies continues.

Senator DORGAN. Thank you very much. Well, let me, on behalf of the entire subcommittee, thank the witnesses. We will begin today by hearing from the Honorable Dennis Spurgeon, who is the Assistant Secretary of the Office of Nuclear Energy. Mr. Spurgeon, let me say to all four of you that your full comments will be made a part of the permanent record and you may summarize. Mr. Spurgeon.

STATEMENT OF HON. DENNIS R. SPURGEON

Mr. SPURGEON. Thank you very much, Mr. Chairman. Chairman Dorgan, Ranking Member Domenici and members of the subcommittee, it is a pleasure to be here today to discuss the fiscal year 2008 budget request for the Department of Energy's Office of Nuclear Energy.

The Office of Nuclear Energy has made progress in the last several years in advancing our Nation's energy security and independence in support of the Department's strategic plan. It is my highest near-term priority to enable industry to deploy a new generation of nuclear power plants. We have also made steps toward the developing of advanced nuclear reactor and fuel cycle technologies while maintaining a critical national nuclear infrastructure.

Today, 103 nuclear reactors generate roughly 20 percent of America's electricity, with the 104th reactor, Browns Ferry Unit 1, about to enter service. U.S. electricity demand is anticipated to grow 50 percent in the next 25 years, the equivalent of 45 to 50 1,000 megawatt nuclear reactors must be built just to maintain that 20 percent share.

The United States is at a critical juncture in the future of nuclear power in the United States. Unlike many of our international research partners, our nuclear industry has not been heavily supported, financially and politically, over the past 30 years. Today, the need for increased electrical generation capacity is clear and hopefully undisputed.

NUCLEAR POWER 2010

Fortunately, we do have a growth option that allows us to have a diversified electrical generation portfolio that includes a significant carbon emissions-free component and that is nuclear power. To support near term domestic expansion of nuclear energy, the fiscal year 2008 budget requests $114 million for the Nuclear Power 2010 Program, to support continued cost shared efforts with industry to reduce the barriers to deployment of new nuclear power plants in the United States.

In the past few weeks, we have seen major milestones met in the expansion of safe and clean nuclear power. In early March, the

NRC voted to approve the early site permit for the Exelon Generation Company's Clinton site in central Illinois and 2 weeks ago, the NRC approved the early site permit for the Entergy Corporation's Randolph site in Mississippi. The approval of these two sites is a step toward the ordering of new nuclear powerplants for construction on American soil, a feat that hasn't happened in 30 years.

Why nuclear power? Nuclear power is the only proven base load producer of electricity for new capacity that does not emit greenhouse gases. It is vital that our current fleet of reactors be expanded in order to meet our needs for carbon-free, dependable electric power.

GLOBAL NUCLEAR ENERGY PARTNERSHIP

Any serious effort toward expanded global use of nuclear energy will inevitably require us to address the spent fuel and proliferation challenges that accompany such an expansion. To meet these challenges, President Bush initiated the Global Nuclear Energy Partnership or GNEP, a comprehensive approach to enable the expansion of nuclear power in the United States and around the world, to promote nonproliferation goals, to more efficiently use our nuclear fuel resources and to help resolve nuclear waste management issues.

Domestically, GNEP provides a solution to the ever-growing issue of spent nuclear fuel. In conjunction with Yucca Mountain, GNEP provides a solution that outlines a closed fuel cycle, where energy is harvested from spent fuel before the end product is disposed of in a permanent geologic repository. The spent fuel will be recycled in a manner that will be more proliferation resistant than current processes used around the world. A closed fuel cycle will also alleviate some of the burden placed on Yucca Mountain and will possibly eliminate the need for a second geologic repository throughout the remainder of this century. We reiterate though that no fuel cycle scenario will eliminate the need for a geologic repository.

We are all aware of the enormous amount of energy available from nuclear fission. One pound of uranium fuel in a reactor makes the same amount of electricity as 125 million pounds of coal. Recycling, as we planned in GNEP, while decreasing the overall mass of spent nuclear fuel, will also make it possible to use the energy remaining in the used fuel. A recycling facility processing fuel from existing U.S. light water reactors could recover the energy equivalent of the oil delivered by the Alaska Pipeline.

Internationally, GNEP promises to address the growing global energy demand in an environmentally friendly manner. A global regime of countries able to provide a complete portfolio of nuclear fuel services, including Russia, France and possibly Japan, China and Britain, will provide these services to countries wanting to use nuclear power to meet their basic and growing energy needs without the cost and risk associated with the nuclear fuel cycle infrastructure. By providing these services to other countries, we hope to dissuade future states from developing enrichment capabilities like we are encountering in Iran today.

The fact is, the United States is not currently positioned to be an active member of the global regime. We have limited enrich-

ment capabilities and no back end recycling capabilities. Creating the capabilities needed to participate in the global expansion of nuclear power will take at least 15 to 20 years, meaning that in order to become an active participant of the global nuclear expansion, we need to begin now.

Taking those necessary steps enables us to better assure that the imminent expansion will be safe, beneficial and will not promote the proliferation of nuclear weapons.

The Department requests $405 million in fiscal year 2008 to begin work on developing a detailed, technically sound roadmap for implementing all aspects of the GNEP vision.

PREPARED STATEMENT

Mr. Chairman, we appreciate the support we have received from the subcommittee as we seek to address the challenges surrounding the global expansion of nuclear power. We remain confident and optimistic about the role of nuclear energy in providing a solution to our Nation's energy stability and independence.

I would be pleased to answer your questions, sir.

Senator DORGAN. Secretary Spurgeon, thank you very much for your testimony. We appreciate it.

[The statement follows:]

PREPARED STATEMENT OF HON. DENNIS R. SPURGEON

Chairman Dorgan, Ranking Member Domenici, and members of the subcommittee, it is a pleasure to be here to discuss the fiscal year 2008 budget request for The Department of Energy's (DOE) Office of Nuclear Energy.

The Department of Energy's strategic plan portrays a long-term vision of a zero-emission future, free from the reliance on imported energy. A portfolio of nuclear programs is provided for in this plan for near-term, medium-term, and long-term sustained advances in nuclear technology.

The Office of Nuclear Energy has made progress in the last several years in advancing our Nation's energy security and independence in support of the Department's strategic plan. The Department remains committed to enabling industry to deploy a new generation of nuclear power plants. We have also made steps forward in developing advanced nuclear reactor and fuel cycle technologies while maintaining a critical national nuclear infrastructure.

Today, 103 nuclear reactors generate roughly 20 percent of America's electricity, with the 104th reactor, Browns Ferry unit 1, about to enter service. U.S. electricity demand is anticipated to grow 50 percent over the next 25 years—the equivalent of 45 to 50 one-thousand megawatt nuclear reactors must be built just to maintain that 20 percent share. With nuclear power as the only proven base load producer of electricity that does not emit greenhouse gases, it is vital that our current fleet of reactors be expanded in order to meet our needs for carbon-free, dependable and economic electric power.

Any serious effort to stabilize greenhouse gases in the atmosphere, while providing the increasing amounts of energy needed for economic development and growth, requires the expanded use of nuclear energy. This will inevitably require us to address the spent fuel and proliferation challenges that confront the expanded, global use of nuclear energy. To meet these challenges, the Department initiated the Global Nuclear Energy Partnership (GNEP), a comprehensive approach to enable an expansion of nuclear power in the United States and around the world, promote non-proliferation goals, and help minimize the amount of nuclear waste disposal.

GNEP is a perfect example of where global cooperation is required to address a changing global energy landscape. The United States has a unique opportunity to influence global energy policy, and more specifically global nuclear energy policy. However, for the United States to have influence abroad, we must have an established domestic policy supportive of a significant role for nuclear power in our energy future, an aggressive nuclear research and development program, and a viable nuclear technology infrastructure. Through the GNEP program, we are pursuing in parallel the development of the policies, technologies, and facilities necessary for the

United States to be a global leader in the nuclear energy enterprise and to ensure our energy security and national security objectives.

The Department's fiscal year 2008 budget request proposes an $874.6 million investment in nuclear research, development and infrastructure for the Nation's future. This budget request supports the President's priorities to enhance the Nation's energy security while enabling significant improvements in environmental quality. Our request supports development of new nuclear generation technologies and advanced energy products that provide significant improvements in sustainability, economics, safety and reliability, and proliferation and terrorism resistance.

While we have made progress in all program areas, much remains to be done. Our fiscal year 2008 request moves us in the right direction and I will now provide you a report of our activities and explain the President's request for nuclear energy.

NUCLEAR POWER 2010

To support near-term domestic expansion of nuclear energy, the fiscal year 2008 budget requests $114 million for the Nuclear Power 2010 program to support continued cost-shared efforts with industry to reduce the barriers to the deployment of new nuclear power plants in the United States. The technology focus of the Nuclear Power 2010 program is on Generation III+ advanced, light water reactor designs, which offer advancements in safety and economics over the existing fleet of nuclear power plants already operating in the United States. To reduce the regulatory uncertainties and enable the deployment of new Generation III+ nuclear power plants in the United States, it is essential to demonstrate the untested Federal regulatory processes for the siting, construction, and operation of new nuclear plants. In addition, design finalization of two standard plant designs and NRC certification of these Generation III+ advanced reactor concepts are needed to reduce the high initial capital costs of the first new plants so that these new technologies can be competitive in the deregulated electricity market and deployable within the next decade.

The fiscal year 2008 budget request continues the licensing demonstration activities started in previous years. Activities include completion of the last Early Site Permit demonstration projects and continuation of the New Nuclear Plant Licensing Demonstration projects that will exercise the untested licensing process to build and operate new nuclear plants and complete and obtain certification of two advanced Generation III+ advanced reactor designs. Engineering activities in support of the submission of two combined Construction and Operating License (COL) applications to the NRC will continue. In addition, two reactor vendors will continue first-of-a-kind design activities for two standard nuclear plants.

In the past few weeks we have seen major milestones met in the expansion of safe and clean nuclear power. Earlier this month the NRC voted to approve the Early Site Permit for the Exelon Generation Company's Clinton site in central Illinois, and just yesterday the NRC approved the Early Site Permit for the Entergy Corporation's Grand Gulf site in Mississippi. The approval of these two sites is a step towards the ordering of new nuclear power plants for construction on American soil, a feat that hasn't happened in 30 years. With nuclear power as the only proven base load producer of electricity that does not emit greenhouse gases, it is vital that our current fleet of reactors be expanded in order to meet our needs for carbon-free, dependable and economic electric power.

The project teams, Dominion Energy and NuStart Energy Development LLC., involved in the licensing demonstration projects represent power generating companies and reactor vendors that operate more than two-thirds of all the U.S. nuclear power plants in operation today. As a result of the Nuclear Power 2010 program and Energy Policy Act of 2005 financial incentives (e.g. standby support), 14 power companies have announced their intentions to apply for combined construction and operating licenses. Several have specifically stated that they are building on work being done in the Nuclear Power 2010 program as the basis for their applications.

The United States is at a critical juncture in the future of nuclear power in the United States. Unlike many of our international research partners, our nuclear industry has not been heavily supported financially and politically over the past 30 years. Today the need for increased electrical generating capacity is clear and hopefully undisputed. Fortunately, we do have a growth option that allows us to have a diversified electrical generation portfolio that includes a significant carbon emissions-free component, and that is nuclear power. To realize this option, we are asking private companies to build plants whose collective cost could be a significant percentage of their net worth. This represents an enormous financial risk that few companies or lenders will be willing to assume without demonstrated certainty in the regulatory process and project cost.

If one accepts the fact that we need more electrical generation capacity, and if one desires to have a component of that new capacity that is carbon free, and one recognizes the financial considerations associated with such a large private investment in technologies that we have not supported in 30 years, then the importance of this program to our future energy security is self-evident. These companies will be building new generating capacity in the very near future, but the question they must first answer is whether this generation will come from clean, safe, nuclear technologies or not.

If widely deployed in the United States these new technologies will create significant business opportunities and will support the rapid growth of heavy equipment fabrication, high technology and commercial construction industries in this country. Moreover, these American technologies and industrial capabilities will be highly competitive internationally and would support our leadership role in the global expansion of safe, clean nuclear power.

ADVANCED FUEL CYCLE INITIATIVE

One of the most important and challenging issues affecting future expansion of nuclear energy in the United States and worldwide is dealing effectively with spent nuclear fuel and high-level waste. For the medium-term, the Advanced Fuel Cycle Initiative (AFCI) will develop fuel cycle technologies that will support the economic and sustained production of nuclear energy while minimizing waste in a proliferation-resistant manner. To support the development of these technologies, the fiscal year 2008 Budget request includes $395.0 million for AFCI.

AFCI's near-term goals are to develop and demonstrate advanced, more proliferation-resistant fuel cycle technologies for treatment of commercial light water reactor spent fuel, to develop an integrated spent fuel recycling plan, and to provide information and support on efforts to minimize the amount of material that needs disposal in a geologic repository. AFCI conducts research and development of spent fuel treatment and recycling technologies to support an expanding role for nuclear power in the United States and to promote world-wide expansion of nuclear energy in a proliferation-resistant manner as envisioned for the Global Nuclear Energy Partnership (GNEP). AFCI is the U.S. technology component of the GNEP.

Specifically, in fiscal year 2008, the Department intends to complete industry-led conceptual design studies for the nuclear fuel recycling center and the advanced recycling reactor Demonstration Analysis. Additionally, DOE will continue start-to-finish demonstrations of recycling technologies, which are expected to produce separated transuranics for use in transmutation fuel development, as well as conduct systems analysis and advanced computing and simulation activities focused on a variety of deployment system alternatives and supporting technology development. As part of GNEP Technology Development, the Department also intends to evaluate small, proliferation-resistant reactors for potential U.S. manufacture and export to reactor user nations.

GNEP seeks to bring about a significant, wide-scale use of nuclear energy, and to take actions now that will allow that vision to be achieved while decreasing the risk of nuclear weapons proliferation and effectively addressing the challenges of nuclear waste disposal. GNEP will advance the nonproliferation and national security interests of the United States by reinforcing its nonproliferation policies and limiting the spread of enrichment and reprocessing technologies, and will eventually eliminate excess civilian plutonium stocks that have accumulated. The AFCI budget request supports the Department's goal of realizing the GNEP vision. AFCI activities in fiscal year 2007 and fiscal year 2008 are focused on developing a detailed roadmap for implementing all aspects of the GNEP vision and informing a Secretarial decision in June 2008 on the path forward for GNEP.

Long-term goals for AFCI/GNEP will develop and demonstrate an advanced, more proliferation-resistant closed nuclear fuel cycle system involving spent fuel partitioning and recycling of long-lived radioactive elements for destruction through transmutation in fast reactors that could result in a significant increase in the effective capacity of the planned Yucca Mountain repository. This capacity increase could ensure enough capacity to accommodate all the spent fuel generated in the United States this century from any reasonably conceivable deployment scenario for nuclear energy. Yet, under any fuel cycle scenario a geologic repository is necessary. Therefore, GNEP and Yucca Mountain are proceeding on parallel tracks.

GENERATION IV NUCLEAR ENERGY SYSTEMS INITIATIVE

The fiscal year 2008 budget request includes $36.1 million to continue development of next-generation nuclear energy systems within the Generation IV program. For the long term, the Generation IV program will develop new nuclear energy sys-

tems that can compete with advanced fossil and renewable technologies, enabling power providers to select from a diverse group of options that are economical, reliable, safe, secure, and environmentally acceptable. In particular, the Next Generation Nuclear Plant (NGNP) reactor concept will be capable of providing high-temperature process heat for various industrial applications, including the production of hydrogen in support of the President's Advanced Energy Initiative.

The NGNP, with an investment of $30 million within the Generation IV Nuclear Energy Systems Initiative, will utilize a Generation IV Very High Temperature Reactor configured for production of high temperature process heat for the generation of hydrogen, electricity, and other industrial commodities. The Energy Policy Act of 2005 (EPACT) authorized the Department to create a two-phased NGNP Project at the Idaho National Laboratory (INL). The Department is presently engaged in Phase I of the EPACT defined scope of work which includes: developing a licensing strategy, selecting and validating the appropriate hydrogen production technology, conducting enabling research and development for the reactor system, determining whether it is appropriate to combine electricity generation and hydrogen production in a single prototype nuclear reactor and plant, and establishing key design parameters. Phase I will continue until 2011, at which time the Department will evaluate the need for continuing into the design and construction activities called for in Phase II.

The fiscal year 2008 budget request maintains critical R&D that will help achieve the desired goals of sustainability, economics, and proliferation resistance. Further investigation of technical and economical challenges and risks is needed before a decision can be made to proceed with a demonstration of a next-generation reactor.

NUCLEAR HYDROGEN INITIATIVE

Hydrogen offers significant promise as a future energy technology, particularly for the transportation sector. The use of hydrogen in transportation will reduce U.S. dependence on foreign sources of petroleum, enhancing our energy security. The fiscal year 2008 budget request for the Office of Nuclear Energy includes $22.6 million to continue to develop enabling technologies, demonstrate nuclear-based hydrogen production technologies, and study potential hydrogen production strategies to support the President's vision for a future hydrogen economy.

Currently, the only economical, large-scale method of hydrogen production involves the conversion of methane into hydrogen through a steam reforming process. This process produces ten kilograms of greenhouse gases for every kilogram of hydrogen, defeating a primary advantage of using hydrogen—its environmental benefits. Another existing method, electrolysis, converts water into hydrogen using electricity. Electrolysis is typically used for small production quantities and is inherently less efficient because electricity must first be produced to run the equipment used to convert the water into hydrogen. Additionally, the environmental benefits of electrolysis are negated unless a non-emitting technology, such as nuclear or renewable energy, is used to produce the electricity. The Nuclear Hydrogen Initiative is developing processes that operate across a range of temperatures for the various advanced reactors being researched by the Generation IV Nuclear Energy Systems Initiative. These processes, coupled with advanced nuclear reactors, have the potential for high-efficiency, large-scale production of hydrogen.

The objective of this program is to demonstrate the technologies at increasingly larger scales ultimately culminating in an industrial scale that would be technically and economically suited for commercial deployment. Fiscal year 2005 and fiscal year 2006 activities were focused on the validation of individual processes and components; fiscal year 2007 and fiscal year 2008 are focused on the design, construction and operation of integrated laboratory scale experiments. In fiscal year 2008, the Department will complete construction of integrated laboratory-scale system experiments and begin testing to enable the 2011 selection of the technology that could be demonstrated in a pilot scale hydrogen production experiment.

RADIOLOGICAL FACILITIES MANAGEMENT

The Office of Nuclear Energy's fiscal year 2008 budget request also includes $53.0 million to maintain critical research and production facilities for medical isotopes and radioisotope power systems at the Idaho National Laboratory, the Oak Ridge National Laboratory, the Los Alamos National Laboratory, the Sandia National Laboratory, and the Brookhaven National Laboratory. This request also includes funding for University Research Reactors.

These funds assure that the infrastructure for the facilities meet essential safety and environmental requirements and are maintained at operable user-ready levels.

Programmatic activities, including production and research, are funded either by other DOE programs, by the private sector, or by other Federal agency users.

The Department seeks $14.9 million to maintain one-of-a-kind facilities at the Idaho, Oak Ridge, Brookhaven, and Los Alamos National Laboratories for isotope production and processing. These isotopes are used to help improve the accuracy, effectiveness, and continuation of medical diagnoses and therapy, enhance homeland security, improve the efficiency of industrial processes, and provide precise measurement and investigative tools for materials, biomedical, environmental, archeological, and other research. Actual operations, production, research or other activities are funded either by other DOE programs, by the private sector, or by other Federal agency users.

The Department also maintains unique facilities and capabilities at the Idaho, Oak Ridge, and Los Alamos National Laboratories that enable the Department to provide the radioisotope power systems for space exploration and national security applications. The fiscal year 2008 budget requests $35.1 million to maintain the basic facilities and associated personnel whereas mission specific development or hardware fabrication costs are provided by the user agencies. This arrangement is essential in order to preserve the basic capability regardless of periodic fluctuations in the demand of the end product users.

Finally, the Department requests $2.9 million in fiscal year 2008 to provide research reactor fuel to universities and dispose of spent fuel from university reactors. Currently, there are 27 operating university research reactors at 27 institutions in the United States. Many of these facilities have permanent fuel cores and therefore do not require regular fuel shipments. However, DOE supplies approximately a dozen universities with fresh fuel and shipments of spent fuel as needed.

IDAHO FACILITIES MANAGEMENT

The Department is working to transform Idaho National Laboratory into one of the world's foremost nuclear research laboratories. As such, the fiscal year 2008 budget request seeks $104.7 million for the Idaho Facilities Management Program to maintain and enhance the laboratory's nuclear energy research infrastructure.

The Idaho Facilities Management Program operates and maintains three main engineering and research campuses and the Central Facilities Area at the Idaho National Laboratory. The 3 main engineering and research campuses are: (1) the Reactor Technology Complex which houses the world-renown Advanced Test Reactor, (2) the Materials and Fuels Complex, and (3) the Science and Technology Campus. As the Idaho National Laboratory landlord, the Office of Nuclear Energy also operates and maintains the Central Facilities Area at Idaho National Laboratory, providing site-wide support services and from which various site infrastructure systems and facilities, such as electrical utility distribution, intra-laboratory communications systems, and roads are managed and maintained. Also included within the Central Facilities Area is the Radiological and Environmental Sciences Laboratory operated by the Office of Nuclear Energy.

IDAHO SITE-WIDE SAFEGUARDS & SECURITIES

The mission of the Idaho Site-wide Safeguards and Security program is to protect the assets and infrastructure of the Idaho National Laboratory from theft, diversion, sabotage, espionage, unauthorized access, compromise, and other hostile acts that may cause unacceptable adverse impacts on national security; program continuity; or the health and safety of employees, the public, or the environment.

The fiscal year 2008 Budget Request includes $72.9 million to provide protection of nuclear materials, classified matter, government property, and other vital assets from unauthorized access, theft , diversion, sabotage, espionage, and other hostile acts that may cause risks to national security, the health and safety of DOE and contractor employees, the public or the environment.

UNIVERSITY REACTOR INFRASTRUCTURE AND EDUCATIONAL ASSISTANCE

While the University Educational Assistance program has concluded, funding will continue to be provided to the Nation's nuclear science and engineering universities through our applied research and development programs by means of our Nuclear Energy Research Initiative (NERI). NERI funds are competitively awarded to support research objectives of the Advanced Fuel Cycle Initiative, the Generation IV Energy Systems Initiative and the Nuclear Hydrogen Initiative. By increasing the opportunities for university participation in our research programs, the Department seeks to establish an improved education and research network among universities, laboratories, industry and government. Approximately $62 million in funding for

universities is included in the research programs for fiscal year 2008, a 21 percent increase over the fiscal year 2007 request.

CONCLUSION

This concludes my prepared statement. Your leadership and guidance has been essential to the progress the program has achieved thus far and your support is needed as we engage the task ahead of investing in our energy security.

I would be pleased to answer any questions you may have.

Senator DORGAN. Next, we will hear from Secretary Karsner. Secretary Karsner is Assistant Secretary for the Office of Energy Efficiency and Renewable Energy. Secretary Karsner, we welcome you.

STATEMENT OF HON. ALEXANDER KARSNER, ASSISTANT SECRETARY FOR ENERGY EFFICIENCY AND RENEWABLE ENERGY

Mr. KARSNER. I appreciate that. Chairman Dorgan, Ranking Member Domenici, members of the subcommittee, thank you for this opportunity to testify on the President's fiscal year 2008 budget request for the Office of Energy Efficiency and Renewable Energy, EERE.

The request includes $1.24 billion for EERE, approximately $60 million more than the fiscal year 2007 request to Congress. To be clear, my statement today is presented primarily in comparison with the administration's fiscal year 2007 request; however, because the Department has now submitted its fiscal year 2007 operating plan, I'm also going to highlight some of the key allocations from that appropriation.

The fiscal year 2008 budget request addresses pressing energy and environmental challenges by accelerating the development of renewable energy and advanced energy efficiency technologies. Much of EERE's funding is an integral part of the President's Advanced Energy Initiative (AEI). The AEI was launched in 2006 to confront our Nation's addiction to oil, lessen dependence on foreign resources and reduce emissions by developing clean sources of electricity generation.

In the 2007 State of the Union Address, the President raised the bar further by seeking legislative action to reduce gasoline consumption by 20 percent within the decade, the 20 in 10 plan. The 20 in 10 legislative proposals include an increased alternative fuel standard and reduced fuel consumption through raising and reforming corporate average fuel economy with a CAFE ogram.

The President's budget request increases funding for programs that support the 20 in 10 goal, including biomass and biofuels R&D to expand the availability of alternative transportation fuels. While the fiscal year 2007 continuing resolution is a substantial increase over the President's fiscal year 2008 budget proposal, the funds will be used to accelerate critical components of the Advanced Energy Initiative. EERE is directing an additional $30 million to commercial biorefinery demonstrations, $10 million additional for plug-in hybrid battery development, and over $100 million for improvements at the National Renewable Energy Laboratory, NREL. The increase will accelerate the completion of NREL's research support facility, a state-of-the-art building complex. As a national model of LEED certified advanced design, it's going to showcase the renewable energy and energy efficiency technologies that NREL develops

and reduce its operating costs. Preliminary analyses indicate the potential to achieve up to $122 million of life cycle savings.

The increase will also support expansion of NREL's Integrated Bio-Refinery Research Facility, which provides the industry with a very unique test bed for emerging technologies.

Returning to fiscal year 2008, EERE's overall budget request reflects the goals of accelerating new energy R&D and expanding commercialization and deployment of emerging technologies. The request for biomass and biorefinery systems R&D is $179.3 million, an increase of $29.6 million or almost 20 percent over the previous year. This proposal highlights the essential role of the Biofuels Initiative in increasing America's energy security.

The program is focused on making cellulosic ethanol cost-competitive by 2012. EERE will continue to support cost-shared efforts with industry to develop and demonstrate cellulosic biorefinery technologies that enable the production of transportation fuels and co-products. In addition, EERE is engaging in cost-shared projects with industry for enzyme development and for improved organism development or ethanologens for converting the sugars into ethanol. These two projects address major barriers to meeting our 2012 targets.

For the Vehicle Technologies Program, the Department is requesting $176.1 million for fiscal year 2008 to advance the development of energy-efficient, environmentally friendly, flexible platform technologies for cars and trucks that use significantly less oil and enable industry to comply with the proposed reformed CAFE standards. This request is $10.1 million higher than the fiscal year 2007 request and will advance the state of the art for energy storage batteries, power electronics and motors, and drive systems and testing needed to accelerate the viability and delivery of plug-in hybrid electric vehicles.

Battery technologies have made significant progress, reducing the cost of next generation hybrid vehicle batteries in each of the past 3 years, from almost $1,200 per vehicle to $750 per vehicle. In fiscal year 2008, we expect to bring that down further to $625 per vehicle and to increase our emphasis on batteries specifically optimized for plug-in hybrid applications.

Next, hydrogen is an important element of our strategy for energy security and environmental stewardship. The President's $309 million budget request for the Hydrogen Fuel Initiative fulfills his 5-year commitment of $1.2 billion. The portion of this under EERE is $213 million, which reflects a $7.2 million increase over the fiscal year 2007 budget request.

Much progress has been made since the announcement of the Hydrogen Fuel Initiative in 2003. The research has reduced the high volume cost of automotive fuel cells from $275 per kilowatt in 2002 to $107 per kilowatt in 2006, a major step toward the ultimate cost target of $30 per kilowatt.

Our research is going to continue to sharpen its focus to meet hydrogen production objectives through renewable pathways, including performing with bioderived liquids and electrolysis.

For solar energy, the fiscal year 2008 request is $148.3 million, a level that is nearly twice the enacted 2006 level. The Department's photovoltaic R&D focuses on those technology pathways

that have the greatest potential to achieve more cost competitiveness and grid parity by or before 2015. Industry-led partnerships with universities, State groups and national laboratories, known as Technology Pathway Partnerships, will continue in fiscal year 2008 to address the issues of cost, performance, and reliability.

Other priority key program areas of EERE include Building Technologies, which targets the long-term goal in 2020 of net-zero energy buildings—houses that can produce as much energy as they use on an annual basis. We're going to help industry produce a white light-emitting diode, or LED, lamp, which has already set the world record for LED brightness and efficacy in a power chip.

Wind energy focuses on reducing wind power costs and removing siting and transmission barriers to expand and use wind energy up to potentially 20 percent of our grid capacity in the United States.

Industrial Technologies, which in addition to leveraging successful partnerships with energy intensive industries, will support the development of next generation technologies that can revolutionize the U.S. industrial processes and deliver dramatic energy and environmental benefits.

PREPARED STATEMENT

My written statement, of course, includes greater detail on these and other programs but this concludes my opening remarks and I'm happy to answer any questions the subcommittee members may have of me.

Senator DORGAN. Secretary Karsner, thank you very much for your testimony.

[The statement follows:]

PREPARED STATEMENT OF HON. ALEXANDER KARSNER

Mr. Chairman and members of the committee, thank you for this opportunity to testify on the President's fiscal year 2008 budget request for the Office of Energy Efficiency and Renewable Energy (EERE).

The President's fiscal year 2008 budget request includes $1.24 billion for EERE, approximately $60 million (5 percent) more than the fiscal year 2007 request to Congress. To be clear, because of timing in drafting this testimony and finalizing the Department's operating plan for the fiscal year 2007 year-long Continuing Resolution (CR), my written testimony on the fiscal year 2008 budget request is presented primarily in comparison to the administration's fiscal year 2007 request. EERE received a $300 million increase in funding under the CR. I am grateful to Congress for its vote of confidence in the energy efficiency and renewable energy programs, but note that this level is above the allocation in the President's request. In allocating the additional $300 million, EERE will accelerate the priorities reflected in administration initiatives such as the "20 in 10" plan and the Advanced Energy Initiative (AEI), while still carrying out implementation of the Energy Policy Act of 2005 (EPACT).

The fiscal year 2008 budget request addresses pressing energy and environmental challenges facing our country today by accelerating the development of both renewable energy technologies to increase the amount of clean energy produced in the United States and advanced energy efficient technologies, standards, and practices that use less energy. Much of EERE's funding is an integral part of the President's AEI, launched in 2006 to confront our addiction to oil, lessen dependence on foreign resources, and reduce emissions by developing clean sources of electricity generation. Together, new technologies can help change the way we power our homes, businesses, and automobiles.

In his 2007 State of the Union address, the President raised the bar by seeking legislative action for our country to reduce gasoline consumption by 20 percent in the next 10 years, the "20 in 10" plan. The fiscal year 2008 budget request increases funding for programs that may help the Nation achieve the "20 in 10" goal, includ-

ing, for example, biomass/biofuels R&D that may help to expand the availability of alternative transportation fuels.

EERE's applied science R&D contributes to the foundation for transforming the Nation's energy options and energy use. For example, one of this year's R&D 100 awards went to the Department's Idaho National Laboratory for its work with Xtreme Xylanase, an enzyme produced by bacteria found in the hot, acidic waters of Yellowstone National Park. Work on Xtreme Xylanase was funded in part by EERE's Biomass Program. The metabolic versatility of this enzyme (it breaks down cellulose and hemicellulose over a broad range of temperatures and acidic pH conditions) could help make cellulosic ethanol more efficiently and economically. In the field of solar energy, a new world-record 40 percent efficient concentrating photovoltaic solar cell was developed as a result of collaboration between DOE, the National Renewable Energy Laboratory, and Spectrolab. For general lighting applications with solid-state lighting, Cree, Inc., with DOE R&D funding, has released the new XLamp® 7090 power white light-emitting diode (LED), setting a world record for LED brightness and efficacy (at 85 lumens/Watt) in a power chip.

It is essential, however, that, we work not only to accelerate R&D for new energy technologies, but address the accelerated adoption of technologies into commercial products that are widely available at reasonable cost to all Americans. Thus, in addition to its historical role of leading Federal applied science on emerging technologies, EERE is taking aggressive steps to catalyze the rapid commercialization and deployment of critical energy advances through innovative partnerships and collaboration with lenders and investment groups, the States, and industry leaders. We seek to help enable and accelerate market transformation toward the use of more efficient and cleaner technologies.

EERE's overall budget request reflects the funding needed to meet our goals. The following EERE programs target and support sectors of energy use and supply that will help lead our Nation to a secure energy future:

BIOMASS AND BIOREFINERY SYSTEMS R&D

The fiscal year 2008 budget request for Biomass and Biorefinery Systems R&D is $179.3 million, an increase of $29.6 million, almost 20 percent above the fiscal year 2007 request. This proposed funding increase reflects the essential role of the Biofuels Initiative in increasing America's energy security. Biomass is the most viable renewable option for producing liquid transportation fuels in the near term, with the potential to help reduce our dependence on imported oil.

The focus of the program is to make cellulosic ethanol cost-competitive by 2012. EERE will continue in fiscal year 2008 to support its cost-share efforts with industry to develop and demonstrate technologies to enable cellulosic biorefineries for the production of transportation fuels and co-products. The fiscal year 2008 funding increase also supports the validation of advancing biomass conversion technologies and feedstocks in biorefineries at approximately 10 percent of commercial scale. This effort enables industry to resolve remaining technical and process integration uncertainties for the "next generation" of biorefinery process technologies being examined at a significant, but less-costly scale. Ultimately, 10-percent scale demonstrations have the potential to reduce the overall cost and risk to industry along with improving the likelihood of obtaining financing for commercial-scale facilities.

The fiscal year 2008 funding increase will also support EERE cost-shared projects with industry for enzyme development for producing low cost sugars from biomass and for improved organism development or "ethanologen" for converting those sugars to ethanol. These two industry cost-share projects address major barriers to meeting the 2012 cost goal. Overall knowledge gained from section 932 projects, 10 percent validation scale projects, enzyme development, and ethanologen R&D, combined with other key R&D activities, should accelerate industry's ability to produce cost-competitive cellulosic ethanol.

To address biomass resource availability and feedstock infrastructure to reduce the cost and improve the storage of delivered biomass in different geographical areas of the United States, EERE will continue to support the Regional Feedstock Partnership work with the U.S. Department of Agriculture (USDA) and land grant colleges. These partnerships will help identify the regional biomass supply, growth, and biorefinery development opportunities.

In order to capture and coordinate Federal-wide activities supporting the President's goal, the Biomass Program is developing a National Biofuels Action Plan commissioned through the Biomass Research and Development Initiative. The Biomass Program will also establish the framework for an ethanol reverse auction in accordance with section 942 of EPACT 2005. The auction will award incentives on a per gallon basis of cellulosic biofuels produced.

VEHICLE TECHNOLOGIES PROGRAM

In fiscal year 2008, the Department is requesting $176.1 million for the Vehicle Technologies Program to advance development of increasingly more energy-efficient and environmentally friendly, flexible platform technologies for cars and trucks that will use significantly less oil and enable the auto industry to comply with reformed CAFE standards. This request is $10.1 million higher than the fiscal year 2007 request, and will advance the state of the art for energy storage batteries, power electronics and motors, and the hybrid drive systems and testing needed to accelerate manufacturing viability and delivery of plug-in hybrid electric vehicles.

Activities in the Vehicle Technologies Program contribute to two cooperative government/industry activities: the FreedomCAR and Fuel Partnership (where CAR stands for Cooperative Automotive Research) and the 21st Century Truck Partnership. The FreedomCAR and Fuel Partnership is a collaborative effort among the U.S. Council for Automotive Research (USCAR—representing the three domestic automobile manufacturers), five energy suppliers, and DOE for cooperative, pre-competitive research on advanced automotive technologies having significant potential to reduce oil consumption. The 21st Century Truck Partnership focuses on commercial vehicles. The partnership involves key members of the commercial vehicle industry, (truck equipment manufacturers and engine manufacturers) along with three other Federal agencies. The R&D centers on improving advanced combustion engine systems and fuels and on reducing vehicle parasitic losses, meaning frictional and aerodynamic losses, extra loads like air conditioning, and other vehicle inefficiencies that increase fuel consumption.

Vehicle Technologies Program activities that support the goals of the FreedomCAR and Fuel Partnership focus on high-efficiency and flexible platform vehicle technologies such as advanced combustion engines and their enabling fuels, hybrid vehicle systems (including plug-in hybrids), high-power and high-energy batteries, lightweight materials, and power electronics. These technologies could lead to substantial oil savings if adopted by industry participants and included in their manufacturing plans.

The FreedomCAR goals include reducing the volume production cost of a high-power 25kW battery for use in hybrid passenger vehicles from $3000 in 1998 to $500 by 2010. In 2006 we projected through the modeling of research data that lithium ion battery cost could be reduced to $750 per 25 kW battery system when produced in mass quantities. This year's request increases the emphasis on plug-in hybrid vehicle component technologies. Cited by the President as a key part of the strategy for reducing America's dependence on oil, these technologies offer the potential to make significant additional improvements in petroleum reduction beyond that achievable with standard hybrid configurations.

Combustion engine efficiency has made good progress over the past 3 years (2004–2006), with our R&D increasing the efficiency of light-duty passenger vehicle diesel engines from 35 to 41 percent. This means that if manufacturers were to produce these more efficient engines, a car that previously got the CAFE average of 27 miles per gallon on gasoline could potentially get 37 miles per gallon with an advanced, clean diesel. In fiscal year 2008, we expect to reach 43 percent efficiency for passenger vehicle diesel engines, approaching the 2010 goal of 45 percent. These advanced combustion engines have the potential to achieve the efficiency goals for cars and trucks while maintaining cost and durability with near-zero emissions. Battery technologies have also made significant progress toward program goals, having reduced the cost of next-generation hybrid vehicle batteries in each of the past 3 years, from almost $1,200 per vehicle at the beginning of fiscal year 2004 to $750 at the end of fiscal year 2006. In fiscal year 2008, we expect to bring that down to $625 per vehicle, and to increase our emphasis on batteries specifically optimized for plug-in hybrid vehicles to have battery technology ready by 2014 that will enable automobile manufacturers to economically produce competitive plug-in hybrid vehicles having a 40 mile all-electric range.

R&D programs will also continue to accelerate materials research directed at light, strong vehicle structures to enable the production of lighter vehicles that could result in higher efficiency fleets, and to develop thermoelectric materials for efficient energy recovery from heat. Other activities will focus on expanding efforts to promote the adoption and use of petroleum-reducing fuels, technologies, and practices, principally by working with industry partners, fuel providers, Clean Cities coalitions and their stakeholders, and end-users on activities ranging from using more alternative fuel vehicles and renewable fuel blends to driving smarter, minimizing wasteful idle time, and purchasing vehicles that get better fuel economy. Accordingly, the Vehicle Technologies Deployment budget request (including Clean Cities) will increase by over 100 percent relative to the fiscal year 2007 request.

HYDROGEN TECHNOLOGY PROGRAM

Hydrogen is an important element of our Nation's long-term strategy for energy security and environmental stewardship. It could enhance our energy security by providing a transportation fuel that may be produced from a variety of domestic resources; and it should serve our environmental interests by allowing vehicles to operate using fuel cells, without generating any tailpipe emissions. The Department's research is focused on pathways that produce and deliver hydrogen from diverse origins including emission-free nuclear, and renewable resources.

The President's $309 million fiscal year 2008 budget request for DOE for the Hydrogen Fuel Initiative fulfills his commitment of $1.2 billion over 5 years. The portion of this under our purview in EERE is $213 million, which reflects a $17.2 million increase over the fiscal year 2007 budget request. The proposed increase will accelerate and expand efforts to research and develop hydrogen-storage systems to improve performance, and fuel cell materials and components to reduce their cost, and improve durability. It will also support accelerating cost reduction of renewable hydrogen production technologies as well as critical delivery technologies.

Much progress has been made since the announcement of the Hydrogen Fuel Initiative in 2003. The research has reduced the high-volume cost of automotive fuel cells from $275 per kilowatt in 2002 to $107 per kilowatt in 2006—a major step towards the ultimate cost target of $30 per kilowatt. In fiscal year 2008, we will continue projects on fuel cell catalysts and membranes, and cold-weather start-up and operation. In addition to reducing cost and improving performance, this work will help us achieve our 2010 durability target of 5,000 hours, which should enable a vehicle lifetime of 150,000 miles.

We have also achieved our 2006 hydrogen cost goal of $3 per gasoline-gallon-equivalent for hydrogen produced by distributed reforming of natural gas, a potentially economical early market pathway. Our research will sharpen its focus to meet the same objective through renewable pathways—including reforming of bio-derived liquids and electrolysis. We are also working with the Department's Offices of Nuclear Energy, Fossil Energy, and Science to develop nuclear-based hydrogen production, hydrogen from coal—exclusively with carbon sequestration—and longer-term biological and photoelectrochemical hydrogen production pathways.

Our diverse hydrogen-storage portfolio is also showing promising results, with innovative materials being developed in areas such as metal hydrides, chemical hydrides, and carbon-based materials. Research conducted at our "Centers of Excellence," and by independent projects, has continued to increase material storage capacity. Substantial breakthroughs are required to reach our goal of providing consumers with enough storage for a 300-mile driving range, without compromising a vehicle's interior space.

Developing hydrogen technologies that can be manufactured domestically will also improve our economic competitiveness. Our manufacturing R&D effort addresses the need for high-volume fabrication processes for fuel cells and many other components, which are all currently built one-at-a-time. This is essential to lowering the cost of these technologies, and to developing a domestic supplier base.

In addition to these R&D activities, we are addressing other challenges significant to realizing the benefits of hydrogen fuel cells. Our Technology Validation Program has brought together teams of automobile manufacturers and energy companies to operate and evaluate fuel cell vehicles and hydrogen stations under real-world conditions. To date, the program has placed 69 fuel cell vehicles on the road, served by 10 hydrogen fueling stations.

Furthermore, we are working to ensure safe practices, and—through support of existing codes and standards development organizations—we are laying the groundwork for developing technically sound codes and standards, which are essential to implementing hydrogen technologies.

Finally, our education activities focus on overcoming the knowledge barriers inherent in the introduction of new technology. Last month, we released a multimedia web-based course that introduces hydrogen to first responders. In the coming year, we will continue to expand the availability of training and conduct outreach to raise awareness of the technology.

The effects of the Department's broad-based efforts in the Hydrogen Program are being seen nationwide, and progress has been substantial. Investments are not only occurring at the Federal level, but also at state and local levels. These diverse investments increase our probability of success in overcoming existing technological barriers, which will allow industry to make fuel cell vehicles that customers will want to buy, and encourage investment in a hydrogen refueling infrastructure that is profitable.

SOLAR ENERGY PROGRAM

The Solar Energy Program sponsors research, development, and deployment of solar energy technologies and systems that can help our Nation meet electricity needs and reduce the stress on our electricity infrastructure. Through the Solar America Initiative (SAI), the Solar Program aims to accelerate the market competitiveness of solar electricity as industry-led teams compete to deliver solar systems that are less expensive, more efficient, and highly reliable. The Solar Program supports three technology areas: photovoltaics (PV), concentrating solar power (CSP), and solar heating and lighting. The fiscal year 2008 budget request for Solar Energy is $148.3 million, a level that is nearly twice the enacted fiscal year 2006 level.

To lower costs more rapidly and improve performance, the Department's PV R&D, budgeted in fiscal year 2008 at $137.3 million, focuses on those technology pathways that have the greatest potential to reach cost-competitiveness and grid parity by or before 2015. Industry-led partnerships with universities, state groups and National Laboratories, known as "Technology Pathway Partnerships," will continue in fiscal year 2008 to address the issues of cost, performance, and reliability associated with each pathway. Work on PV modules, the heart of PV systems, will be conducted, as well as other "balance-of-system" components.

To catalyze market transformation, DOE will promote the expansion of the solar marketplace by seizing opportunities for growth and by lowering barriers to entry. The Department will provide technical outreach to States and utilities, continue pressing work on codes and standards issues, and solicit new applications for its Solar America Cities activity. These market transformation activities help pave the way for technologies developed by our industry partnerships to enter the marketplace.

We will emphasize the importance of interconnection standard procedures and net metering regulations that are designed to accommodate solar and other clean distributed energy systems. A precondition for large-scale solar market penetration in America is to have the proper means for homeowners and businesses to connect solar systems to the grid, as well as to be paid for excess electricity they feed back into the grid. We are working with our colleagues in the Department's Office of Electricity Delivery and Energy Reliability to develop "best practice" recommendations for States to use as they undertake consideration of interconnection procedures and net metering regulations and make implementation decisions pursuant to sections 1251 and 1254 of EPACT 2005. Fiscal year 2008 funding will also be used to offer technical outreach to States and utilities to enhance solar connectivity issues.

Work will continue on the multi-year solicitations launched in fiscal year 2007 that promote adoption of market-ready solar technologies and a new effort will support benchmarking, modeling, and analysis for the systems driven approach, and market, value and policy analysis needed to support the SAI. EERE's PV activities are increasingly coordinated and when possible convergent with solar energy activities in the Building Technologies and the Federal Energy Management programs, and the research activities of the DOE Office of Science.

The fiscal year 2008 budget request for CSP—systems that utilize heat generated by concentrating and absorbing the sun's energy to drive a heat engine/generator to produce electric power—is $9.0 million. The development of advanced thermal energy storage technologies will be expanded, along with continued support to develop next generation parabolic trough concentrators, solar engines, and receivers. For distributed applications, research will focus on improving the reliability of dish systems through the operation and testing of multiple units. Technical assistance will be provided to industry in its development of a 1.0 MW dish system in California that is expected to be the precursor of several much larger plants. Technical support will also be provided to the Western Governors' Association and several southwestern utilities to assist their CSP deployment activities.

The Solar Heating and Lighting program, a $2.0 million request, will focus on R&D to reduce the cost of solar heating in freezing climates. The program will also support collaboration with EERE's Building Technologies programs to integrate photovoltaic systems, solar water heating, and solar space heating into home design and structure. Such deployment efforts will help to seize market expansion opportunities.

BUILDING TECHNOLOGIES PROGRAM

Energy use by residential and commercial buildings accounts for over one-third of the Nation's total energy consumption, including two-thirds of the electricity generated in the United States. Addressing that significant sector of energy consumption, the $86.5 million requested this year for the Building Technologies Program represents a $9.1 million increase of 12 percent over the fiscal year 2007 request.

The funding supports a portfolio of activities that includes solid state lighting, improved energy efficiency of other building components and equipment and their effective integration using whole-building-system design technique, the development of codes and standards for buildings and appliances, and education and market introduction programs, including ENERGY STAR and EnergySmart Schools.

Funding for Residential Buildings Integration aims to enable residential buildings to use up to 70 percent less energy, and to integrate renewable energy systems into highly efficient buildings to achieve the long-term goal in 2020 of net Zero Energy Buildings—houses that produce as much energy as they use on an annual basis. During fiscal year 2008, research for production-ready new residential buildings that are 40 percent more efficient will continue for four climate zones.

The $19.3 million request for solid state lighting will advance development of the organic and inorganic LEDs that has the potential to double the efficiency of fluorescent lighting technology. The fiscal year 2008 requested funding will be used to develop general illumination technologies with the goal of achieving energy efficiencies of up to 93 lumens per Watt with improved visual comfort and quality of light and focus on applied research that enables the industrial base to manufacture LEDs.

The fiscal year 2008 request reflects the Department's commitment to clear the backlog of equipment standards and test procedures that had accumulated in the prior 12 years and meet the statutory schedule for rulemakings for new products covered by EPACT 2005. The Department will continue to implement productivity enhancements that will allow multiple rulemaking activities to proceed simultaneously, while maintaining the rigorous technical and economic analysis required by statute.

Funds for the Building Technologies Program will also support development of highly insulating and dynamic window technologies and integrated attic-roof systems needed to achieve long-term zero energy building goals. Efforts to accelerate the adoption of efficient building technologies by consumers and businesses include expanded ENERGY STAR specifications and labels for more products, promotion of advanced building efficiency codes, and public-private partnerships to advance efficient schools, hospitals, commercial lighting, and home building.

FEDERAL ENERGY MANAGEMENT PROGRAM

The Federal Energy Management Program (FEMP) assists Federal agencies, including DOE, in increasing their use of energy efficiency and renewable energy technologies through alternative financing contract support and technical assistance, and coordinates Federal reporting and evaluation of agency progress each year. As the single largest energy consumer in the United States, the Federal government must set an example and lead the Nation toward becoming a cleaner, more efficient consumer by using existing energy efficiency and renewable energy technologies and techniques. On January 24, 2007, President Bush signed a new Executive Order to strengthen the environmental, energy, and transportation management of Federal agencies which includes a requirement for agencies to reduce their energy intensity by 3 percent each year until 2015, compared with a 2003 baseline.

The fiscal year 2008 request for FEMP is $16.8 million, a slight decrease of $0.1 million from the fiscal year 2007 request. We are requesting $7.9 million for FEMP alternative financing programs that help agencies access private sector financing to fund energy improvements without the use of current appropriations. We expect to achieve not less than $160 million in private sector investment through Super ESPCs, Energy Savings Performance Contracts, and Utility Energy Service Contracts (UESCs), which will result in about 15 trillion Btus in energy saved over the lifecycle of the projects. Furthermore, we are requesting $6.5 million for Technical Guidance and Assistance to help Federal energy managers identify, design, and implement new construction and facility improvement projects that incorporate energy efficiency and renewable energy. FEMP will assist Federal agencies in meeting the increased energy efficiency goals, established by the new Executive Order, by orienting its Technical Guidance and Assistance, Training, and Outreach activities towards attracting private-sector financing for investment into energy efficiency at Federal facilities. In addition to the focus on facility energy consumption, FEMP also tracks alternative fuel use in Federal vehicle fleets.

In fiscal year 2008, the Departmental Energy Management Program (DEMP) is being discontinued. FEMP will still provide policy guidance and technical assistance to the Department, but DOE has determined that the management of energy efficiency and renewable investments at its facilities can be more effectively conducted by those facilities. While not reported separately, DOE national labs and other facilities spend significant funding (direct and indirect) on energy efficiency improvements, while also using ESPCs and UESCs where appropriate.

WIND ENERGY PROGRAM

The Wind Program focuses on reducing wind power costs and removing barriers to resource utilization of wind energy technology in the United States. The program's fiscal year 2008 request is $40.1 million.

As a result of 30 years of R&D, wind turbines can now provide cost-effective, reliable clean energy in high wind speed areas. While we will continue to do R&D to improve wind energy technologies in low wind speed areas, we are also focusing on near-term actions to remove existing barriers to increasing the use of wind energy, building on the current robust market for wind energy in the United States. These efforts could help to set the path for the wind industry to accelerate its penetration of delivered emission-free energy, significantly expanding beyond the roughly one percent of installed electrical generating capacity today.

The program is expanding application and deployment-related activities. The $12.9 million requested for Systems Integration and Technology Acceptance will help wind technologies entering the market to overcome key obstacles such as grid integration, siting, permitting, and environmental barriers. In addition, there will be increased support to address issues of pre-competitive turbine reliability and performance via efforts of National Laboratories and Cooperative Research and Development Agreements or "CRADAs" with industry. The Wind Program will also establish a Federal interagency siting group to minimize regulatory delays on wind projects.

The Wind Program is funding a broader effort on distributed wind technologies and applications to advance the full scope of diverse opportunities for wind energy on the distribution side of the electric power system.

A U.S. wind industry-wide roadmapping analysis, being supported by the DOE wind program, is underway to determine the technical feasibility for wind energy to generate 20 percent of our Nation's electricity. To achieve this vision it would require grid modernization, expansion, and integration, and removal of other deployment barriers. Success would enable delivery of more than 300 gigawatts of new, clean, affordable, and domestic production capacity to our urban load centers and be a substantial contributor to economic growth, manufacturing, and rural prosperity. EERE will work with DOE's Office of Electricity Delivery and Energy Reliability on several studies aimed at expanding electricity transmission between remote wind resources and urban areas.

WEATHERIZATION AND INTERGOVERNMENTAL PROGRAM

In fiscal year 2008, we are requesting $204.9 million for Weatherization and Intergovernmental Activities, a $20.1 million decrease from the fiscal year 2007 request. The reduction is primarily related to the decrease in the amounts requested for the Weatherization Assistance Program, which will enable greater investments in advanced R&D within the EERE portfolio to address national priorities: reducing dependence on foreign oil, accelerating the development of clean, emission-free electricity supply options, and developing highly efficient new technologies, products, and practices for our homes and buildings.

The requested $144 million for the Weatherization Assistance Program will fund energy efficiency audits and upgrades for at least 54,599 low-income homes. DOE works directly with States and certain Native American Tribes that contract with local governmental or non-profit agencies to deliver weatherization services to homes in need of energy assistance.

The $45.5 million requested for the State Energy Program provides financial and technical assistance to State governments, enabling them to target their high priority energy needs and expand clean energy choices for their citizens and businesses. This request includes $10.5 million for a competitive solicitation that will seek regional and state partnerships to replicate smart energy policies and programs among States. The regional context is outlined in EPACT and aligns with our electricity transmission infrastructure.

Clean electricity generation is targeted by the Renewable Energy Production Initiative, which provides financial incentive payment to public and Tribal utilities and not-for-profit electric cooperatives for renewable generation systems that use solar, wind, geothermal, or biomass technologies. The Tribal Energy Program aims to facilitate the installation of 100 MW of renewable energy generation by Native American tribes by 2010.

The Asia Pacific Partnership (APP) for Clean Development and Climate requests funding at the $7.5 million level. This international partnership is an important and innovative accord to accelerate the development and deployment of clean energy technologies among the six member countries: Australia, China, India, Japan, South Korea, and the United States. Representing about half of the world's economy, popu-

lation, energy use, and emissions, the six countries have agreed to work together and with private sector partners to set and meet goals for energy security, national air pollution reduction, and global warming, employing policies and practices that promote sustainable economic growth and poverty reduction, while addressing the serious challenge of climate change.

INDUSTRIAL TECHNOLOGIES PROGRAM

Industry consumes more energy than the residential, commercial, and transportation end-use sectors, and it is also the Nation's second largest emitter of CO_2. Advancements in industrial energy-efficient technology could improve U.S. competitiveness, and contribute to our national effort to reduce oil imports, alleviate natural gas price pressure, and pre-empt the need for new power plants and consequent emissions.

The fiscal year 2008 budget request for Industrial Technologies is $46.0 million, a $0.4 million increase over the fiscal year 2007 request. The program will leverage its innovative technology transfer practices and partnerships with energy-intensive industries, while shifting toward more crosscutting and higher-impact R&D activities that will bring innovative energy solutions to a much broader group of industrial companies, at a more accelerated pace.

The Industrial Technologies Program (ITP) has a track record for moving innovative technologies from R&D through commercialization and onto the floors of industrial plants. In 2006 alone, 8 technologies funded by ITP received prestigious R&D 100 awards. New technologies emerging from ITP's R&D program are being adopted to help solve some of industry's toughest energy and competitiveness challenges. In many cases, this is occurring through the industrial energy assessments that ITP is conducting at 250 of the Nation's largest energy-consuming manufacturing plants as part of Secretary Bodman's "Easy Ways to Save Energy" initiative. We estimate that ITP-sponsored technologies and deployment activities have contributed to industrial energy savings of over $3.1 billion in one year (2004).

The $7.2 million requested for the new activity, Energy-Intensive Process R&D, will support R&D in 4 crosscutting areas to better deliver technology solutions for the industrial processes that consume the most energy. These four areas are Energy Conversion Systems, Industrial Reaction and Separation, High-Temperature Processing, and Fabrication and Infrastructure. One example of a technology that cuts across the industrial sector to deliver savings is ITP's ultra-high efficiency, ultra-low emissions, industrial steam generation "Super Boiler." Since steam is used in every major sector, the potential benefits are tremendous. The Super Boiler is 10 to 20 percent more efficient than current technology and can reduce NO_X emissions to below 5 parts per million, which represents an approximately 90 percent reduction in emissions from a conventional boiler.

The $4.9 million request for the new Inter-Agency Manufacturing R&D activity working with the National Science and Technology Council will support the development or adaptation of next-generation technologies that can revolutionize U.S. industrial processes and deliver dramatic energy and environmental benefits. These next-generation technologies, such as entirely new processing routes and supply chains, can have broad applications across industry, yet they typically require the type of high-risk, high-return R&D that one industry cannot usually undertake. Our initial research focus will include development of techniques and processes needed for nanomanufacturing. We aim to help transform industrial processes by enabling the mass production and application of nano-scale materials, structures, devices, and systems that provide unprecedented energy, cost, and productivity benefits in manufacturing.

Deployment efforts such as "Best Practices" activities and Industrial Assessment Centers will continue to deliver the results of energy-efficiency R&D and energy-saving practices to industrial plants nationwide. A vehicle for educational outreach, the university-based Industrial Assessment Centers train engineers and scientists in the energy field, providing opportunities for students to conduct energy assessments at no cost to small and medium-sized manufacturing plants in the United States.

FACILITIES AND INFRASTRUCTURE

The fiscal year 2008 budget request of $7.0 million for Facilities and Infrastructure, an increase of $1.0 million from the fiscal year 2007 request, supports the operations and maintenance of the National Renewable Energy Laboratory (NREL) in Golden, CO. NREL is a single-purpose National Laboratory dedicated to R&D for energy efficiency, renewable energy, and related technologies that provides EERE, as well as DOE's Office of Science and the Office of Electricity Delivery and Energy Reliability, with R&D, expert advice, and programmatic counsel.

PROGRAM DIRECTION AND PROGRAM SUPPORT

The Program Direction budget supports the management and technical direction and oversight needed to implement EERE programs at both headquarters and the Project Management Center. Areas funded by this request include: Federal salaries, information systems and technology equipment, office space, travel, and support service contractors. The fiscal year 2008 budget request for Program Direction totals $105.0 million, a $14.0 million increase over the fiscal year 2007 request. This increase reflects EERE's updated staffing needs, which more closely align critical skills to mission requirements and adds staff to support technical program staffing shortfalls and implementation of the AEI and EPACT 2005 priorities.

The Program Support budget request provides resources for crosscutting performance evaluation, analysis, and planning for EERE programs and for technical advancement and outreach activities. The information developed by the Program Support components provides decision makers at every level the information they need to make choices related to energy alternatives that can help the Department achieve its goals. The fiscal year 2008 budget request for Program Support activities totals $13.3 million, representing a $2.4 million increase from the fiscal year 2007 budget request. The increase reflects the expansion of EERE's market transformation and commercialization analysis and expanded efforts in the Technology Advancement and Outreach Office.

CONCLUSION

Accelerating research, development, and deployment of America's abundant clean sources of energy and making more efficient use of all energy consumed is central to EERE's mission, and to a secure and competitive economic future that enhances our environmental well-being for our Nation and our world. We believe the administration's fiscal year 2008 budget request for energy efficiency and renewable energy programs strategically positions the stepping stones that will continuously catalyze and accelerate new energy sources, technologies, and practices into the marketplace, and hasten the transformation of how our homes, businesses, and vehicles use energy.

This concludes my prepared statement, and I am happy to answer any questions the Committee members may have.

Senator DORGAN. Next we will hear from the Honorable Tom Shope, the Assistant Secretary of the Office of Fossil Energy. Mr. Shope, thank you for being with us.

STATEMENT OF HON. THOMAS D. SHOPE, ACTING ASSISTANT SECRETARY FOR FOSSIL ENERGY

Dr. SHOPE. Thank you, Mr. Chairman, thank you, Ranking Member Domenici and members of the subcommittee. It is an honor for me to appear before you today to present the Office of Fossil Energy's proposed budget for fiscal year 2008.

Fossil Energy's $863 million budget request for fiscal year 2008 will allow the office to support the President's top initiatives for energy security, clean air, climate change and coal research as well as DOE's strategic goal of protecting our national and economic security by promoting a diverse supply and delivery of reliable, affordable, and environmentally sound energy.

Let me begin the presentation of our budget with coal, our most abundant and lowest cost domestic fossil fuel. Coal today accounts for nearly one-quarter of all of the energy and more than one-half of the electricity produced in the United States. Because coal is so important to our energy future, our proposed budget of $448 million for the President's coal research initiative, related fuel cell R&D and program direction accounts for more than one-half of our total budget. Our overarching goal is to conduct research and development that will improve the competitiveness of domestic coal in future energy markets, allowing the Nation to tap the full potential

of its abundant fossil energy resources in an environmentally sound and affordable manner.

This year's request completes 3 years ahead of schedule the President's commitment to invest $2 billion on clean coal research over 10 years. Our coal research initiative is broken down into the following components. We are requesting $73 million for the Clean Coal Power Initiative, a cooperative, cost-shared program between the Government and industry to demonstrate emerging technologies in coal-based power generation so as to help accelerate commercialization. Work on promising technologies selected in two prior solicitations will continue in fiscal year 2008 and we plan to announce a third solicitation during the year.

The first of a kind, high priority FutureGen project will establish the capability and feasibility of co-producing electricity and hydrogen from coal with near zero atmospheric emissions, including carbon dioxide. FutureGen's proposed budget of $108 million for fiscal year 2008 will be used to support detailed plant design and procurement and other preliminary work. Technology development supporting FutureGen is embodied in our Fuels and Power Systems Program. Included in the Program's proposed budget for fiscal year 2008 of $245.6 million, you will find the research and development for carbon capture and sequestration, membrane technologies for oxygen and hydrogen separation, advanced combustion turbines, fuel cells, coal to hydrogen conversion and gasifier related technologies.

The high priority carbon sequestration program with a proposed budget for fiscal year 2008 of $79 million for developing a portfolio of technologies with great potential to reduce greenhouse gas emissions. The goal is to achieve substantial market penetration after 2012. In the long term, the program is expected to contribute significantly to the President's goal of developing technologies to substantially reduce greenhouse gas emissions.

In addition, the network of seven regional carbon sequestration partnerships and the International Carbon Sequestration Leadership Forum established by DOE in 2003 will continue their important work, including conducting vital, diverse geologic CO_2 storage tests. Research and development carried out by the Coal to Hydrogen Fuels Program, funded at a proposed $10 million, will make the future transition to a hydrogen-based economy possible by reducing the costs and increasing the efficiency of hydrogen production from coal.

We have requested $62 million in fiscal year 2008 to continue the important work of a Solid State Energy Conversion Alliance, the goal of which is to develop the technology for low cost, scalable, and fuel flexible fuel cell systems.

Consistent with our fiscal year 2006 and 2007 budget requests, the Petroleum Oil Technology and Natural Gas Technologies Research and Development Programs are proposed to be terminated in fiscal year 2008. However, the Office of Fossil Energy will continue to carry out important responsibilities in the oil and natural gas sector, such as management of the ultra-deep water and unconventional resources research program mandated by the Energy Policy Act of 2005.

In addition, fossil energy will continue to authorize natural gas imports and exports, collect and import data on natural gas trade, operate the Rocky Mountain Oil Field Testing Center and oversee the Loan Guarantee Program for the Alaska Natural Gas Pipeline.

The Energy Policy Act of 2005 directs the strategic petroleum reserve to prepare to increase its oil storage to 1 billion barrels. Additionally, the President recently recommended expanding the reserve's capacity to 1.5 billion barrels. Our budget request of $331 million, almost double last year's request, will fund the reserve's continued readiness as well as the immediate filling of the reserve to its current capacity of 727 million barrels. The budget includes $168 million to begin expansion at existing and new sites towards the 1.5 billion barrels.

PREPARED STATEMENT

Mr. Chairman and members of the subcommittee, this completes my prepared statement. I'd be happy to answer any questions you may have.

Senator DORGAN. Secretary Shope, thank you very much for your testimony.

[The statement follows:]

PREPARED STATEMENT OF HON. THOMAS D. SHOPE

Mr. Chairman, members of the committee, it's a pleasure for me to appear before you today to present the Office of Fossil Energy's (FE) proposed Budget for fiscal year 2008

Fossil Energy's $863 million budget request for fiscal year 2008, one of the largest FE requests made by this administration, will allow the Office to achieve 2 fundamental objectives: first, to support the President's top priorities for energy security, clean air, climate change and coal research; and second, to support the Department of Energy's strategic goal of protecting our national and economic security by promoting a diverse supply and delivery of reliable, affordable, and environmentally-sound energy.

More specifically, the proposed budget emphasizes early initiation of an expansion of the Strategic Petroleum Reserve; rapid development of technologies to manage and dramatically reduce atmospheric emissions of the greenhouse gas carbon dioxide from fossil fuel use in power generation and other industrial activity; and design and other preparatory work on the FutureGen project to combine in one plant the production of electric power and hydrogen fuel from coal with near-zero atmospheric emissions.

THE PRESIDENT'S COAL RESEARCH INITIATIVE

I will begin the detailed presentation of our proposed budget with coal, our most abundant and lowest cost domestic fossil fuel. Coal today accounts for nearly one-quarter of all the energy—and about half the electricity—consumed in the United States. Because coal is so important to our energy future, our proposed budget of $448 million for the President's Coal Research Initiative, related fuel cell R&D and R&D by Federal employees within program direction accounts for more than half our total budget.

I should mention here that our fiscal year 2008 Budget focuses our research and development on activities that support the President's Advanced Energy Initiative and key provisions of the Energy Policy Act of 2005. These activities will be conducted largely through cost sharing and industry collaboration. As a result of the evaluations under the Research and Development Investment Criteria, and the Program Assessment Rating Tool, activities throughout the program emphasize research and development for technologies that will be used in the FutureGen project.

The goal of the overall coal program, which includes the President's Coal Research Initiative, is to conduct research and development that will improve the competitiveness of domestic coal in future energy markets. The administration strongly supports coal as an important component of our energy portfolio. This year's budget request completes the President's commitment to invest $2 billion on clean coal re-

search over 10 years, 3 years ahead of schedule. Our coal budget request is broken down into the following components:

Clean Coal Power Initiative

We are requesting $73 million in fiscal year 2008 for the Clean Coal Power Initiative (CCPI), a cooperative, cost-shared program between the Government and industry to demonstrate emerging technologies in coal-based power generation so as to help accelerate commercialization. CCPI allows the Nation's power generators, equipment manufacturers and coal producers to help identify the most critical barriers to coal use in the power sector. Technologies to eliminate the barriers are then selected with the goal of accelerating development and deployment of applications that will economically meet environmental standards while increasing plant efficiency and reliability. Work on promising technologies selected in two prior solicitations will continue in fiscal year 2008, and we plan to announce a third solicitation during the year, which will focus on advanced technology systems that capture carbon dioxide for sequestration and beneficial reuse.

Some activities of the Clean Coal Power Initiative will help drive down the costs of Integrated Gasification Combined Cycle (IGCC) systems and other technologies for near-zero atmospheric emission plants that are essential to the FutureGen concept.

FutureGen

FutureGen is a high-priority project that will establish the capability and feasibility of co-producing electricity and hydrogen from coal with near-zero atmospheric emissions including carbon dioxide. FutureGen is a public/private partnership designed to integrate technologies that ultimately will lead to new classes of plants that feature fuel flexibility, multi-product output, electrical efficiencies of over 60 percent, and near-zero atmospheric emissions. FutureGen's goals include electricity at costs no more than 10 percent above power from comparable plants that are incapable of carbon sequestration. The capture and permanent storage of atmospheric carbon emissions is a key feature of the FutureGen concept, as is the capability to use coal, biomass, or petroleum coke. The project should help retain the strategic value of coal—the Nation's most abundant and lowest cost domestic energy resource. FutureGen's proposed budget of $108 million for fiscal year 2008 will be used to support detailed plant design and procurement, as well as ongoing permitting, preliminary design and site characterization work.

To help fund both the CCPI and FutureGen projects in fiscal year 2008, our proposed Budget redirects $58 million in unexpended sums and $257 million in deferred appropriations from the original Clean Coal Technology program. Specifically, the Budget proposes to transfer $108 million of the $257 million deferral to the FutureGen project, and cancel the remaining $149 million from the deferral. Of the unobligated balances carried forward at the start of fiscal year 2008, $58 million is transferred to the Clean Coal Power Initiative (CCPI).

FUELS AND POWER SYSTEMS

Technology development supporting FutureGen is embodied in the core research and development activity of the Fuels and Power Systems program. The Fuels and Power Systems program's proposed budget for fiscal year 2008 is $245.6 million. Of this total amount, $183.6 million will fund research and development for carbon capture and sequestration, membrane technologies for oxygen and hydrogen separation, advanced combustion turbines, coal-to-hydrogen conversion, and gasifier-related technologies. The remaining balance of $62 million will support Fuel Cells.

The program breaks down as follows:

Advanced Integrated Gasification Combined Cycle

With proposed funding of $50 million for fiscal year 2008, the Advanced Integrated Gasification Combined Cycle program will continue to concentrate efforts on gas stream purification to meet quality requirements for use with fuel cells and conversion processes, on impurity tolerant hydrogen separation, on elevating process efficiency, and on reducing the costs and energy requirements for oxygen production through development of advanced technologies such as air separation membranes.

Advanced Turbines

A funding request of $22 million will allow the Advanced Turbines program to continue its concentration on the creation of a turbine-technology base that will permit the design of near-zero atmospheric emission IGCC plants and a class of FutureGen-descended plants with carbon capture and sequestration. This research

emphasizes technology for high-efficiency hydrogen and syngas turbines and builds on prior successes in the Natural Gas-based Advanced Turbine Systems Program.

Advanced Research

The Advanced Research program bridges basic and applied research to help reduce the costs of advanced coal and power systems while improving efficiency and environmental performance. The proposed $22.5 million budget for Advanced Research will fund projects aimed at a greater understanding of the physical, chemical, biological and thermo-dynamic barriers that currently limit the use of coal and other fossil fuels.

Carbon Sequestration

The Carbon Sequestration program, with a proposed budget for fiscal year 2008 of $79 million, is developing a portfolio of technologies with great potential to reduce greenhouse gas emissions. This high-priority program's primary concentration is on dramatically lowering the cost and energy requirements of pre- and post-combustion carbon dioxide capture. The goal is to have a technology portfolio by 2012 for safe, cost-effective and long-term carbon mitigation, management and storage, which will lead to substantial market penetration after 2012. In the long term, the program is expected to contribute significantly to the President's goal of developing technologies to substantially reduce greenhouse gas emissions.

The Carbon Sequestration program's activities in fiscal year 2008 will concentrate on research and development projects for carbon dioxide (CO_2) capture and storage, as well as measurement, monitoring and verification technologies and processes.

In coordination with the current partnerships, the program will determine the "highest potential" opportunities for the initial expedited round of large scale sequestration tests in saline, coal, and/or oil and gas bearing formations. This work will begin with a physical characterization of the surface and subsurface, reservoir modeling, and NEPA review.

The Partnerships will also move on to the next phase of the Weyburn project, where CO_2 is being injected into a producing oilfield. Weyburn's success would deliver both decreased carbon emissions and increased domestic oil production.

Finally, DOE formed the international Carbon Sequestration Leadership Forum (CSLF) in 2003 to work with foreign partners on joint carbon sequestration projects, and to collect and share information. That work will in continue in fiscal year 2008.

Several members of the CSLF have also signed on to the FutureGen project, and others have signaled strong interest in joining.

Fuels

Research and development carried out by the Coal-to-Hydrogen Fuels program, funded at a proposed $10 million, will make the future transition to a hydrogen-based economy possible by reducing the costs and increasing the efficiency of hydrogen production from coal. This program is an important component of both the President's Hydrogen Fuel Initiative and the FutureGen project.

Fuel Cells

Within Fuel Cells, we have requested $62 million for fiscal year 2008 to continue the important work of the Solid State Energy Conversion Alliance, the goal of which is to develop the technology for low-cost, scalable and fuel flexible fuel cell systems that can operate in central, coal-based power systems as well as in other electric utility (both central and distributed), industrial, and commercial/residential applications.

Research by Federal Staff

In addition to the funding levels reflected for Fuels and Power Systems, there is $20 million provided within the Program Direction account that directly supports the President's Coal Research Initiative, plus $1 million for fuel cells. This funding supports Federal staff directly associated with conducting the research activities of specific Fuels and Power Systems subprograms.

Petroluem and Natural Gas Technologies

Consistent with the fiscal year 2006 and fiscal year 2007 Budget Requests, the Petroleum-Oil Technology and Natural Gas Technologies research and development programs will be terminated in fiscal year 2008.

The Oil and Gas group will manage the Ultra-Deepwater and Unconventional Resources Research Program mandated by the Energy Policy Act of 2005. However, I should point out that the 2008 Budget proposes to repeal this legislation, consistent with the fiscal year 2007 Budget Request.

In addition, FE will continue to authorize natural gas imports and exports, collect and report data on natural gas trade, and operate the Rocky Mountain Oilfield Testing Center.

FE will also oversee the loan guarantee program for the Alaska Natural Gas Pipeline.

Strategic Petroleum Reserve

The Strategic Petroleum Reserve (SPR) exists to ensure America's readiness to respond to severe energy supply disruptions. The Reserve reached its highest inventory level—700 million barrels of oil—in 2005 The Energy Policy Act of 2005 directs DOE to fill the SPR to its authorized 1 billion barrel capacity, as expeditiously as practicable. Additionally, in the 2008 Budget, the President proposed expanding the Reserve's capacity to 1.5 billion barrels.

Our budget request of $332 million for fiscal year 2008—almost double last year's request—will fund the Reserve's continued readiness through a comprehensive program of systems maintenance, exercises, and tests, as well as beginning expansion to 1 billion barrels at existing and new sites and NEPA work to expand to 1.5 billion barrels. DOE will begin immediately to fill the reserve to its current capacity of 727 million barrels through purchases of oil with available balances as well as through placement of the Department of the Interior's royalty in-kind oil into the SPR.

Northeast Home Heating Oil Reserve

The Northeast Home Heating Oil Reserve was established in July 2000 when the President directed the Department of Energy to establish a reserve capable of assuring home heating oil supplies for the Northeast states during times of very low inventories and significant threats to immediate supply. The Reserve contains 2 million barrels of heating oil stored at commercial terminals in the Northeast and is in good condition. The current 5-year storage contracts expire in September 2007. A request for bids was issued in February 2007. The proposed fiscal year 2008 budget requests $5.3 million for continued operations.

Naval Petroleum and Oil Shale Reserve

The fiscal year 2008 budget request of $17.3 million for the Naval Petroleum and Oil Shale Reserve (NPOSR) will allow it to continue environmental remediation activities and determine the equity finalization of Naval Petroleum Reserve 1 (NPR–1); operate NPR–3 until its economic limit is reached, and while operating NPR–3, maintain the Rocky Mountain Oilfield Test Center..

Because the NPOSR no longer served the national defense purpose envisioned in the early 1900s, the National Defense Authorization Act for Fiscal Year 1996 required the sale of the Government's interest in Naval Petroleum Reserve 1 (NPR–1). To comply with this requirement, the Elk Hills field in California was sold to Occidental Petroleum Corporation in 1998. Subsequently, the Department transferred 2 of the Naval Oil Shale Reserves (NOSR–1 and NOSR–3), both in Colorado, to the Department of the Interior's (DOI) Bureau of Land Management. In January 2000, the Department returned the NOSR–2 site to the Northern Ute Indian Tribe. The Energy Policy Act of 2005 transferred administrative jurisdiction and environmental remediation of Naval Petroleum Reserve 2 (NPR–2) in California to the Department of the Interior. DOE retains the Naval Petroleum Reserve 3 (NPR–3) in Wyoming (Teapot Dome field).

ELK HILLS SCHOOL LANDS FUND

The National Defense Authorization Act for fiscal year 1996 authorized the settlement of longstanding "school lands" claims to certain lands by the State of California known as the Elk Hills Reserve. The settlement agreement between DOE and California, dated October 11, 1996, provides for payment, subject to appropriation, of 9 percent of the net sales proceeds generated from the divestment of the Government's interest in the Elk Hills Reserve. Under the terms of the Act, a contingency fund containing 9 percent of the net proceeds of the sale was established in the U.S. Treasury and was reserved for payment to California.

To date, DOE has paid $300 million to the State of California. The first installment payment of the settlement agreement was appropriated in fiscal year 1999. While no appropriation was provided in fiscal year 2000, the Act provided an advance appropriation of $36 million that became available in fiscal year 2001 (second installment). The next 4 installments of $36 million were paid at the beginning of fiscal year 2002, fiscal year 2003, fiscal year 2004, and fiscal year 2005 respectively. A seventh payment of $84 million was made in fiscal year 2006.

The fiscal year 2008 budget proposes no funding for the Elk Hills School Lands Fund. The timing and levels of any future budget requests are dependent on the schedule and results of the equity finalization process.

FOSSIL ENERGY'S BUDGET MEETS THE NATION'S CRITICAL ENERGY NEEDS

In conclusion, I'd like to emphasize that the Office of Fossil Energy's programs are designed to promote the cost-effective development of energy systems and practices that will provide current and future generations with energy that is clean, efficient, reasonably priced, and reliable. Our focus is on supporting the President's top priorities for energy security, clean air, climate change, and coal research. By re-evaluating, refining and refocusing our programs and funding the most cost-effective and beneficial projects, the fiscal year 2008 budget submission meets the Nation's critical needs for energy, environmental and national security.

Mr. Chairman, and members of the committee, this completes my prepared statement. I would be happy to answer any questions you may have at this time.

Senator DORGAN. Finally, we will hear from the Honorable Kevin Kolevar, Director of the Office of Electricity Delivery and Energy Reliability. Director, you may proceed.

STATEMENT OF KEVIN M. KOLEVAR, DIRECTOR, OFFICE OF ELECTRICITY DELIVERY AND ENERGY RELIABILITY

Mr. KOLEVAR. Thank you, Mr. Chairman, members of the subcommittee for the opportunity to testify on the President's fiscal year 2008 budget request for the Office of Electricity Delivery and Energy Reliability.

The mission of the Office is to lead national efforts to modernize the electricity delivery system, enhance the security and reliability of America's energy infrastructure, and facilitate recovery from disruptions to energy supply.

The President's budget request includes $114.9 million for OE in fiscal year 2008, which represents a 16 percent decrease from the fiscal year 2007 operating plan. This request includes $86 million for Research and Development activities, $11.6 million for Operations and Analysis activities and $17.4 million for Program Direction.

I will first address the activities of OE's Research and Development program. Our request of $86 million for fiscal year 2008 will fund the following four main activities—high temperature superconductivity, visualization and controls, energy storage and power electronics, and renewable and distributed systems integration. The development of these advanced electricity technologies will influence the future of all aspects of the electric transmission and distribution systems.

The first activity I would like to highlight is the science and development of high temperature superconductivity. Superconducting cables transmit electricity through conductors of temperatures approaching absolute zero, thus preventing resistance to electrical voltage, which allows large amounts of electricity to be transmitted over long distances with little line loss. Superconductivity, therefore, hold the promise of alleviating capacity concerns while moving power efficiently and reliably.

Another critical piece of a resilient and reliable modern grid is enhancing the security of our control systems. Our visualization and control activity focuses on improving our ability to measure and address the vulnerabilities of control systems. The research in this area will allow us to detect cyber intrusion, implement protec-

tive measures and response strategies, and sustain cyber security improvements over time.

Using our understanding from previous energy storage demonstration activities, we are researching and developing new, advanced higher energy density materials and storage devices for utility scale application. The program also focuses on research in power electronics to improve material and device properties that are needed for transmission level applications.

Finally, in 2007, the renewable and distributed systems integration activity will complete the transition away from generation technology activities and will then focus on grid integration of distributed and renewable systems in 2008. This is a logical step in advancing clean energy resources to address future challenges.

I will now discuss DOE's Permitting, Siting and Analysis Office, which is tasked with implementing mandatory EPACT requirements to modernize the electric grid and enhance the reliability of the energy infrastructure. These requirements include analyzing transmission congestion, proposing energy corridors for the Secretary's consideration and coordinating Federal agency review of applications to site transmission facilities on Federal lands. The President's budget requests $5.7 million for this Office in fiscal year 2008.

On August 8, 2006, the Department published its National Electric Transmission Congestion Study in compliance with section 1221(a) of the Energy Policy Act. This study highlighted more than 15 geographic areas where electric congestion or capacity constraints exist. The Department has announced that, due to the significant public interest in the national corridor issues, before the Secretary designates any national corridor, he will first issue any designations in draft form to facilitate focused review and comment by affected States, regional entities, and the general public.

Another major effort involves the implementation of section 368 of the Energy Policy Act, which requires the designation of energy right-of-way corridors on Federal lands in the 11 contiguous western States. The agencies plan to publish a draft programmatic environmental impact statement for the designation of the energy corridors in the late spring of this year and will solicit public comments.

Finally, this Office is preparing to implement DOE's responsibilities under the new section, 216(h) of the Federal Power Act. Section 216(h) provides for the Department to act as the lead agency for purposes of coordinating all applicable Federal authorizations and related environmental reviews required to site an electrotransmission facility.

OE's Office of Infrastructure Security and Energy Restoration facilitates the protection of the Nation's critical energy infrastructure. This Office is responsible for coordinating and carrying out the Department's obligations for critical infrastructure identification, prioritization, protection, and national preparedness within the energy sector. The President's 2008 budget request includes $5.9 million for this Office.

In times of declared emergencies, this Office coordinates Federal efforts under the National Response Plan to assist State and local governments and the private sector in the restoration of electrical

power and other energy-related activities. DOE personnel deployed in regions affected by large-scale electrical outages to assist in recovery efforts. The Infrastructure Security and Energy Restoration Office also works with States to foster greater awareness of the regional scope of energy interdependencies and to develop energy assurance plans that address the potential cascading effects of energy supply disruptions.

In his 2007 State of the Union Address, the President emphasized the importance of continuing to change the way America generates electric power and highlighted the significant progress we have already made in integrating clean coal technology, solar and wind energy, and clean safe nuclear energy into the electric transmission system.

Technology such as power electronics, high temperature superconductivity and energy storage hold not only the promise of lower costs and greater efficiency but also directly enhance the viability of clean energy resources by addressing issues such intermittency, controllability and environmental impact.

We cannot simply rely on innovative policies and infrastructure investment. We must also invest Federal dollars in the research, development, and deployment of new technology in order to improve performance and ensure our national security, economic competitiveness, and environmental well-being.

Mr. Chairman, this concludes my statement. I look forward to any subcommittee questions.

Senator DORGAN. Dr. Kolevar, thank you very much for your statement.

[The statement follows:]

PREPARED STATEMENT OF KEVIN M. KOLEVAR

Mr. Chairman and members of the committee, thank you for this opportunity to testify on the President's fiscal year 2008 budget request for the Office of Electricity Delivery and Energy Reliability.

The mission of the Office of Electricity Delivery and Energy Reliability (OE) is to lead national efforts to modernize the electricity delivery system, enhance the security and reliability of America's energy infrastructure, and facilitate recovery from disruptions to energy supply. These functions are vital to the Department of Energy's (DOE) strategic goal of protecting our national and economic security by promoting a diverse supply and delivery of reliable, affordable, and environmentally responsible energy.

The President's fiscal year 2008 budget includes $114.9 million for OE in fiscal year 2008, which is an 8 percent decrease from the fiscal year 2007 request. This includes $86.0 million for Research and Development activities, $11.6 million for Operations and Analysis activities, and $17.4 million for Program Direction. As DOE is currently preparing a spending plan in accordance with the terms of the 2007 Continuing Resolution, my testimony on the fiscal year 2008 budget request reflects a comparison to the administration's fiscal year 2007 request.

When Thomas Edison opened the Pearl Street Station in lower Manhattan on September 4, 1884, he could hardly have foreseen the role electricity would play in the development of American society. Although the demand for electric lighting and power initially drove the station's construction, electricity ultimately stimulated and enabled technological innovations that reshaped America. Today, the availability and access to electricity is something that most Americans take for granted. Most people cannot describe what it is or where it comes from. Yet, it is vital to nearly every aspect of our lives from powering our electronics and heating our homes to supporting transportation, finance, food and water systems, and national security.

The Energy Information Administration has estimated that by the year 2030, U.S. electricity sales are expected to increase by 43 percent from their 2005 level. Although this is a positive indicator of a growing economy, it is also a significant amount of new demand on an electricity infrastructure that is already stressed and

aging. With this in mind, OE's fiscal year 2008 budget request reflects a commitment to implement the directives of the Energy Policy Act of 2005 (EPACT), support research of breakthrough technologies, and coordinate Federal response to temporary disruptions in energy supply to ensure a reliable and secure electricity infrastructure for every American in the coming decades.

Meeting our future electricity needs will not be solved by focusing only on expanding our generation portfolio or on energy conservation. Perhaps the greatest challenge today, as it was in Edison's time, is building the elaborate network of wires and other facilities needed to deliver energy to consumers reliably and safely.

RESEARCH AND DEVELOPMENT

The fiscal year 2008 budget request of $86.0 million for the Research and Development (R&D) program within OE funds 4 activities: High Temperature Superconductivity; Visualization and Controls; Energy Storage and Power Electronics; and Renewable and Distributed Systems Integration.

Over the past 18 years, DOE has invested more than $500 million in the science and development of high temperature superconductivity. Superconductivity holds the promise of addressing capacity concerns by maximizing use of available "footprint" and limited space, while moving power efficiently and reliably. It also supports advanced substation and interconnection designs that allow larger amounts of power to be routed between substations, feeders, and networks using less space and improving the security and reliability of the electric system.

Today, the High Temperature Superconductivity activity continues to support second generation wire development as well as research on dielectrics, cryogenics, and cable systems. This activity is being refocused to address a near-term critical need within the electric system to not only increase current carrying capacity, but also to relieve overburdened cables elsewhere in the local grid. The superconductivity industry in the United States is now at the critical stage of moving from small business development to becoming a part of our manufacturing base.

Enhanced security for control systems is critical to the development of a reliable and resilient modern grid. The Visualization and Controls Research & Development activity focuses on improving our ability to measure and address the vulnerabilities of controls systems, detect cyber intrusion, implement protective measures and response strategies, and sustain cyber security improvements over time. The fiscal year 2008 request reflects an increase of $7.75 million related to support this effort.

This activity is also developing the next generation system control and data acquisition (SCADA) system that features GPS-synchronized grid monitoring, secure data communications, custom visualization and operator cueing, and advanced control algorithms. Advanced visualization and control systems will allow operators to detect disturbances and take corrective action before problems cascade into widespread outages. The need to improve electric power control systems security is well-recognized by both the private and public sectors.

The Energy Storage and Power Electronics activity proposes an increase of $3.80 million in fiscal year 2008 to: (1) leverage understanding gained from previous Energy Storage demonstration activities to research and develop new advanced higher energy density materials and storage devices for utility scale application; and (2) focus on enhanced research in Power Electronics to improve material and device properties needed for transmission-level applications.

Large scale, megawatt-level electricity storage systems, or multiple, smaller distributed storage systems, could significantly reduce transmission system congestion, manage peak loads, make renewable electricity sources more dispatchable, and increase the reliability of the overall electric grid.

The Renewable and Distributed Systems Integration Research & Development activity completed the transition away from generation technology activities in fiscal year 2007 and will focus on grid integration of distributed and renewable systems in fiscal year 2008, which is a logical step in advancing clean energy resources to address future challenges.

PERMITTING, SITING, AND ANALYSIS

In fiscal year 2008, the Department is requesting $5.7 million for the Permitting, Siting, and Analysis (PSA) Office within the Operations and Analysis subprogram, which implements mandatory requirements set by EPACT to modernize the electric grid and enhance reliability of the energy infrastructure by contributing to the development and implementation of electricity policy at the Federal and State level. The Permitting Siting and Analysis Office is also tasked with analyzing transmission congestion, proposing energy corridors for the Secretary's consideration, and

coordinating Federal agency review of applications to site transmission facilities on Federal lands.

The Department published its National Electric Transmission Congestion Study on August 8, 2006, in compliance with section 1221(a) of EPACT, which requires DOE to prepare a study of electric transmission congestion every 3 years. The study named more than 15 areas of the Nation with existing or potential transmission congestion problems. The study identifies Southern California and the East Coast from New York City to Washington, DC, as "Critical Congestion Areas," because transmission congestion in these densely populated and economically vital areas is especially significant.

During the development of the study, which relied on extensive consultation with States and other stakeholders, the Department provided numerous opportunities for discussion and comment by States, regional planning organizations, industry, and the general public. OE intends to supplement the tri-annual Congestion Studies study by publishing annual progress reports on transmission improvements in the congested areas.

Section 1221(a) also requires the Secretary to issue a report based on the August 8 Congestion Study. In this report, if consumers in any geographic area are being adversely affected by electric energy transmission capacity constraints or congestion, the Secretary may, at his discretion, designate such an area as a National Interest Electric Transmission Corridor (National Corridor).

Because of the broad public interest in the implementation of section 1221(a), the Department invited and received over 400 public comments on the designation of National Corridors. The Department continues to evaluate these comments, and has not yet determined whether, and if so, where, it would be appropriate to propose designation of National Corridors. Prior to issuing a report that designates any National Corridor, the Department will first issue a draft designation to allow affected States, regional entities, and the general public additional opportunities for review and comment.

Another major effort involves the implementation of section 368 of EPACT, which requires the designation of energy right-of-way corridors on Federal lands in the 11 contiguous Western States. An interagency team, with DOE as the lead agency, conducted public scoping meetings concerning the designation of corridors in each of the 11 contiguous Western States. The agencies plan to publish a draft Programmatic Environmental Impact Statement for the designation of the energy corridors in late spring of 2007 and will solicit public comments.

In August 2006, DOE and 8 other Federal agencies signed a Memorandum of Understanding (MOU) that clarifies the respective roles and responsibilities of Federal agencies, State and tribal governments, and transmission project applicants with respect to making decisions on transmission siting authorizations. DOE is preparing to implement its responsibilities under the new section 216(h) of the Federal Power Act to coordinate with these 8 other Federal agencies to prepare initial calendars, with milestones and deadlines for the Federal authorizations and related reviews required for the siting of transmission facilities. DOE will maintain a public website that will contain a complete record of Federal authorizations and related environmental reviews and will work closely with the lead Federal NEPA agency to encourage complete and expedited Federal reviews. DOE is currently considering the procedures it will use in carrying out this program.

INFRASTRUCTURE SECURITY AND ENERGY RESTORATION

The President has designated the Department of Energy as the Lead Sector Specific Agency responsible for facilitating the protection of the Nation's critical energy infrastructure. The Infrastructure Security and Energy Restoration (ISER) activity of the Operations and Analysis subprogram is responsible for coordinating and carrying out the Department's obligations to support the Department of Homeland Security in this important national initiative. The fiscal year 2008 request is for $5.9 million in funding for Infrastructure Security and Energy Restoration within the Operations and Analysis subprogram.

The Infrastructure Security and Energy Restoration activity fulfills DOE's responsibilities as defined in Homeland Security Presidential Directives 7 and 8 for critical infrastructure identification, prioritization, and protection and for national preparedness. In times of declared emergencies, this Office also coordinates Federal efforts under the National Response Plan to assist State and local governments and the private sector in the restoration of electrical power and other energy-related activities.

In the event of a large-scale electrical power outage caused by natural disasters such as hurricanes, ice storms, or earthquakes, DOE personnel will deploy to the

affected region to assist in recovery efforts. During the 2005 hurricane season, DOE was specifically deployed to respond to 5 hurricanes: Dennis, Katrina, Ophelia, Rita and Wilma. In such instances, DOE coordinates all Federal efforts to assist local authorities and utilities in dealing with both measures to restore power and to resolve other issues related to fuel supply.

The Infrastructure Security and Energy Restoration Office also fosters greater awareness of the regional scope of energy interdependencies by working with States to develop energy assurance plans that address the potential cascading effects of energy supply problems. Exercises are conducted with States and Federal partners to help sharpen this focus. Finally, staff work with States and DHS in emergency situations to help resolve issues brought on by temporary energy supply disruptions, such as the winter 2007 propane shortage in Maine.

CONCLUSION

In his 2007 State of the Union address, President Bush emphasized the importance of continuing to change the way America generates electric power and highlighted significant progress in integrating clean coal technology, solar and wind energy, and clean, safe nuclear energy into the electric transmission system.

Technologies such as power electronics, high temperature superconductivity, and energy storage hold the promise of lower costs and greater efficiency, and also directly enhance the viability of clean energy resources by addressing issues such as intermittency, controllability, and environmental impact.

Federal investment in the research, development, and deployment of new technology combined with innovative policies and infrastructure investment, is essential to improving grid performance and ensuring our energy security, economic competitiveness, and environmental well-being.

This concludes my statement, Mr. Chairman. I look forward to answering any questions you and your colleagues may have.

FOSSIL ENERGY BUDGET

Senator DORGAN. Let me begin with a couple of questions and then I'll call on my colleagues.

First, Secretary Shope, the ability to use the abundant supplies of coal that we have in this country depends a lot on the research and development capability in the fossil energy R&D programs. I was looking at your numbers and if you take out the 25 percent for FutureGen and then take out the strategic petroleum reserve money, isn't it then the case that the administration budget is proposing less money for fossil energy R&D?

Mr. SHOPE. Well Senator, we do take a portfolio approach to not only the coal aspect of the program, the entire fossil energy program, as I mentioned, focusing on energy security both in the domestic economic impacts as well as economic opportunities that it provides. So when we talk about our coal budget, we really are looking at a $426 million coal budget going forward. That's the amount of money we will be advancing in 2008.

Senator DORGAN. But isn't that a substantial reduction?

Mr. SHOPE. Compared to our 2006 budget, we had $366 million that was applied in 2006.

Senator DORGAN. Applied by 2007 numbers?

Mr. SHOPE. In 2007, we're going to be applying $425 million.

COAL RESOURCES

Senator DORGAN. My point was not about your portfolio approach, admirable as that might be. My point was with respect to the use of our coal resources, abundant resources that can probably only be used in the future, in the way that many of us would like them to be used, if we, through research and development, unlock the mystery of this technology to be able to sequester carbon and

burn coal in a way that's clean, doesn't just spoil our atmosphere and so on. My question is, if you remove SPRO and remove FutureGen, isn't the case, with respect to the issue of being able to use our coal resources and able to devote research and development funds, that there is a substantial reduction there?

Mr. SHOPE. If you're looking at strictly the MMG research and the research and development, our fuels and power systems, that's correct. There's a decrease in there but there is an increase again—we've looked at our program and said, what is it that we need to accomplish our goals?

Senator DORGAN. I understand that but then how does one justify at this moment—it seems to me that we've come to an important intersection here in energy policy. Some regions have coal resources, others have oil, nuclear power and so we're talking about a lot of issues here. We have hundreds of years of coal resources. We can only use them, in my judgment, if we're able to make the investment to unlock the mystery of how to avoid putting effluents into the air and causing all kinds of issues. How do we use research and development to get to that point? So how does one justify coming to this intersection, saying to us, "Oh, by the way, with respect to that account, we want to cut funding."

Mr. SHOPE. Well, Senator, I agree with your statements about that. That's exactly what we need to do is to move forward and we're looking for a technology approach forward. I would say to you that the research and development—we still have a very active, vibrant portfolio in our research and development area. But we also are looking forward to moving these—the technologies out, getting them applied. So that's why we do have the FutureGen project going forward. It's part of our—that's actually a research project in and of itself so all the money that we are using in FutureGen are research dollars.

But in addition, we're trying to look at carbon capturing storage, the issue that is really preeminent in our program and saying we need to move forward and get these technologies deployed so we'll increase in our sequestration budget as well, to bring this to fruition.

Senator DORGAN. You know, the problem is, it's never much fun to inquire of someone who I think, in a less guarded moment, would probably say, I understand your point. We should be asking for more money but this is the President's budget. I'm here to support the President's budget. That's what I'm paid for. So I can't get, perhaps, as candid an answer as I would hope on whether it makes a lot of sense at this intersection, to cut that portion of the budget. It just seems nuts to me. With all due respect, if we want to use that resource, we're going to have to find ways to be able to use it and unlocking those ways, in my judgment, would require some directed funding to our priorities. We're going to do that rather than cutting funding.

ENERGY EFFICIENCY AND RENEWABLE ENERGY BUDGET

But I understand your answers, Mr. Secretary. I don't mean to badger you. Let me ask Secretary Karsner a similar type of question. You and I visited the Renewable Energy Laboratory at Golden, Colorado. I was enormously impressed by it. I, of course, have

a great interest in all of these accounts and a good many of them are going to be decreased, as you know and I suspect if I asked you the same question, I'll get an answer——

Mr. KARSNER. I support the President's budget.

Senator DORGAN. So is there any chance after the hearing, we could have a cup of coffee and find out where I could ask you the same questions? But more seriously, you know, we here in Congress added money to this bill, as you know $300 million. When you take that with the 2007 level and then the plus up of $300 million, the 2008 request, in virtually every area, with, I think, maybe two exceptions, is going to be a cut in funding 2008 versus 2007.

We're talking, on the authorizing committee, Senator Bingaman, Senator Domenici, myself and Senator Craig, and others about this notion of how to put together another follow-on energy bill and what parts are necessary, so we understand the urgency. It seems to me there is a confluence of events here with respect to what has become sort of a consensus on climate change, our vulnerability with respect to oil and foreign oil. There is a greater urgency to these issues and it seems to me out of step with that greater urgency to see proposed reductions in spending in most of the accounts dealing with renewable and energy efficiency issues. Would you agree with me, Secretary Karsner?

Mr. KARSNER. In substance, in the character of what you're saying, I do agree. I think the differential is largely accounted for by the idiosyncrasies of the budgeting process. This 2008 budget originated more than 2 years ago, just as I'm currently preparing a 2009 budget 2 years into the future for an administration I won't be a part of. Technology, of course, moves much faster, as do these priorities, and when we had the opportunity for the spend plan, which is really the first budget that I've had the opportunity to exercise influence over, it does very accurately reflect our priorities in a contemporaneous, real-time snapshot of the portfolio approach and there is a heavier emphasis on efficiency.

Senator DORGAN. I think it is important to note that the Congress, on a bipartisan basis, in putting together the fiscal year 2007 appropriation bills, combined, I believe, 10 bills into one omnibus because we were required to do that. Republicans and Democrats together said "You know what? We're under funded in the renewables area and so we added to all of these accounts." There are priorities that come from the administration and then priorities that come from the Congress and we will try to work our will in terms of what we believe the right priorities will be. I mentioned the renewable energy and fossil fuel accounts and I think it's important to understand that there is a renewed urgency here with respect to both and so your area is going to be critically important to us. We need to get out of your area some very significant opportunities and changes for the future.

NUCLEAR ENERGY BUDGET

Secretary Spurgeon, can you tell me how the $114 million for shared costs of efforts to reduce barriers to deploy nuclear power, would be spent? I don't quite understand from the description how that would be dispersed.

Mr. SPURGEON. It's spent through two consortia. The NuStart Consortia, which consists of 10 electric generating companies plus two manufacturers and the Dominion Power Group, which has one utility and manufacturer and architect engineers associated with it. The whole objective of the Nuclear Power 2010 Program is to remove the barriers to entry of these first nuclear powerplants into the marketplace. So what we are doing is we're spending money on design standardization costs. We're spending money in design standardization and in preparing the combined operating licenses for two different types of reactors, one a boiling water reactor and the second, a pressurized water reactor.

So it's to get the first ones through the process so that those that follow can reference the first ones and shorten the time scale and thus, cost for introducing nuclear power in the United States.

ELECTRICITY DELIVERY TECHNOLOGICAL ADVANCES

Senator DORGAN. I don't know as much about that area. That's why I asked the question. I will submit further questions as well, just so that I understand more. And, finally, then I will turn to my colleagues.

Director Kolevar, it seems to me that we have not seen any substantial change in the technology of delivering electricity for perhaps three-quarters of a century. We string lines and we run electricity over the lines and we run these lines through a corridor. I know some companies are working on new technologies—composite conductors, to name one, and there are others. If we could see dramatic advances there, we might be able to use existing corridors to double or triple the capability of moving electricity to where it's needed and that's part of what your investment is about, I understand.

With what hope can we approach a future with new technologies for the transmission of electricity? Thus far, we have had very few advances in those areas.

Mr. KOLEVAR. You're correct, Mr. Chairman. It is certainly challenging space. There have been a variety of new technological advances that we have not seen penetrate the system in any significant fashion. I do believe the opportunity is there for a couple of reasons. One, the system today is increasingly stressed and in two parts of the country, we either came close to or experienced blackouts. I think that will drive greater technological penetration of transmission scale applications and distribution scale applications that can enhance reliability.

I also think it's the case that the work that is going on with the Federal Energy Regulatory Commission (FERC) and the Nuclear Regulatory Commission (NRC) in pushing new mandatory reliability standards will help some of these technologies to be pushed into the market.

ELECTRICITY DELIVERY AND ENERGY RELIABILITY BUDGET

Senator DORGAN. Director Kolevar, I'll give you the opportunity to learn from Secretary Shope on this subject but you're probably not happy to see a $132 million research and development budget drop to $86 million. I assume that this is probably not advancing our pursuit of new technologies.

Mr. KOLEVAR. We were able to leverage a number of synergies in the program where we saw the drop that you reference from fiscal year 2006 to 2008. Mr. Chairman, I would also note that the majority of that reduction was scheduled for phase-out. It was in some reciprocating engine work and in some combined heat and power work where we had achieved or came very close to achieving some pre-established milestones. There was a general thought that when we achieve what we set out to achieve that we ought to then discontinue that project and focus on some other applications.

Senator DORGAN. Would you prefer at least the minimum level of funding for the pursuit of research and development for new technology in electric transmission?

Mr. KOLEVAR. I'm sorry, I don't understand your question. At the minimum 2008 level?

Senator DORGAN. At least in the pursuit of research and development and in the area where there has been so little progress for so long and where so much is necessary for us to be able to produce in one area and transmit to another. I was wondering whether you would prefer level funding, at a minimum level, for this function of research and development.

Mr. KOLEVAR. Yes, sir. Level funding at a minimum would be appreciated.

Senator DORGAN. Thank you. Senator Domenici.

Senator DOMENICI. Well, Mr. Chairman, you succeeded.

Senator DORGAN. I did. I didn't want to mention that but I did.

Senator DOMENICI. Three witnesses and three shots but you got there. Let me make an observation first. Obviously, he's sitting in the chair and I'm sitting next to him as ranking member. That got turned around just a few months ago but I think that it should be—it would be appropriate for me to indicate to the four of you that I can recall your coming before the subcommittee to get confirmed for your jobs and I was obviously sitting in this position with my friend and ranking member—who came before the Energy and Natural Resources Committee, which frequently gets confused with this subcommittee. This isn't the subcommittee.

And I was quite impressed when we finished getting all of you, the four of you, that this late in this administration, we were going to get such qualified people. I openly expressed myself as saying that the Secretary of Energy and his Under Secretary, Clay Sell, have done some exciting work in getting the four of you to take these jobs. And I repeat that. I hope you're as enthused now as you were when you told us why you would take this job, knowing full well that whether it is a Republican or a Democrat, there is a big chance you will not be around for 5 or 6 years to see your dreams achieved.

I do believe I was right in my assessment about you. Your work has been exciting. I think you are challenged even though you had a terrible start with the lousy work that the United States Senate did and we were in charge, not them, in not getting an appropriation bill and then throwing upon you the kind of appropriation that we did and then you having to address questions like you are here, when this appropriation process is all out of focus for the year 2005, 2006, 2007, and 2008. But I commend you.

PREVENTING REGIONAL BLACKOUTS

Now I want to just start with you on the right hand side. When we passed the energy bill, the authorizing bill, those of us who were very thrilled with the bill had a check-off list and almost everybody had one item that said that if this works, it should not be too long before America can say, we will not have any more regional blackouts in our grid across the country. I didn't ask you, Director Kolevar, whether I could make that statement. We thought that's what we did. I'm sure Senator Craig said the same thing. He had it on his list. What we had done is created authority in you so that we should avoid the pitfalls that cause the grid failures.

Now quickly, without too much elaboration, did we give you the right authority and are you pursuing—is this being pursued with vigor so that what we told the American people may become a reality in terms of the stability of the grid system?

Mr. KOLEVAR. Yes, sir, I would say that you did. We believe that the provisions contained in the Energy Policy Act of 2005, when executed, will dramatically assist reliability of the overall transmission and distribution systems.

Senator DOMENICI. I want to say to you, I think they're right and I certainly would not want you to operate under this law if it is deficient. If it is, I think you ought to tell us because we don't want you to go 4 years or so trying to give us stability in the grid and then tell us, the law was short. You got it?

LOAN GUARANTEE PROGRAM

Mr. KOLEVAR. Yes, sir.

Senator DOMENICI. Now let me move over to Secretary Karsner.

Secretary Karsner, I'll try to hurry up but I can't resist. If you or any of the other witnesses are talking about a budget and you're talking about the amount of money the Federal Government is putting into an account and you look to the energy bill and found that there is a section that provides for loan guarantees for new technology or technologies that implement this act, would it be fair to think that you would assume that maybe some loan guarantees would be added to your portfolio so that more money could be spent by the entrepreneurs and business people that took advantage of this law?

Mr. KARSNER. That would be fair.

Senator DOMENICI. Let me just say, that is fair and that is—the chairman knows that and he was not talking against that in his questions but the truth of the matter is and Senator Craig, would you believe that we still do not have a packaged set of regulations from the Department of Energy——

Senator CRAIG. Twenty months after the passage of the act. Yes, I'm counting, month by month, week by week, day by day.

Senator DOMENICI. No, I'm telling you that I understand that every time we turn around, we run into another stalwart and they are stalwarts—in this administration that say, I don't like loan guarantees and therefore, they get them stalled. We write them. They pass judgment based on their existence in life and say, well, I don't like them. I submit and Mr. Chairman, that on loan guaran-

tees, when we're finished, even though we're not an authorizing committee, that we ought to ask our staff how to write loan guarantee provisions in this bill that if signed by the President, we will be rid and finished with them having any judgment with reference to how to write the loan guarantee bills. And I'm going to try to do that, if you would help, we'll do it bipartisan and get it written and get that out of the way so loan guarantees will be finished in terms of having to look at authorizing language. Would that help you and would that help you, Secretary Shope, in your part of this law, too?

Mr. SHOPE. The loan guarantee provisions are beneficial to our program.

Senator DOMENICI. Not yours; Secretary Karsner?

Mr. KARSNER. They are essential to the growth of commercialization in our——

Senator DOMENICI. What about you, Secretary Spurgeon?

Mr. SPURGEON. Essential.

Senator DOMENICI. Even in the big nuclear program, you need it?

Mr. SPURGEON. Yes, sir.

Senator DOMENICI. Oh and the administration loves the nuclear program. Have they said anything to you as to why we can't get the loan guarantees going?

Mr. SPURGEON. Senator Domenici, the administration—the Department of Energy is moving very aggressively to implement the loan guarantee program. Now that we have the requisite authorization to move forward with creating the office, which was established, which was received 1 month ago. It is a matter of public record that the Department has prepared a notice of proposed rulemaking and that has been received and is under review at the Office of Management and Budget as of March 16.

Senator DOMENICI. So you must be part of driving this thing?

Mr. SPURGEON. Yes, sir.

COAL USAGE

Senator DOMENICI. Well, that's good. I like the way you drive things. It's apt to get done. It's very important that you understand what's going on or it won't happen. We'll be through another Congress.

I have one last question to ask of the Secretary who is in charge of coal. People think that the United States is going to stop using coal because of environmental problems. Everything I read about the future says that there will be more coal used in the next decade than this previous—this decade past. Is that the assumption you're operating under?

Mr. SHOPE. Yes, it is, Senator. I would agree with that.

Senator DOMENICI. And is it not true that we must convert coal to things like liquids and other usable products and that requires a lot of technology and innovative—and money to be invested?

Mr. SHOPE. It does, Senator and it is part, again, of the President's alternative fuel strategy to include clean coal to liquids technologies, to make it part of our strategy. So yes, the entire use of coal is essential to our Nation's energy security.

GLOBAL NUCLEAR ENERGY PARTNERSHIP

Senator DOMENICI. My last question is, who knows anything about the GNEP Program? Secretary Spurgeon, how much money did the President put in to start this program?

Mr. SPURGEON. To start it in 2008?

Senator DOMENICI. Yes.

Mr. SPURGEON. Four hundred and five million dollars, sir.

Senator DOMENICI. That's what you are here asking us for.

Mr. SPURGEON. Yes, sir.

Senator DOMENICI. That won't get you ready in terms of specifications?

Mr. SPURGEON. Yes, sir. That gets us to the point where we can define a technology pathway forward with sufficient information so that we're not guessing at what the right answer might be. We need to offer it to the Secretary for the Secretary to make a decision on a pathway forward and you need to inform that decision by good information from industry, from our national laboratories and from our universities.

Senator DOMENICI. Thank you very much.

Senator DORGAN. Senator Craig.

Senator CRAIG. Thank you, Mr. Chairman. I didn't make an opening statement so let me react not unlike the ranking member has, by agreeing certainly with the premise of your opening statement as it relates to our energy future and where we need to go and what we've done to date and what I hope we will do in the future.

Let me also say that last Wednesday, I stood on the top of a reactor core, EBR–1. For those of you who don't know what EBR–1 was, it's now an historic site. I didn't think we'd been involved in the nuclear business long enough to describe it as a historic event but it was, is an historic site so designated by President Lyndon Johnson. EBR–1 was first constructed in 1949. It started producing power in 1951. It lit the first light bulb ever powered by nuclear generated electricity in 1951 out on the high deserts of Idaho.

When I was standing on top of that reactor core, Dennis, I thought, oh, if we had only continued from that point forward at the rate we were moving at that time. We might not even be so dependent upon the Middle East today or anybody else for that matter and my guess is, we wouldn't be generating electricity at the rate of only 20 percent total nuclear. It would be substantially greater than that and we'd have the waste problem solved a decade or so ago. But we stalled out politically. We simply—we were fearful of where we were even though the technology argued there was nothing to fear. We've changed that. We've adjusted and thank goodness America is awakening to a new reality and that new reality is embodied in the Energy Policy Act of 2005 that deals primarily with power generation, in something that the chairman and I introduced just recently that deals primarily with transportation sector fuels, the SAFE Act and all I am saying to all of you in your presentation today is, too many good ideas and not enough money.

Because we can help drive industry in the right direction by creating some of the safeguards, some of the buffers and some of the incentives. But the marketplace is doing a marvelous job at this

moment. I say this publicly and loudly, even though I don't like saying it. The good news of last year is that we got $3 gas. We may get it again this summer. The bad news is we got $3 gas but the good news, is it's probably creating and generating in the marketplace, one of the greatest resurgent and investment in energy than the total energy portfolio ever in the history of our country. And that's good because I find it shameful of a great power to be so reliant upon those who would jerk our diplomatic chain and change our foreign policy in a way simply so that we can continue to serve our habits and I'm talking about hydrocarbon habits.

NEXT GENERATION NUCLEAR POWERPLANT

Now, having said that, let me switch back to EBR–1 or should I fast-forward to GNEP and NGNP because that's really where we are today. Since the time that Pete Domenici and I and Jeff Bingaman and everybody else on that committee crafted EPACT, 33, 34 nuclear reactors on the drawing board? What is it today, Dennis?

Mr. SPURGEON. The number can be either but it's either 33 or 34.

Senator CRAIG. Somewhere in that range. Now, let me say this to you as a statement because I don't disagree with any direction you're headed in. I just wish we could head there a little faster. You're going to find too many of us on this—not too many of us on this subcommittee would in any way disagree with you as it relates to nuclear power and the role it plays and the value of it in the future—our security, our competitiveness, reduction of greenhouse gases—all of that. And I would suspect that you would not hear any complaints from myself, Senator Domenici or the chairman regarding the strong emphasis you've placed on the budget for securing nuclear power through your R&D efforts in the advanced fuels cycle initiative or NGNP or GNEP.

My only advice to you would be that you remain flexible. In dealing with both chambers, both parties as it relates to a broad goal that we all seem to support. The resurgence of nuclear power in the United States, I think, is upon us. I'm not sure where a new administration will take us but I'm confident that the two committees of authority in the House and the Senate, in a bipartisan way, will advance the cause we started with the passage of EPACT.

However, you may find that the narrow goals of GNEP that must follow may not be pursued as aggressively as some of us might like. Instead, we all need to keep focused on moving the ball forward for nuclear and maintaining the momentum of what we've done. I think you understand what I'm saying. If the nuclear budget remains whole but it doesn't reflect exactly what any one of us might ask for, we can all agree that the nuclear resurgence continues and will be as a positive step forward for this country. My guess is that we'll tinker around the edges and we may add a few dollars here or there to all of your budgets. They are woefully inadequate.

I'm willing to shift the priorities in the entire budget to give you greater ability in your budget. I am just growing so very tired, as the American people are, of finding this great Nation jerked around by puppet governments around the world, largely because of a dependency we've now developed and a lack of vision decades ago in where we needed to get.

Thank you all for your presentations today. You are very skillful in doing it. If the Secretary had been here, he'd have got 10 minutes. You each got 10 minutes. So we were glad to see you and not the Secretary.

Because I think it was important that all that you said be said for the sake of the country and the policy you project. Thank you. Thank you, Mr. Chairman.

Senator DORGAN. Senator Craig, thank you very much. Senator Allard?

NAVAL OIL SHALE RESERVE CERTIFICATION

Senator ALLARD. Thank you, Mr. Chairman. Thank all of you for your testimony. Secretary Shope, you're familiar with the naval oil shale reserve legislation and the agreement that was worked out by the Department of Energy and the Department of the Interior when there was a transfer of management of that particular property in Colorado?

Mr. SHOPE. I am, yes sir.

Senator ALLARD. My understanding is that the Department of the Interior is ready to certify that you're not ready to certify because you're waiting for a cleanup to be completed. What is your estimate it is going to cost to finish that cleanup?

Mr. SHOPE. Again, Senator, the reserve has been transferred to the Department of the Interior, so actually——

Senator ALLARD. I'm sorry. I got that turned around.

Mr. SHOPE. Yes, sir.

Senator ALLARD. I apologize for that.

Mr. SHOPE. So we actually will wait until the Department of the Interior certifies the plant.

Senator ALLARD. They need to certify and I've been told that we're waiting for your certification but you're not willing to give that until they have cleaned up the Anvil Point facility.

Mr. SHOPE. Senator, I'll have to take that particular question for the record because that's inconsistent with what my current knowledge is of that matter, Senator.

Senator ALLARD. Okay, well that's what we've been told by the Department of Energy is that you're waiting for the cleanup of that and we've been estimated that the cleanup is around $13 million at the high end. It's not anticipated to go over $13 million—that's a high figure and yet, there is revenue being generated from that property now. I've been told that equals about $70 million. The legislation directs that the revenue from the natural resources on that property be returned to the local communities and the State of Colorado and you have $13 million of outside costs and you're holding $70 million in there that you're not redistributing back to the State of Colorado.

It seems to me that there ought to be more of a concerted effort to get that return. Why are you sitting on that money?

Mr. SHOPE. Well again, Senator, the Department of the Interior has the lead on it. We would certify after their certification—and you're indicating——

Senator ALLARD. According to our information, they have certified it.

Mr. SHOPE. And that has not been made known to me but I will immediately look into it and address that in the record.

Senator ALLARD. They had indicated—they indicated to my staff that they are willing to certify. The legislation requires joint certification, which means the Department of Energy also has to certify. So that's our understanding and I would hope that you would get back to us because that's important. For the life of me, I don't understand why you're sitting on $70 million when the maximum estimate on cleanup on that is around $13 million. Heck, even if you wanted to raise your estimate to $20 million, if you could get the other $50 million or so to the local communities because they're being impacted right now because of the oil shale development that is happening in that particular area of the State. So they need that to meet their challenges that they are facing with that development. So, we'll continue to stay in touch with you on that and if you'll respond back. We'll get a formal question to you and then if you could respond back to us, we'd appreciate it.

Mr. SHOPE. Absolutely, Senator.

[The information follows:]

ANVIL POINTS MINE SITE

When the management of Anvil Points mine site was transferred to the Department of the Interior there was environmental remediation work that needed to be completed. The Department of the Interior assumed responsibility for the cleanup of Anvil Points; however, the Secretary of Energy must approve the cleanup plan.

To the best of our knowledge the Department of the Interior has completed a feasibility study and the detailed engineering plan. The final cleanup plan appears to be in draft form; however, the cleanup plan has not been submitted to the Department of Energy for approval.

It is also our understanding that part of the cleanup plan involves removal of the mine access road. However, before this can happen the U.S. Geological Survey must get into the mine and remove drilling cores that have been stored there.

The Department of Energy remains ready to review and approve the Anvil Points environmental remediation plan once it is submitted by the Department of the Interior.

PROGRAM ASSESSMENT RATING TOOL (PART) SCORES

Senator ALLARD. Also, you're familiar with the PART Program of the President. I suppose all of you have done that. It's where you measure—you put goals out there that are measurable and then you are evaluated. Actually, the Department of Energy has done better than most of the agencies and I want to compliment you on that.

But there are six areas in which I think there are some issues that need to be addressed and I'm just going to call them quickly to your attention. In the Department—and I'm not calling these up because I support them but what I want to make sure is that the taxpayer dollars that are going in there are creating results. There are two programs that have been measured and this is done by the Office of Management and Budget (OMB), by the way. There are two areas where you have been rated as ineffective. I don't know who has jurisdiction over the Natural Gas Technology Program.

Mr. SHOPE. I do, Senator.

Senator ALLARD. Why is that rated ineffective?

Mr. SHOPE. It's rated ineffective based upon the other priorities within the Office of Fossil Energy. So it's ineffective in the sense

of—not that the program is mismanaged, not that there has been any inappropriate activities or misspending of money——

Senator ALLARD. What's happening to the money they're getting?

Mr. SHOPE. It's now being effectively utilized, all the dollars have been and our reviews demonstrate that. What the ineffectiveness refers to is the balance of putting money toward natural gas research and development in light of the high costs, the high price of hydrocarbons as they are being received today.

Senator ALLARD. Is that a correctable problem?

Mr. SHOPE. Well, we corrected it by terminating the program.

Senator ALLARD. Okay, so it's terminated.

Mr. SHOPE. At the end of 2008.

Senator ALLARD. Okay, very good. All right, what about oil technology? That's rated as ineffective.

Mr. SHOPE. Again, the same thing. This is not ineffective in the sense of mismanagement or any inappropriate—it's a matter, is this—is the taxpayer dollars being best spent by investing in this research in 2008?

Senator ALLARD. It will be terminated?

Mr. SHOPE. Yes.

Senator ALLARD. It will be terminated. All right. Now there are some that don't demonstrate any results. It's all—there is the National Nuclear Infrastructure Program and they haven't bothered to set any goals at all or measure them so why haven't they bothered to do that? I guess that's you, Secretary Spurgeon.

Mr. SPURGEON. I think that's another program within the Department that's being referred to there, sir.

Senator ALLARD. And that will be terminated or what?

Mr. SPURGEON. I'm not sure which program that is, so. I think it's a Defense program.

Senator ALLARD. It's called the national nuclear infrastructure. If you go on Expectmore.gov on the Internet, you'll see it there.

Mr. SPURGEON. Let me take that for the record for the Department, sir.

[The information follows:]

PROGRAM ASSESSMENT RATING TOOL

The National Nuclear Infrastructure Program Assessment Rating Tool (PART) is focused on activities carried out by the Office of Nuclear Energy's Idaho Facilities Management and Radiological Facilities Management programs at Idaho National Laboratory (INL).

Performance measures were established for the INL during the fiscal year 2005 merger of the Idaho National Engineering and Environmental Laboratory (INEEL) and the Argonne National Laboratory-West (ANL–W). The National Nuclear Infrastructure PART assessment was completed during the fiscal year 2006 budget formulation process, concurrent with activities associated with creation of INL.

The overall rating of "Results Not Demonstrated" is not due to the lack of performance measures, but the inability to demonstrate results against the established performance measures during the short period of time between the establishment of the new laboratory and completion of the PART assessment. The Department continues to track its performance against cost and schedule baselines. Further, the Department employs a Facility Operability Index performance measure that assesses the readiness of the infrastructure to support NE, other DOE and Work-For-Others milestones. The Department continues to evaluate and look for improvements in the operation of INL.

PROGRAM ASSESSMENT RATING TOOL (PART) SCORES

Senator ALLARD. All right. And then on the University Nuclear Education Program—results not demonstrated. Why is that?

Mr. SPURGEON. What was that, Senator?

Senator ALLARD. It's the University Nuclear Education Programs. Results are not demonstrated. In other words, they haven't been able to establish goals that show that they're getting anything accomplished.

Mr. SPURGEON. We have a—I think our university dollars are being very well spent. It's sometimes very difficult to quantify goals for research that is happening and support of developing education programs for us. I'll give you a better answer than I'm able to give up here.

Senator ALLARD. When they make application, you can insist on them giving you——

Mr. SPURGEON. We are. We are moving the university research programs to be program based and so that we will be able to have a better measure of performance against objective.

[The information follows:]

PART SCORE FOR UNIVERSITY NUCLEAR EDUCATION PROGRAM

The mission of the University Reactor Infrastructure and Education Assistance program has been to enhance the national nuclear educational infrastructure to meet the manpower requirements of the Nation's energy, environmental, health care, and national security sectors. More specifically, the program was designed to address declining enrollment levels among U.S. nuclear engineering programs.

A PART assessment was completed for the University Reactor Infrastructure and Education Assistance program during the fiscal year 2007 budget formulation process. The assessment, conducted under the title "University Nuclear Education Programs," determined that enrollment target levels of the program had been met and that Federal assistance was no longer needed to encourage students to enter into nuclear-related disciplines. Since the late 1990s, enrollment levels in nuclear education programs have tripled, reaching upwards of 1,500 students in 2005, the program's target level for the year 2015. In addition, the number of universities offering nuclear-related programs also has increased. These trends reflect renewed interest in nuclear power. Students continue to be drawn into this course of study and universities, along with nuclear industry societies and utilities, continue to invest in university research reactors, students, and faculty members. However, the assessment also concluded that the program performance measures that did not clearly communicate the linkage between Federal funding and growth in enrollment in nuclear-related disciplines. This led to the rating of "Results Not Demonstrated".

The Department is using part of its fiscal year 2007 funds to support all students currently on an Office of Nuclear Energy fellowship or scholarship for the period of their initial appointment. No student is in danger of losing his/her funding assuming that they stay within the original guidelines of the program with regard to course of study and grades. No additional funds are requested in fiscal year 2008 for these activities, effectively closing out the program. However, $2.9 million was requested in fiscal year 2007 to provide fresh reactor fuel to universities and to dispose of spent fuel from university reactors. Under the fiscal year 2007 CR, these activities are also being funded. In fiscal year 2008, $2.9 million is requested for these activities under Research Reactor Infrastructure, within the Radiological Facilities Management program.

In addition to funding research reactor activities, the Department remains committed to supporting university research through its Nuclear Energy Research Initiative (NERI). In fiscal year 2007, $38.3 million will support NERI grants to universities within NE's R&D programs. The fiscal year 2008 budget request includes $58.6 million to support NERI grants to universities within NE's R&D programs.

PROGRAM ASSESSMENT RATING TOOL (PART) SCORES

Senator ALLARD. Now there's one other program, the State energy programs. What's happening there? They are—who has those?

Mr. KARSNER. That's me.

Senator ALLARD. Why aren't those—why aren't there any results being demonstrated there?

Mr. KARSNER. I can't speak to the report. I feel like there are results being demonstrated there but I'm happy to analyze that report.

Senator ALLARD. The Office of Management and Budget did an evaluation on that and said they——

Mr. KARSNER. It will not be the first time I disagree with the Office of Management and Budget.

Senator ALLARD. Well, if you could get something back to us on those. As policy makers, if we knew——

Mr. KARSNER. Absolutely, sir.

[The information follows:]

STATE ENERGY PROGRAM PART SCORE

In 2004, the State Energy Program (SEP) received a rating of "Results Not Demonstrated" for the OMB Performance Assessment Rating Tool (PART) exercise. This rating is "given when programs do not have acceptable long-term and annual performance measures" (quoted from OMB PART Tool Guidance No. 2007–02, Jan 29, 2007). The Program had offered information for the PART based on an evaluation conducted by Oak Ridge National Laboratory (ORNL). OMB cited the need for a more comprehensive impact methodology for the study as well as an independent evaluator.

DOE has taken several actions in response to OMB's concerns. In 2005, SEP requested an independent review of the ORNL report by the Board of Directors of the International Energy Program Evaluation Conference, Inc. This independent review found the ORNL study to be a "reasonable foundation from which to estimate the national effects of the SEP program." In 2006 the program finalized the SEP Strategic Plan, which established long-term goals, objectives, and strategies to set a new direction for the program in response to the OMB assessment. In 2007 SEP initiated a comprehensive evaluation of the program by an independent evaluator to quantify program performance and identify areas for improvement.

UNIVERSITY NUCLEAR EDUCATION PROGRAM

Senator ALLARD. Some of these programs, I think—they look good and sound good so I want to—and like all the rest, I want to see us move forward on that. So I just want to follow up that. Thank you, Mr. Chairman.

Senator DOMENICI. Mr. Chairman?

Senator DORGAN. Yes?

Senator DOMENICI. With reference to the program you asked about, it referred to——

Senator DORGAN. University, yes.

Senator DOMENICI. I want to say that in 1995, when there was nothing going on and this Senator decided we should get started on some and we started by putting back into the university system what had been there for many years and terminated and that was some assistance to encourage youngsters who had the proclivity for nuclear engineering and the like, excited them about—and it was working and we spent about $25 million a year at the maximum and then the President, because he didn't have enough money, terminated it and I don't think I've been able to put it back. But that's the history.

Senator DORGAN. Thank you for that response and I'd agree that we need to encourage students to get into these areas. It's probably important when you have a shortage there.

Senator DOMENICI. Thank you.

Senator DORGAN. Senator Murray.

Senator MURRAY. Thanks very much, Mr. Chairman, for holding this hearing and Senator Domenici and all of our panelists. I think it's been a very interesting discussion. I think we all are looking for ways to provide alternative energy and I think there are a lot of great ideas out there. This has been a great panel and chance to hear all that. I was out in my state over the last week and had a chance to talk to my sorghum grain farmers there, very interested in the opportunities that are out there and obviously, my dairy farmers are talking about biowaste. We've got nuclear, biodiesel, hydrogen—so many opportunities and a lot of work ahead of us.

I think we have to remember, we've got to be careful what we do. Every source of energy seems to have a challenge to it and how we move forward is really important but I appreciate all the work that you're doing.

VEHICLE EFFICIENCY

Secretary Karsner, let me start with you. I really appreciate the President's initiative to cut our dependency on oil through the greater use of biofuels but there are other things we can do as well. We not only need to introduce alternative fuels but we have to look at how we can get efficiency in vehicles as well. Your efficiency programs—we've seen a significant increase in the 2007 spending plan and the increase in the 2008 EERE budget seems to emphasize funding for hybrid electric systems and decreases funding for research and materials and advance combustion. According to the Department's own estimates, these activities would have a lot more dramatic and near term impact on CO_2 emissions and reducing our dependency. Can you comment on whether you agree that improvements in combustion processes could greatly enhance our fuel economy by new lightweight materials, things like that?

Mr. KARSNER. I do agree that improvements will remain a central focus. I think some of the diminishing, programmatic budgeting there might reflect some of these successes, actually. In other words, there are natural limits to what gains can be had from the physical properties of internal combustion efficiency and it's going to ultimately be balanced against the emissions that come out of those engines. So the idea is, optimizing the efficiency to the maximum degree as a physical device and minimizing the emissions in some of those cases, for example, heavy trucks, is what that applies to. We're getting right up to that optimum barrier.

Senator MURRAY. Do you think we know everything we need to know?

Mr. KARSNER. No, absolutely not.

Senator MURRAY. Okay. Well, how much of the 2007 spending plan was directed to advanced combustion R&D?

Mr. KARSNER. I can report back with the precise numbers but we did have a substantial increase in the 2007 spend plan to vehicle technologies.

[The information follows:]

FUNDING FOR ADVANCED COMBUSTION R&D

For fiscal year 2007, $49,706,000 is being directed to advanced combustion R&D in the Vehicle Technologies Program.

FUNDING FOR ADVANCED COMBUSTION RESEARCH

Senator MURRAY. And your 2008 is reduced funding?

Mr. KARSNER. Well, of course, the 2008 was submitted ahead of the 2007, so as Senator Dorgan pointed out, it's a bit of an anomaly this year.

Senator MURRAY. Okay. Well, it just seems to me that we need to keep focusing on all kinds of programs and reducing the research on that is not going to help us improve our—or help us get off our dependency of oil. So I'm a little bit concerned about that.

BIOFUELS

I also wanted to ask you, DOE seems to be putting a lot of their focus on cellulosic ethanol but there are other biofuels that contribute to the mix as my farmers tell me, constantly. What is the Department doing to support really a diversified approach to reducing our Nation's dependence with fuel such as biodiesel or biomethane?

Mr. KARSNER. Well, of course, we support all biofuels and of course, the President's approach is to have the broadest scope available to alternative sources to gasoline. That's the subject of a hearing tomorrow but the administration endorses all of those.

Some of them are more mature than others in terms of their efficiency process and their competitiveness so they don't need the level of breakthrough that cellulosic ethanol needs. The other sort of metric that we look at is the quantitative or volumetric capacity to make an impact of those biofuels and, although all of these are important and we want to maximize what each of them can contribute, there is no question that ethanol, through various forms of biomass, volumetrically will contribute much, much more than any of those that you named and so that's why it gets a greater emphasis.

Senator MURRAY. Are there projects out there that do cross funding that help both of them——

Mr. KARSNER. Well, codes and standards, by way of example—in fact, I would say we have more emphasis on the codes and standards for biodiesel so that we can certify them. Since we have a fairly competitive biodiesel industry that is growing very rapidly, it's very important to us that engine manufacturers be able to warrant the use of those in different ambient conditions so that's a big focus with biodiesel. We've just certified B–5 in some of the engines. I understand we're looking at B–20 levels and so codes and standards will be one of those that is cross funded.

GRID RESEARCH AT PACIFIC NORTHWEST NATIONAL LABORATORY

Senator MURRAY. Okay, thank you. I appreciate that and Director Kolevar, I just wanted to mention, I heard Senator Dorgan talking to you about the grid and modernizing our grid and moving to better technologies and what we needed to do and I just wanted to

make sure you knew about the Pacific Northwest National Lab and the work that they're doing out of my State to help efficiency on the grid. Have you ever visited there?

Mr. KOLEVAR. I have not, Senator. I intend to this year. I'm aware they're pulling real time data from Bonneville Power and visualizing, from a layman's perspective and then in more detail on some of the work that is going on there. It sounds to be very promising.

Senator MURRAY. Yes, the Grid Wise Program is really starting to look at how we can really focus on some efficiencies and better transmission. We'd really love to have you come out and take a look at it. Mr. Chairman, you might want to, too. I think you're right to mention that we need to have some efficiencies with that system and there is some work being done. I think we need to do more but we'd love to have both of you visit. So, thank you very much.

RETRIEVABLE ENERGY IN SPENT NUCLEAR FUEL

Senator DORGAN. Thank you very much. Just a couple other queries. Secretary Spurgeon, you talked about the closed fuel cycle. Can you tell me, just for my own information, how much energy is retrieved from spent fuel? You talked about retrieving the energy from spent fuel. What percent of the energy?

Mr. SPURGEON. Well, if we do a recycle and if we just recycle one time, in a light water reactor, you would recover 20 percent roughly of the input fuel. Now there are ways, looking to the future, where you could recover substantially more than that. But just one recycle and that's where I made the comparison base when I said as much as the Alaska Pipeline provides in energy value. It's just based on one recycle, 20 percent saving existing reactors, not including new ones that might be built in the future.

WEATHERIZATION

Senator DORGAN. Secretary Karsner, the issue of weatherization. I did not ask you about that. I assumed since I come from North Dakota that you would have expected me to so I don't want to disappoint you here. As you know, in the weatherization account, the proposal is to make a cut in that account. It was $242 million in fiscal year 2006. In fiscal year 2008, it will be $144 million, which is the budget request. Tell me what you think the consequences of that would be, to cut $100 million from weatherization?

Mr. KARSNER. Well, there are lots of consequences. One of the primary consequences is that we have more funding to accelerate biofuels for national security and lower greenhouse gas emissions. That's on the positive side. On the negative side, it will mean, because that is an additive program for returns; that is, that there is a correlation between dollars spent and houses weatherized. It will obviously mean a diminution in the amount of houses we can achieve in a fiscal year.

Senator DORGAN. I've been out to watch what they do in the weatherization program to substantially improve some of these older homes in order to reduce the amount of heat loss. Is that program effective? Also, is it a part of our energy efficiency efforts? Be-

cause we're saving energy by insulating homes and so on, so tell me how you view that program.

Mr. KARSNER. I view any efficiency improvements as effective but with a limited pool of dollars and an enormous task, as I said, for the larger aggregate goals of lowering greenhouse gas emissions and enhancing national security, it has the unfortunate disposition of competing against other efficiency investments in our applied research and development portfolio that have enormous returns that are multiplicative across the population. Although this is a very important segment of the population and it is a worthy program to focus on, in the context of competing in our portfolio to achieve those same efficiency objectives, the returns are very, very low.

Senator DORGAN. Are these mostly lower income people that are competing?

Mr. KARSNER. For the weatherization dollars?

Senator DORGAN. Right.

Mr. KARSNER. It is all low income people.

Senator DORGAN. So the competition, we've put them in here as the lower income people that own old homes that are leaking heat and terribly inefficient, trying to struggle through the winter to pay a heat bill. They're put in competition with all the other accounts and so they get hit with a $100 million reduction in funding. Is that something you support?

Mr. KARSNER. Well, I don't support the phrasing of it in that particular way but I do support the cut in the sense that I have to look at it as a portfolio. I have no other choice but to look at the precious taxpayer dollars that way. In fact in reality, this cut is really restoring what the Clinton administration budgetary year appropriations were in terms of apportionment of the portfolio. The President, in his first term push for poverty alleviation, substantially injected new funding into the weatherization program, I think at a time before most of the other technologies were reasonably commercial where they are today and at a time before we felt this kind of pressure from $3 gas and other pressing priorities.

So we are sort of putting it back into balance to where it had historically been, which still makes it one of the largest programs in the Nation's applied research and development portfolio for new energy developments. And these are difficult choices but we feel like turning the housing stock itself quicker in the aggregate through working on the building envelope, insulation, better windows across the board is at least as important ultimately.

Senator DORGAN. Mr. Karsner, we added $25 million in the Supplemental here in the Senate for weatherization. Do you support that?

Mr. KARSNER. No, I do not.

Senator DORGAN. Do you oppose it?

Mr. KARSNER. I do oppose that.

Senator DORGAN. Why?

Mr. KARSNER. The first reason is a little bit personal. We submitted a $160 million budget for fiscal year 2007 and though we had the authority of the spend plan through Congress' generous markup of our budget, of my own volition and push, I sought to meet the Senate written mark of $204 million and added $40 million to the weatherization program in the spend plan. Much of that

money this late in the year will roll over into next year so it is well funded to begin with and it is at the level that the Senate itself had written into the budget, albeit I understand it was the last Senate. Every new dollar that we add for that is taking a dollar away from the other efficiency programming markups that we have and the returns on those are 20 to 1, according to the National Academy of Sciences, and I think the returns are too big to forfeit.

Senator DORGAN. Let me—well, first of all, thank you. You know, while we might agree and disagree about certain priorities and the importance of certain accounts, I agree with Senator Domenici's statement earlier. I think all four of you are significant public servants whose background and capabilities give you the opportunity to do a good job for this country and coming to serve in an administration that is not so long for this town, what 20 or 21 months left? I mean, you've not signed on for a 6- or 8-year term in most cases.

You've come from various disciplines to assume leadership in these accounts and I appreciate that. I think all four of you have a lot to offer this country, even when we might disagree about priorities. It's my intent that I and the other members of this subcommittee work with you as we want to learn from you and want to help you meet the challenges ahead. While we might disagree on the exact amounts that should be invested in certain activities, at the end of the day, I think, we all share a common interest in success in your four areas. All four of these areas are very, very important as functions in the Department of Energy and your coming here today to respond to our questions and to give us a glimpse of what you're doing is very important.

I understand Senator Domenici has made a career of this during the Clinton administration, having agency witnesses come up and defend the President's budget. That's what they're paid to do. It's what they are required to do and if they didn't do that, they'd probably go back and find out that their desk was cleaned out. So it is a little frustrating for us sometimes but having recognized that, we appreciate working with you and we appreciate you being here today.

Senator Domenici, do you have anything to add at the conclusion?

Senator DOMENICI. One last one. First, Mr. Chairman, I want to thank you for your last remarks. I have great admiration for a Senator who speaks as you have just spoken and I don't know you that well even though we've been here a long time but the more I learn, the more I like what I hear and I thank you for that.

I want to say and ask which one of you would be—would represent global warming, the problems with global warming, proposed solutions. Which one would have——

Mr. KARSNER. I think that's the Department, sir.

Senator DOMENICI. The Department. So we'll talk to the Department on that, okay? I think that's okay. I'll talk to the Department because I want to just make a statement.

You know, we're soon going to be called upon to perhaps vote on a program, an American program to help contain CO_2, one way or another. There are various ways to do that, one of which is the simplest one was to put a tax on carbon.

I think that has lost favor quite a bit. In between there, there are various ways. I'd just like to make a point that I have spent a substantial amount of time and continue to spend more on analyzing the amount of CO_2 that China and India are producing and emitting and the lack of positive action on the part of either of those countries to diminish the carbon dioxide and to the contrary, a dramatic increase in power plants that are fed by dirty coal. That's your area, Secretary Shope. You know about that. You're not in charge of the big picture but you know about that. They are unfortunate—they have a lot of coal but it's dirty coal. At least the Lord could have made it clean and it wouldn't have had an ambient problem. They don't even clean up the first stage in the countries I just spoke of. They burn it without anything on there to clean up the pollutants as it is burned.

But I'm going to close with this remark. As of now, we understand that they produce in China—not India, China, about one reactor that is somewhere between 500 and 750 kilowatts—megawatts, excuse me, a week, about one a week. Now, you can't hardly imagine that being an American even though we claim we are the biggest gobblers of energy and we do nothing like that, such that if we were asked to spend great amounts of money to constrain carbon dioxide, the question will be asked of those who are for it, what is China and India going to do?

And if the answer is nothing, then it would appear to me that the American people would have a very big, big issue to raise with the Congress that would do something because all we would do would be to tie our own hands and legs, do nothing significant to help the problem of CO_2 in the outer atmosphere because, as a matter of fact, it is global in nature not American. And I'm not going to support unilateral containment without some hope—no, without some real evidence that China and India will join us in research and development and expenditure of substantial money to contain CO_2 in their countries.

I think that's important that those of us who are involved get our heads together and see what all this means. It may mean that China might have to think a little sooner rather than later about what they'll do because I don't know that we'll sit by and buy their products forever either at the prices that are reduced because they spend nothing to clean it up while we spend much. That's a true impediment to us selling any products worldwide or vice versa. I thank you, Mr. Chairman. I yield.

Senator DORGAN. Senator Domenici, thank you. If in fact it is a global economy and we all live in the same fishbowl then global pollution affects all of us as well and the Senator has expressed himself with respect to a vote on the Kyoto Treaty, believing that you cannot begin to deal with these issues, leaving China and India out of the equation. Especially because it's a global economy, those industries, those manufacturing plants and others that want to belch pollutants into the air have no regulatory costs of doing so and can simply move their plant overseas, fire their American workers and accelerate the job loss in this country.

Having said all that, I think the testimony today, for example, with respect to the search for new technologies, the search for carbon sequestration, the search of this country to unlock the mys-

teries from these new technologies is very important because I assume that we will want very quickly to share those technologies with everyone around the world. I would say to you, Senator Domenici, I was persona non grata in my State for some long while with the coal industry when I served in the State capitol. I was one of those that led the fight to demand that, with respect to strip mining of coal, there would be segregation of topsoil, that companies ensure the contouring of the land for reclamation and that every new plant producing electricity had to have the latest available technology, wet scrubbers for instance.

You can well imagine the way the industry responded. I was an enemy of the industry. Well, guess what? Twenty years later, twenty-five years later, they are all glad they did it and all of us in North Dakota are glad they did it.

We produce a lot of coal. We're the first State in the country to meet the ambient air standards, even though we had substantial plants, because we spent the money to put those wet scrubbers on. We now see contoured land that looks great. It was land from which coal seams were extracted and topsoil was segregated and the contour was redone. You drive past there these days and see the vegetation, you can't tell there was coal mined from it.

It is always harder at ground zero to begin to push these issues. You're absolutely right. If we decide to proceed and China and India do nothing, we will have accomplished very little and yet, in many ways, just as with stopping the spread of nuclear weapons, it falls on our country's shoulders. We must at least, at a minimum, begin a series of no regret steps as we begin to address all of these issues.

ADDITIONAL COMMITTEE QUESTIONS

So, Senator Domenici, you and I will have a lot of work to do and I'll enjoy doing it with you because you have a great deal of experience and have offered a lot to this subcommittee over many, many years.

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

QUESTIONS SUBMITTED TO HON. DENNIS R. SPURGEON

QUESTIONS SUBMITTED BY SENATOR BYRON L. DORGAN

GLOBAL NUCLEAR ENERGY PARTNERSHIP

Question. I have heard Secretary Bodman talk about the Global Nuclear Energy Partnership (GNEP) as being an initiative that will take a couple of decades. Yet, your testimony refers to a Secretarial decision in June 2008. Further, your testimony refers to the development of commercial-scale reprocessing facilities in conjunction with industry. I understand many in industry feel more research and development is necessary on GNEP before moving forward on facilities.

So, I am confused by the disconnect between Secretary Bodman's own observation of GNEP being a couple decade long process and this rush to a Secretarial decision in June 2008 and development of commercial scale reprocessing facilities.

First, can you please explain to me what the Secretarial decision in June 2008 will be about? And second, can you explain why we would be turning so soon to development of commercial scale facilities?

Answer. The Secretarial decision in 2008 is intended to determine the GNEP path forward. The Department intends for this decision to include a decision on whether or not and how to proceed with a nuclear fuel recycling center and an advanced re-

cycling reactor. This will require compiling information regarding the requisite technologies, economics, and environmental impacts. The specific elements supporting the decision are a credible technology pathway and progress on its implementation; a business plan; definition of a government-private partnership that could be formed; completion of NEPA requirements; and a nonproliferation assessment.

In addition, a path forward on the Advanced Fuel Cycle Facility is anticipated to be part of the Secretarial decision.

The Department's work with industry at this stage will focus our research and development in support of future commercial-scale facilities. Engaging industry at this time could save the United States nearly a decade in time and a substantial amount of money, while still engaging and reinvigorating the nuclear community with new facilities and continued long-term R&D. Development of a credible U.S. program for construction of commercial fuel cycle facilities is a critical element of a strategy to convince other States considering nuclear energy programs that they can rely on the United States for their fuel cycle needs. Making the United States an influential participant in fuel cycle technology is vital to fulfilling the GNEP vision.

Question. Under GNEP, I understand it will take one new fast reactor to burn the reprocessed fuel from approximately every three to four light water reactors. If this is correct and today there are 103 existing light water reactors, we will need 25 to 34 new fast reactors to burn just the reprocessed fuel from existing light water reactors. I understand the nuclear power industry is not interested in building fast reactors. For GNEP to work properly, will the Federal Government have to build 30+ fast reactors or will industry be mandated to build them?

Answer. Deployment of advanced fast reactors is currently envisioned as a commercial activity, with revenues being generated from the production of electricity while the transuranic material is simultaneously consumed. One goal for GNEP is to establish a business case that supports the commercial deployment of advanced recycling reactors, which are fast reactors. The number of advanced recycling reactors required to use the fuel recovered from LWR spent nuclear fuel depends on a number of factors. For example, a key factor is the rate at which an advanced recycling reactor would destroy the transuranic elements, recovered from the spent nuclear fuel, while generating electricity. Other factors include the initial core loading of an advance recycling reactor and the ability to recycle the spent fuel from the advanced recycling reactors.

Question. A primary goal of GNEP is to develop a reprocessing technology that is "proliferation resistant." Some claim DOE's proposed separations technologies all provide less than 1 percent of the International Atomic Energy Agency's "self-protection" standard for plutonium. Given these considerations, how can DOE's GNEP proposal meet the nonproliferation goal?

Answer. One goal of GNEP is to develop a reprocessing technology that is "more" proliferation resistant than those currently used throughout the world which separate pure plutonium. The separations technologies being considered by the Department would not separate pure plutonium and would, therefore, be more proliferation resistant than those currently in use. The Department's fiscal year 2008 budget request supports over $88 million for further research and development on advanced reprocessing technologies.

Question. Another goal of GNEP is to confine reprocessing and uranium enrichment to "countries that already have substantial, well-established fuel cycles." Does DOE's fiscal year 2008 budget request include funds for cooperation with the Korea Atomic Energy Research Institute (KAERI) for pyroprocessing research and development?

Answer. Bilateral collaboration with South Korea on nuclear energy R&D occurs under the International Nuclear Energy Research Initiative (I–NERI). All I–NERI joint projects employ cost sharing on an approximately equal basis by the participating countries. Each country is responsible for funding its side of joint projects. In the case of the United States, current-year approved program budgets provide the funding for our contributions to the joint projects. As part of I–NERI collaborations, Korea, as represented by KAERI, is actively engaged in relevant work in fiscal year 2007 and supported in the fiscal year 2008 budget request.

It is important to note, however, that KAERI does not process spent fuel or special nuclear material as part of this cooperation. All pyroprocessing-related research and development activities involving use of spent fuel or special nuclear material under these I–NERI projects or work-for-others programs is done at DOE National Laboratories. Annual meetings between the U.S. Government, National Laboratory and KAERI officials have been instituted since 2006 to monitor cooperative activities in the area of pyroprocessing and advanced fuel cycle technologies.

Question. Does DOE intend to offer the Republic of Korea, a country that the United States to date has not permitted to reprocess due to proliferation concerns, a role in GNEP as a "supplier" country?

Answer. The Republic of Korea has the sixth largest nuclear power program in the world. The Government of the Republic of Korea has made the decision not to possess reprocessing or enrichment facilities and is limiting the scope of its research and development on pyroprocessing technologies. Nevertheless, the Republic of Korea is actively engaged in the development of advanced reactor and fuel cycle technology, nuclear safety, radioactive waste management, and other related work programs on the national, bilateral and multilateral levels. We gain a great deal by working with these experts. The Republic of Korea is engaged in research and development that supports GNEP involving small-reactors, advanced burner reactors, computer modeling, safeguards and basic science, but not separations of spent fuel.

At this point, DOE has not specifically invited countries to participate in GNEP as "supplier countries." It is generally anticipated that the expansion of civilian nuclear power could be provided by countries already possessing the infrastructure to manufacture nuclear power plants as well as provide fuel supply services.

Question. Which countries has DOE invited to participate in GNEP as "supplier" countries?

Answer. At this point, DOE has not specifically invited countries to participate in GNEP as "supplier countries." It is generally anticipated that the expansion of civilian nuclear power could be provided by countries already possessing the infrastructure to manufacture nuclear power plants as well as provide fuel supply services.

Question. Which countries has DOE invited to be "users"?

Answer. DOE believes it is advantageous to seek partnerships for the expansion of civilian nuclear power worldwide by providing support on infrastructure development for countries newly considering nuclear power (e.g., legal, regulatory, safety, knowledge base, experience, etc.). DOE does not plan to invite countries as "users" or "suppliers," but rather seeks partners. The GNEP partnership is open to all countries agreeing to the statement of principles. The benefit of partnership is having access to products and services on the front and back end of the fuel cycle while relieving countries of the liability, infrastructure and expense associated with such facilities. Ultimately, there will be technology partners, materials partners (e.g., uranium) and infrastructure partners. In December 2006, the United States cohosted, along with several other IAEA Member States (Canada, China, France, India, Japan, Russia, and South Korea), a workshop in Vienna, Austria, on "Issues for the Introduction of Nuclear Power." Twenty-six countries currently without nuclear power—yet considering it as a potential addition to the energy portfolio—attended this workshop.

NUCLEAR ENERGY'S ROLE

Question. The Energy Information Administration's Annual Energy Outlook 2007 reference case indicates that nuclear power provided 19 percent of the Nation's electricity in 2005 and is expected to provide 15 percent of the Nation's electricity in 2030.

How do you reconcile the fact that, even as the U.S. Government is providing greater Federal assistance to the nuclear power industry through various research programs and deployment incentives than ever before, that portion of electricity generated from nuclear power facilities is expected to decrease as a percentage of our overall electricity production in the next 25 years?

Answer. As you know, there has been no new construction of nuclear plants in the United States in 30 years. However, nuclear power still supplies a significant percentage of our electrical needs, because plant efficiencies have increased electricity production equivalent of 27 1000 megawatt plants without new construction. As such, there is little additional efficiency to be gained with the existing fleet of reactors.

According to the Energy Information Administration's (EIA) Annual Energy Outlook 2007, America's demand for electric power is projected to increase at an average annual rate of 1.5 percent between now and 2030. In the Annual Energy Outlook 2007, EIA assumes that the equivalent of 12 new nuclear plants (1,000 megawatts each) would be built by 2030. The capacity lost from the few currently operating plants that will be retired by 2030 is assumed to be offset by power uprates at existing plants and the restart of TVA's Browns Ferry Unit One. Therefore EIA estimates total nuclear capacity to increase from 100 GW today to 112 GW in 2030. Based on EIA's assumptions, all the nuclear plants operating in 2030 would produce only about 15 percent of the generation mix in the United States.

The Department is aggressively pursuing actions through our Nuclear Power 2010 program to ensure the growth of electricity produced by nuclear power. To date, 15 power companies have notified the Nuclear Regulatory Commission of their intentions to submit 19 applications for combined Construction and Operating Licenses for 33 new reactor plants. Therefore, we expect that much more than the 12 gigawatts of new nuclear capacity projected by EIA will be realized before 2030. New nuclear plants would only need to be brought on line at a rate of three or four per year, a rate lower than that already proven achievable in some years in the 1970s, in order for nuclear power to provide 20 percent of the mix in 2030.

QUESTIONS SUBMITTED TO HON. DENNIS R. SPURGEON

QUESTIONS SUBMITTED BY SENATOR PETE V. DOMENICI

GNEP ADVANCED FUEL CYCLE FACILITY—LUXURY OR NECESSITY?

Question. Mr. Spurgeon, the Department has requested funding for the Advanced Fuel Cycle Facility. This new research facility is intended to perform all of the critical advanced reactor fuel development. However, it seems to me that this brand new facility actually duplicates the numerous older facilities located across the DOE complex that are still in use today.

This funding would go a long way in upgrading several existing facilities and would have the added benefit of supporting a diverse scientific mission such as medical isotopes, environmental characterization, and support for the space mission.

This new facility seems to be more of a luxury, rather than a necessity.

Can you please explain your rationale for deciding to build a single brand new facility rather than make the necessary investments in our existing laboratory infrastructure?

Answer. The Advanced Fuel Cycle Facility (AFCF) project is in the early stages of the conceptual design; no decision has been made to construct the facility and DOE is evaluating reasonable alternatives. The Department is aware that facilities exist that, with refurbishment or upgrades, could perform some, but not all, of the functions currently planned for the AFCF. A full examination of the trade-offs between constructing a new facility and upgrading existing ones is required in accordance with the Department orders for a major system acquisition.

The AFCF would allow the Department to perform R&D, technology development, and demonstrate the integrated operations and processes involved in the recycling of spent nuclear fuel. These operations would include receiving the spent nuclear fuel, separating its various constituents, fabricating new fuel, containing transuranic elements, for an advanced recycling reactor, manufacturing lead test assemblies that are necessary for fuel qualification, and waste handling. This facility would have a continuous throughput rate from start to finish, from reprocessing both spent thermal and fast reactor fuel to fabricating new fuel types yet to be fully developed. Currently, no single facility with that capability exists.

NP 2010 PROGRAM

Question. Mr. Spurgeon, your budget provides $113 million for the Nuclear Power 2010 program. This is significantly below the $183 million needed to fulfill the 50/50 cost share agreement to prepare the detailed engineering designs needed to resolve the technical, engineering and regulatory challenges needed to license a new reactor.

What is the Department's justification for failing to meet its cost share commitment and how will this impact the cost and schedule of this project?

Answer. The Department of Energy (DOE) is meeting its cost-share funding commitment for these important nuclear energy projects. DOE remains committed to spend $586.5 million as Federal cost share as agreed to with industry. DOE's cost-share primarily supports the demonstration of the "untested" regulatory process for the combined Construction and Operating Licenses for two new nuclear plants. It also supports the completion of the first-of-a-kind engineering for two reactor designs. The designs will be completed in sufficient detail to give power companies the cost and schedule information they need to make plant orders. If the fiscal year 2008 budget request of $114 million is appropriated by Congress, DOE will have provided industry with over $300 million of the $586.5 million total of Federal cost share by the end of fiscal year 2008.

In November 2006, the industry proposed DOE increase its cost-share for these two projects by $161 million to a new total DOE cost-share of $727 million. With this increase, industry proposes activities worth $183 million in fiscal year 2008.

DOE declined this industry request because its cost and scope went beyond DOE's original commitments.

Question. Based on the budget shortfall, are you able to predict which design, engineering, or regulatory activities will not be funded. Do you believe this will impact one reactor design over the other?

Answer. DOE does not believe one particular reactor design would have an advantage over the other based on DOE's fiscal year 2008 budget request.

The fiscal year 2008 budget request of $114 million for the Nuclear Power 2010 program is sufficient for funding necessary activities in fiscal year 2008. The request is consistent with the agreed-to cost-share funding commitment.

NP 2010 PROGRAM REFORMS

Question. Last year, I raised a number of tough questions about the cost controls of the NP 2010 program and whether or not the NuStart team would be able to deliver on the budget commitments they had agreed to. This criticism seemed to force the reactor vendors to sharpen their pencils and improve the work product.

Do you believe the DOE's private partners have made the necessary improvements to get this program back on track?

Answer. Given that these are uncharted waters for industry and DOE, substantial improvements have occurred on the NuStart and Dominion projects and the Department recognizes some risks remain. These known risk areas and the contingency plans to address them are under constant NuStart and Dominion management review.

One of the more substantial improvements has been the integration of the reactor vendor engineering and power company combined Construction and Operating License (COL) application development efforts. These integration efforts are evident through formal review teams such as the Economic Simplified Boiling Water Reactor and the AP 1000 Engineering Review Teams and the Design Control Document/Construction and Operating License Integration Team. DOE believes these industry efforts significantly improve the likelihood two COL applications will be submitted to the Nuclear Regulatory Commission in the first quarter of fiscal year 2008.

Question. Are you confident that this program will be able to deliver two reactor designs that the NRC will be able to license?

Answer. The Department of Energy (DOE) is highly confident the licensing demonstration projects with Dominion and NuStart will yield approved Nuclear Regulatory Commission (NRC) design certifications and combined Construction and Operating Licenses (COL) for the two advanced light water reactor designs: the Westinghouse Advanced Passive (AP) 1000 and the GE Economic Simplified Boiling Water Reactor (ESBWR). The NRC already certified the reactor design for the AP 1000 in December 2005. NRC has projected the ESBWR design certification could occur in fiscal year 2010. DOE expects COL applications to be submitted to NRC in the first quarter of fiscal year 2008 and NRC issuance of approved licenses in fiscal year 2010.

FOREIGN INTEREST IN NUCLEAR ENERGY

Question. Mr. Spurgeon, it seems everyday that I pick up a newspaper, another country or company is announcing that they are going forward with a new nuclear plant, or expanding their existing fleet to meet their growing energy needs. Countries such as India, China, Pakistan, Russia, Romania, Finland, Argentina and the United States all have plants under construction. Worldwide there are another 200 new plants on the drawing boards.

The countries that have expressed an interest in a nuclear plant also need to make plans for uranium fuel supplies and a solution for their nuclear waste. Not all of these questions have been answered and this has forced the IAEA to think about how the world can safely expand civilian nuclear power without increasing the proliferation threat.

It occurs to me that the rest of the world is moving ahead with civilian nuclear power regardless of what the United States does.

What do you think about the worldwide nuclear effort and how will GNEP play a role in this?

Answer. Worldwide, nations are becoming more concerned with meeting energy demands, providing energy security and engaging in energy practices that are acceptable for sustaining the environment. DOE sees nuclear power as a safe, clean, and efficient means to meet these needs. The expansion of nuclear power can satisfy these needs and must be expanded in a safe and proliferation resistant manner. For that reason, DOE, through the Global Nuclear Energy Partnership (GNEP), plans to assist countries newly interested in nuclear power to work toward developing

sound infrastructure. In December, 2006, the U.S. co-hosted a workshop in Vienna, Austria, on "Issues for the Introduction of Nuclear Power." Twenty-six countries currently without nuclear power—yet considering it as a potential addition to the energy portfolio—attended this workshop.

While a key goal of GNEP is expansion of nuclear energy, GNEP has other roles. Another key objective of GNEP is to reduce the proliferation risks that might otherwise be associated with the global expansion of nuclear energy. GNEP supports the goals and objectives outlined in the Energy Policy Act of 2005 which calls for diversifying the U.S. energy supply with sources such as nuclear power which is an important emissions-free component of the U.S. energy portfolio. GNEP provides a vision for future energy needs worldwide in a way that reduces waste burdens and proliferation risks. GNEP aims to reinforce nonproliferation policies by offering reliable nuclear fuel services to discourage the spread of enrichment and reprocessing technologies. GNEP also aims to draw down and eventually to eliminate excess stocks of separated civil plutonium that have accumulated. In addition, GNEP facilities aim to reduce proliferation and security risks by using materials that are less easily used in nuclear weapons than separated plutonium.

GNEP

Question. Mr. Spurgeon, the budget request for the GNEP program is extremely complicated. The budget seems to fund three separate activities including fundamental R&D, technology design and then a third category known as "technology development." This third category, which consumes one-third of the GNEP budget, seems to duplicate the other activities.

Can you please clarify this and provide me with a detailed written accounting of the spending plan for the GNEP Technology Development Account.

Answer. The GNEP Technology Development activity includes activities within the Advanced Fuel Cycle Initiative that provide support to each of the three Global Nuclear Energy Partnership (GNEP) projects: the nuclear fuel recycling center, advanced recycling reactor, and an advanced fuel cycle research facility. Whereas the work associated with GNEP R&D activities such as Separations and Advanced Fuels Development involves basic research and bench-scale or laboratory-scale experiments of a variety of potential technologies, the Technology Development activity funding will be used to further develop technology that has been shown to be feasible at the laboratory or engineering scale, as well as to optimize design parameters and size equipment. This account also supports the small reactor and international collaboration efforts.

As the Department continues its research and development, industry engagement, and other activities, the specific allocations for fiscal year 2008 for GNEP Technology Development activity could change. However, for fiscal year 2008, the Department currently anticipates allocating approximately $50 million for the nuclear fuel recycling center, $34 million for an advanced recycling reactor, $38 million for an advanced fuel cycle research facility, $6 million for international collaborations and agreements, and $5 million for grid-appropriate reactors in developing countries.

GNEP—COORDINATING RESEARCH WITH OTHER NE PROGRAMS

Question. The committee would like to understand the Department's view on the plans to tie together the various elements that make up its nuclear programs such as NGNP and GNEP. First, there is the potential to cooperate on fuel technologies that would benefit the high temperature gas reactor being considered for NGNP as well as Advanced Reactors being developed under the GEN IV program.

Will the Department conduct the appropriate analysis high temperature gas cooled reactor's capability to burn nuclear waste and the potential for synergy with the NGNP and GNEP?

Answer. One of the key objectives of the Global Nuclear Energy Partnership (GNEP) is to make nuclear power an attractive alternative to fossil fuels for developing countries around the world. Because the power demand requirements are limited for these countries, they will likely need smaller reactors. A Very High Temperature Reactor (VHTR), such as that being developed in the Next Generation Nuclear Plant (NGNP) program, is a small modular reactor design that could potentially be well suited in meeting the objectives of GNEP for global deployment of nuclear power to developing countries. While the Department (DOE) has conducted studies regarding the use of VHTRs for actinide destruction, DOE chose to utilize fast reactors initially for this component (actinide destruction) of the GNEP mission, while DOE continues research and development on VHTR and other technologies. The decision to use fast reactors is detailed in DOE's December 2006 report, The

U.S. Generation IV Fast Reactor Strategy. The Sodium-Cooled Fast Reactor (SFR) was chosen as the most promising fast reactor concept for meeting DOE's strategic goals. The United States has extensive experience with SFRs, and an SFR deployed as the Advanced Burner Reactor under GNEP could be operational in the 2020–2025 timeframe.

DOE is performing research and development on the NGNP consistent with the timeline established in the Energy Policy Act of 2005. Additional research and development on the use of high-temperature gas-cooled reactor for actinide burning could be performed after the underlying concepts supporting VHTR operation with uranium have been thoroughly validated.

COOPERATIVE NUCLEAR FUEL RESEARCH WITH RUSSIA

Question. I understand that NNSA, in conjunction with Rosatom, is developing the technology such as fuel and advanced power conversion systems for high temperature gas cooled reactors in a cost-shared program whose purpose it is to ultimately burn surplus Russian weapons plutonium.

How much has been committed to this program and under what program? What is the nature of the research and how will this benefit the GNEP effort? Is this research being coordinated with NE?

Answer. Between fiscal year 1999 and fiscal year 2006, the Department provided $17.1 million to Russian Institutes to develop the Gas Turbine-Modular Helium Reactor (GT–MHR) for plutonium disposition in Russia. During that timeframe, Rosatom provided an equivalent $17.1 million of matching Russian funds as well. This program is managed through the National Nuclear Security Administration (NNSA) and has been in place for over 8 years. The current scope of this cooperation is to conduct research and development in high risk technology areas such as the development of plutonium particle fuel and power conversion unit technologies. The advanced recycling reactor component of the GNEP program may benefit from this effort as it continues to develop advanced fuel forms and power conversion technologies. The Office of Nuclear Energy receives and considers reports summarizing the Russian GT–MHR research program.

Question. Based on the Russian's level of indecision on MOX; why does the Department believe this would be a prudent use of resources at this time. Is this being cost shared?

Answer. The Russian view of weapon grade plutonium is that it is a valuable national resource and that disposition in Russian Light Water Reactors (LWRs), such as the VVER, is not the most efficient use of this resource. Originally, both the United States and Russia had agreed to MOX disposition in LWRs. However, over time, the Russians expressed misgivings with LWR disposition, although they have never specifically excluded use of LWRs for disposition. The Russians have since proposed consideration of two additional approaches, which they consider to be a more efficient use of their plutonium. These two additional approaches are disposition in the BN–800 fast reactor, which is under construction (the plutonium disposition program has always considered the disposition of a limited quantity of plutonium in the BN–600 fast reactor); and development of a High Temperature Gas Cooled Reactor for possible use for plutonium disposition, should this reactor become available in time.

The current Russian proposal includes cost sharing in every scenario under discussion, including LWRs, although specific details have yet to be negotiated.

NUCLEAR FUEL CYCLE

Question. Mr. Spurgeon, much of the focus of the Department since the passage of the Energy Policy Act 2005 toward nuclear power has been on the development of new nuclear reactors. As you know, there are other valued components of the domestic nuclear fuel cycle. Currently, our country has only one functioning aging enrichment facility and another soon to come on-line in the next few years. These facilities will provide the fuel of the nuclear renaissance in America and build upon the President's energy security programs.

Can you tell me what the Office of Nuclear Energy is doing to encourage development in the front end of the U.S. nuclear fuel cycle, in the enrichment areas of the fuel cycle?

Answer. With 104 nuclear power plants currently licensed in the United States and the announcements by power companies for license applications for over 30 new plants, the Department of Energy (DOE) believes that U.S. energy security would be significantly enhanced by private sector investment in new domestic uranium enrichment capacity. Currently, the aging and energy-intensive gaseous diffusion plant at Paducah, Kentucky is the Nation's only operating enrichment plant. Three pri-

vate companies, General Electric (GE), Louisiana Energy Services (LES), and USEC Inc. (USEC) are at various stages of deploying new U.S. enrichment plants featuring advanced technology. LES is the furthest along with construction having started on its National Enrichment Facility in New Mexico that will utilize gas centrifuge technology commercially deployed by Urenco in Europe. USEC and GE are working to demonstrate commercial viability of the American Centrifuge and SILEX projects, respectively.

With respect to the Department working with private enrichers, DOE and USEC signed an agreement in June 2002, whereby USEC Inc. made a commitment to deploy an enhanced version of DOE's previously developed gas centrifuge technology at the Portsmouth Gaseous Diffusion Plant site. USEC, in order to demonstrate its American Centrifuge, is funding a Cooperative Research and Development Agreement with the DOE's Oak Ridge National Laboratory. In December 2006, DOE and USEC signed a long-term lease agreement for USEC to build its commercial plant at DOE facilities at Portsmouth, Ohio. At the same time, DOE granted USEC a patent license for DOE's gas centrifuge technology that requires USEC to pay royalties to the U.S. Government on annual sales of enriched uranium from centrifuge plant production. While LES and GE are pursuing other technical approaches, DOE encourages all three companies in their efforts to deploy reliable and competitive advanced enrichment technology.

Question. Does the Department need any new authorities in this regard?

Answer. Both LES and USEC are seeking to use DOE's uranium inventories to facilitate the startup of their new enrichment facilities. At this time, DOE does not need additional authorization to sell or transfer uranium to a private company.

QUESTIONS SUBMITTED TO HON. ALEXANDER KARSNER

QUESTIONS SUBMITTED BY SENATOR BYRON L. DORGAN

BALANCING RENEWABLE AND EFFICIENCY FUNDING

Question. DOE has strongly backed many of the programs in your office and the President highlighted initiatives to be pursed by the Office of Energy Efficiency and Renewable Energy in his State of the Union address. This includes work on hydrogen technology, biomass and biorefinery R&D, solar energy, and vehicle technologies. These are all important.

However, it seems that there is much greater emphasis on targeted renewable energy programs than other programs within your office such as energy efficiency programs, the Weatherization Assistance Program, and the State Energy Programs. In your opinion, do you have the right balance between the renewable side of your office and the energy efficiency side of your office? Why are these energy efficiency programs not seeing the same funding increases as the renewable energy programs are?

Answer. Yes, the Office of Energy Efficiency and Renewable Energy maintains a balanced portfolio that supports achievement of programs' goals and ensures optimal use of resources.

The fiscal year 2008 budget request includes increases for many of our energy efficiency programs. The Building Technologies Program budget request is $9.1 million greater than the fiscal year 2007 request, the Vehicle Technologies Program budget request is $10.1 million greater than the fiscal year 2007 request and the Industrial Technologies Program is $435,000 greater than the fiscal year 2007 request.

Many of the Department's efficiency programs have very high returns at low cost, such as FEMP, appliance standards, energy efficiency building codes, "Save Energy Now", and Energy Star® rating system, to name a few.

BALANCING RESEARCH WITH DEPLOYMENT FUNDING

Question. I recognize that money at DOE is being devoted to R&D but, voluntary deployment and market transformation programs also are needed to move new technologies into the marketplace, and standards and codes are needed to set a minimum threshold for using cost-effective technologies. By some accounts, just over 50 percent of your $1.24 billion in your fiscal year 2008 budget request is for research and development activities. Is this an appropriate amount? What portion of funding is being applied to renewable energy R&D and what portion to energy efficiency R&D? What is the Department doing, beyond the basic R&D, to transition new technologies into the marketplace on the efficiency side?

Answer. The Office of Energy Efficiency and Renewable Energy (EERE) maintains a balanced portfolio of programs to advance renewable power generation, diversify

transportation fuels, and promote energy efficiency. In our fiscal year 2008 request, almost 52 percent is R&D with the balance invested in regulation, commercialization and grant programs. This balance is appropriate because many of the Department's efficiency programs are lower cost programs, such as FEMP, appliance standards, energy efficiency building codes, "Save Energy Now", and Energy Star® rating system, to name a few.

The Office of Energy Efficiency and Renewable Energy (EERE) programs related to energy efficiency comprise approximately 46 percent of the total EERE proposed fiscal year 2008 budget (including program direction and support funds).

The Department's approach to promoting new technologies couples technology push with market demand pull, and works to address barriers to the market adoption of advanced technologies through various program initiatives. For example, the Department plans to lead by example with the Executive Order 13423 and become an early adopter of energy efficient and renewable energy technologies. By identifying markets where the life-cycle costs of advanced energy technologies currently form a compelling economic argument, the Federal Government will create demand pull which will increase the economies of scale and drive the technologies down the cost curve. The Department is also looking to stimulate the commercialization of advanced technologies by bridging the gap between R&D and the market place. To this end, the Department has designated a Director of Commercialization and Deployment, located within the Energy Efficiency and Renewable Energy Program, to oversee and guide our deployment-related efforts. However, ultimately commercialization decisions are up to industry.

WEATHERIZATION ASSISTANCE PROGRAM

Question. The Weatherization Assistance Program funding has been cut from $242.5 million in fiscal year 2006 to $204.5 million in the fiscal year spending plan, and the fiscal year 2008 request is for $144 million. That is a 41 percent cut from fiscal year 2006. Why is the cut so significant? Is the Department still interested in moving the Weatherization Assistance Program to another Federal agency?

Answer. The 2007 operating plan optimizes resources and provides the appropriate amount of resources to support the achievement of goals and priorities. We have chosen to prioritize investments in energy efficiency and renewable energy R&D that have multiplicative returns such as improvements to appliances and the building envelope that affect the whole American population rather than additive returns not associated with technological R&D that target a single segment of the population. For example, the National Academy of Sciences studied the benefits of the energy efficiency portfolio and found that the return on the research and development (R&D) investment was roughly 20 to 1. In contrast, the Weatherization Assistance Program has a return on investment of 1.5 to 1.

The Department of Energy has no current proposal to move the Weatherization Assistance Program to another Federal agency.

APPLIANCE STANDARDS

Question. As you know, DOE has been plagued for years by long delays in issuing appliance efficiency standards. So far, you seem to be meeting the aggressive schedule you set last year for getting the required standards out, and I am pleased that you asked for additional funds. However, a recent GAO report said additional changes are needed in the program, and I am concerned that recent proposed standards have been weak and are not using the tremendous potential of this program to address our energy needs.

The GAO report said the program faces a 600 percent increase in workload with a 20 percent resource increase in the fiscal year 2007 budget. Have you analyzed the staffing and funding requirements to carry through the standards plan, and can you share that with us?

Answer. Yes, the Department has conducted a thorough assessment of resource needs for the efficiency standards program. On January 31, 2006, the Department submitted an aggressive plan to Congress, addressing both the history and the future plans for the Appliance Standards Program. That plan does in fact commit to a rulemaking schedule that is six times the historical rulemaking rate for this program. The actions detailed in that plan are expected to dramatically increase the efficiency of the process and the output rate. In addition in our fiscal year 2007 operating plan, we have directed resources necessary to improve the program. Early improvements in the program are evidenced by the timely issuance of final test procedures for various products and final standards for commercial products, as set out in the plan DOE provided to Congress. . Changes in our process include imple-

menting product bundling within a single rulemaking and organizing staff into seven technology teams.

Since committing to this schedule for the standards program, the Department has met 100 percent of its scheduled deadlines. We have completed eight rulemakings since EPACT 2005, including test procedure rulemakings and codification of prescribed standards, and have made significant progress on others that were underway prior to EPACT 2005. In 2006, we initiated standards rulemaking for 12 additional products and remain on schedule for all future deadlines.

Question. Some of the largest possible savings, for example from standards on furnace fans and refrigerators, are not included in the plan, and thus will not be considered for at least 5 years. Can you tell us how much additional resources you would need to begin work on the most important standards now?

Answer. You correctly note that the plan did not include provisions for new refrigerator and furnace fan efficiency standards. Current statutory requirements for refrigerator standards have been met and refrigerators of today consume approximately 70 percent less energy than they did in the early 1970s. The Energy Policy Act of 2005 gave DOE the authority to set standards for furnace fans but did not specify a statutory deadline. The plan provided to Congress is focused on implementing all statutorily required rulemakings, which are numerous. We continue to evaluate our published schedule for opportunities to accelerate and expand to additional products, such as furnace fans, while staying on schedule.

Question. DOE has rejected some recent suggested standards because they were not deemed consistent with current law. Do you need any additional legal authority to issue standards that make the most sense for consumers?

Answer. In February, Secretary Bodman sent legislation to Congress requesting authorization to streamline the standards process and bring more efficient products to market sooner. This fast-track legislative proposal would allow the Department to move directly to a Final Rule for certain products when a clear consensus for a standard exists among manufacturers, efficiency advocates, and other stakeholders. By using this process, we would be able to promulgate an energy efficiency standard directly when all relevant interests jointly have negotiated and submitted an agreed proposed standard that meets all statutory criteria. In some cases, directly issuing a final rule would shorten the time to a completed standard by nearly a third and shave months off the rulemaking process. To be clear, if the Department determines that a consensus does not exist, this proposal would not preclude rulemaking; it would simply require the Department to use the traditional three-stage process.

Other pending legislative proposals would fix various problems with the existing statute, provide DOE with needed flexibility in some areas, establish statutory efficiency standards for several products, and mandate DOE to develop standards for other products. We are hopeful that constructive legislation in this area will be enacted before the end of this year.

BUILDING CODES

Question. A small DOE program to assist States in setting and achieving compliance with their building energy codes leverages a few million dollars to improve the efficiency of every new building in much of the country. It has been rated the most cost-effective of all DOE programs assisting States. Yet the proposed fiscal year 2008 budget request would cut it.

Several studies have shown we are wasting huge amounts of energy because of poor compliance with codes. EPACT 2005 authorized a program to help States improve compliance. With so much building occurring around the country, wouldn't this be a good time to add a little funding to help make sure these buildings are up to code?

Answer. Yes, we are currently restarting and reinvigorating the codes program under the fiscal year 2007 Continuing Resolution which provided approximately $2 million to the State building energy codes activities. The fiscal year 2008 request is $3.8 million. The Department has effectively provided technical assistance and training through the Building Energy Code Program website, (www.energycodes.gov), technical support, web-based training, stand-up training, webcasts, and Setting the Standard newsletter. Efficient use of funds allows the Department to continue to provide assistance to improve compliance to national, regional, and State building code officials and stakeholders. For example, there are over 3 million hits a month on the Department's www.energycodes.gov website and some 6,000 residential code compliance tools are downloaded monthly by designers, builders and code officials. The Department trains approximately 2,000 code officials, designers, and builders to implement these codes and updates and improves

the core materials and code compliance software to reflect recent changes in the model energy codes and emerging energy efficiency technologies.

FEDERAL ENERGY MANAGEMENT PROGRAM

Question. I understand that you are big supporter of improving energy efficiency in Federal facilities. I am concerned about the ability of your office to sufficiently train, educate, and support other agencies of the Federal Government related to the Federal Energy Management Program (FEMP). In January, President Bush signed an Executive Order with new and updated energy savings targets and other requirements. Yet the proposed budget would cut the Federal Energy Management Program, which leads the Government-wide effort to save energy, by another 12 percent.

What is DOE's role in implementing the new Executive Order? What funding is provided in the budget for this purpose?

Wouldn't additional funding for FEMP save the Federal Government more money than it would cost by reducing energy waste?

Answer. The Department's role is to provide specific and authoritative guidance to Federal agencies on the provisions of the Executive Order and to support agency efforts to meet the goals through assistance with third party financing and design assistance. Virtually all of FEMP's fiscal year 2008 budget request of $16.8 million will be used for the implementation of the Executive Order and associated statutory requirements in some way.

The private sector will be the most important funding source for saving energy at Federal agencies. FEMP's third party financing activities, in conjunction with the private sector, can potentially fund projects needed to meet the Executive Order goals.

PUBLIC EDUCATION

Question. Public education is the quickest way to reduce energy use and address current energy prices and supply-demand imbalance. Yet there is almost no money for public education on energy efficiency in the budget, despite a $90 million authorization in EPACT 2005.

How much funding would be available for proactive energy-efficiency public education programs under this budget? Where is that funding in the budget?

What is your plan for using those funds, including plans for partnering or contracting with other organizations?

Answer. Within our fiscal year 2008 budget request, we include $4.9 million in funding to support public information activities within our Program Support budget line and within each program's budget.

The funding supports a range of activities and programs including websites, Energy Saver fact sheets, development of publications, the EnergyStar® program, and the Energy Efficiency and Renewable Energy Information Center. In the past we have partnered with the Environmental Protection Agency (EPA), the Alliance to Save Energy, retailers and utilities to promote energy efficiency through public awareness campaigns such as "Powerful Savings," "Easy Ways to Save Energy" and the "Power Is In Your Hands." We have also collaborated with EPA and retailers to promote EnergyStar qualified products through the EnergyStar program. The 2008 budget supports our partnerships with business and non-governmental organizations to help leverage funding to promote education on energy efficient technologies and products as well as alternative sources of energy and fuel.

OIL SAVINGS

Question. In the State of the Union address, President Bush called for reducing our gasoline use by 20 percent in 10 years. This budget increases some budget areas important to that goal, such as DOE's Biomass program, but decreases others, including DOE's Vehicle Technologies program.

If we are serious about addressing our "addiction" to oil, don't you think we need to invest more in vehicle efficiency as well as in new fuels, and in improving trucks and buses as well as cars?

Answer. The Department's balanced portfolio of investments addressing both efficiency improvements and alternative energy sources outlined in the 2008 budget optimizes the use of resources and supports the achievement of stated goals. The 2008 Budget for the Vehicle Technologies Program is approximately $10 million above the 2007 request. Most of the increase is to support the development of plug-in hybrid technologies, which show great promise of increasing light duty vehicle fuel economy.

Question. The president's goal assumes a 4 percent annual fuel economy improvement in new cars and light trucks, but the light truck fuel economy standards issued so far only increase by 2 percent a year. What will change to get a 4 percent increase in the future? Do we need more research to support this goal?

Answer. The President's goal to reduce gasoline consumption is ambitious and would require the use of more advanced fuel economy technologies in the new vehicle fleet. The Department believes that accelerated consumer adoption of hybrid and plug-in hybrid electric vehicles and advance combustion engines offers the potential to significantly reduce oil consumption in the near-term. However, any requirements to improve new car and light truck fuel economy would also have to be technologically feasible, economically practicable, and ensure that vehicle safety is not compromised.

The Department of Energy's role in this effort is to accelerate advanced technology vehicles including through significant new investments in advanced batteries for hybrid and plug-in hybrid electric vehicle applications. Also, the Department is continuing research and development of advanced combustion engines to address the technical barriers to the commercialization of more efficient advanced internal combustion engines. Specific goals for combustion research are to improve, by 2012, the efficiency of internal combustion engines from 30 percent to 45 percent for light-duty applications while meeting cost, durability, and emissions constraints.

EPACT 2005 AND GEOTHERMAL PROGRAMS

Question. The Energy Policy Act of 2005 provides specific directives for DOE's renewable energy research efforts. In general, the overall approach is spelled out in section 931, which states: (a)(1) OBJECTIVES.—The Secretary shall conduct programs of renewable energy research, development, demonstration, and commercial application, including activities described in this subtitle. Such programs shall take into consideration the following objectives: (A) Increasing the conversion efficiency of all forms of renewable energy through improved technologies. (B) Decreasing the cost of renewable energy generation and delivery. (C) Promoting the diversity of the energy supply. (D) Decreasing the dependence of the United States on foreign energy supplies. (E) Improving United States energy security. (F) Decreasing the environmental impact of energy-related activities. (G) Increasing the export of renewable generation equipment from the United States.

Subsection (c) of this section of EPAct specifically provides direction for geothermal energy research. It states:

GEOTHERMAL.—The Secretary shall conduct a program of research, development, demonstration, and commercial application for geothermal energy. The program shall focus on developing improved technologies for reducing the costs of geothermal energy installations, including technologies for: (i) improving detection of geothermal resources; (ii) decreasing drilling costs; (iii) decreasing maintenance costs through improved materials; (iv) increasing the potential for other revenue sources, such as mineral production; and (v) increasing the understanding of reservoir life cycle and management.

For the fiscal year 2007 Spending Plan and the fiscal year 2008 budget request, how do the Department's decisions in each of those documents with respect to the geothermal energy research and development program comport with the statutory direction provided by Congress in section 931 of Public Law 109–58?

Answer. Since the 1970s, the Department of Energy has conducted a research and development program in geothermal technology valued in excess of $1.3 billion. That investment has helped to produce the strong market for geothermal energy we see today. In fiscal year 2007 and fiscal year 2008, the Department requested zero funds for the Geothermal Program because the program has achieved key research objectives for conventional hydrothermal technology development and there are substantial incentives that support the near-term development of the technology and deployment of the geothermal resource base. Consequently, power production from high-temperature, shallow resources is now a relatively mature technology. Projects under construction, or which have both power purchase agreements and are undergoing production drilling, amount to 489 megawatts in eight Western States. The fiscal year 2007 operating plan for the Department included $5 million to support geothermal power co-produced with oil and gas demonstration efforts, for an evaluation of enhanced geothermal systems to help industry prioritize its technology needs, and to bring to completion selected projects on exploration, drilling, and/or conversion technologies. In addition, some fiscal year 2006 unspent or uncosted funds will also be used to conclude research projects on exploration, drilling, and/or conversion technologies.

GEOTHERMAL PROGRAM AND THE NATIONAL RESEARCH COUNCIL RECOMMENDATIONS

Question. The administration's repeated efforts to close down and defund the geothermal research program also appears to contradict the recommendations of the last external review of the Department of Energy's renewable programs, the 2000 report of the National Research Council entitled Renewable Power Pathways. That National Research Council's examination of the geothermal program states in clear terms the importance of the program, and the recommendation that it continue to be funded: "In light of the significant advantages of geothermal energy as a resource for power generation, it may be undervalued in DOE's renewable energy portfolio."

Does the Department agree with the National Research Council that the U.S. geothermal resource base holds significant potential to contribute to national energy needs?

What actions did the Department take to implement the recommendations made by the National Research Council in 2000?

Has the Department had further communications with the National Research Council about its assessment and any follow-up by the Department?

Answer. Yes, the U.S. geothermal resource base is large, and can contribute to diversification of our national energy portfolio through increased private sector development. DOE's Geothermal Program has achieved its key research objectives for conventional geothermal resources. There are substantial incentives that support development of the geothermal resource base without further investment in R&D. The fiscal year 2007 operating plan for the Department included $5 million to support geothermal power co-produced with oil and gas demonstration efforts, for an evaluation of enhanced geothermal systems to help industry prioritize its technology needs, and to bring to completion selected projects on exploration, drilling, and/or conversion technologies. In addition, some fiscal year 2006 unspent or uncosted funds will also be used to conclude research projects on exploration, drilling, and/or conversion technologies.

Since 2000, the Department has taken actions to implement all 10 recommendations made by the National Research Council. These actions include new or expanded research initiatives, technology demonstration projects, increased collaboration with other agencies, and improved international cooperation.

The Geothermal Program has not had any further communication with the National Research Council; however the Department has continued to work with the National Research Council in other areas of renewable energy.

QUESTIONS SUBMITTED BY SENATOR DIANNE FEINSTEIN

GEOTHERMAL TERMINATION

Question. The President's budget for fiscal year 2008 proposes to eliminate funding for geothermal energy research. Based on reports by the National Renewable Energy Laboratory (NREL) and the Massachusetts Institute of Technology, the Geothermal Energy Association estimates that, with a relatively small amount of research funding, geothermal energy can meet up to 20 percent of U.S. power needs by 2030. Please answer the following questions:

Given the critical need to develop low-carbon electricity generation technologies, why does the DOE propose to stop conducting research into geothermal energy?

Answer. The Department's geothermal program has achieved its key research objectives and there are substantial incentives that support the near-term development of the technology and deployment of the geothermal resource base. Geothermal power production from high-temperature, shallow resources is now a relatively mature energy technology. Projects under construction, or which have both Power Purchase Agreements and are undergoing production drilling, amount to 489 megawatts in eight Western States. The Western Governors Association geothermal task force recently identified over 100 sites with an estimated 13,000 megawatts of near-term power development potential.

WIND AND SOLAR PRODUCTION COSTS

Question. The Massachusetts Institute of Technology (MIT) has released a report suggesting that, for less than the cost of a single clean-coal power plant, the United States could conduct the research needed to enable production of up to 100 GWe of low carbon energy from enhanced geothermal systems by 2050. How much would it cost for EERE research programs to enable production of 100 GWe of energy from wind and solar sources by 2050?

Answer. The primary factors contributing to production of 100 GWe of wind and solar energy are no longer exclusively or even substantially driven by government funded research projects. The rate at which potential capacity is converted to productive projects will depend on the amount and type of private capital investments in projects, and on the durability and scope of policy incentives. The goal of the Wind Program and Solar Program is to enable these renewable energy technologies to compete with conventional electricity throughout the Nation by helping to reduce costs. Under the President's Solar America Initiative, the goal is to improve the performance and reduce the cost of solar energy systems to make photovoltaics cost-competitive with conventional electricity sources by 2015. The President's fiscal year 2008 budget request of $40 million for wind and $148 million for solar contributes to these goals being met. Also, the Department's investment in technology development of next-generation systems may help enable solar companies to invest more private capital in scaling up manufacturing, as well as accelerate cost reductions to help increase demand for solar as it reaches cost-competitiveness in more markets.

If the research goals are met, DOE estimates 177 GW of wind power and 190 GW of solar power by 2050. These estimates are in accordance with the Government Performance and Results Act (GPRA) analysis that accompanies the President's budget.

ENHANCED GEOTHERMAL SYSTEMS

Question. The Massachusetts Institute of Technology (MIT) report only considers the potential to tap geothermal energy from putative "Enhanced Geothermal Systems (EGS)." What is the additional untapped capacity of more conventional geothermal technologies? How much of this capacity could be tapped by 2030 with sustained investment of $50–$100 million per year? By 2050?

Answer. Currently, conventional geothermal production is approximately 3,000 MWe. A recent Western Governor's Association report indicates that there is potential for up to 5,600 MWe by 2015.

The rate at which potential capacity is converted to productive projects will largely depend on the amount and type of private capital investments in projects.

Question. In the Energy Policy Act (EPACT), the Secretary of Energy was instructed to "promulgate regulations which describe in detail methods for calculating and verifying energy and power consumption and cost, based on the provisions of the 2005 California Non-Residential ACM manual." Please answer the following questions:

What is the DOE's progress towards this goal?

Can DOE provide a detailed comparison between proposed regulations and the California Non-Residential ACM manual, with justification for deviations? If not, how much additional funding is needed to complete this effort?

If such funding were provided, when would these new regulations be issued?

Answer. EPACT section 1331 directs the Secretary of the Treasury, in consultation with the Secretary of Energy, to promulgate methods of calculation for energy consumption and cost. On June 26, 2006, the Department of the Treasury and the Internal Revenue Service (IRS) issued Notice 2006–52, Deduction for Energy Efficient Commercial Buildings, that set interim guidance relating to the deduction for energy efficient commercial buildings under § 179D of the Internal Revenue Code. The Department of Energy provided technical guidance for the Notice. It is my understanding that Treasury elected to adopt the provisions of the California ACM manual that do not conflict with ASHRAE Standard 90.1–2001.

At this time, the IRS has only promulgated interim guidance in advance of proposed regulations. The justification for any potential deviation from the California manual and proposed Federal rules would rest with the Department of Treasury.

At this time, I am not able to provide an answer as to when the Department of Treasury might request funding for this rule nor when Treasury might promulgate a proposed rule.

Question. Can DOE provide similar updates for progress towards all other energy efficiency regulatory requirements of the Energy Policy Act (EPACT)?

Answer. I am pleased to report progress on a number of energy efficiency requirements of EPAct. On January 31, 2006, the Department submitted a report to Congress on its standards activities prepared in response to section 141 of EPACT 2005. The report publicly laid out our action plan and schedule for rulemakings out to the year 2011. Since committing to this schedule for the standards program, the Department has met 100 percent of its targets. We have completed eight rulemakings since EPACT 2005, including test procedure rulemakings and codification of prescribed standards, and have made significant progress on others that were underway prior to EPACT 2005. The Department has also established guidelines regarding the use

of energy metering in Federal buildings, as outlined in section 103. A standard for premium efficient electric motors was published in the Federal Register on August 18, 2006, per section 104. The section 109 requirement for a determination on whether the revised ASHRAE (American Society of Heating, Refrigeration and Air-Conditioning Engineers) code requires revisions to Federal building performance standards is on track. In addition, an acquisition plan for an energy efficiency pilot program for states has been completed and a procurement requirements document developed to fulfill section 140.

GLOBAL NUCLEAR ENERGY PARTNERSHIP

Question. The Department of Energy's Office of Nuclear Energy (DOE–NE) has given many different reasons for the need to invest in the nuclear fuel reprocessing aspects of the Advanced Fuel Cycle Initiative through the program known as the "Global Nuclear Energy Partnership (GNEP)." This initiative represents a significant change from long-standing U.S. nuclear policy, but no consensus has been established and program goals have not yet been fully vetted by an independent authority. The President's budget requests an increase of $152 million over fiscal year 2007 levels for this program, and an even greater increase with respect to fiscal year 2006 levels. These increases are much greater than the combined increases for research into all renewable resources such as wind, solar, geothermal, and biological. Please answer the following questions:

What is the primary justification for this program? In order of priority, what are the secondary justifications for this program?

Answer. Today, 103 nuclear reactors generate roughly 20 percent of America's electricity. U.S. electricity demand is anticipated to grow 50 percent over the next 25 years—the equivalent of 45 to 50 one-thousand megawatt nuclear reactors must be built just to maintain that 20 percent share. With nuclear power as the only proven base load producer of electricity that does not emit greenhouse gases with the ability to increase output substantially, it is vital that our current fleet of reactors be expanded in order to meet our needs for carbon-free, dependable and economic electric power.

Any serious effort to stabilize greenhouse gases in the atmosphere, while providing the increasing amounts of energy needed for economic development and growth, requires the expanded use of nuclear energy. This will inevitably require us to address the spent fuel and proliferation challenges that confront the expanded, global use of nuclear energy. To meet these challenges, the Department initiated the Global Nuclear Energy Partnership (GNEP), a comprehensive approach to enable an expansion of nuclear power in the United States and around the world, promote non-proliferation goals, and help minimize the amount of nuclear waste disposal.

Additionally, many formerly non-nuclear countries are now considering the nuclear option to meet their energy needs. It is vital for the United States to be able to influence the safety, security and proliferation characteristics of nuclear reactors intended for these emerging nuclear states, as well as position U.S. industry for leadership in this growing international market. Together with the assurance of reliable fuel services, GNEP provides an attractive energy solution for many countries that could serve to eliminate the need for them to develop the more proliferation-vulnerable parts of the nuclear fuel cycle. Coupled with the spent fuel recycling and actinide burning technologies of GNEP, the United States has the potential to meet its growing energy demands and those of developing countries in a manner that minimizes potential negative impact to the United States and the world.

Question. The GNEP implementation plan calls for rapid construction of demonstration facilities for nuclear fuel reprocessing. Can you provide a consensus statement from our international partners describing what their contribution will be and what their requested contribution from the United States is?

If such a consensus is not available, then what level of funding is needed to establish the needed international consensus prior to building new facilities on U.S. soil? Please justify.

Answer. Discussions are currently in progress with several of our international partners to help define the parameters of and potential deployment strategies for the GNEP facilities. Those discussions are not yet at the point where a consensus on the amount of cost sharing, or if cost share at all, could be established. At this time, given the undefined technical, political, financial, and strategic aspects of GNEP, it is not possible to pursue quantitative discussions with our partners. Likewise, those same undefined factors render it impractical to make a reasonable estimate of the level of funding required to establish an international consensus prior to constructing the GNEP facilities in the United States. When GNEP has developed

sufficiently to develop those estimates, the Department would be able to provide them.

Question. In his statement, Assistant Secretary Spurgeon stated that "Any serious effort to stabilize greenhouse gases in the atmosphere, while providing the increasing amounts of energy needed for economic development and growth, requires the expanded use of nuclear energy". No further documentation was provided to support this conclusion. Can DOE provide a comparison of the complete lifecycle costs to produce nuclear energy and safely manage nuclear waste as compared to producing a comparable amount of energy from renewable energy resources? If such a comparison cannot be provided, then please provide scientific, peer-reviewed support for this statement.

Answer. A recent study by the European Commission ("External Costs—Research results on socio-environmental damages due to electricity and transport," European Commission, 2003, p. 12, [http://ec.europa.eu/research/energy/pdf/externe_en.pdf]) states, "Nuclear power in general generates low external costs, although the very low probability of accidents with very high consequences and the fuel cycle impacts are included. It is also a technology with very [lifecycle] low greenhouse gas emissions." On page 13 of the report, a table shows that nuclear power's external costs are on a par with renewables. While this study considered European experiences, it is expected the situation in the United States would not differ significantly.

Other reports may contradict this. What can be said is that there is currently in operation no clean, base-load, fossil-fuel power-generation technology; solar and wind power have great potential in their limited ranges of operations; hydroelectric is essentially fully subscribed; and that leaves nuclear power. Nuclear power now provides over two-thirds of our Nation's non-emitting electricity while renewables, primarily hydropower, account for the rest. Until such time as we can efficiently store the power produced by wind and solar power, they will continue to augment but cannot replace base-load power generation. Nuclear power is the only non-emitting technology that is ready today to be deployed in quantities sufficient to meet our growing demand for electricity.

FOSSIL ENERGY

Question. The Department of Energy's Office of Fossil Energy (DOE–FE) has proposed extensive new investments in coal energy, yet proposes cuts in funding for oil and gas research. Acting Assistant Secretary Shope justifies this change with an argument that can be summarized as, "because coal is a critical domestic energy resource today, it will continue to be so in the future." This may happen, but continued innovation may well replace coal with improved new technologies. Coal is a valuable energy resource over the near-term, but its long-term future is still uncertain. Please answer the following questions:

A recent study by the Climate Group indicates that the global market for biofuels, wind power, solar photovoltaic, and fuel cells will be $167 billion by 2015; with $523 million of venture capital invested in these technologies in California in 2005. What is the comparable global market for clean coal technologies? How will continued investment in coal research and development improve American competitiveness in a global, carbon-constrained economy? How does the return on investment for coal compare to that for other technologies?

Answer. Recent estimates indicate large markets for clean coal technologies through the near-term and continuing out to 2030. The International Energy Agency (IEA) World Energy Outlook (WEO) 2006 projects that coal will remain the dominant source of electricity to 2030 in both scenarios investigated (a reference scenario and an alternate scenario that significantly reduces the rate of increase in demand and emissions). Coal-based power generation in 2030 will be at least 60 percent higher than today, remaining the world's largest source of electricity in 2030. Investment in electricity generation is expected to exceed $5.2 trillion cumulatively by 2030, resulting in more than 5000 GW of new capacity. Over 144 GW of integrated gasification combined cycle (IGCC) capacity is expected over that timeframe. Assuming a conservative capital cost of $1,000 per kilowatt for new coal plants, this equates to roughly a $150 billion market for the expected new IGCC plants alone.

With the increased demand for coal, R&D investments in clean coal technology development aimed at near-zero emissions, while improving its efficient use, could help coal remain a competitive and environmentally-sound energy option for future generations of power plants, as well as for production of alternative fuels. As energy demand rises, coal will continue to compete by deploying new systems and innovative technologies that will keep it, and the existing fleet of coal-fueled generating stations, viable well into the future.

We will continue to rely on all forms of energy sources to meet the growing energy needs. Coal will continue to be relied upon for baseload power generation. Continued investment in coal R&D (including low cost carbon capture and storage) will help produce clean, economical, and efficient coal-based power plants to keep the United States at a competitive advantage and poised to take advantage of global opportunities even in a carbon-constrained scenario. Meeting future global energy needs will require the introduction of a variety of technologies to meet growing electricity demands with stringent emission regulations. Coal will remain in the near-term and beyond.

Question. The United States Geological Survey (USGS) has recently completed a series of studies indicating that only 10–20 percent of total U.S. coal resources may be economically recoverable. How does this compare with prior estimates by the Department of Energy? If the USGS estimates are correct, to what extent does this limit the capability of coal to power America's future?

Answer. The Department of Energy's coal resource estimates are all based on U.S. Geological Survey (USGS) data. It is our understanding that USGS has not completed any full basin studies that validate the findings of the several local studies referred to. We look forward to reviewing the systematic inventory of the U.S. coal reserve base currently underway by the USGS, once it is available. The coal resource in the United States is vast; estimated to be 4,000 to 9,600 billion tons. Current usage is about 1 billion tons/year. Coal will be able to power America for the foreseeable future.

Question. Energy experts at the Electric Power Research Institute (EPRI) have suggested that the technology to separate carbon dioxide from the emissions of coal fired utilities is ready for commercial demonstration, and that the biggest challenge is demonstrating the ability to safely sequester carbon dioxide. Is this true? If so, then why does the proposed fiscal year 2008 budget direct significantly more funding to research into coal combustion and carbon dioxide separation than to research into carbon sequestration?

Please provide a comparison between total requested funding for carbon sequestration, and that for coal combustion and carbon capture.

Answer. The emphasis of the funding for Carbon Sequestration (capture and storage) remains focused on the storage component of sequestration, including CO_2 field injection tests. However, cost and efficiency penalties of existing capture technologies remain a challenge in terms of affordability and net plant output impacts. While certain post-combustion CO_2 capture technologies, such as amine-based systems, could be ready for commercial demonstration in the next several years, several other advanced systems are only at the laboratory, bench-, and pilot-scale stage of development. Because of differences in plant age, size, configuration, and other site-specific factors, it is expected that a suite of CO_2 capture technologies will be employed by electric utilities in order to achieve significant reductions in emissions from coal-based power plants without significantly increasing the cost of electricity.

The Department of Energy (DOE) estimates that based on current amine scrubbing technology, the removal of CO_2 from the flue gas of an existing coal-fired power plant would constitute as much as 90 percent of the total cost of carbon capture, transport, and storage. Hence, the criticality of continued research and development of CO_2 capture technologies. DOE's coal program targets improved performance and cost savings based on a system-wide approach that targets the most effective avenues for advancing carbon capture and storage technology. DOE conducts R&D on technologies that will enable carbon capture and storage in the following program areas: Integrated Gasification Combined Cycle, Turbines, Sequestration, Fuels, Fuel Cells, and Advanced Research.

The DOE Carbon Sequestration Program aims to develop technologies that will lower both the cost of the carbon capture technology, but also the amount of additional power capacity required due to efficiency loses. It is the goal of the Program, by 2012, to develop technologies resulting in less than a 20 percent increase in the cost of electricity for post-combustion capture and oxycombustion technologies. Precombustion (integrated gasification combined cycle related) technologies are targeting less than a 10 percent increase in the cost of electricity. Of the approximately $86 million requested for the Carbon Sequestration Program (including roughly $7 million of R&D by Federal employees under the Program Direction line item), about $15 million (or about 18 percent) is intended to be used for carbon capture technology research. These technologies are based on application to both coal combustion and gasification systems.

QUESTIONS SUBMITTED BY SENATOR JACK REED

EPACT AND EFFICIENCY PROGRAMS

Question. Mr. Karsner, you have recognized energy efficiency as a critical response to the Nation's energy challenges, but the budget proposed by the President does not. Funding for the President's Advanced Energy Initiative programs is coming mostly from cuts in efficiency programs. Given that efficiency is the Nation's fastest and most abundant clean energy resource, how can you justify a budget that continues to cut research, development, and deployment in this strategically critical area? Do you believe that the funding for energy-efficiency programs in the budget match the Nation's need for saving energy? What would be the impacts of the proposed budget cuts, including for industrial and vehicles R&D, and for weatherization assistance?

Answer. The fiscal year 2008 budget adequately funds a balanced portfolio of activities at levels that support achievement of programs' goals. It is important to note that the Office of Energy Efficiency and Renewable Energy (EERE) programs related to energy efficiency comprise approximately 46 percent of the total EERE proposed fiscal year 2008 budget (including program direction and support funds). For example, the Building Technologies Program budget request is $9.1 million greater than the fiscal year 2007 request and the Vehicle Technologies Program budget request is $10.1 million greater than the fiscal year 2007 request and the Industrial Technologies Program is $435,000 greater than the fiscal year 2007 request.

EERE maintains a balanced portfolio that uses an integrated strategy of energy efficiency and renewable energy to increase our energy security and reduce our dependence on oil. The 2008 budget request optimizes resource use and appropriately funds all energy efficiency programs to support achievement of stated goals.

The fiscal year 2008 budget request includes funding increases for both the Industrial Technologies Program and the Vehicle Technologies Program. In general we have chosen to prioritize investments in energy efficiency and renewable energy R&D that have multiplicative returns such as improvements to appliances and the building envelope that affect the whole American population rather than additive returns not associated with technological R&D that target a single segment of the population. For example, the National Academy of Sciences studied the benefits of the energy efficiency portfolio and found that the return on the research and development (R&D) investment was roughly 20 to 1. In contrast, the Weatherization Assistance Program has a return on investment of 1.5 to 1.

Question. Mr. Karsner, the Energy Policy Act of 2005 (EPACT 2005) authorized a number of new energy-efficiency programs on public education, utility efficiency programs, building codes, appliance rebates, and other areas. Are any new energy-efficiency programs authorized in EPACT funded in the proposed budget? Does this budget allow you sufficient funding to implement the energy bill, including the added requirements on the appliance standards, Federal energy management, and Energy Star programs?

Answer. Yes, we are implementing numerous energy efficiency programs authorized by EPACT 2005. Here are some selected examples. The fiscal year 2008 requests funds for the establishment of new EnergyStar® qualification levels for clothes washers, as directed in EPACT section 131; the issuance of grants to establish Advanced Energy Efficiency Technology Transfer Centers as directed in EPACT section 917; reporting on the establishment of a program to inform the public on various aspects of energy efficiency as directed in section 134 and developing the next generation of low-emission, high efficiency diesel engine technologies as directed in section 754. We have also requested funds under section 140 to provide financial assistance to States to carry out energy efficiency pilot programs.

Yes, the fiscal year 2008 budget request includes adequate funding for a balanced portfolio that supports achievement of goals, including sufficient funding for appliance standards, Federal energy management and EnergyStar®.

WEATHERIZATION FUNDING DECREASE

Question. Mr. Karsner, I led a bipartisan letter to Secretary Bodman supporting the fiscal year 2007 funding level of $242.5 million for Weatherization. You chose to cut that program to $204.5 million, and in recent House testimony I think you referred to Weatherization as a "welfare program." As you know, in the fiscal year 2007 Supplemental Appropriations bill passed by the Senate, we included an additional $25 million for Weatherization. Weatherization provides almost 25 percent in energy savings for every house we improve, and well over 100,000 homes were done this past year. It is clearly a successful deployment program that helps lower-income homeowners and neighborhoods today. It is not a welfare program, it is an

energy program. With the administration's support and focus on reducing energy demands, why wouldn't you also strongly support Weatherization?

Answer. The 2008 budget optimizes resources and adequately supports the achievement of the program's goals and priorities. We have chosen to prioritize investments in energy efficiency and renewable energy R&D that have multiplicative returns such as improvements to appliances and the building envelope that affect the whole American population rather than additive returns not associated with technological R&D that target a single segment of the population. The National Academy of Sciences studied the benefits of the energy efficiency portfolio and found that the return on the research and development (R&D) investment was roughly 20 to 1. In contrast, the Weatherization Assistance Program has a return on investment of 1.5 to 1.

INDUSTRIAL EFFICIENCY PROGRAM FUNDING DECREASE

Question. Mr. Karsner, the industrial energy efficiency program has been slashed from well over $100 million just a few years ago to approximately $50 million in fiscal year 2007. The fiscal year 2008 budget request would further reduce this effort. With over one-third of our energy use in this sector, what is the justification for this cut?

Answer. The fiscal year 2008 request for the Industrial Technologies Program (ITP) is $435,000 higher than the fiscal year 2007 request. Also, under the discretion given to the Department by Congress under the fiscal year 2007 Continuing Resolution, this program was increased by $11 million. ITP has historically worked with the eight most energy-intensive manufacturing industries to research, develop, and implement advanced technologies that save energy, reduce costs, and improve environmental performance. These activities have contributed to significant reduction in energy use. As the program evolves, we are seeking more effective and efficient ways to develop technologies that are high impact and applicable to multiple industries. ITP has developed a new strategy with more emphasis on crosscutting R&D which will allow ITP to continue partnership with end-user industries while broadening industry participation to include other growth industries and technology developers.

MATERIALS MANUFACTURING AND INDUSTRIAL MATERIALS

Question. Mr. Karsner, in fiscal year 2006, research and development for the materials manufacturing industry was $21 million. There is only $9 million in your budget for fiscal year 2008, a 55 percent cut, and research and development for industrial materials is slashed by 57 percent to $5 million. These low numbers reflect a decision to back away from development of key new technologies that could significantly strengthen our manufacturing global competitiveness while reducing carbon emissions in a sector that consumes more energy than any other sector of the economy. Materials manufacturers co-fund this research and development effort and outlined a program in the range of $250 million to support the development of the next generation of production process technologies needed by their industries to be able to dramatically reduce their energy use per unit of output, cut carbon emissions, and compete globally. What is the rationale for cutting back investment in research and technology in materials manufacturing and industrial materials?

Answer. The Industrial Technologies Program (ITP) has invested approximately $21 million in fiscal year 2006 through the Industries of the Future on technology development, focusing on industry-specific research needs. However, ITP is seeking more effective and efficient ways to develop technologies that have higher impacts and are applicable to multiple industries. ITP has developed a new strategy with more emphasis on crosscutting R&D which will minimize duplicative efforts and allow ITP to develop technologies meeting the needs of multiple industries. This approach will also accelerate technology development with broader industry participation to include other growth industries and technology developers. Materials manufacturing R&D will continue to play an important part of this program.

"SAVE ENERGY NOW" CAMPAIGN

Question. Mr. Karsner, EERE has implemented the "Save Energy Now" campaign to audit the 200 largest industrial customers/facilities in the United States. Could you specifically detail what facilities have been audited and most importantly, what energy measures have been implemented in those facilities? If changes have not been implemented, could you please explain why? Do you think funding support through the industrial program would help on the implementation side?

Answer. As of December 31, 2006, the first 200 Energy Savings Assessments, with the firms listed in the following pages, were conducted. Several companies had more

than one plant audited. Approximately half a billion dollars per year in energy savings was identified from those audits. Typical energy savings identified consisted of 5 to 15 percent of a plant's total energy use, consistent with a potential reduction of 3.3 million tons per year in CO_2 emissions. The audited firms are being contacted 6 months, 1 year, and 2 years after the audit to determine implementation of these recommendations. To date, the energy measures most commonly implemented in the plants as a result of these audits are in the areas of process heat and steam.

It is entirely the choice of the audited company as to whether savings recommendations are implemented and the cost-effectiveness of the recommendations is dependent on interest rates, and equipment, labor, materials prices, and other considerations in addition to the energy prices. Often the purchases must wait for the next capital acquisition cycle or the next time that the plant shuts down for routine maintenance. Nevertheless, as of April 24, 2007, $116 million of the potential $494 million per year of energy savings has already been implemented or is in the process of being implemented.

The fiscal year 2008 budget funding level is appropriate and sufficient to support achievement of the program's mission and goals. The program is not designed to be an implementation mechanism—it is the choice of the audited company as to whether it is worthwhile and cost-effective to implement the audit findings. The Save Energy Now initiative has demonstrated it can provide useful information to inform these industry decisions.

APPLIANCE EFFICIENCY STANDARDS

Question. Mr. Karsner, DOE has been plagued for years by long delays in issuing appliance efficiency standards. So far you seem to be meeting the aggressive schedule you set last year for getting the required standards out, and I am pleased that you asked for additional funds. However, a recent GAO report said additional changes are needed in the program, and I am concerned that recent proposed standards have been weak and are not using the tremendous potential of this program to address our energy needs.

The GAO report said the program faces a 600 percent increase in workload with a 20 percent resource increase in the fiscal year 2007 budget. Have you analyzed the staffing and funding requirements to carry through the standards plan, and can you share that with us?

Some of the largest possible savings, for example from standards on furnace fans and refrigerators, are not included in the plan, and thus will not be considered for at least 5 years. Can you tell us how much additional resources you would need to begin work on the most important standards now? DOE has rejected some recent suggested standards because they were not deemed consistent with current law. Do you need any additional legal authority to issue standards that make the most sense for the American people?

Answer. Yes, the Department has conducted a thorough assessment of resource needs for the efficiency standards program. On January 31, 2006, the Department submitted an aggressive plan to Congress, addressing both the history and future plans for the Appliance Standards Program. That plan does in fact commit to a rulemaking schedule that is six times the historical rulemaking rate for this program. The actions detailed in that plan will dramatically increase the efficiency of the process and the output rate. In addition, in the 2007 operating plan and 2008 budget, the Department directed resources to support these efforts. Changes in our process include implementing product bundling within a single rulemaking and organizing staff into seven technology teams.

Since committing to this schedule for the standards program, the Department has met 100 percent of its scheduled deadlines. We have completed eight rulemakings since EPACT 2005, including test procedure rulemakings and codification of prescribed standards, and have made significant progress on others that were underway prior to EPACT 2005. In 2006, we initiated standards rulemaking for 12 additional products and remain on schedule for all future deadlines.

QUESTIONS SUBMITTED BY SENATOR PETE V. DOMENICI

LOAN GUARANTEE REGULATIONS

Question. I understand that the Department sent its proposed draft regulations at the end of March to OMB for approval. It has been nearly 3 weeks without any action.

Based on the delays in approving the regulations, will you be able to meet the August deadline for the implementation of regulations as established in the Joint Funding Resolution?

Answer. The Department is working to meet the August 2007 deadline contained in the Revised Continuing Appropriations Resolution, 2007, Public Law 110–5. A Notice of Proposed Rulemaking was published in the Federal Register on May 16, 2007 and is open for public comment until July 2, 2007. It is not possible to guarantee that the rule will be completed by the August deadline but an aggressive effort is underway to make that happen.

LOAN GUARANTEE PROGRAMS (TITLE 17 OF EPACT)

Question. The Export-Import Bank of the United States is planning to provide over $18 billion in new loan guarantees in fiscal year 2008, more than double the level proposed for the Department of Energy. A portion of these loan guarantees will be for new advanced technology power generation facilities being built overseas.

Can you explain why the administration has such a difficult time in providing adequate loan authority to implement a no-cost loan guarantee program at the similar level as we support foreign economic development under the Export-Import Bank program?

Answer. The nature of the Energy Policy Act of 2005 Title XVII loan guarantee program is unique among other Federal loan guarantee programs in that it encourages the employment of new or significantly improved and innovative technologies to reduce or sequester pollutants or greenhouse gas emissions, while at the same time requiring a "reasonable prospect of repayment." Other programs are primarily concerned with commercial market risk. To manage the inherent risks of this loan guarantee program, DOE is planning for an initial small portfolio of projects in order to gain experience and expertise and to ensure that the program is implemented correctly.

LOAN GUARANTEE—TECHNICAL EVALUATION AND FINANCIAL EVALUATION

Question. It is my understanding that the Department is attempting to recruit staff that has strong project development experience to evaluate these applications from a financial standpoint.

At the same time, the evaluations are currently undergoing a technical evaluation by DOE staff to determine whether or not the technology is commercially viable.

How are the evaluations proceeding and when do you expect these evaluations to be completed?

Answer. The Department is completing a preliminary review of the 143 pre-applications submitted in response to the August 2006 solicitation and guidance has been issued to program offices to begin the technical reviews of the pre-applications. Until the program offices have had the opportunity to complete the technical reviews on a sufficient number of pre-applications, the Department cannot say precisely how long it will take to complete the evaluations.

Separately, the Loan Guarantee Office will be reviewing each pre-application for compliance with the financial, commercial, and other criteria set forth in the August 2006 solicitation and accompanying guidelines. Ultimately, the goal is to complete the pre-application evaluations this summer.

DEPLOYING NEW TECHNOLOGY

Question. Mr. Karsner, our energy sector has developed around low cost energy technologies such as coal. We have spent decades and billions of dollars supporting alternative energy sources such as wind and solar, yet these technologies still only make up a small portion of our generation mix. Tax credits have helped, but the intermittent nature of these incentives has undermined their effectiveness.

It appears that we need to come up with a new model that will encourage the commercial deployment of alternative energy sources utilizing private capital. Obviously, this is something we have attempted through the loan guarantee program, but I wonder if we need a larger more aggressive solution in order to transform our energy sector—similar to the Export Import Bank or Overseas Private Investment Corporation.

I assume you have met with investors and venture capital groups interested in deploying new technology. What is the major concern of these groups and what can we do to encourage investment in new alternative energy technology to get it out of the lab and into the market?

Answer. In general, investment decisions center on maximizing the expected return for a given level of risk. With respect to alternative energy technology investments in particular, private sector investors repeatedly voice at least three primary

concerns: an unstable and irregular policy environment and the negative economic incentive to build first-of-a-kind plants.

By creating a stable and standardized policy environment with reasonable investment incentives, the Federal Government can help to lower risk and to increase private sector support of alternative energy technologies.

Question. What about the deployment of high cost investments such as nuclear power?

Answer. The principal causes of the financial risk surrounding nuclear power are political and regulatory uncertainties. By demonstrating the new Nuclear Regulatory Commission licensing process, codified at 10 CFR part 52, via our partnership program, Nuclear Power 2010, the political and regulatory uncertainties of nuclear power would be significantly reduced. Further, the Department has just released a Notice of Public Rulemaking and has not yet solicited expressions of interest for loan guarantees by the nuclear power utilities, so it is not clear how the industry will respond to such an offering. Consequently, it is too early for the Department to assess whether a more aggressive solution would be needed to encourage more nuclear power plant construction.

BATTERY R&D

Question. Mr. Karsner, your budget for Vehicles Technology is presented in a new format that provides fewer details about specific research projects.

I am interested to learn what the budget provides for battery R&D. As you are well aware the gasoline/electric hybrid car technology has become very popular. However, batteries continue to be the greatest technology challenge facing auto manufacturers.

How much funding has the President requested for battery research in fiscal year 2008 and how has that changed over the past 2 years?

Answer. The fiscal year 2008 budget includes $42 million to support advanced battery R&D, such as batteries for plug-in hybrid vehicles. This includes work on long-life, abuse-tolerant lithium batteries and more advanced high-power batteries along with power-control systems and components that are optimized for plug-in hybrids. The fiscal year 2008 request for energy storage R&D is a 70 percent increase over the fiscal year 2006 appropriations, and is level with the fiscal year 2007 operating plan.

Question. Please explain to the subcommittee what your goals are for battery research? What can we expect in terms of performance improvements over the next 5 years?

Answer. Energy storage research aims to reduce costs and help overcome specific technical barriers related to performance, life, and abuse tolerance. The current cost of high energy, plug-in hybrid vehicle battery is $1,000/kWh; our cost goal in support of the AEI is to reduce the cost of these batteries to $300/kWh by 2014. These barriers are being addressed collaboratively by the DOE's technical research teams and battery manufacturers.

SOLAR ENERGY

Question. Mr. Karsner, during the past 6 years there has been explosive growth (+45 percent) in solar cell manufacturing worldwide. However, the United States currently produces only about 10 percent of the solar cells produced worldwide and has only grown by 7 percent since 2001. The current manufacturing leaders are Japan and Europe.

Clearly there are many factors that contribute to this outcome, but I am interested to know if the United States is behind because we lack the technical capability or if policies being pursued in Europe and Japan are driving this demand growth.

Answer. The capabilities in U.S. industry and at national laboratories and universities are strong. Indeed, U.S. companies are producing the highest-performance products in a variety of PV technologies, including crystalline silicon, amorphous silicon, and concentrating PV. Additionally, the leading global producer of polysilicon feedstock is a Michigan-based subsidiary of Dow-Corning (Hemlock Corporation).

The United States has lost market share in solar photovoltaic (PV) manufacturing because in recent years solar companies have sited manufacturing facilities near locations with the highest demand for the technology. Installations have increased significantly in Japan and Germany due to their long-term policies and incentives. Similarly, the solar manufacturing capacity in these countries has increased steadily as well, a fact that can be linked to the policies. For example, the German feed-in tariff program guarantees the owner of the panel a steady price for generated energy (that is even higher than the price of electricity) for 20 years following the installation; this tariff established a long-term, stable investment environment that

has been attractive to companies looking to site facilities for adding manufacturing capacity. In addition, Germany and the European Union have also bundled cash grants, cost savings and other incentives for companies building new manufacturing facilities—offsetting up to 40 percent of the capital expenditure required to build a new plant—which has resulted in U.S. companies announcing plans to site facilities in Germany.

Question. What is the Department of Energy doing to improve the efficiency and deployment of solar technology in the United States?

Answer. The Solar America Initiative (SAI) in February 2006 will make solar photovoltaics (PV) cost-competitive by 2015. Achieving the goal of the SAI will require a significant investment in reducing the cost of PV systems. Funding in fiscal year 2007 for the Solar America Initiative totals $159 million.

There are critical areas where the Department is focusing its efforts to help increase efficiency, cost-effectiveness and deployment of solar technologies. First, solar thermal concentrating solar power plants (CSP) have the potential to contribute significantly to electricity supply in the Southwest, home to 15 of the 20 fastest-growing metro areas in the country. Second, by focusing on the development of building efficiency design and technologies coupled with distributed PV, the Department could help enable Americans nationwide to buy new "zero energy" homes and to work in "zero energy" office buildings—which will produce as much energy as they use.

Question. What can we expect in terms of technology or manufacturing improvements over the next 5 years?

Answer. On March 8, 2007, under the SAI, the Department announced the selection of 13 industry-led solar technology development projects expected to receive up to $168 million in Federal funding over the next 3 years (subject to appropriations). These projects may ultimately help to expand the annual U.S. manufacturing capacity of PV systems. These projects are specifically focused on developing new photovoltaic components or manufacturing equipment, or even complete photovoltaic systems.

CELLULOSIC BIOMASS—REVERSE AUCTION

Question. The fiscal year 2008 budget request includes $5 million to develop options to establish a reverse auction for biofuels as proscribed in section 942 of EPACT. This incentive program is intended to help make cellulosic biofuels cost competitive by 2015. It is my understanding that the reverse auction would require DOE to solicit bids from eligible producers. The lowest bid on a per gallon basis would receive the incentive funding.

This is a first of a kind proposal for biofuels. Do you believe that we are ready technologically or economically, to support this auction?

Answer. The Department is evaluating section 942 of EPACT 2005, which directs the establishment of a reverse auction incentive program for the production of cellulosic biofuels. The fiscal year 2008 budget request includes $5 million to develop background knowledge and evaluate options for this incentive program.

IMPROVED BUILDING EFFICIENCY

Question. Mr. Karsner, the fiscal year 2008 budget requests an increase in funding for building efficiency R&D including improvements to window, lighting, and insulation designs. At the same time, funding for weatherization has been reduced.

Are you able to quantify the benefits of investing in innovative building technologies over the weatherization program? In other words, can we save more energy by investing in building technologies R&D and deployment as opposed to the weatherization assistance?

Answer. EERE is evaluating the potential benefits of the Building Technologies Program and the Weatherization Assistance Program. In addition, the National Academies of Science has indicated that the Weatherization Program's return on investment is 1.5 to 1, compared to an approximately 20 to 1 return on investment for the Building Technologies Program.

CONCENTRATING SOLAR

Question. I have been very interested in the commercialization of the concentrating solar power (CSP) technology. What is DOE's plan for supporting this dish technology deployment in the fiscal year 2007 and fiscal year 2008 budgets?

In the fiscal year 2006 budget, DOE provided about $3.3 million to Sandia to support the development of a 1 MW dish engine pilot project. Is the plan to increase that funding in fiscal year 2007 budget to continue these efforts? If so, for how much money and when will it become available?

Answer. The Department is working with industry on the development of two CSP technologies: parabolic trough and dish-engine systems. The Department is providing technical assistance to the first commercial U.S. CSP project, a 64 MW trough system near Las Vegas, by Solargenix/Acciona Solar Power, which is expected to become operational in May 2007. Stirling Energy Systems (SES), a dish system developer, plans to commercialize dish technology through two projects (300 MW and 500 MW) in California. The Department is supporting the SES effort by providing technical assistance in improving the reliability of their Stirling engine, and helping in the design-for-manufacture of the system. The effort will continue through fiscal year 2008.

In fiscal year 2007, the Department is funding Sandia at the $1.5 million level to support technical assistance to SES for system deployment. At this time, Sandia has access to the entire $1.5 million.

As I understand it, there are two solar projects targeted to start actual construction ("hardware in the ground") in late 2008 or early 2009. A major program to commercialize the dish engine systems for high-volume, low-cost manufacture is underway. When the transformation from low-volume to high-volume production of this hardware is completed, it will pave the way for U.S.-based companies to take a very big step into the large-scale solar market.

Question. How can the Department most effectively support the commercial deployment of this technology in the near term in order to realize large scale commercial deployment?

Answer. We believe our support for technical assistance to companies pursuing trough and dish technologies as designed and funded in the fiscal year 2008 budget is very effective. Large scale, near-term CSP commercialization is ultimately the decision of industry and depends on competitive Net Present Value (NPV) assessments by capital markets, which can only be realized through life cycle cash flows.

EXISTING BIOMASS AWARDS

Question. Recipients of the alternative hydrogen production and utilization competitive grants (No. DE–PS26–06NT42801) are telling Congress that DOE's fiscal year 2008 budget does not includes funds for their awards and that they need to cease work.

Can you clarify the funding commitment for this competitively awarded program to the subcommittee and provide details on how DOE will fund the competitively awarded grant in the future?

Answer. The fiscal year 2008 budget request for the Fuels program is $10 million, which is a reduction of $12 million from the fiscal year 2007 operating level. Fiscal year 2008 funding will only support areas of research and development (R&D) that are central to the production of hydrogen from coal. We will continue Hydrogen from Coal Research to develop improved, novel technology for the production of hydrogen including research in scale-up technologies which will simultaneously produce and separate coal-derived hydrogen from the other gas constituents in one membrane reactor. All research in high-hydrogen content liquid fuels will be terminated because these are mature but evolving technologies where the private sector has the resources and incentives to conduct R&D. All research in hydrogen utilization for mobile applications (e.g., car engines) will be terminated because this research is conducted by the Office of Energy Efficiency and Renewable Energy (EERE). This research terminated within the Office of Fossil Energy would include projects selected as a result of Funding Opportunity Notice No. DE–PS26–06NT42801 since they are aimed at ethanol production and mobile applications of hydrogen utilization. Termination of this work is proceeding in an orderly manner and contractors have been properly notified.

DEPLOYMENT OF RENEWABLE ENERGY TECHNOLOGIES

Question. In a GAO report to Congress dated December 2006, it is repeatedly stated that DOE has made steady incremental progress in making each of the renewable energy technologies more cost competitive.

As I have mentioned in my opening statement, I am more concerned at this point about deployment of these technologies.

What is the Department doing to take these technologies that are more cost competitive and fully deploy them into the marketplace?

Answer. The Department's approach to promoting new technologies couples technology push with market demand pull, and works to address barriers to the market adoption of advanced technologies through various program initiatives. For example, the Department plans to lead by example with the Executive Order 13423 and become an early adopter of energy efficient and renewable energy technologies. By

identifying markets where the life-cycle costs of advanced energy technologies currently form a compelling economic argument, the Federal Government will create demand pull which will increase the economies of scale and drive the technologies down the cost curve. The Department is also looking to stimulate the commercialization of advanced technologies by helping to bridge the gap between R&D and the market place. To this end, the Department has designated a Director of Commercialization and Deployment, located within the Energy Efficiency and Renewable Energy Program, to oversee and guide our deployment-related efforts. However, commercialization decisions are ultimately up to industry.

QUESTION SUBMITTED BY SENATOR THAD COCHRAN

Question. Secretary Karsner, it is my understanding that your office is willing to consider funding for renewable energy programs through an "unsolicited proposal" process. Mississippi State University has submitted an unsolicited proposal to your office for its Sustainable Energy Research Center (SERC), a program which was funded in fiscal year 2006 and included in the fiscal year 2007 Senate Energy and Water Appropriations report. What is the status of this proposal? Will the SERC receive fiscal year 2007 funding?

Answer. On February 27, 2007 the Office of the Biomass Program received the SERC unsolicited proposal via email. The Program responded on March 6, 2007 by directing Mississippi State University to the formal channels for submitting an unsolicited proposal and by inviting them to meet with the Program. For any proposal to be considered unsolicited, it must be unique and not covered by any current or proposed solicitation. The Biomass Program hosted Dr. Glenn Steele and Dr. William Batchelor at DOE on April 12, 2007 and informed them of upcoming competitive solicitations that would be applicable to their area of focus. We will provide a formal response to the unsolicited proposal. Currently, the Program is in the process of preparing that response.

The Office of Biomass Program is in the process of evaluating the SERC proposal. The Program needs to make a determination that the proposal is meritorious and compliant with criteria for unsolicited proposals, and meets and supports the Program's Research, Development and Deployment plans to be recommended for funding.

QUESTION SUBMITTED BY SENATOR WAYNE ALLARD

ELECTRICITY DELIVERY AND ENERGY RELIABILITY

Question. What is being done to increase available transmission from the often remote sites where renewable energy is produced to the more populated areas where the electricity is needed and how are your offices working together on that?

Answer. The transmission grid needs to be sufficiently large and robust to accommodate the increased level of renewable energy resources that are becoming available, as well as to meet the many other challenges of the 21st century.

The Department is implementing the provisions of the Energy Policy Act of 2005 (EPACT) to help ensure that consumers receive electricity over a dependable, modern infrastructure. These provisions include EPACT section 368 that requires designation of energy corridors on Federal lands; section 1221(a) that requires a study of electricity transmission congestion once every 3 years, coupled with the authority given to the Secretary of Energy to designate national interest electric transmission corridors; and the new Federal Power Act section 216(h) that requires the Department to act as the lead agency for purposes of coordinating all applicable Federal authorizations and related environmental reviews to site an electric transmission facility.

The Department also provides technical assistance to States, regional bodies, and others on issues such as methods and tools to increase regional planning and coordination of transmission, improving transmission siting, better understanding the location of suitable renewable resources ("resource characterization"), and improving the ability of the grid to plan for and operate with renewables that are intermittent ("grid integration issues"). Technical assistance is provided to the Department's Power Marketing Administrations as they explore what role they can play in providing access to additional renewable generation through transmission. With some types of assistance, such as renewable grid integration, the technical assistance is informed by research and development that is sponsored by the Department.

At the distribution level of the grid, the Department continues to provide technical assistance to States that wish to adopt more favorable interconnection stand-

ards, metering, demand response, and related methods that enable greater use of distributed renewables generation. For example, the Department funded the national voluntary "IEEE 1547" interconnection standard that is referenced in EPACT section 1254 regarding "Interconnection Standards" for States to consider.

In addition, using funding under the Renewable & Distributed Systems Integration activity line of the fiscal year 2007 Operating Plan, the Office of Electricity Delivery and Energy Reliability (OE) is soliciting for projects that would integrate renewable and distributed energy systems into the grid. By successfully demonstrating this integration, the use of renewable and distributed energy technologies to support electric distribution operations should substantially increase for supplying power and other ancillary services during peak load periods. The project would also demonstrate the ability of these technologies to reduce power required by the distribution feeder. This will be accomplished through modeling, design, integration, and R&D of renewables and distributed energy integration into the distribution system; low-cost sensors; advanced monitoring; and consumer information.

The Office of Energy Efficiency and Renewable Energy (EERE) typically focuses research and development activities on improving the efficiency, cost, and emissions profiles of generation technologies, including renewables.

OE and EERE understand that for this policy to succeed, it is crucial to collaborate not only on grid-scale innovations, but also on bringing the applications to the consumer. In coordinating near-term and long-term goals, OE and EERE remain alert to changes in need and demand. Both offices also support State and regional efforts to integrate renewable and distributed energy resources in their electric system planning efforts. In this spirit, OE and EERE have formed a focus group to concentrate on integration issues with renewables. OE and EERE are closely coordinating fiscal year 2007 activities under the operating plan in this area.

Question. I am also curious what research is being done to develop electricity storage, especially electricity manufactured from renewable sources?

Answer. The energy storage program of the Office of Electricity Distribution and Energy Reliability has conducted a research program on basic storage mechanisms, devices, and systems for over a decade. The program is considered worldwide to be one of the leaders in this field. Research is conducted on advanced batteries, flow batteries, supercapacitors, and flywheels, as well as the necessary megawatt level power electronics. Major demonstrations are fielded in partnership with utilities, the California Energy Commission (CEC), and the New York State Energy Development Authority. In particular, we are involved with the CEC in the development of a microgrid which incorporates 500kW of supercapacitors to harmonize wind and hydro power. We also work with the Bonneville Power Administration on a power electronics device which will smooth short term wind and wave power fluctuations when combined with storage. A project with the Iowa municipalities explores the possibility of using 200MW of compressed air storage in conjunction with a 75MW wind farm and inexpensive off-peak power.

Energy storage can significantly increase the integration of renewable sources of energy into the electric system. Storage increases the reliability of intermittent resources like wind and photovoltaics, allowing these sources to become relatively constant sources of power. Renewable power produced in off-peak periods can be stored and used during periods of greater demand, thus making renewables dispatchable. Likewise, energy storage can bridge the gap during decreased periods of renewable production and, when combined with appropriate electronics, it can also eliminate short term flutters that decrease power quality and impact digital equipment on the grid.

QUESTIONS SUBMITTED TO HON. THOMAS D. SHOPE

QUESTIONS SUBMITTED BY SENATOR BYRON L. DORGAN

FOSSIL ENERGY BUDGET REQUEST

Question. Your testimony suggests that your fiscal year 2008 budget request of $863 million is one of the largest fossil energy requests by this administration. Yet, there are only two large program requests in your budget—a doubling of funds for the FutureGen project and a doubling of funds for the Strategic Petroleum Reserve (SPR) expansion. The FutureGen request now makes up 25 percent of the coal R&D request.

With the extraction of the requests for FutureGen and the SPR expansion from your budget request, are you not actually cutting many other fossil energy R&D programs?

Answer. The FutureGen project is a key Presidential priority in the Office of Fossil Energy's portfolio and is an important component of the Coal Research Initiative. It remains a significant step towards realizing the goal of creating a near-zero atmospheric emission energy option for coal. The Strategic Petroleum Reserve provides an emergency oil stock to bolster U.S. energy security and a possible mitigation when disruptions in commercial oil supplies threaten the U.S. economy. We believe the current budget represents a balanced Fossil Energy Program portfolio that addresses all of the highest priority requirements to meet the program goal.

COAL R&D RESEARCH FUNDING

Question. The President's fiscal year 2008 Budget Request recommends $245.6 million for the coal R&D program, is approximately $55.7 million less than the fiscal year 2006 enacted budget level. This is largely due to some programs being zeroed out or severely cut back. This includes the Innovations for Existing Plants (IEP) program and the Advanced Research program. For example, defunding the IEP program will eliminate work for testing mercury control technologies and research on the energy-water nexus. This program is extremely important in validating mercury control technologies to insure different coals will be competitive under the mercury control (mercury MACT) rules, which require utilities to begin making reductions of mercury from their emissions by 2012. Without this program, there is a very real possibility that technologies will not be available by 2012 that can capture the mercury emitted from the combustion of coals.

Why has the Department requested elimination or reduction of important coal research and development programs?

Answer. The fiscal year 2008 Coal Research and Development budget request proposes a balanced research and development (R&D) program portfolio in support of the overall goal of near-zero atmospheric emissions coal.

Within the Advanced Research Program, bioprocessing was determined too long term to have an appreciable impact and certain other topics are not focused on technology being developed in the Coal R&D Program aimed at achieving the overall goal of near-zero emissions coal.

The IEP Program was developing low-cost technologies for reducing emissions from existing coal power plants and has been very successful. However, the industry now has regulatory drivers to incentivize them to continue development and deployment on their own of such technologies. EPA promulgated the Clean Air Interstate Rule (CAIR) to reduce emissions of sulfur dioxide and nitrogen oxides and the Clean Air Mercury Rule (CAMR) to reduce mercury emissions. These regulations provide industry with incentives to fund R&D for technologies for low-cost compliance to meet the emissions standards. Therefore, further Federal investment in mercury removal and other emission control technology is not needed.

CARBON SEQUESTRATION FUNDING

Question. The carbon sequestration program request is proposed at $79 million for fiscal year 2008, and the Department funded $100 million in the fiscal year 2007 Spending Plan. I have noted that the DOE budget justification states that DOE will conduct demonstrations in 3 or 4 sites across the country with the $79 million sequestration budget, as opposed to conducting large-scale demonstrations in each of the 7 regional sequestration partnerships—which is necessary to insure this technology can be used in every region of this country.

Are the funds requested for fiscal year 2008 sufficient enough to conduct the several large-scale carbon sequestration demonstrations in every region of this country that are necessary to insure carbon sequestration is a valid option to insure carbon capture and storage from coal fired power plants? What is the Department's longer-term strategy related to the carbon sequestration program?

Answer. The Department's long-term strategy is to conduct large-scale field tests to determine that carbon capture and storage is a safe, effective approach to reduce greenhouse gas emissions. In 2007, the program is beginning work on the "highest potential" opportunities for an initial expedited round of four large scale sequestration tests (approximately 1 million tons CO_2 per year for each site). DOE has provided additional funding in the fiscal year 2007 budget for the Carbon Sequestration Program to award these initial large volume sequestration tests. The fiscal year 2008 budget request is sufficient to continue the four large-volume sequestration injection projects that were accelerated with additional funding received in fiscal year 2007.

CLEAN COAL POWER INITIATIVE FUNDING

Question. The DOE request for the Clean Coal Power Initiative (CCPI) is $73 million for fiscal year 2008. Although this has increased by $68 million over the President's request of $5 million in fiscal year 2007, it still seems inadequate. The CCPI program is the only mechanism through which those clean coal technologies can be demonstrated in order to determine their commercial acceptable. It is through the demonstration program at DOE that this country has achieved significant reductions in NO_X, SO_X and particulate matter because of technologies that were developed and demonstrated with DOE support. As a result, our Nation has significantly reduced criteria pollutants from coal-fired power generation, while both maintaining low cost electricity for the consumer and increasing the amount of coal-fired electric power generation over the last 3 decades. Given the success of this program, it would be a prudent decision to increase the budget for this program so that DOE can work with industry to conduct several large scale projects to demonstrate carbon capture and sequestration technologies that can be applied to both the existing fleet and new coal plants if we are going to achieve meaningful reductions of carbon dioxide emissions.

Is it not the case that, of the $73 million requested in fiscal year 2008, $58 million was returned from a previous project that did not go forward? Does this mean that the Department is only asking for $15 million in new funding for the CCPI program in fiscal year 2008? The Department has made much larger requests for the CCPI program in previous years so why is the Department not committed to funding this program to the same extent in fiscal year 2008?

Answer. The Department's strategy has been to accumulate sufficient funds over several years and issue a solicitation to support the Clean Coal Power Initiative (CCPI). The $68 million increase for CCPI in fiscal year 2008 over the fiscal year 2007 request is derived in part from the transfer of $58 million in balances from the Clean Coal Technology Program that are no longer needed to complete active projects. This increase allows for the solicitation of a third round of demonstration projects in fiscal year 2008. In addition the fiscal year 2007 funding level which was increased by $55 million over the request will be used for the third round solicitation.

RESCISSION OF $149 MILLION FROM THE CLEAN COAL TECHNOLOGY ACCOUNT

Question. The President's fiscal year 2008 budget request recommends rescinding $149 million of previously appropriated clean coal technology funds. Rescinding these dollars would effectively cancel that money for future clean coal demonstration projects and send these funds back into the Federal Treasury. The clean coal program is under funded in a time when accelerated investments in coal technology development have never been more important. We should not be rescinding clean coal funds, but adding new funds to the program to insure we develop, in a timely manner, cost effective coal technologies.

Why does the administration insist on rescinding this funding, which was previously appropriated and can be directed for clean coal demonstration projects in future years?

Answer. All project funding commitments in the CCT Program have been fulfilled and only project closeout activities remain. The administration proposes to transfer $108 million of the $257 million deferral to the FutureGen project, and cancel the remaining $149 million. Of the $66 million in unobligated balances carried forward at the start of fiscal year 2008, $58 million is transferred to the Clean Coal Power Initiative (CCPI). CCPI will complete the Round 3 solicitation using unobligated funds from projects that were selected but not awarded, plus appropriations that have not yet been committed to projects. We believe that the cumulative available funding will be sufficient for a Round 3 CCPI solicitation.

UNIVERSITY OIL AND GAS RESEARCH FUNDING

Question. I am very concerned about the impacts of the cuts in oil and gas research funding for a number of reasons but am particularly worried about the impacts of these cuts on the education of our next generation of energy technologists who are graduate students today.

Can you tell me how many universities will be affected by the scheduled elimination of almost all oil and gas R&D by DOE in its fiscal year 2007 Spending Plan?

Can you please list those universities that currently receive funding? Can you tell me if and when you intend to issue a stop work order to these institutions?

Will these universities be forced to shut down their oil and natural gas research programs?

Answer. There are 25 projects at universities that will be affected by the funding reduction in the operations plan. Federal funding for oil and gas research and development activities is not needed because industry has the incentives and resources to accomplish such activities on its own. Given the private sector's incentives and capabilities, we believe that private industry is best positioned to fund R&D at universities and elsewhere, which will provide educational opportunities for our next generation of energy technologists.

The universities that currently receive funding are: University of Alaska, Fairbanks; University of Alabama; University of Arkansas; University of Arizona; Baylor University; California Institute of Technology; Carnegie Mellon University; Clemson University; Colorado School of Mines; Stanford University; University of Illinois; University of Kansas; Florida International University; Georgia Tech University; Kansas State University; Louisiana State University; Massachusetts Institute of Technology; Michigan Tech University; Western Michigan University; University of Mississippi; Mississippi State University; University of Southern Mississippi; Montana State University; Montana Tech—Bureau of Mines; New Mexico Institute of Mining and Technology; State University of New York; University of Columbia; University of Oklahoma; Oklahoma State University; Prairie View A&M University; University of North Carolina; University of Tulsa; University of Pittsburgh; Penn State University; University of Texas—Austin; University of Texas—Bureau of Economic Geology; Texas A & M University; University of Houston; Rice University; University of Utah; West Virginia University; Woods Hole Oceanographic Institute; and the University of Wyoming.

The Oil and Natural Gas program has previously sent letters to all program participants notifying them of the potential shortfalls in the fiscal year 2007 budget. These researchers are currently working using existing (prior year) funds. Subsequently, all universities with existing cooperative agreements impacted by the decrease in funds were contacted and informed of the lack of funding for fiscal year 2007. The majority of DOE projects are grants or cooperative agreements, for which a stop work order is not issued.

Each university program will have to examine its particular situation. In many cases, other Government and/or industry funding may be available to the university.

NATURAL GAS CARTEL

Question. In his 2006 State of the Union speech, President Bush indicated he wanted to reduce our reliance on "imported energy sources." At the same time, DOE and FERC have launched an aggressive campaign to import more liquefied natural gas (LNG) into the United States.

The two largest suppliers of imported liquefied natural gas to the United States are Trinidad Tobago and Algeria. Trinidad Tobago has only around 23 trillion cubic feet of gas reserves and will ultimately have to get gas supplies from Venezuela if it wants to continue its liquefaction enterprise. Algeria is a member of OPEC. Further, I note that Russia, Iran, Qatar, Algeria, and Venezuela announced recently they are meeting in Doha this week to discuss forming a natural gas cartel. This is very troubling.

Finally, I would point out that according to DOE's 2003 National Petroleum Council Gas Supply Study, the United States has almost 60 years of technically recoverable natural gas, but we need new technologies to produce them.

How does the administration's policy of reducing our reliance on imported energy sources square with its policies to encourage the imports of very large volumes of LNG, especially in light of this very disturbing news about a possible gas cartel?

Answer. Historically, U.S. imports of natural gas have come primarily from Canada by pipeline with small amounts of LNG imported from various countries. In the Energy Information Administration's most recent Annual Energy Outlook natural gas imports from Canada are forecast to decline and LNG imports are expected to rise to fill this gap.

The administration's role in addressing LNG imports is to ensure that importing facilities are permitted in a timely manner. The market will decide what facilities are economic, which ones will be built, and how much LNG to import. Furthermore, we don't believe intense discussions of a gas cartel are likely to result in the development of a cartel at this point, considering the relative infancy of the global LNG spot market.

The administration's policy of reducing our reliance on imported energy also includes research and development that will strengthen the Nation's energy security. For example, the administration has proposed to make the R&D investment tax credit permanent. Under the Advanced Energy Initiative, the 2008 Budget includes initiatives for hydrogen fuel, biofuels, plug-in hybrid vehicles, clean coal, nuclear,

and solar photovoltaics to help displace future demand for oil and natural gas. The administration also supports removing unnecessary barriers to developing existing reserves of oil and gas including, for instance, the environmentally responsible exploration and development of reserves in Alaska.

Question. Is the administration aware of the fact that if all LNG import facilities approved by the administration were built and operating at capacity we would be importing almost 60 percent of our natural gas most of it from many of the same countries that hold us hostage to imported oil?

Answer. The administration is responsible for permitting proposed LNG import facilities. However, the market will decide which ones will ultimately be built and become operational. It is unlikely that it would be economical to construct every LNG import facility that has been proposed, and historically LNG importing facilities have typically operated below their peak capacity levels. Also, Australia and Norway, countries that are viewed as reliable energy suppliers, are developing LNG exporting facilities that could supply U.S. markets.

Question. Who are the 10 largest U.S. investors and partners in building and operating regasification facilities in the United States?

Answer. There are currently only five built and operating LNG import terminals in the United States. These include the Distrigas terminal in Everett, Massachusetts owned by Suez; the Cove Point, Maryland terminal owned by Dominion; the Elba Island, Georgia terminal owned by El Paso; the Trunkline terminal in Lake Charles, Louisiana owned by Southern Union; and the Energy Bridge terminal in the Gulf of Mexico offshore Louisiana owned by Excelerate Energy.

Question. Why would the administration propose eliminating all funding at DOE for natural gas supply research when we have 60 years of technically recoverable gas reserves in the United States but need new technologies to produce them?

Answer. Natural gas production is a mature industry that has every incentive, particularly at today's prices, to enhance production and continue research and development of technologies on their own. There is no need for taxpayers to subsidize natural gas companies in these efforts.

QUESTIONS SUBMITTED BY SENATOR ROBERT C. BYRD

FUTUREGEN

Question. Mr. Secretary, in 2004, the President announced the initiation of the FutureGen project, a $950 million, 10-year demonstration project to construct the world's first coal-fueled, near-zero emissions electricity and hydrogen power plant.

I have been supportive of the concept behind FutureGen. FutureGen, if successful in meeting the intended goals, could be a major breakthrough for a clean and efficient use of coal and good for the economic and environmental well being of our country and the world. However, ever since the inception of this project, I have been very vocal about my major concerns about the project—namely how the administration intends to pay for its $700-plus million share of this project without robbing the basic Fossil Energy research and development programs and the total cost growth potential of this project, given increasing costs of construction and the types of unanticipated costs that usually accompany first-of-its-kind projects.

The Department of Energy's press release, dated April 10, announcing that the price of construction materials and equipment, labor, and other heavy construction expenses have significantly driven the estimated total costs of the FutureGen project to $1.7 billion through fiscal year 2016 came as no surprise to this Senator. Even with the Department assuming $300 million in anticipated power sales to offset the costs of the project, the Federal Government is still left with a hefty cost share of $1.1 billion—at least $300 million more than anticipated.

Despite the many inquiries I have submitted to the Department of Energy in the past, the Department has never been able to adequately explain to me how it is planning to fund its $700 million-plus share for the FutureGen project. Can you explain to me how the Department plans to pay for this major escalation of an additional $300 million?

Answer. The initial cost estimate for FutureGen was developed by the National Energy Technology Laboratory (NETL), which estimated the total cost of the FutureGen Project at approximately $950 million in constant 2004 dollars. This cost estimate was included in the 2004 Report to Congress. While the Department has acknowledged that costs for some of the currently planned components of the FutureGen plant have generally increased, the Department has made no commitment beyond the $39 million Government cost-share in Budget Periods Numbers 0 and 1. Budget Period No. 1 will begin the detailed design for the plant and re-

scoping of the project may be necessary to remain within budget. The cost for the FutureGen Project is shared between the Department of Energy, the FutureGen Industrial Alliance, and contributions from foreign governments. The Department anticipates requesting sufficient appropriations for the Government's cost-share for FutureGen to meet the objectives and schedule for this initiative.

Question. I have helped to provide funding for many major Government construction projects in the past and know that unanticipated costs are commonplace. Beyond inflation increases that DOE has just projected, how does the Department plan to cope with unforeseen costs that might arise with the construction of this first-of-its-kind project? How much funding has been set aside for future contingencies?

Answer. The project is structured in phases such that progression to the next phase depends on the successful accomplishment of objectives and milestones from each preceding phase.

To date, the cost basis estimate has remained the same as the original cost estimate identified in the March 2004 Program Summary to Congress. Contingencies are inherent in the base cost estimate as a function of design definition and technology development. The inherent contingency in the FutureGen cost estimate is consistent with industry recommended practices for a conceptual design with substantial advanced technologies. The costs associated with these contingencies are included in anticipated funding profile.

Cost and schedule risks are very real for large, first-of-a-kind projects and cannot be eliminated completely until construction is completed. We are making our best efforts to maintain budget for this important validation of the coal-based near-zero atmospheric emissions concept.

Question. In fiscal year 2008, the FutureGen program is funded at $108 million, a 500 percent increase from the fiscal year 2006 level, while the Natural Gas R&D program, the Oil R&D program, and the Innovations for Existing Plants program under the Coal R&D program were zeroed out. This is a very disturbing trend, and one that I suspect will only worsen as the project goes to construction in future years. Will you be cutting into the Coal R&D program even deeper to fund cost growths in FutureGen?

Answer. During the 2000 campaign, the President committed to spend $2 billion over 10 years on clean coal technology. The budget completes that commitment 3 years ahead of schedule, with $385 million in funding for the Coal Research Initiative in 2008. The funding levels in the budget for clean coal activities are among the highest in this administration and also from any President in the last 2 decades.

The fiscal year 2008 budget request for FutureGen, when adjusted for inflation, is consistent with the funding profile as disclosed in the FutureGen Program summary as reported to Congress in fiscal year 2004. The fiscal year 2008 funding request is to cover NEPA compliance, significant design activities, and procurement of long-lead items. FutureGen is integral to the Coal R&D program, and continual investments in the coal R&D program are necessary in order to support the development of technologies to drive towards the goal of near-zero atmospheric emissions coal, which includes the integrated, scale-up testing of the necessary R&D.

The Natural Gas research and development (R&D), the Oil R&D, and the Innovations for Existing Plants programs are proposed for termination because the Federal R&D role in these areas have been completed and industry should take on that responsibility. The oil and gas industry has the incentives and resources to accomplish oil and gas R&D without additional Federal subsidies, which are unwarranted in today's price environment. Promulgation of CAIR and CAMR provided a market incentive for developing many advanced, cost-effective emissions controls and has ended the need for Federally funded R&D in areas under the Innovations for Existing Plants program. The current fiscal year 2008 budget request has been formulated based on the needs of the Fossil Energy Program and is consistent with meeting the goals and objectives of the Department's Strategic Plan.

Question. What role will the National Energy Technology Laboratory play in FutureGen? Enough to support the approximately 1,200 Federal and contractor staff who currently support Fossil Energy Research and Development program?

Answer. The National Energy Technology Laboratory (NETL) has the lead responsibility for managing the FutureGen project as well as the many other projects that it has under its purview to advance the Department's goals and carry out its mission.

Question. If FutureGen is successful, will the Department be able to deploy FutureGen-type technologies in other locations across the country in coming decades or will additional resources, studies, tests, and demonstrations to expand deployment of these technologies be necessary?

Answer. The goals of the FutureGen project are to prove the technical feasibility and economic viability of a near-zero atmospheric emission coal energy option, thus

leading to the broad acceptance of the concept. The FutureGen project has been designed to operate under real-world conditions and at large enough scale to adequately prove the viability of the concept. The key is to prove that near-zero atmospheric emissions coal is technically viable and that its costs are not prohibitive. The coal research and development program of which FutureGen is a part, is designed to advance the development of technologies that reach the goal of near-zero atmospheric emissions while increasing efficiencies, increasing clean energy production, and decreasing costs. Ultimately, the market will determine when and how many of these plants are deployed, yet a successful operation of the first FutureGen plant is an important prerequisite to the widespread deployment of near-zero atmospheric emission coal plants.

CLEAN COAL POWER INITIATIVE

Question. The administration has included $73 million for the Clean Coal Power Initiative (CCPI) in the fiscal year 2008 budget, which is a considerable improvement over the $5 million that the President sought in his fiscal year 2007 budget request.

I understand that two CCPI Round II projects are experiencing cost growths. Will the fiscal year 2008 CCPI funds be used to make up these cost growths and how much would be made available to each project? How much fiscal year 2008 funding and how much prior-year funding will be applied to a third CCPI solicitation?

Answer. Additional funding provided by DOE to an awarded project to help cover project cost growth due to the increase in material, equipment, and skilled labor cost comes from unobligated funds appropriated to the coal demonstration program before fiscal year 2006. These are funds previously committed to projects which have withdrawn from the demonstration program since selection and would be used for the Round III solicitation absent cost growth in projects from previous rounds. Funds provided to a project to cover cost growth will not be available to fund projects selected in CCPI Round 3. No fiscal year 2008 funds will be used to cover any cost growth for existing projects but cost growth will reduce the funding available for the next round of solicitations. The CCPI program operates under the fiscal constraints of the Clean Coal Technology program, so the maximum allowable increase in the Government share to these projects is 25 percent over the Government's original estimate of costs. In the case of the Southern Company, Orlando IGCC project, this means a maximum increase in the Government share of $59 million, and $59 million in cost growth has been approved. In the case of the Western Greenbrier Cogen. WVa FBC project, this means a maximum potential increase in the Government share of $28 million, but no cost growth has been approved. Combined, the maximum potential net reduction in the planned fiscal year 2008 CCPI solicitation is $87 million, of which $59 million has been approved.

CCPI will complete the Round 3 solicitation using unobligated funds from projects that were selected but not awarded, plus appropriations that have not yet been committed to projects. We believe this cumulative amount is sufficient for proceeding with a Round 3 CCPI solicitation.

COAL-TO-LIQUIDS INITIATIVE

Question. It is my understanding that the coal-to-liquids process is only commercially feasible when the price for crude oil is at $40 per barrel or higher. What is the Department of Energy doing to provide price guarantees or other financial incentives for investors? Does the administration support legislation that promotes coal-to-liquids projects?

Answer. The Department is closely following the response to the incentives established by the Energy Policy Act (EPACT) of 2005 which include coal-to-liquids deployment projects being eligible for incentives such as tax credits and/or loan guarantees as authorized in EPACT.

The President has set a goal of increasing the supply of renewable and alternative fuels, including coal-derived liquid fuels, by setting a mandatory fuels standard to require 35 billion gallons of renewable and alternative fuels in 2017—nearly five times the 2012 target now in law. In 2017, this will displace 15 percent of projected annual gasoline use.

The administration wants to work with Congress to allow coal-derived liquids to be eligible under the proposed alternative fuels standard. The standard should be structured to allow the market to determine the most efficient way to meet the standard, including to what extent coal-derived fuels will be used.

Question. I understand that there are environmental concerns associated with the coal-to-liquids process. What support can the Office of Fossil Energy provide to industry in identifying ways to incorporate the capture and storage of carbon dioxide

emissions from the coal-to-liquids process and from using the fuel produced by the process?

Answer. The Office of Fossil Energy is supporting industry in this area through its carbon sequestration technology development effort. This Carbon Sequestration Program includes laboratory and pilot-scale research aimed at developing new technologies and systems for greenhouse gas mitigation, which could be applied to coal-to-liquids processes as well as other industrial processes, though the primary objective is to apply them to power generation systems. In 2007, the program is beginning work on the "highest potential" opportunities for an initial expedited round of large scale sequestration tests (approximately 1 million tons CO_2 per year for each site). DOE has provided additional funding in the fiscal year 2007 budget for the Carbon Sequestration Program to award several large volume sequestration tests.

IMPACT OF THE FISCAL YEAR 2008 BUDGET ON THE NATIONAL ENERGY TECHNOLOGY LABORATORY

Question. If this fiscal year 2008 budget is enacted, how many Federal, contractor, and construction jobs will be eliminated at the National Energy Technology Laboratory, which is based in Morgantown, West Virginia; Pittsburgh, Pennsylvania; and Tulsa, Oklahoma; with smaller offices in Tulsa, Oklahoma; and Fairbanks, Alaska?

Answer. We are managing our human resources effectively to achieve our program goals and do not anticipate significant changes in staffing levels.

Question. In the past, NETL has received approximately $2 million per year in General Plant Projects, which covers critical maintenance needs. Can you tell me why the past several Fossil Energy budgets have zeroed out funds for critical maintenance at the major NETL sites, all of which are more than 40 years old? Will this impact the health and safety of the workers?

Answer. NETL received almost $2 million in fiscal year 2006 for General Plant Projects and $4 million in fiscal year 2007. It is anticipated that NETL has sufficient funds to continue these activities in fiscal year 2008.

CLEAN ENERGY TECHNOLOGY EXPORTS INITIATIVE

Question. I initiated the Clean Energy Technology Exports (CETE) Initiative in the fiscal year 2001 Energy and Water Appropriations bill. The administration then completed a 5 Year Strategic Plan in 2002. From fiscal year 2004–2006, I helped provide $1.6 million in funding to help further this initiative.

Please provide me with a detailed account on how these appropriated funds were utilized.

Answer. The Department remains committed to the goals of the Clean Energy Technology Export (CETE) Initiative. I have attached a matrix of our spending allocations in 2005 and 2006. In summary, we have funded programs that support direct partnership with industry, as well as programs that coordinate interagency efforts and improve the efficacy of Federal activities to support deployment.

CETE PROJECTS

Activity/Short Title	Project Partners/ Leverage	Summary Comments	Funding Amount (In thousands)
Fiscal Year 2005			
CETE Website	GETF	Provides central site for CETE info dissemination, and to summarize opportunities from other donor organizations like EBRD, ADB and GEF. Allows both novice and sophisticated market players to find appropriate points of contact for questions. Could eventually be used to track performance metrics.	$25
DOE–USAID Hydropower Partnership	U.S. Hydropower Council for International Development. $200k from USAID and private sector.	Fiscal year 2005 focus on project development and closure in India, Mexico and Guatemala. Track record of success. Multiple private sector partners.	100
Sustainable Finance	Resource Mobilization Advisors (RMA). $200k from U.K. Govt, NADBank and World Bank.	Continue work in Poland and Mexico. Initiate work in Philippines to build portfolio of viable EE projects for investment. Initiated study on Financing Mechanisms to support clean energy with input from private partners and U.S. agencies. Supported Resource Guide as outreach tool for U.S. exporters.	175
Management Plan	ORNL		75
Tsunami Study	Argonne		75
Sustainable Communities	GTI		35
Green Olympics/Beijing	ORNL		45
REEEP			50
Africa Geothermal			15
Fiscal Year 2006			
CETE Website	Global Environment Technology Foundation (GETF)	Provides central site for CETE info dissemination, and to summarize opportunities from other donor organizations like EBRD, ADB and GEF. Allows both novice and sophisticated market players to find appropriate points of contact for questions. Could eventually be used to track performance metrics.	40
DOE–USAID Hydropower Partnership	U.S. Hydropower Council for International Development. $400k from USAID and private sector.	Fiscal year 2006 focus on project development and closure in India and Guatemala. Track record of success with more than $50 million in projects finalized in the past 2 years. Multiple private sector partners.	150
Sustainable Financing for EE	Resource Mobilization Advisors (RMA). $500k from Philippine Govt, NADBank, USTDA and World Bank.	Expect to close on $10 million in EE project with U.S. partners in Mexico in next 6 months. New deals in Poland and Philippines in next 18 months.	100

Africa Geothermal Mission	EERE, Govt of Kenya	Reverse trade mission bringing officials from Kenya to U.S. Geothermal Conference to meet multiple vendors.	30
Energy Efficiency Initiative in Ukraine	IRG, Govt of Ukraine. $600k from USAID	Create audit fund and project development support with U.S. ESCO's and local partners in Ukraine. CETE money will piggyback USAID to help engage U.S. technology vendors.	50
Clean Tech in Thailand with Southern States Energy Board (SSEB).	FE, SSEB, Govt of Thailand	Good exposure to technology vendors in 16 States through SSEB. Track record of success. Multiple SME private partners. Potential projects include biomass/coal hybrid and upgrades to existing thermal plants.	40
India Coal Beneficiation	FE, Govt. of India	Builds on previous studies. Necessary to mitigate negative environmental impacts of near-term coal expansion in huge market. Multiple potential private partners. Could expand under Asia Pacific Partnership. Possible USAID/India buy-in.	45
China Ombudsman for Renewable	U.S. companies attending Renewable Conference	Goal is to set up side meetings with interested parties in China around conferences where U.S. companies are participating and/or exhibiting. First event is in September 2006.	29
China Combined Heat and Power (CHP)	LBNL, U.S. CHP Association	Seed funding to develop a market plan, consider tech options and get U.S. vendors involved. Huge market potential.	45
Caribbean—New Energy sources	IDB, CARICOM, USAID	Support for new initiative to explore alternatives to fossil fuel in the broad Caribbean market. Launch Conference in September. CETE funding used to engage U.S. vendors for wind, hydropower and biofuels technology.	20
PI-Kazakhstan Nuclear power tour	ORNL. Nuclear Energy Institute (NEI), Govt of Kazakhstan	Responds to S–1 trip. Reverse trade mission to visit U.S. sites with potential vendors and investors. Large market and potential for U.S. sales.	45
PI-Kazakhstan Petrochemical Industry Tour	GOK	Responds to S–1 trip. Reverse trade mission. U.S. industry interest unclear.	
Total			594

In fiscal year 2006, we instituted performance metrics to measure the specific and tangible impact of the CETE program and we also solicited input on jointly funded projects. As a result, we are now co-funding projects with USAID, TDA and the DOE Offices of Fossil Energy and Energy Efficiency and Renewable Energy.

We have supported programs in 13 different countries in partnership with more than 20 private companies and 10 international organizations. Our funding is being leveraged at least 2:1 with other resources from private partners and other donor organizations.

The programs we are supporting are intended to benefit multiple projects with multiple U.S. vendors and developers, and yet could not be accomplished by any one U.S. company acting alone.

Regarding interagency coordination, we host CETE Working Group meetings on a quarterly basis. Representatives from all nine participating agencies regularly attend. We have also developed the "Clean Energy Exports Assistance Network" (www.cleean.net) as a tool to better inform U.S. clean technology partners of specific energy market conditions and opportunities, and to better coordinate interagency resources.

We also supported the preparation of a report titled "Financing Mechanisms for Clean Energy Technology Exports" with input from industry and CETE participating agencies. The report may be found at the website.

Question. Because the Department of Energy has discretion to fund programs though the fiscal year 2007 Joint Funding Resolution, what is the Department doing to further develop and integrate the CETE Initiative into its overall international energy technology deployment strategies?

What does the Department plan to do to continue to pursue the goals of the CETE Initiative in fiscal year 2008?

Answer. The Office of Policy and International Affairs and the Office of Energy Efficiency and Renewable Energy are working together to define useful projects for fiscal year 2007 and an overall strategy for programs in fiscal year 2008. The goal is to focus on projects that may create lasting institutional abilities, and that have the potential to transform markets.

Programs we are considering in fiscal year 2007 include further input to the website (www.cleean.net), and a training program on clean energy technologies for foreign service and foreign commercial service officials. We also plan to support industry events focused on new market opportunities in China, Central American, and the Caribbean.

In fiscal year 2008, we want to pursue a strategy of integrating the CETE goals into our international programs by ensuring better industry participation and more effective coordination with other agencies and with large donor organizations such as the World Bank and the Global Environment Facility. We expect to narrow our focus to fewer strategic markets, and to support activities in those markets that offer the greatest potential for commercial implementation.

Question. How is the Department and the administration integrating CETE with other administration activities such as the Asia-Pacific Partnership?

Answer. As you know, the CETE program encompasses all clean technologies and is global in focus whereas the Asia-Pacific Partnership (APP) has seven technology-based working groups and is a partnership of six countries: Japan, Australia, S. Korea, India, China and the United States. Further, the goals of the CETE program are to support the efforts of U.S. industry, while the APP more broadly supports green-house gas emission reductions with participation by industries from all member countries.

Question. How is the Department working with other Federal agencies as well as the private sector on all of these initiatives?

Answer. Despite the differences in focus, we are coordinating efforts through the CETE interagency working group and on the website (www.cleean.net). Many of our industry partners under the CETE umbrella also participate in the APP. We anticipate that some projects supported under the CETE program in India and China may be good candidates for funding under the APP and vice-versa.

GAO REPORT

Question. In December 2006, the GAO issued a report entitled "Key Challenges Remain for Developing and Deploying Advanced Energy Technologies to Meet Future Needs."

The report summarized that despite the United States being more and more reliant on imported energy resources, the DOE's total budget authority for fossil energy R&D dropped from $1.9 billion (in real terms) in fiscal year 1979 to $434 million in fiscal year 2006. With the Energy Information Administration projecting that

total U.S. energy demand will increase by about 28 to 35 percent between 2005 and 2030, GAO recommended that the Congress consider further stimulating the development and deployment of a diversified energy portfolio by focusing R&D funding on advanced energy technologies.

I note with disappointment that DOE had no comment on this recommendation. Would you please provide me with your comments on GAO's recommendations?

Answer. The GAO report provides valuable information that will be useful to the Department and the Government (in general terms) in connection with our research and development activities. Success in R&D is measured by its transition to commercial application. Examples in the oil and gas sector include down-hole telemetry, horizontal drilling, 3-D seismic analyses, and polycrystalline diamond drill bits, all of which have been adopted by the industry. Examples in the area of renewable energy are geothermal energy and hydropower, both now considered as fully developed technologies. The GAO report also notes that there is over $5 billion in tax expenditures (financial incentives) targeted at energy suppliers and users of advanced technology. The Energy Policy Act of 2005 augments these incentives with an estimated $11 billion worth of additional financial incentives over 10 years. The primary role for Government in this area is to fund high-risk, basic energy research, as was explicitly outlined by this administration in the Research and Development Investment Criteria issued in 2003. The GAO study fails to take stock of the increases over the last 2 decades in funding in this area, offsetting some of the declines in applied R&D. Taking into account all of these factors, we believe that DOE R&D is sufficient to meet our Nation's energy needs.

OIL AND GAS PRICE RELATIONSHIP

Question. Would you please provide comments on EIA forecasts of natural gas and oil prices in its Annual Energy Outlook (2005 to 2007). It appears that each year, EIA significantly underestimates future prices of these fuels, specifically:

In EIA's Annual Energy Outlook 2006 and 2007, natural gas price forecasts depart from a traditional price relationship to oil based on Btu parity, as demonstrated in the 2005 version. This departure is evident in both the reference case and the high oil price scenario. What is the basis for this significant departure? Why do industry analysts continue to stick with the traditional gas-oil price relationship while EIA sees the price ratio as almost doubling as in the high oil price case? (EIA)

Answer. The historical record shows substantial variability in oil and natural gas prices and in the relationship between them. The ratio between the annual average prices of a barrel of West Texas Intermediate (WTI) oil and one million British Thermal Units (BTU) of natural gas at the Henry Hub has varied since 1990 from a high of 14.5 to a low of 5.7.

Historically, fuel switching between oil and gas was thought to have been a major contributor to the price relationship, but there has recently been some decline in the capacity to switch between these fuels in many end-use applications. While oil and natural gas continue to compete in some applications, oil and natural gas prices are also linked to the availability of alternative sources of supply; competition between coal, nuclear power, renewables, and natural gas as fuels for electricity generation; the availability and cost of inter-fuel conversion technologies, such as gas-to-liquids; environmental restrictions; and the relative importance of transportation costs in the total delivered price of energy from each source, which affects the regional scale of inter-fuel competition. EIA expects there to be a relationship between oil and natural gas prices that varies somewhat depending on many factors, not necessarily a constant ratio of price between oil and gas that is closely linked to the ratio of their energy content that some industry analysts expect.

Tighter markets, as we have experienced in recent years, result in greater price impacts from similar shifts in demand or supply than would be seen in looser markets. On the supply side, higher oil prices result in increased drilling for oil and thus higher costs for oil and gas drilling, placing upward pressure on gas prices. Higher oil prices also generally result in increased cash flow and the potential for greater investment in oil and gas prospects, placing downward pressure on gas prices. Over the longer-term, world markets will play a larger role in determining the relationship between oil and natural gas prices in the United States due to increasing trade in liquefied natural gas. This relationship will be influenced by worldwide fuel switching capability, exploration and production costs (E&P) costs, and the potential for a growing gas-to-liquids market.

Numerous changes occur from one Annual Energy Outlook (AEO) to another. Nothing was specifically implemented in the model to change the oil-to-natural gas price relationship. For example, natural gas prices in the AEO2006 and AEO2007 are higher compared to the AEO2005, partially as a result of much higher costs.

Higher prices resulted in slower projected growth in residential, commercial, and industrial gas consumption through conservation and inter-fuel substitution. In the power generation market, higher natural gas prices dramatically lower the future natural gas generation share and raise the coal share from what it might have been with lower natural gas prices. However, notwithstanding the possibility of significant policy changes affecting energy use over the next 25 years, AEO reference case projections generally assume that current laws and policies remain in place indefinitely, in order to provide a baseline for policy analyses requested by Congress and the administration. Should future policy actions to mitigate greenhouse gas emissions preclude significant growth in coal-fired generation, and if new nuclear power plants that would be economically attractive under such circumstances are blocked by other concerns, continued growth in gas-fired generation would likely reduce the future ratio of oil-to-natural gas prices from that projected in AEO2007.

QUESTIONS SUBMITTED BY SENATOR DIANNE FEINSTEIN

ELK HILLS

Question. As compensation for the Federal Government's sale of the Elk Hills Reserve, Congress mandated in the fiscal year 1996 National Defense Authorization Act (Public Law 104–106) that 9 percent of the net sales proceeds be provided to California for its claims to State school lands located in the Reserve. Of the $317.7 million owed to the State under the terms of this settlement, approximately $300 million has been paid to date.

The Department of Energy's fiscal year 2008 budget does not provide for the remaining compensation. It is my understanding that California has already agreed to allow the Department to hold $6 million of the remaining compensation as a "worst case scenario" to complete the equity finalization process. The State is willing to come to a compromise with the Department over the remaining payment, and has offered to complete the claim with a final appropriation of $9.7 million. Would this be an acceptable solution to the Department, and if not, why?

Answer. If the State of California wishes to submit a proposal to the Department, we are open to considering it.

Question. What is the Department's timeline to complete this settlement with the State of California?

Answer. The equity finalization process is a complicated matter, and thus the timeline is uncertain.

QUESTIONS SUBMITTED BY SENATOR PETE V. DOMENICI

CARBON SEQUESTRATION

Question. Mr. Shope, as you are well aware, coal is the most CO_2 intensive source of energy. Today, 75 percent of coal reserves are held by the United States, Russia, China, India and Australia, and it is clear that coal will be a major energy provider for each of these nations for the foreseeable future.

The recently released MIT report, The Future of Coal, stresses the importance of large-scale demonstration projects for carbon capture and storage technologies. The authors conclude that projects inject less than 1 million tons of carbon dioxide per year and will not be large enough to replicate the geological stresses that a full commercial scale operation would produce. I understand that the current carbon injection projects are on a much smaller scale.

Do you agree that such large-scale demonstrations are needed, and in what timeframe? What is the Department doing to expand its R&D efforts in this area?

Answer. The Department of Energy (DOE) agrees that large-scale projects are necessary to demonstrate that carbon sequestration technologies are necessary to replicate commercial-scale operations. DOE has been planning for large-scale sequestration tests since 2004. The Regional Carbon Sequestration Partnerships are currently conducting some smaller tests that are helping to build the infrastructure and demonstrate the technology on a small scale. In 2007, the program is beginning work on the "highest potential" opportunities for an initial expedited round of large scale sequestration tests (approximately 1 million tons CO_2 per year for each site). DOE has provided additional funding in the fiscal year 2007 budget for the Carbon Sequestration Program to award several large volume sequestration tests. The DOE is in the process of negotiating these large volume tests with the Regional Partnerships and plans to make some of the awards by the end of fiscal year 2007. The

Regional Partnerships have come forward with a portfolio of project opportunities, a variety of geologic conditions, and future commercialization opportunities.

Question. Has the Department developed a R&D roadmap to address the challenges facing adoption of carbon capture and sequestration?

Answer. The DOE Carbon Sequestration Program issues a revised roadmap annually in May. It contains a discussion of the program's structure, challenges, and goals for technology development. This roadmap can be downloaded from the following website: http://www.netl.doe.gov/publications/carbon__seq/refshelf.html.

CHINA—CARBON SEQUESTRATION COLLABORATION

Question. The MIT study also calls for up to 10 other large-scale demonstration projects in other countries. China in particular is building coal-fired power plants at a spectacular rate.

Would you support a major initiative to partner with China to develop carbon capture and storage technologies?

Answer. The Department is actively engaged with China on the development of carbon capture and storage technologies. China is involved in the FutureGen Alliance. China is also a member of the Carbon Sequestration Leadership Forum, whose purpose is to make information on viable carbon capture and storage projects broadly available internationally and identify and address wider issues relating to carbon capture and storage. Finally, carbon sequestration is within the purview of the Asia Pacific Partnership's Cleaner Fossil Energy Task, in which both China and the United States participate. We look forward to continued collaborations with China in the area of carbon capture and storage.

Question. In your view, how can we best encourage China to collaborate with the United States in developing these technologies?

Answer. The Department of Energy (DOE) will continue to encourage China through involvement in the Carbon Sequestration Leadership Forum, the FutureGen Alliance, and the Asia Pacific Partnership on Clean Development and Climate. China is a member of the Carbon Sequestration Leadership Forum, whose purpose is to make information on viable carbon capture and storage projects broadly available internationally and identify and address wider issues relating to carbon capture and storage. China is also involved in the FutureGen Alliance. Finally, the DOE and China are members of the Asia Pacific Partnership on Clean Development and Climate, which has a mission to promote the technical transfer and demonstration of clean coal technologies. We would look forward to this continued collaboration with China.

CARBON CAPTURE R&D

Question. Developing carbon capture and storage technologies will require progress on several research fronts. First, the costs of carbon capture must be brought down to affordable levels. Second, the feasibility of injection technologies must be demonstrated at commercial scales. Third, monitoring and verification technologies must be developed.

Which of these research areas do you believe to be the most challenging given today's technologies?

Answer. The Department of Energy (DOE) believes that the demonstration of carbon storage at the appropriate scale and the development of low-cost carbon capture technologies are equally important. The need to demonstrate carbon storage at scale is needed to stress the injection operations and determine the effects on the storage formations. Different geological conditions and settings need to be assessed to show that the capacity and injectivity exists for full scale deployment. Protocols for the site selection, characterization, well construction, permitting, monitoring, and closure need to be developed from these projects so that full scale deployment can occur. Carbon capture technologies exist today in industrial applications, but have not been demonstrated at full scale in conjunction with electricity generation. In addition, the commercial systems that exist today would increase the cost of electricity by approximately 30 percent to 80 percent, for pre and post combustion technologies, respectively. Novel capture technologies are being researched in the laboratory and have the potential to reduce the increase in cost of electricity to DOE's goal of not more than 10 percent. Continued research and demonstration of these technologies is needed at a pilot-scale and in full-scale integrated demonstration. Monitoring, mitigation, and verification technologies are necessary but new technologies are not critical to deployment of carbon capture and storage as a greenhouse gas mitigation technology. Existing technologies can be adapted for monitoring CO_2 in geologic formations. Advancement in this area could improve our knowledge of the fate of CO_2 and drive down the associated cost of monitoring.

Question. In your view, how should the Office of Fossil Energy allocate its resources between these areas?

Answer. The Department of Energy (DOE) has issued a roadmap for technology development, which is working to stage the funding requirements for the capture and storage demonstration projects. Early emphasis is on the demonstration of storage projects and bringing down the cost of CO_2 capture. As the capture program has success in developing novel technologies for low cost capture, DOE is supporting pilot and demonstration tests to demonstrate that these capture technologies are ready for commercial deployment.

Question. How should the Federal Government and the private sector share the cost burden of developing these technologies?

Answer. The Department's Carbon Sequestration Program administers research and development awards through cooperative agreements, which require that participating organizations provide a minimum of 20 percent cost share. For demonstration projects selected under a Clean Coal Power Initiative solicitation, the recipient would need to provide a minimum of 50 percent cost-share and agree to a schedule to reimburse the Government based on future revenues from sales of the commercialized technology.

TAXATION OF COAL R&D DOLLARS

Question. Under the Clean Coal Power Initiative, Round 2, the Department of Energy has authorized funding of various private sector projects to demonstrate advanced clean coal technology, including advanced gasifier technology.

It is my understanding that the IRS has changed its long standing policy toward Federal research funding to make these funds taxable as corporate income. The practical effect of this policy change is that one branch of government is providing funding to encourage a public purpose activity, while another branch of government is reducing that funding by taxing it.

I have worked too hard on this subcommittee and as Chairman of the Energy Committee to make Federal energy R&D research a priority. Now to have the IRS change it's policy to levy a huge tax on the Federal R&D funds would be devastating in our effort to increase our energy independence.

Can you please explain the logic behind this decision and what impact it will have on Federal R&D efforts to have upwards of one-third of the funding going toward tax payments instead of research?

Answer. I would refer you to the Department of Treasury for an explanation and rationale of their decisions.

Question. Has Secretary Bodman contacted Treasury Secretary Paulson to discuss this matter?

Answer. The Department of Energy has been in contact with the Treasury Department to understand the rationale behind this ruling and what options may be available under current law to utilize allocated research and development funding.

QUESTION SUBMITTED BY SENATOR WAYNE ALLARD

NAVAL OIL SHALE RESERVES ROYALTY DISTRIBUTION

Question. As you may be aware, when Congress transferred Naval Oil Shale Reserves (NOSR) Numbers 1 and 3 from the Department of Energy to the Department of the Interior in 1998 the legislation stated that DOI could not begin the "normal" process of royalty distribution until DOE was compensated for their "original investment" and for the costs of cleanup of the Anvil Points facility. To ensure this happened section 7439 (f)(2) of the Transfer Act stated that the Secretaries of Interior and Energy must jointly certify to Congress that the monies have been recouped prior to making revenue available for distribution to the State of Colorado.

Oil and gas receipts collected from production within NOSR Number 3 have now far surpassed the estimate of what was needed to fully reimburse DOE for their original investment as well as covering the cost of environmental remediation at the Anvil Points site. It is my understanding that the agencies will not agree to certification until the necessary clean-up is complete. As you and I both know, that will likely take several more years.

I was serving in the Senate at the time and played an active role in the passage of this provision. It is my view that DOE and DOI have misread the intent of Congress in determining that the clean-up must be complete. Can you please tell me what this position was based on?

Answer. Although the Department of the Interior assumed responsibility for the environmental remediation of Anvil Points, the Secretary of Energy must certify

that there are adequate funds in the account to offset all costs incurred by the Government, including the Department of the Interior's proposed cleanup plan. It is our understanding that Department of the Interior has not finalized its cleanup plan; consequently the cost of that plan remains to be estimated.

At such time as the Department of the Interior completes the plan along with the estimate of costs, the Department of Energy stands ready to quickly review and certify whether the funds generated exceed the total costs. We will continue to work closely with the Department of the Interior to facilitate the completion of the necessary measures to initiate the appropriate distribution of the royalty payments from the former Reserves.

QUESTIONS SUBMITTED TO KEVIN M. KOLEVAR

QUESTIONS SUBMITTED BY SENATOR BYRON L. DORGAN

CONSOLIDATION OF RESEARCH PROGRAMS

Question. I have noticed that the Distributed Energy Systems has been renamed to Renewable and Distributed Systems Integration. The funding has been reduced and the focus changed to distributed generation technologies on the utility side of the meter. What has happened to development of technologies on the customer side of the meter? Has it been reduced, eliminated, or moved to another research area? Why was this done?

Answer. The Office of Electricity Delivery and Energy Reliability's (OE) Distributed Energy Systems budget line has been renamed to reflect the fact that distributed generation technologies have been completed. The Distributed Energy Program has met its performance targets of: (1) achieving three integrated energy systems (combined heat and power systems) of greater than 70 percent efficiency; (2) demonstrating a 38 percent efficient microturbine; and (3) demonstrating a 44 percent efficient reciprocating engine. The research efforts will now address Renewable and Distributed Systems Integration (RDSI), as reflected in the budget request. This research will concentrate on the integration of renewable and distributed energy technologies into the grid at the distribution system level.

The successful demonstration of this integration could substantially increase the use of renewable and distributed energy for supplying power and other ancillary services during peak load periods in support of electric distribution operations. These projects will also demonstrate the ability of these technologies to reduce power required to the distribution feeder. This will be accomplished through: modeling, design, integration, and RD&D of renewables and distributed energy integration into the distribution system; low-cost sensors; advanced monitoring; and consumer information. The goal of RDSI is to demonstrate a peak load reduction of 20 percent by 2015 and improve asset management on distribution feeders. This will be accomplished through the implementation of distributed energy (including renewables) and energy management systems that are cost competitive with system capacity upgrades.

The development of technologies on the customer side of the meter is the responsibility of the Office of Energy Efficiency and Renewable Energy. Currently, only renewable technologies that can be placed on the utility side of the meter are being supported in this office. The Distributed Energy activities were moved by Congress in the fiscal year 2006 appropriations.

Question. DOE has developed programs such as GridWise and GridWorks to facilitate grid systems integration while fostering development of the "smart grid" concept. Your office has restructured and streamlined your R&D programs in fiscal year 2007 and into fiscal year 2008.

Thus, what is the status of these efforts? What has your office done since the 2003 Blackout to address the role of advanced technologies to avoid similar situations and to coordinate with the private sector to shepherd these technologies into the marketplace?

Answer. In fiscal year 2005, the Department issued a solicitation and awarded cooperative agreements in support of the Gridwise and Gridworks research plans. Some of these awards are completed and others are still in progress. The Department remains committed to completing the activities initiated under this solicitation for Gridwise and Gridworks. As a result of these activities, the Department has recognized the need to promote advanced grid control technologies (Gridwise) and improved hardware (Gridworks) in a systematic manner.

We have identified the causes of the 2003 blackout and have made progress in implementing the recommendations made by the U.S.-Canada Power System Out-

age Task Force (Task Force). The most important recommendation of the Task Force was for the U.S. Congress to enact legislation to make compliance with reliability standards mandatory and legally enforceable, which the Congress did in the Energy Policy Act of 2005. The Federal Energy Regulatory Commission implements this policy through oversight of the North American Electric Reliability Council as the Nation's "Electric Reliability Organization."

The electricity delivery system is extremely complex and remains subject to combinations of mechanical and human failures. Although improvements have been made to the grid since 2003 in areas such as operator training, we can never entirely prevent blackouts from occurring. What we can do is improve our ability to identify and isolate problems on the grid when they arise. That is why my office works with transmission system operators on the next level of technologies that will increase the ability of operators to receive real-time information regarding transmission problems.

It is also important that we are not just prepared for a blackout similar to that of August 14, 2003; we must be well-prepared for a wider range of possible events. The Office of Electricity's (OE) Infrastructure Security and Energy Reliability program provides hands-on expertise to assist in the recovery of the transmission network, no matter what the cause of the failure. Finally, under authority from the Energy Policy Act of 2005, OE assists State and regional planners by identifying areas of electric congestion, coordinating Federal authorizations required to site new transmission, and where appropriate, designating national interest electric transmission corridors to enable the FERC, under certain circumstances, to site transmission facilities.

HIGH TEMPERATURE SUPERCONDUCTIVITY RESEARCH

Question. I note that the funding level for high temperature superconductivity research and development has been cut by 42 percent from the funding level in fiscal year 2006. Why such a significant cut? What technology applications are being reduced because of these cuts?

Answer. The cut was to focus the high temperature superconductivity program on higher priority wire development and cable demonstrations (including fault current limiters). The cut in high temperature superconductivity reflects phasing out of motor research and completing flywheel cooperative agreements.

ELECTRICITY TRANSMISSION AND ENERGY DELIVERY

Question. I have noted your office's work on determining areas of congestion and defining national corridors as well as your work in siting and permitting. North Dakota has a variety of energy resources that are stranded and that are not able to move to markets. What is your office doing to help promote and expand transmission delivery and efficiency in North Dakota and around the country?

Answer. My office is involved in four major activities to help transmission delivery and improve efficiency in North Dakota and around the country.

First, in August 2006, in accordance with section 1221(a) of the Energy Policy Act of 2005 (EPACT), the Department of Energy (DOE) released the National Electric Transmission Congestion Study (Congestion Study), which examined transmission congestion and constraints and identified constrained transmission paths in many areas (except Texas) that are facing growing demand. The congestion study identified three categories of congestion areas that merit further attention throughout the continental United States. The third type of congestion areas in the study, "Conditional Congestion Areas," identified areas where congestion is not presently acute, but could become so if considerable new electric generation were to be built without associated transmission capacity. The region from the Dakotas-Minnesota falls into this category because it contains potential locations for new large-scale wind and coal generation that could serve distant load centers.

Second, in addition to fulfilling the EPACT requirement that the Department update the Congestion Study every 3 years, DOE will also issue annual reports in the interim that detail the progress made in addressing the congestion challenges as identified in the 2006 Congestion Study. My office is preparing a draft for the Department's Congestion Alleviation Update that will be published in fall 2007. This update will detail the transmission, generation, and demand reduction activities that have occurred in the areas of transmission congestion that the Department identified in its August 2006 study.

Third, my office is implementing two other areas of EPACT that relate to transmission delivery. One of these is in accordance with EPACT section 368 and is a joint effort with the Departments of Agriculture, Commerce, Defense, and Interior to designate energy corridors on Federal lands for oil, gas, and hydrogen pipelines

in addition to electricity transmission and distribution facilities. A record of decision for the 11 contiguous Western States, is expected to be completed in fiscal year 2008. Corridor designation for the Eastern United States, Alaska, and Hawaii will begin in early fiscal year 2008. The second area of EPACT is in accordance with the new Federal Power Act section 216(h) created under EPACT section 1221(a). The Department is now beginning this process of coordinating all applicable Federal authorizations and related environmental reviews that are required to site an electric transmission facility.

Fourth, my office has been and continues to support the efforts of States and transmission planners to work on a regional basis to better coordinate electric infrastructure improvements. For example, for a number of years we have given direct funding support, as well as in-kind support from various technical analyses and studies, to the Western Governor's Association for its "Committee on Regional Electric Power Coordination," which is an ad-hoc group of Western State officials who meet regularly to better coordinate and encourage needed electric infrastructure improvements in the Western Interconnection. A number of regional and sub-regional transmission planning and study groups in the West have emerged as a result of the encouragement of these State officials and their Governors. In fact, the Department reviewed many of the documents these groups have produced in conducting analysis for the Congestion Study. As a result of the Congestion Study, the western region, with oversight by a body of State officials, has now developed regional transmission planning through the Western Electricity Coordinating Council.

Similarly, in the Eastern Interconnection, grid planners are undertaking efforts to conduct interconnection-wide analyses. The new Eastern Reliability Working Group has brought together all of the regional transmission operators, independent system operators, and reliability councils in the Easter Interconnection.

The Office of Electricity also coordinates with the Office of Energy Efficiency and Renewable Energy to provide technical assistance to transmission planners and grid operators seeking to integrate wind generation into the transmission grid. This includes working with the Midwest Independent System Operator to identify possible transmission upgrades that will enable wind generation in North Dakota to be developed.

LOAN GUARANTEE QUESTIONS

Question. Since the passage of the fiscal year 2007 Joint Funding Resolution, the Department has moved forward on several fronts related to the loan guarantee program. Please tell the committee where the Department stands in terms of setting up the new loan guarantee office, issuing final regulations for this program, and reviewing the pre-applications submitted last year.

Answer. The Department has advertised the position for the Director of the Loan Guarantee Program Office. A number of resumes have been received to date, and the Department will review the resumes for qualified candidates. In addition, two senior Department of the Treasury employees with experience in Federal loan guarantee programs have joined the Loan Guarantee Program Office on 6 month details to help establish the office. Once the Director has been hired, the Director will make a determination on required staffing expertise and those positions will be recruited.

With respect to the issuance of final regulations, the Department is working to meet the August 2007 deadline contained in the Revised Continuing Appropriations Resolution, 2007, Public Law 110–5. A Notice of Proposed Rulemaking was published in the Federal Register on May 16, 2007 and is open for public comment until July 2, 2007.

Finally, the Department is completing a preliminary review of the applications to determine which applications are responsive to the solicitation. Guidance has been issued to program offices to begin the technical reviews of the pre-applications. Separately, the Loan Guarantee Office will be reviewing each pre-application for compliance with the financial, commercial, and other criteria set forth in the August 2006 solicitation and accompanying guidelines. Ultimately, the goal is to complete the pre-application evaluations this summer.

Question. With all of these activities underway, when do you think that the Department can reasonably expect to make the public announcements regarding awards to industry?

Answer. The Department anticipates that it will take until at least the first quarter of calendar year 2008 to issue the first loan guarantees.

Question. In the fiscal year 2007 Long-term Funding Resolution, Congress provided funding to support establishment of a loan guarantee office. Congress authorized up to $4 billion in loan guarantees to be available immediately and directed that no loan guarantee awards can be made until final loan guarantee regulations

are in place, 6 months from the date of enactment of the fiscal year 2007 Long-term Funding Resolution. Furthermore, in fiscal year 2008, the Department is seeking additional funding to support the loan guarantee office, and you are requesting $9 billion in additional authority with a caveat that this amount would be reduced from amounts previously provided.

If the request is for $9 billion to be reduced by the amount previously provided, is that amount previously provided, the $2 billion the Department previously announced would be available late last year or the $4 billion that the Long-term Funding Resolution provided?

Answer. As the Department anticipates that it will take until at least the first quarter of calendar year 2008 to issue the first loan guarantees, DOE anticipates issuing $9 billion in loan guarantees in fiscal year 2008.

Question. Does the Department believe that new coal and nuclear power plants are very capital intensive and thus requiring additional assistance to construct first-of-a-kind technologies? The committee is aware of information that the costs of these plants are very large relative to the market capitalization of some of the utility companies that are interested in constructing such facilities.

What is the Department's current assessment of the economic viability of new commercial coal and nuclear power plants?

How would Federal loan guarantees affect the relative economics of these new coal and nuclear power plant projects?

In view of the uncertainties and regulatory risks associated with the initial deployment of a new fleet of IGCC carbon capture-ready and nuclear power plants, in your judgment would the loan guarantee program play an important role bringing these planned projects to fruition?

Answer. Advanced, environmentally friendly, clean coal technologies are poised to enter the market, but some require a price premium relative to more conventional technology. In spite of the higher cost, the private sector has shown great interest in these technologies. The 2008 budget continues robust funding for the President's Advanced Energy Initiative to develop and accelerate the deployment of advanced energy technologies, including new coal and nuclear technologies. Long-term regulatory drivers, such as the Clean Air Interstate Rule (CAIR) and the Clean Air Mercury Rule (CAMR), also provide an incentive for the private sector to invest in these technologies.

The Department received 143 pre-applications requesting more than $27 billion in loan guarantee protection for this initial round of guarantees. Twenty-three projects, representing $16 billion in loan guarantees were for advanced fossil technology.

Loan guarantees, along with other provisions in the Energy Policy Act of 2005, can play a role in accelerating the deployment of advance coal and carbon capture technologies.

QUESTION SUBMITTED BY SENATOR JACK REED

DISTRIBUTED GENERATION

Question. Mr. Kolevar, the 2008 request essentially zeroes out the Distributed Energy Resource program, which used to be a $60 million program aimed at helping Combined Heat and Power and other clean and efficient technology get onto the grid. This program was shifted to the Office of Energy Distribution and Energy Reliability last year and now is slated for elimination. Has EDER abandoned its commitment to develop clean distributed generation, and focus only on transmission and power delivery issues?

Answer. The focus on the development of distributed generation technologies has been completed. The Distributed Energy Program has met its performance targets of: (1) achieving three integrated energy systems (combined heat and power systems) of greater than 70 percent efficiency; (2) demonstrating a 38 percent efficient microturbine; and (3) demonstrating a 44 percent efficient reciprocating engine. The research has now shifted to Renewable and Distributed Systems Integration (RDSI) work. This research will concentrate on the integration of renewable and distributed energy technologies into the grid at the distribution system level. By successfully demonstrating this integration, the use of renewable and distributed energy in support of electric distribution operations should substantially increase for supplying power and other ancillary services during peak load periods.

These projects will also demonstrate the ability of these technologies to reduce power required to the distribution feeder. This will be accomplished through modeling, design, integration, and RD&D of renewables and distributed energy integra-

tion into the distribution system; low-cost sensors; advanced monitoring; and consumer information. The goal of the RDSI is to demonstrate peak load reduction of 20 percent by 2015, and improve asset management on distribution feeders with the implementation of distributed energy (including renewables), and energy management systems that are cost competitive with system capacity upgrades.

QUESTIONS SUBMITTED BY SENATOR PETE V. DOMENICI

OFFICE OF ENERGY ELECTRICITY DELIVERY AND ENERGY RELIABILITY

Question. Mr. Kolevar, I understand that your office has had the responsibility for complying with section 1221 of the Energy Policy Act that requires the Secretary to designate "National Interest Electric Transmission Corridors"

We all know how difficult it is to site electric transmission lines, but with a projected 19 percent increase in electricity demand over the next decade; we must work through the NIMBY issues.

What is the status of this report and what are the next steps in designating these critical infrastructure corridors.

Answer. Section 216(a) of the Energy Policy Act of 2005 authorizes the Secretary, in his discretion, to designate geographic areas where transmission congestion or constraints adversely affect consumers as national interest electric transmission corridors (National Corridors). On April 26, 2007, DOE issued two draft National Corridor designations, in relation to the two Critical Congestion Areas identified in the Department's August 2006 Congestion Study. The first is the draft Mid-Atlantic Area National Corridor and the second is the draft Southwest Area National Corridor. If, after consideration of all comments on these drafts and consultation with the affected States, the Secretary of Energy decides that designation of either or both areas is appropriate, he will issue one or more orders doing so.

DOE welcomes comments on the draft National Corridor designations and has opened a 60-day public comment period, which will end on July 6, 2007. Please refer to the Federal Register Notice for information on the comment process. The full text of the notice is available at http://nietc.anl.gov. During the public comment period, the Department intends to hold seven public meetings to discuss these drafts.

In 2006, the Department announced that, in addition to the statutory requirement under section 216(a) of FPA that the Department release a congestion study every 3 years, DOE would issue annual progress reports in addition to the triennial studies. Accordingly, the Department is beginning a review of mitigation activities underway in each of the congestion areas identified in last year's Congestion Study. The activities that will be examined include the status of transmission projects that are proposed, permitted and completed since last August. We will also be identifying new or proposed local generation, demand response programs, and energy conservation and efficiency programs affecting congestion in the identified congestion areas. The Department intends to issue this congestion alleviation progress report in fall 2007.

ENERGY STORAGE R&D

Question. Mr. Kolevar, your fiscal year 2007 spending plan provides only $5 million to support R&D storage. This level of funding is woefully inadequate considering the biggest challenge to the deployment of renewable generation is the intermittent nature of these technologies. It is vitally important that your office work with Asst. Secretary Karsner's team to ensure that energy storage R&D compliments the renewable research.

Can you explain why this important R&D effort has received so little in spending? If Congress provided and additional $5 million or $10 million how would you spend this funding?

Answer. Funding requests for energy storage research during the last 5 years have fluctuated between approximately $5 million and $3 million. However, this amount has been augmented by up to $11 million in congressionally directed funding and by some $7 million in annual cost share from our State and utility partners. The program is considered worldwide as one of the leaders in this field.

An extra $5 million or $10 million would expand the scope of OE's research program.

ENERGY INFRASTRUCTURE SECURITY

Question. Mr. Kolevar, your fiscal year 2007 spend plan recommends a significant increase in funding for infrastructure security, which was not included in your fiscal

year 2007 request and it is unclear from the spend plan how this funding is being used and for what purpose.

Is this funding being used to improve foreign energy infrastructure security—are these Middle East countries?

Answer. In fiscal year 2007 the Office of Electricity (OE) has been tasked as the technical lead assisting the State Department in executing the Critical Energy Infrastructure Protection (CEIP) initiative, which is overseen by the National Security Council (NSC). The Department of Energy's (DOE) role is to assess and advise foreign countries who have requested U.S. assistance on needed improvements to their energy infrastructure security. Our teams of expert teams travel to the host country and assess current security measures and recommend improvements. The host country funds and implements the actual improvements that are identified in the development of a CEIP security program.

The specific countries targeted by this program were selected by the intelligence community, were coordinated through the interagency process, and were provided in a report to the NSC. To date, CEIP Initiative activities have been limited to the Middle East, although DOE and the Department of Homeland Security have provided similar support to Canada and Mexico because of the interconnected nature of our energy systems.

Question. Is this funding being cost shared by the nation that is benefiting from this security evaluation? Is there any reason why the country can't or should not pay for this activity?

Answer. Each host country has shared the cost of the consultation with the U.S. Government, although specific cost-sharing mechanisms vary depending on the country. The Office of Electricity funds travel and lodging of U.S. Government employees and required security training for U.S. Government employees traveling to dangerous areas. It also provides for the participation of contractors with specific expertise relevant to energy security in a high-threat environment and Federally-funded national lab experts and scientists. Finally, OE reimburses U.S. Embassies for their support efforts. All participating host foreign nations have agreed to pay for the technical experts' internal travel while in country. They have also provided aircraft and watercraft that the teams have needed and have supported the teams' security needs. While DOE helps to evaluate security requirements, the host country has the sole responsibility for funding all such security enhancements to the critical energy infrastructure.

Question. Is this a free service we intend to provide to other countries in the future or, do we have a special obligation to these nations?

Answer. The United States is not responsible for the entire cost of the consultation—the costs are shared with the host nation. The fiscal year 2007 initiative is limited to those nations the intelligence community has identified in a classified document to the NSC.

SUBCOMMITTEE RECESS

Senator DORGAN. We thank the witnesses for appearing. This hearing is recessed.

[Whereupon, at 4:15 p.m., Wednesday, April 11, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2008

WEDNESDAY, APRIL 18, 2007

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

The subcommittee met at 2:35 p.m., in room SD–138, Dirksen Senate Office Building, Hon. Byron L. Dorgan (chairman) presiding.

Present: Senators Dorgan, Murray, Feinstein, Reed, Domenici, Craig, and Allard.

DEPARTMENT OF ENERGY

NATIONAL NUCLEAR SECURITY ADMINISTRATION

STATEMENT OF HON. THOMAS P. D'AGOSTINO, ACTING UNDER SECRETARY FOR NUCLEAR SECURITY AND ADMINISTRATOR, NATIONAL NUCLEAR SECURITY ADMINISTRATION

ACCOMPANIED BY:

WILLIAM H. TOBEY, DEPUTY ADMINISTRATOR FOR DEFENSE NUCLEAR NONPROLIFERATION, NATIONAL SECURITY ADMINISTRATION

ADMIRAL KIRK DONALD, DIRECTOR, NAVAL NUCLEAR PROPULSION, U.S. NAVY

OPENING STATEMENT OF SENATOR BYRON L. DORGAN

Senator DORGAN. This is a hearing of the Appropriations Subcommittee on Energy and Water Development. We will be joined shortly by ranking member, Senator Domenici. And, I welcome Senator Craig.

The hearing today will be for the purpose of reviewing the fiscal year 2008 budget request for the National Nuclear Security Administration (NNSA). The proposed budget for NNSA is nearly $9.4 billion. That's 39 percent of the Department of Energy's total budget for fiscal year 2008, an increase of $306 million above fiscal year 2007's operating plan, but only a $71 million increase over the administration's fiscal year 2007 budget request. The weapons activities request is $6.5 billion. The nuclear nonproliferation request is $1.67 billion. This represents about 18 percent of the NNSA total budget. The remainder of the NNSA's budget is made up of $808 million for naval reactors and $394 million for the Office of the Administrator.

NNSA's fiscal year 2008 budget request appears measured when weighed against fiscal year 2006 and 2007, but if you go back a few

years, we see a very substantial increase in funding has taken place in these accounts. In 2001, NNSA's budget was $6.7 billion. That has grown by about $2.7 billion in the past eight fiscal years.

I'm trying to, as a new chairman of this subcommittee, understand as much as I can about what this budget means, what these activities are. This is, obviously, an interesting, complicated area of the Federal budget and it's an interesting and complicated set of policy issues.

Mr. D'Agostino, you represent an organization that is involved in very important and very complicated matters. And, we appreciate your being here today to testify. You are involved in our nuclear weapons programs in this part of our Department of Energy. There's not much that we do that is more important than those issues, including the issue of nonproliferation. Mr. Tobey, you are involved in that issue.

I'll be asking some questions later about the issue of the construct of nuclear weapons, the RRW program, the issue of the nonproliferation efforts that are underway. This is a, just a critically important function of our Government. We need to try to make sure we get this right. It's about national security. It's about stopping the spread of nuclear weapons around the world, stopping the spread of nuclear technology.

We face, at this time, very significant issues with countries like Iran and North Korea over the issue of enrichment capabilities and nuclear weapons production. The list of nuclear weapon countries, both rogue and nonrogue, could very well grow in future years. If that's the case, that will, in my judgment, increase the threat to our country.

And so, all of these things are very, very important. I can't have answers, don't have answers to all of the questions that are posed by these issues that we'll talk about today. But, I think we need to continue to explore and ask questions about them all and try to understand where we're headed.

Let me call on Senator Craig. If you have any opening comments, Senator Craig.

STATEMENT OF SENATOR LARRY CRAIG

Senator CRAIG. Well, Mr. Chairman, there is a portion of this budget that I know a good a deal about, so let me tell you about it. And, I say that because few understand and oftentimes are quite surprised when I say out in the middle of the high deserts of Idaho rests a nuclear submarine or at least the ingredients of it as it relates to nuclear propulsion. And, I say that because I'm talking about the construct, or the construction of, in 1953, a Nautilus prototype reactor, which really started our nuclear Navy and I suspect—Admiral, did you train in Idaho?

Admiral DONALD. I did not, sir.

Senator CRAIG. You did not.

Mr. D'AGOSTINO. I did. Yes, sir, I did.

Senator CRAIG. There, Mr. D'Agostino did. And, quite often when you talk to those of the nuclear Navy, they will have spent time in Idaho. Now, having said that, that is really, as we all know, one of the great success stories of the nuclear side of us, as a country.

Not only what we've done with the nuclear Navy, the successes, the changes in the type of reactors, the fuel cycle.

I say this publicly, loudly, as often as I can, had we been as dedicated to the commercial side of nuclear electrical generation as we were to nuclear propulsion and the refinement of reactor and fuel cycle, we would without question be leading the world today in highly efficient reactors of a kind that we are attempting to imagine. But, we're not there because we stopped. We did not do that with the nuclear Navy.

Also, I will say that in 1967, the advanced test reactor at the INL, our national lab, began to tackle the nuclear fuels reliability and materials testing issue. It was commissioned in 1967 to support the Navy's nuclear propulsion program. And, all I can say is that all of us can be extremely pleased with those successes. There is none finer in the world today than what we have accomplished with our nuclear Navy.

And, as a result of that, I am, you know, pretty open, pretty direct, and extremely proud that so much of that was accomplished at the national laboratory in southeastern Idaho. So, obviously I look at the broader issues involved in this portion of the budget, but I focus very closely on a portion of it that deals with the Idaho facility and the ongoing work that we do and the science. The Office of Energy, Nuclear Energy and Science and transitioning the ATR to a national users facility that industry and the academic community can access for all that we're attempting to do today, Mr. Chairman, as it relates to the dynamics of the nuclear industry and the fuels that will ultimately be part of that growing industry as we now see it.

Senator DORGAN. Senator Craig——

Senator CRAIG. Again, gentlemen, thank you.

Thank you, Mr. Chairman.

Senator DORGAN. Thank you very much.

Senator Reed.

Senator REED. Mr. Chairman, I have no opening statement. Thank you though.

Senator DORGAN. Let me make one additional comment, because I think it's important to say that the issues we will talk about today, RRW, nonproliferation, and so on, are not issues that we deal with in isolation. These issues are part of a larger national and international discussion about nuclear weapons policies, about stock, our stockpile, reliability, about nonproliferation, about test ban treaties, and so on. There's a, so my point is, these are big issues. You know, we work everyday in areas here in Congress that have some big issues and some small issues. These are very big issues that have national and international consequences.

And, Mr. D'Agostino, thank you for being here. It's been a pleasure to meet you and begin to work with you in these months. And, I would include your entire statement as a part of the permanent record and ask you to summarize and introduce as well, Admiral Donald and Mr. Tobey.

STATEMENT OF HON. THOMAS P. D'AGOSTINO

Mr. D'AGOSTINO. Thank you, Mr. Chairman and members of the subcommittee. I'm Tom D'Agostino, the Deputy Administrator for

Defense Programs and I'm accompanied today by Will Tobey, on my left, who is the Deputy Administrator for Defense Nuclear Nonproliferation. And, Admiral Kirk Donald, on my right, the Deputy Administrator for Naval Reactors.

As you mentioned earlier, the President's fiscal year 2008 budget request for the NNSA is $9.4 billion. It supports three basic national security missions. The first is to assure the safety, security, and the reliability of the U.S. nuclear stockpile, while at the same time transforming that stockpile, making it smaller essentially, and the associated infrastructure. The second major mission is to reduce the threat posed by nuclear proliferation. The third is to provide a reliable and safe nuclear reactor propulsion system for the United States Navy.

In order to accomplish this mission, we developed a vision, which we call Complex 2030. And simply put, this vision has four main portions to it. The first is to transform the nuclear weapons stockpile by making it smaller, by making it safer, and by making it more secure. The second element is to reduce the size of the nuclear weapons infrastructure, decreasing the footprint in the United States of that infrastructure and the impact on the environment. The third is to change the way we do business, drive more efficient business processes. And, the fourth is to sustain and improve the science and technology base that's gotten us to this point and allows us to have such a strong national security.

I'm pleased to report today that stockpile stewardship is working. This program has successfully sustained the safety, security, and reliability of the U.S. nuclear arsenal without the need to conduct an underground nuclear test. Many actions to transform the size and operations of the complex, transform the stockpile, and drive the science and technology base are well underway.

We are reducing the number of sites with large quantities of special nuclear materials and consolidating these materials within the remaining sites. We're maintaining an accelerated rate of dismantlement of retired warheads. We want to take these weapon systems apart. We are reconstituting the nuclear weapons production capability and we have revived our ability to extract tritium for use in the stockpile at our new tritium extraction facility in South Carolina.

I'd like to emphasize that our recent Reliable Replacement Warhead announcement addressed the selection of a baseline for further study. It was not an announcement to actually, or a decision to actually, build a replacement warhead.

Over the next 9 to 12 months, our plans are simply to develop a detailed cost, scope, and schedule baseline for a Reliable Replacement Warhead for the Trident submarine launched ballistic missile. With this baseline, we'll be able to develop the details and the plans necessary for us to evaluate whether we need to make a decision on further reducing the number of life extensions that we have planned and reducing the overall size of the stockpile itself. We will work very closely with the Congress as we move forward, to ensure that we proceed in a step-wise measured and well understood manner in this respect.

One of the major benefits of a Reliable Replacement Warhead approach is that it reinforces our nonproliferation commitments and

objectives. This strategy will allow us to increase our warhead dismantlement rate, sending a strong message to the world that we're taking meaningful steps toward further stockpile reductions. Additionally, increased long-term confidence and the credibility of the U.S. nuclear deterrent will assure allies and obviate any need for them to develop and field their own nuclear forces.

Finally, the improved security features of a Reliable Replacement Warhead concept will prevent unauthorized use, should this warhead ever fall in the hands of terrorists. In the area of nuclear nonproliferation, the NNSA has worked with over 100 international partners to detect, prevent, and reverse proliferation of weapons of mass destruction. We're securing and reducing the quantity of nuclear and radiological materials, bolstering border security overseas, strengthening international nonproliferation and export control regimes, and conducting cutting-edge research and development of nuclear detection technologies. All of these are key mission areas for the nonproliferation program.

Meeting our commitment under the Bratislava Agreement, to conclude security upgrade activities at the Russian nuclear sites by the end of 2008, is our highest priority. As a result of our efforts to accelerate this work, we are well positioned to successfully reach this milestone on schedule. In addition to our work with Russia, some of the highlights in the 2008 budget include completing installation of radiation detection monitors at ports in Belgium, Oman, and the Dominican Republic and continuing the MOX fuel fabrication facility project to eventually dispose of surplus U.S. plutonium and support in the U.S. role in international nonproliferation efforts.

The Naval Reactors Program includes development work necessary to ensure nuclear propulsion technology provides options for maintaining and upgrading current capabilities, as well as meeting future threats to U.S. security.

A majority of funding supports the top priority of ensuring the safety and reliability of the 103 operating naval nuclear propulsion plants. This work involves continual testing, analysis, and monitoring of plant and core performance, which becomes more important as the reactor plants age.

The nature of this business demands a careful and measured approach to developing and verifying nuclear technology. Designing needed component systems and processes and implementing them in existing and future plant designs.

Long-term program goals have been to increase core energy, to achieve life-of-the-ship cores and to eliminate the need to refuel nuclear powered ships. Efforts associated with this objective have resulted in plant core lives that are sufficient for a 30-plus year submarine and an extended core life planned for the next generation aircraft carrier.

In summary, there is an effective synergy between the NNSA's weapons activities and nonproliferation activities. For example, we have dismantled more than 13,000 weapons since 1988. Plans are operationally deployed, United States, Russian, and strategic nuclear warheads will not exceed 1,700 to 2,200 by December 2012. In 2003, the Department of Energy completed dismantlement of

most nonstrategic nuclear warhead, nuclear weapons, limiting our stockpile of these systems to less than one-tenth of cold war levels.

In 2004, President Bush approved a plan that will cut the U.S. stockpile by almost one-half from the 2001 level. And, by the end of 2012, the Department's efforts will have reduced the stockpile to its smallest level in several decades. In addition to weapons dismantlement, the Department is making tremendous progress to reduce and eliminate fissile material made surplus to defense requirements.

PREPARED STATEMENT

I'm confident the NNSA is heading in the right direction in the coming fiscal year. This concludes my statement and I look forward to your questions.

Thank you, Mr. Chairman.

[The statement follows:]

PREPARED STATEMENT OF HON. THOMAS P. D'AGOSTINO

Thank you for the opportunity to discuss the President's fiscal year 2008 budget request for the National Nuclear Security Administration (NNSA). This is my first appearance before this committee as the Acting Under Secretary for Nuclear Security and NNSA Administrator, and I want to thank all of the members for their strong support for our vital national security missions.

In the 7th year of this administration, with the strong support of Congress, NNSA has achieved a level of stability that is required for accomplishing our long-term missions. Our fundamental national security responsibilities for the United States include:

—assuring the safety, security and reliability of the U.S. nuclear weapons stockpile while at the same time transforming the stockpile and the infrastructure that supports it;
—reducing the threat posed by nuclear proliferation; and
—providing reliable and safe nuclear reactor propulsion systems for the U.S. Navy.

The fiscal year 2008 budget request for $9.4 billion, an increase of $306 million from the fiscal year 2007 operating plan, supports the crucial missions to ensure the Nation's nuclear security.

WEAPONS ACTIVITIES

Stockpile Stewardship is working—the nuclear weapons stockpile remains safe, secure and reliable. Throughout the past decade, the Stockpile Stewardship Program (SSP) has proven its ability to successfully sustain the safety, security and reliability of the nuclear arsenal without resorting to underground nuclear testing. The SSP also enables the United States to provide a credible strategic deterrent capability with a stockpile that is significantly smaller. To assure our ability to maintain essential military capabilities over the long-term, however, and to enable significant reductions in reserve warheads, we must make progress towards a truly responsive nuclear weapons infrastructure as called for in the Nuclear Posture Review (NPR). The NPR called for a transition from a threat-based nuclear deterrent, with large numbers of deployed and reserve weapons, to a deterrent that is based on capabilities, with a smaller nuclear weapons stockpile and greater reliance on the capability and responsiveness of the Department of Defense (DOD) and NNSA infrastructure to adapt to emerging threats.

To meet these objectives, we developed a transformation vision and strategy, the cornerstones of which are Complex 2030 and the Reliable Replacement Warhead (RRW). We are boldly moving forward to implement this strategy now, bringing us closer to achieving an even smaller stockpile, one that is safer and more secure, one that offers a reduced likelihood that we will ever again need to conduct an underground nuclear test, and ultimately, one that enables a much more responsive nuclear weapons infrastructure.

Over the next several years, our performance will not only be measured by the success of our continuing efforts to maintain the nuclear stockpile, but also, by the success of our efforts to plan and achieve a truly responsive nuclear weapons infra-

structure for the long-term strategic needs of the Nation. What do we mean by "responsive nuclear weapons infrastructure?" By "responsive" we refer to the resilience of the nuclear enterprise to unanticipated events or emerging threats, and the ability to anticipate innovations by an adversary and to counter them before our deterrent is degraded. Unanticipated events could include complete failure of a deployed warhead type or the need to respond to new and emerging geopolitical threats.

The elements of a responsive infrastructure include the people, the science and technology base, the facilities and equipment to support a right-sized nuclear weapons enterprise as well as practical and streamlined business practices that will enable us to respond rapidly and flexibly to emerging needs. More specifically, a responsive infrastructure must provide proven and demonstrable capabilities, on appropriate timescales, and in support of national security requirements.

We are focused on four implementing strategies to achieve our transformational objectives: (1) transform to a modernized, more cost-effective safe and secure complex; (2) transform the nuclear stockpile in partnership with the DOD; (3) create a fully integrated and interdependent complex; and, (4) drive the science and technology base essential for long-term national security.

We are taking many concrete steps today to make this transformation vision a reality. The completion of a Supplemental Programmatic Environmental Impact Statement (PEIS) for Complex 2030 in accordance with the National Environmental Policy Act (NEPA) will mark the most significant of these steps. Although the original notice of intent for the PEIS did not include a Consolidated Nuclear Production Center (CNPC), we have determined that it is important to include this concept as an alternative to be evaluated in the draft PEIS. The scoping period concluded in January 2007, and a Record of Decision for the future configuration of the Complex is anticipated in 2008. While we await the results of the NEPA process, many actions to transform the stockpile, transform the operation of the Complex, and drive the science and technology base are already well underway. Specifically, we are:

—Reducing the number of sites with Category I/II special nuclear material (SNM) and consolidating such material within the remaining sites. This process has begun with the initial shipment in 2006 of plutonium from Lawrence Livermore National Laboratory (LLNL) and the removal of Category I/II material from Los Alamos National Laboratory (LANL) Technical Area 18. Within the next 5 years, we expect to eliminate the need for Category I/II SNM security at Sandia National Laboratory (SNL).

—Dramatically accelerating the dismantlement of retired weapons. The Pantex Throughput Improvement Program has resulted in a significant improvement in throughput and we expect our dismantlement rate for fiscal year 2007 to exceed that of fiscal year 2006 by nearly 50 percent. Additional activities are also underway to increase the rate at which weapons can be dismantled and dispositioned at Y–12.

—Reconstituting the Nation's nuclear weapon production capability by implementing our plans to ramp up to 30–50 pits per year at LANL by 2012.

—Reviving our ability to extract tritium for use in the stockpile at the new Tritium Extraction Facility at the Savannah River Site (SRS).

—Developing a weapons program Science and Technology roadmap to define the full set of capabilities needed to sustain the future stockpile.

—Streamlining and improving business practices by adding multi-site incentives to current contracts, enhancing line management structures to strengthen accountability, consolidating facility organizations and establishing a systems integration structure.

To foster confidence in the transformation process and to ensure that the Complex remains focused on meeting our current commitments, we established a "Getting the Job Done" list for the nuclear weapons complex in April 2006. By January 2007, the following commitments were complete: (1) delivering B61–7 and B61–11 Alt 357 Life Extension Program (LEP) first production units; (2) delivering the full capability of the Advanced Simulation and Computing Purple Machine; (3) updating pit lifetime estimates; (4) supporting the Nuclear Weapons Council (NWC) decision in November 2006 to proceed with the RRW strategy; and (5) extracting tritium for use in the stockpile at the new Tritium Extraction Facility.

The weapons complex is also on track to fulfill the remaining fiscal year 2007 commitments of: (1) continuing to deliver our products (e.g., limited life components) to DOD; (2) eliminating the backlog of surveillance units consistent with an enhanced evaluation strategy (except the W84 and W88); (3) accelerating the dismantlement of retired weapons in fiscal year 2007 by 50 percent; (4) delivering the W76–1 LEP first production unit; and (5) certifying the W88 with a new pit and manufacturing 10 W88 pits in fiscal year 2007. Delivery on these and future near-

term commitments during transformation of the weapons complex is essential to the continued safety, security and reliability of the stockpile.

Another area where we are making tremendous progress to transform the Complex is in our efforts to secure nuclear weapons, weapons-usable materials, information, and infrastructure from theft, compromise or harm. We established and staffed within the Office of Defense Nuclear Security, a Program Evaluation Office to ensure the effectiveness of both our implemented security programs and security line management oversight. Additionally, we have met the requirements of the 2003 Design Basis Threat and are firmly on track to meet the requirements of the 2005 DBT at all sites by fiscal year 2011. We are also rapidly improving our cyber security standards and practices. As the committee is aware, we recently experienced a major cyber security incident at LANL. While this incident has highlighted some additional areas for improvement, NNSA has been vigorously implementing measures over the last 2 years to strengthen the cyber security posture across the Complex. We are strongly committed to and are actively addressing the issues identified by the LANL incident and applying the lessons learned complex-wide. Sustaining and improving the security of the nuclear weapons complex is an integral component of NNSA's core mission, and thus represents one of our highest priorities.

As we continue to draw down the stockpile, we have become concerned that our current path—successive refurbishments of existing warheads developed during the cold war and to stringent cold war specifications—may pose an unacceptable risk to maintaining high confidence in system performance over the long-term. Specifically, the directors of our nuclear weapons laboratories have raised concerns about their ability to assure the reliability of the legacy stockpile over the very long-term absent nuclear testing. Our DOD partners share these concerns. The evolution away from tested designs through a LEP approach, resulting from inevitable accumulations of small changes over the extended lifetimes of these highly optimized systems, is what gives rise to these concerns.

Our decision to embark on the path to an RRW does not result from a failure of the stockpile stewardship program, as some have suggested, but is a reflection of its success. The SSP has revealed the need to pursue this new RRW path. Moreover, aggressive pursuit of the new scientific tools currently in use and being developed under the SSP is essential, not only to sustain existing warheads as long as they are needed, but to our efforts to design, develop and produce replacement warheads that are safer, more reliable, and cost-effective over the long term without nuclear testing.

We are pursuing the RRW strategy to ensure the long-term sustainment of the military capabilities provided by warheads in the existing stockpile, not to develop warheads for new or different military missions. Another major driver for the RRW approach was the realization after 9/11 that the security threat to our nuclear stockpile had fundamentally changed. The security features in today's stockpile are commensurate with technologies that were available during the cold war and with the threats facing the United States at that time. Major enhancements in security are not readily available through system retrofits via the LEP approach.

We believe that features of the RRW concept will serve as the key "enabler" for achieving a smaller, more efficient and responsive infrastructure and opportunities for a smaller stockpile. The RRW will relax cold war design constraints that maximized yield to weight ratios and thereby allows us to design replacement components that are easier to manufacture, are safer and more secure, eliminate environmentally dangerous materials, and increase design margins, thus ensuring long-term confidence in reliability. Moving forward with the RRW program will further allow us to take advantage of the scientists and engineers who are retiring soon and who possess the unique skills and experience of designing, developing, and producing nuclear weapons.

Moreover, the benefits of the RRW approach reinforce our nonproliferation commitments and objectives. Because these warheads would be designed with more favorable performance margins, and be less sensitive to incremental aging effects, they would reduce the possibility that the United States would ever be faced with a need to conduct a nuclear test to diagnose or remedy a stockpile reliability problem. This will bolster efforts to dissuade other countries from testing. Moreover, once a transformed production complex demonstrates that it can produce replacement warheads on a timescale in which geopolitical threats could emerge, or respond in a timely way to technical problems in the stockpile, then we can eliminate many spare warheads, reducing further the nuclear stockpile. The RRW strategy will allow us to increase our warhead dismantlement rate, sending a strong message to the world that we are taking meaningful steps towards further stockpile reductions. Additionally, increased confidence in the U.S. nuclear deterrent will assure allies and obviate any need for them to develop and field their own nuclear forces.

Finally, the improved security features of RRW will prevent unauthorized use should a warhead ever fall into the hands of terrorists.

On November 30, 2006, the NWC established the feasibility of the RRW program as a long-term strategy for maintaining a safe, secure and credible nuclear deterrent. On March 2, 2007, the Nuclear Weapons Council (NWC) approved a design for a joint NNSA and U.S. Navy program to provide a replacement warhead for a portion of the Nation's sea-based nuclear weapons. We have begun the process for the RRW design definition and cost study, the results of which will inform the decisionmaking process within the administration and Congress as to whether to proceed to the next phase, engineering development.

NUCLEAR NONPROLIFERATION

Acquisition of nuclear weapons, weapons of mass destruction (WMD) capabilities, technologies, and expertise by rogue states or terrorists stands as one of the most potent threats to the United States and international security. The continued pursuit of nuclear weapons by terrorists and states of concern underscores the urgency of NNSA's efforts to secure vulnerable nuclear weapons and weapons-usable nuclear materials, to improve capabilities to detect and interdict nuclear weapons or materials, to halt the production of fissile material, and ultimately, to dispose of surplus weapons-usable materials. The fiscal year 2008 budget request will enable NNSA to continue the activities that support these crucial threat reduction initiatives.

Preventing access to nuclear weapons and material has many dimensions. Our number one highest priority is to keep these dangerous materials out of the hands of the world's most dangerous actors. Absent access to sufficient quantities of key fissile materials, there can be no nuclear weapon. Much of our emphasis has focused on Russia because that is where most of the poorly secured material was located. We have made remarkable progress cooperating with Russia to strengthen protection, control, and accounting of its nuclear weapons and materials. Meeting our commitment under the Bratislava Joint Statement to conclude security upgrade activities at Russian nuclear sites by the end of 2008 will be our chief priority in fiscal year 2008. As a result of our efforts to accelerate this work in the wake of 9/11 and the momentum created by the Bratislava process, we are well-positioned to reach this significant milestone on schedule. Although our direct upgrade efforts are drawing to a close after over a decade of work, we will continue to work cooperatively with Russia to ensure the long-term sustainability of the systems and procedures we have implemented.

Not all nuclear material of concern is located in Russia. We are working with other partners to secure weapons-usable nuclear materials worldwide and to strengthen security at civil nuclear facilities. One area of concern is research reactors, which often use a highly enriched uranium (HEU) fuel suitable for bombs. Our Global Threat Reduction Initiative (GTRI) seeks to convert research reactors worldwide from HEU to low enriched uranium (LEU) fuel and further to repatriate U.S. and Russian-supplied HEU from these facilities to its country of origin. A major accomplishment was the return of 268 kilograms of Soviet-origin HEU from Germany to Russia, where it will be down blended to LEU fuel. This repatriation operation represents the largest shipment of Soviet-origin HEU conducted to date under the GTRI.

We are taking aggressive steps to interdict weapons-usable nuclear materials and to prevent dissemination of nuclear related technology via strengthened export controls and improved international cooperation. As a complement to improving physical security, the Second Line of Defense Program works to enhance our foreign partners' ability to interdict illicit trafficking in nuclear materials. Under this program, we deploy radiation detection systems at high-risk land-border crossings, airports and seaports, increasing the likelihood of interdiction of diverted nuclear materials entering or leaving the country.

The Megaports Initiative, established in 2003, responds to concerns that terrorists could use the global maritime shipping network to smuggle fissile materials or warheads. By installing radiation detection systems at major ports throughout the world, this initiative strengthens the detection and interdiction capabilities of our partner countries.

To prevent the diffusion of critical technologies, we are training front line customs officers around the world. We are working to implement U.N. Security Council Resolution 1540, which establishes a requirement to criminalize proliferation involving non-state actors and encourages states to strengthen export control laws and improve enforcement. Because keeping terrorists from acquiring materials will be easier if we limit enrichment of uranium or reprocessing of spent fuel, the President proposed in 2004 a new initiative, the Global Nuclear Energy Partnership (GNEP),

which would provide nations which refrain from developing or deploying enrichment and reprocessing technology assured access to the benefits of nuclear power.

These are critical steps but they alone cannot address the problem. Indeed, there is enough fissile material in the world today for tens of thousands of weapons. An integral part of our strategy, therefore, has been to induce other states to stop producing materials for nuclear weapons, as the United States did many years ago. We recently tabled a draft treaty at the Conference on Disarmament in Geneva to do just that. We also supplement international diplomatic efforts with bilateral programs. For example, Russia still produces weapons-grade plutonium, not because it needs it for weapons, but because the reactors that produce it also supply heat and light to local communities. We are replacing these reactors with fossil fuel plants. By 2008, two of the existing three plutonium-producing reactors in Russia will shut down permanently, with the third shut down by 2010.

As previously indicated, there are a number of effective synergies between NNSA's weapons activities and our nuclear nonproliferation objectives. For example, we are disposing of the substantial quantities of surplus weapons grade material that resulted from the thousands of warheads that we have dismantled by downblending it to lower enrichment levels suitable for use in commercial reactors. We are also working with Russia to eliminate Russian HEU. Under the HEU Purchase Agreement, nearly 300 metric tons of uranium from Russia's dismantled nuclear weapons—enough material for more than 11,000 nuclear weapons—has been downblended for use in commercial reactors in the United States. Nuclear power generates 20 percent of American electricity and half of that is generated by fuel derived from Russian HEU. As a result, one-tenth of the U.S. electrical energy need is powered by material removed from former Soviet nuclear weapons. In addition to the efforts on HEU, the United States and Russia have each committed to dispose of 34 metric tons of surplus weapon-grade plutonium.

If we are to encourage responsible international actions, the United States must set the example. We have dramatically improved physical security of U.S. nuclear weapons and weapons usable materials in the years since the attacks of 9/11. We recently withdrew over 200 metric tons of HEU from any further use as fissile material in nuclear weapons, a portion of which will be devoted to powering our nuclear navy for the next 50 years, obviating the need over that period for high-enrichment of uranium for any military purpose. Seventeen tons will be blended down and set aside as an assured fuel supply as part of global efforts to limit the spread of enrichment and reprocessing technology.

The risk of nuclear terrorism is not limited to the United States and the success of our efforts to deny access to nuclear weapons and material is very much dependent on whether our foreign partners share a common recognition of the threat and a willingness to combat it. Last July, just before the G–8 summit, Presidents Bush and Putin announced the Global Initiative to Combat Nuclear Terrorism to strengthen cooperation worldwide on nuclear materials security and to prevent terrorist acts involving nuclear or radioactive substances. Paired with U.N. Security Council Resolution 1540, we now have both the legal mandate and the practical means necessary for concrete actions to secure nuclear material against the threat of diversion.

NAVAL REACTORS

Also contributing to the Department's national security mission is the Naval Reactors Program, whose mission is to provide the U.S. Navy with safe, militarily effective nuclear propulsion plants and ensure their continued safe, reliable and long-lived operation. Nuclear propulsion enhances our warship capabilities by providing the ability to sprint where needed and arrive on station, ready to conduct sustained combat operations when America's interests are threatened. Nuclear propulsion plays a vital role in ensuring the Navy's forward presence and its ability to project power anywhere in the world.

The Naval Reactors Program has a broad mandate, maintaining responsibility for nuclear propulsion from cradle to grave. Over 40 percent of the Navy's major combatants are nuclear-powered, including aircraft carriers, attack submarines, and strategic submarines, which provide the Nation's most survivable deterrent.

FISCAL YEAR 2008 BUDGET REQUEST BY PROGRAM

The President's fiscal year 2008 budget request for NNSA totals $9.4 billion, an increase of $306 million or 3.4 percent over the fiscal year 2007 operating plan. We are managing our program activities within a disciplined 5-year budget and planning envelope, and are successfully balancing the administration's high priority ini-

tiatives to reduce global nuclear danger as well as future planning for the Nation's nuclear weapons complex within an overall modest growth rate.

The NNSA budget justification contains information for 5 years as required by sec. 3253 of Public Law 106–065. This section, entitled Future Years Nuclear Security Program, requires the Administrator to submit to Congress each year the estimated expenditures necessary to support the programs, projects and activities of the NNSA for a 5-year fiscal period, in a level of detail comparable to that contained in the budget.

The fiscal year 2008–2012 Future Years Nuclear Security Program—FYNSP—projects $50 billion for NNSA programs though 2012. This is an increase of about $1.5 billion over last year's projections in line with the administration's strong commitment to the Nation's defense and homeland security. The fiscal year 2008 request is slightly smaller than last year's projection; however, the outyears are increased starting in 2009. Within these amounts, there is significant growth projected for the Defense Nuclear Nonproliferation programs to support homeland security, including new initiatives and acceleration of threat reduction programs and increased inspection of seagoing cargoes destined for ports in the United States.

WEAPONS PROGRAM ACTIVITIES

The fiscal year 2008 budget request for the programs funded within the Weapons Activities Appropriation is $6.51 billion, an approximately 3.8 percent increase over the fiscal year 2007 operating plan. It is allocated to adequately provide for the safety, security, and reliability of the nuclear weapons stockpile and supporting facilities and capabilities.

This request supports the requirements of the SSP consistent with the administration's NPR and subsequent amendments, and the revised stockpile plan submitted to the Congress in June 2004. Our request places a high priority on accomplishing the near-term workload and supporting technologies for the stockpile along with the long-term science and technology investments to ensure the design and production capability and capacity to support ongoing missions. This request also supports the facilities and infrastructure that must be modernized to be responsive to new or emerging threats.

The Department has made significant strides over the past year to transform the nuclear weapons complex. The "Complex 2030" planning scenario was introduced in 2006 and has already resulted in a number of accomplishments. We have not created a separate budget line for our transformational activities in the fiscal year 2008 President's Request. Implementation actions to bring about transformation are incorporated into existing program elements: Directed Stockpile Work (DSW), Campaigns, Readiness in Technical Base and Facilities (RTBF), and Secure Transportation Asset. The approach to transformation relies extensively on existing line program organizations taking responsibility for individual actions required to change both the stockpile and its supporting infrastructure. While the administration continues to assess the plans and funding projections for certain elements of NNSA's complex transformation strategy, this budget contains resources to support a number of transformational initiatives underway within our base program activities.

In fiscal year 2008, we are requesting $1.45 billion for DSW, an increase of $21.5 million over the fiscal year 2007 operating plan. We will continue an aggressive dismantlement plan for retired warheads and consolidation of special nuclear material across the nuclear weapons complex. Both of these efforts will contribute to increasing the overall security at NNSA sites. In fiscal year 2007, funding was increased to cover upfront costs associated with tooling procurement, procedure development, Safety Authorization Basis work, hiring of production technicians, and equipment purchases, which will support future-year dismantlement rates. The fiscal year 2008 request reflects the required funding to support the planned dismantlement rates reported to Congress. Funding at higher levels was unnecessary once the dismantlement process was improved with fiscal year 2005 and fiscal year 2006 funding. In May 2006, the NWC directed that the W80 LEP be deferred to support NNSA efforts to transform the nuclear weapons complex and continue work on a RRW. At the same time, the B61 and W76 LEP workloads are increasing, since they both will have entered the production phase by fiscal year 2008. DSW also supports routine maintenance and repair of the stockpile and supports managing the strategy, driving the change, and performing the crosscutting initiatives required to achieve responsiveness objectives envisioned in the NPR. Our focus remains on the stockpile, to ensure that the nuclear warheads and bombs in the U.S. nuclear weapons stockpile are safe, secure, and reliable.

Progress in other elements of the SSP continues. The fiscal year 2008 request for the six Campaigns is $1.87 billion, a $113 million decrease from the fiscal year 2007

operating plan. The decrease in program funding is required to balance overall weapon activity priorities, specifically the transition of the W76 LEP from R&D to production, the consolidation of computing facilities, and a large decrease in Readiness Campaign activities associated in part to the transition of Tritium Extraction Facility to full operations. The Campaigns focus on scientific and technical efforts and capabilities essential for assessment, certification, maintenance, and life extension of the stockpile and have allowed NNSA to continue "science-based" stockpile stewardship. These Campaigns are evidence of NNSA's excellence and innovation in science, engineering and computing that, though focused on the nuclear weapons mission, have broader application and value. The use of DOE Office of Science facilities in supporting Stockpile Stewardship science and engineering will increase modestly at the same time that access to NNSA's science facilities is extended to a broader community of users.

Specifically, $425.8 million for the Science and Engineering Campaigns provides the basic scientific understanding and the technologies required to support DSW and the completion of new scientific and experimental facilities in the absence of nuclear testing.

The Readiness Campaign, with a request of $161.2 million, develops and delivers design-to-manufacture capabilities to meet the evolving and urgent needs of the stockpile and supports the transformation of the nuclear weapons complex into an agile and more responsive enterprise. In February 2007, startup of the Tritium Extraction Facility at the Savannah River Site was completed, making possible the use of new tritium in the U.S. stockpile for the first time in 18 years.

The Advanced Simulation and Computing (ASC) Campaign is a key example of NNSA excellence and innovation in science and engineering, establishing world leadership in computational simulation sciences with broad application to national security. The request of $585.7 million for the ASC Campaign supports the development of computational tools and technologies necessary to support the continued assessment and certification of the refurbished weapons, aging weapons components, and the RRW program without underground nuclear testing. As we enhance and validate the predictive science capabilities embodied in these tools, using the historical test base of more than 1,000 cold war era nuclear tests to computer simulations, we can continue to assess the stockpile to ensure that it is safe, secure, and reliable.

The $412.3 million request for the Inertial Confinement Fusion Ignition and High Yield Campaign is focused on the execution of the first ignition experiment at the National Ignition Facility (NIF) in 2010, and provides facilities and capabilities for high-energy-density physics experiments in support of the SSP. To achieve the ignition milestone, $147 million will support construction of NIF and the NIF Demonstration Program and $232.2 million will support the National Ignition Campaign. The ability of NIF to assess the thermonuclear burn regime in nuclear weapons via ignition experiments is of particular importance. NIF will be the only facility capable of probing in the laboratory the extreme conditions of density and temperature found in exploding nuclear weapons.

NIF will join the Z pulsed-power machine at Sandia National Laboratories and the Omega Laser at University of the Rochester's Laboratory for Laser Energetics as world leading facilities in providing quantitative measurements that close important gaps in understanding nuclear weapons performance. NIF, Omega, and Z are complementary in their capabilities, allowing scientists from both inside and outside the nuclear weapons complex to contribute to a better understanding of the high energy density physics of nuclear warheads. NIF will provide the only access in the world to thermonuclear ignition conditions and the Omega laser with its symmetric illumination and very high repetition rate provides a large amount of quantitative information. The Z facility is especially suited for accurate measurement of materials properties that are crucial to weapons performance. These facilities will be operated as national user facilities in order to obtain the best return on investment and maximum contribution to the Stockpile Stewardship mission.

The Pit Manufacturing and Certification Campaign request of $281 million builds on the success of manufacturing and certifying a new W88 pit in 2007 and addresses issues associated with manufacturing future pit types including the RRW and increasing pit production capacity at LANL. There are plans to increase pit production capacity at LANL to meet national security needs. LANL is not only an interim capability for pit manufacturing at the present time, but it serves as the United States' sole capability. We continue to be the only nuclear weapon state without a true manufacturing capability.

READINESS IN TECHNICAL BASE AND FACILITIES (RTBF) AND FACILITIES AND INFRASTRUCTURE RECAPITALIZATION PROGRAM (FIRP)

In fiscal year 2008, we are requesting $1.96 billion for the maintenance and operation of existing facilities, remediation and disposition of excess facilities, and construction of new facilities. Of this amount, $1.66 billion is requested for RTBF, an increase of $49 million from the fiscal year 2007 operating plan, with $1.36 billion reserved for Operations and Maintenance and $307 million for RTBF Construction. Some new facility construction (e.g., NIF, MESA, TEF, and DARHT) is budgeted in applicable Campaigns.

This request also includes $293.7 million for the Facilities and Infrastructure Recapitalization Program (FIRP), a separate and distinct program that is complementary to the ongoing RTBF efforts. The FIRP mission is to restore, rebuild and revitalize the physical infrastructure of the nuclear weapons complex, in partnership with RTBF. This program assures that facilities and infrastructure are restored to an appropriate condition to support the mission, and to institutionalize responsible and accountable facility management practices. In response to NNSA's request, Congress extended the FIRP end date from 2011 to 2013 to enable successful completion of the FIRP mission. The Integrated Prioritized Project List (IPPL) is the vehicle that the FIRP program will rely on to prioritize and fund outyear projects to reduce legacy deferred maintenance. These projects significantly reduce the deferred maintenance backlog to acceptable levels and support the SSP mission and transformation of the complex.

These activities are critical for the development of a more responsive infrastructure and will be guided by decisions resulting from the Complex 2030 Supplemental Programmatic Environmental Impact Statement and the National Environmental Policy Act (NEPA) process. Since a significant fraction of our production capability resides in World War II era facilities, infrastructure modernization, consolidation, and sizing consistent with future needs is essential for an economically sustainable Complex. Facilities designed according to modern manufacturing, safety, and security principles will be more cost-effective and responsive to a changing future. For example, a facility could be designed to support a low baseline capacity and preserve the option, with a limited amount of contingent space, to augment capacity if authorized and needed to respond to future risks.

Having a reliable plutonium capability is a major objective of NNSA planning. Options for plutonium research, surveillance, and pit production are being evaluated as part of the Complex 2030 NEPA process with a Record of Decision anticipated in 2008. The baseline Complex 2030 planning scenario relies on Los Alamos National Laboratory facilities at Technical Area 55 to provide interim plutonium capabilities until a consolidated, long-term capability can be established. This interim strategy relies on the proposed Chemistry and Metallurgy Research Replacement-Nuclear Facility (CMRR–NF) to achieve all the objectives of (1) closing the existing Chemistry and Metallurgy Research (CMR) facility, (2) replacing essential plutonium capabilities currently at Lawrence Livermore National Laboratory, and (3) achieving a net manufacturing capacity of 50 pits per year. However, the increasing cost of the CMRR–NF and the need to ensure that near- and long-term planning for plutonium facilities are integrated requires that we complete our Complex 2030 decision process before committing to construction of the CMRR–NF. Since the CMRR Radiological Laboratory, Utility, and Office Building (CMRR–RLUOB) is required under all scenarios, this project will proceed as planned.

The Highly Enriched Uranium Materials Facility (HEUMF) and the proposed Uranium Processing Facility (UPF) will allow a reduction of the high security area at the Y–12 National Security Complex from 150 acres to 15 acres. This reduction will combine with the engineered security features of the two structures to meet the DBT at significantly reduced costs, to lower non-security costs, and to provide a responsive highly enriched uranium manufacturing capability. UPF planning is consistent with the timing of decisions from the Complex 2030 PEIS process.

SECURE TRANSPORTATION ASSET

In fiscal year 2008, the budget request includes $215.6 million for Secure Transportation Asset (STA) Program, an increase of $6 million from the fiscal year 2007 operating plan, for meeting the Department's transportation requirements for nuclear weapons, components, and special nuclear materials shipments. The workload requirements for this program will escalate significantly in the future to support the dismantlement and maintenance schedule for the nuclear weapons stockpile and the Secretarial Initiative to consolidate the storage of nuclear material. The challenge to increase secure transport capacity is coupled with and impacted by increasingly complex national security concerns. To support the escalating workload while main-

taining the safety and security of shipments, STA is increasing the number of Safe-Guards Transporters (SGT) in operation by 2 per year, with a target total of 51 in fiscal year 2014. Due to resource constraints, SGT production has been slowed from three to 2 per year, extending the original 2011 endpoint target date.

ENVIRONMENTAL PROJECTS AND OPERATIONS

The Environmental Projects and Operations/Long-Term Stewardship Program is requested at $17.5 million in fiscal year 2008. This program serves to reduce the risks to human health and the environment at NNSA sites and adjacent areas by: operating and maintaining environmental clean-up systems; performing long-term environmental monitoring activities; and, integrating a responsible environmental stewardship program with the NNSA mission activities.

NUCLEAR WEAPONS INCIDENT RESPONSE

The Nuclear Weapons Incident Response (NWIR) Program responds to and mitigates nuclear and radiological incidents worldwide as the United States Government's primary capability for radiological and nuclear emergency response. The fiscal year 2008 request for these activities is $161.7 million, of which $28 million is reserved for the implementation of two new initiatives that will strengthen the Nation's emergency response capabilities—the National Technical Nuclear Forensics (NTNF) and the Stabilization Implementation programs.

The National Technical Nuclear Forensics Program will establish a DOE capability to support post-detonation activities and enhance DOE Technical Nuclear Forensics capabilities. The development of this capability will facilitate the thorough analysis and characterization of pre- and post-detonation radiological and nuclear materials and devices as well as prompt signals from a nuclear detonation. Developing forensic capabilities of this nature is crucial to the overall objective of nuclear material or device attribution.

Stabilization is a new concept and a new capability aimed at using advanced technologies to enhance the U.S. Government's ability to interdict, delay and/or prevent operation of a terrorist's radiological or nuclear device until national assets arrive on the scene to conduct traditional "render safe" procedures. NNSA has actively sponsored new research in this area and, additionally, is leveraging emerging technologies that have been demonstrated successfully by the DOD in support of the global war on terrorism. In the implementation phase, NNSA will transfer these matured projects into operational testing, potentially followed by their transition into the collection of tools available to Federal response teams.

SAFEGUARDS AND SECURITY

The fiscal year 2008 request for Defense Nuclear Security is $744.8 million, an increase of $121 million above the fiscal year 2007 operating plan. This increase will accommodate the increased cost of sustaining the implementation of the 2003 DBT and the phased implementation of the 2005 DBT in 2008 and the outyears. Full implementation of the 2005 DBT will occur at: the Pantex Plant in fiscal year 2008; Lawrence Livermore National Laboratory in fiscal year 2008; the Nevada Test Site in fiscal year 2009; the Y–12 National Security Complex in fiscal year 2011; and, LANL in fiscal year 2011. During fiscal year 2008, the program's efforts will largely be focused on eliminating or mitigating identified vulnerabilities across the nuclear weapons complex by bolstering protective force training, acquiring updated weapons and support equipment, improving physical barrier systems and standoff distances, and reducing the number of locations with "targets of interest." Physical security systems will be upgraded and deployed to enhance detection and assessment, add delay and denial capabilities, and to improve perimeter defenses at several key sites.

The fiscal year 2008 request for Cyber Security of $102.2 million is focused on sustaining the NNSA infrastructure and upgrading elements designed to counter cyber threats and vulnerabilities from external and internal attacks. This funding level will support cyber security revitalization, identify emerging issues, including research needs related to computer security, privacy, and cryptography. Additionally, the funding will provide for enhancement, certification, and accreditation of unclassified and classified systems to ensure proper documentation of risks and justification of associated operations for systems at all sites. The funding within this request will also be applied to foster greater cyber security awareness among Federal and contractor personnel. NNSA will sponsor a wide range of educational initiatives to ensure that our workforce possess the ever-expanding cyber security skills critical to safeguarding our national security information. Funding provided to

NNSA sites will be conditioned upon their implementation of a risk-based approach to cyber security.

DEFENSE NUCLEAR NONPROLIFERATION

The Defense Nuclear Nonproliferation Program mission is to detect, prevent, and reverse the proliferation of weapons of mass destruction (WMD). Our nonproliferation programs address the danger that hostile nations or terrorist groups may acquire weapons-usable material, dual-use production or technology, or WMD capabilities. The fiscal year 2008 request for these programs totals $1.673 billion, a slight decrease from the fiscal year 2007 operating level. This reduction is the result of NNSA achieving and approaching important milestones in our nuclear security work in Russia, including the completion of major security upgrades at several sites under the Material Protection, Control, and Accounting (MPC&A) Program and the anticipated end of construction of a fossil fuel plant in Seversk by the end of calendar year 2008 under the Elimination of Weapons Grade Plutonium Production (EWGPP) Program.

GLOBAL THREAT REDUCTION INITIATIVE

The administration's fiscal year 2008 request of $119 million for the Global Threat Reduction Initiative (GTRI) is an increase of $4 million over the fiscal year 2007 operating plan. The GTRI reduces the risk of terrorists acquiring nuclear and radiological materials for an improvised nuclear or radiological dispersal device by working at civilian sites worldwide to: (1) convert reactors from the use of WMD-usable HEU to LEU; (2) remove or dispose of excess WMD-usable nuclear and radiological materials; and (3) protect at-risk WMD-usable nuclear and radiological materials from theft and sabotage until a more permanent threat reduction solution can be implemented. Specific increases in the GTRI budget reflect, for example, the serial production and delivery of 27 100-ton casks for transportation and long-term storage of 10,000 kg of HEU and 3,000 kg of plutonium removed from the BN–350 reactor site in Kazakhstan.

INTERNATIONAL MATERIAL PROTECTION AND COOPERATION

NNSA's International Material Protection and Cooperation fiscal year 2008 budget request of $372 million is a decrease of $101 million from the fiscal year 2007 operating plan. This decrease reflects the successful completion of nuclear security upgrade work at Russian Strategic Rocket Forces and Russian Navy sites. International material protection work continues in other areas, including the continuation of security upgrades at a significant number of sites within the Russian nuclear complex, including those operated by the Federal Atomic Energy Agency (Rosatom), and the 12th Main Directorate of the Ministry of Defense. Security upgrades for Russian Rosatom facilities will be completed by the end of 2008—2 years ahead of the original schedule, consistent with the Bratislava Initiative.

The MPC&A Program is also focused on reducing proliferation risks by converting Russian HEU to LEU and by consolidating weapons-usable nuclear material into fewer, more secure locations. In fiscal year 2008, we will eliminate an additional 1.2 metric tons of HEU for a cumulative total of 10.7 metric tons.

Our Second Line of Defense (SLD) Program, a natural complement to our efforts to lock down vulnerable nuclear material and weapons, installs radiation detection equipment at key transit and border crossings, airports and major ports to deter, detect and interdict illicit trafficking in nuclear and radioactive materials. During fiscal year 2008, the SLD Program plans to install detection equipment at an additional 51 strategic overseas transit and border sites. Under the Megaports Initiative, we have deployed radiation detection and cargo scanning equipment at six ports to date in Greece, the Netherlands, Bahamas, Sri Lanka, Singapore and Spain. During fiscal year 2008, we plan to install detection equipment at three additional large ports: the port of Antwerp in Belgium, the port of Caucedo in the Dominican Republic, and the port of Salalah in Oman.

Additionally, we are joining elements of the Megaports Initiative and the Container Security Initiative (CSI) under a new maritime security initiative, the Secure Freight Initiative (SFI) Phase I. This new initiative is a partnership between host governments, commercial container shipping entities and the U.S. Government that serves to increase the number of containers physically scanned for nuclear and radiological materials and to create a detailed record of each U.S.-bound container. Data from radiation detection equipment provided by NNSA and from non-intrusive imaging equipment provided by the Department of Homeland Security (DHS) will enhance the identification of high-risk containers and facilitate the prompt resolution of potential nuclear or radiological threats.

NONPROLIFERATION AND INTERNATIONAL SECURITY

While the thrust of GTRI and MPC&A is to secure nuclear sites, convert reactors, and repatriate fuel from reactors worldwide, NNSA's Office of Nonproliferation and International Security (ONIS) provides technical and policy expertise in support of U.S. efforts to strengthen international nonproliferation arrangements (e.g., the Nuclear Suppliers Group, United Nations Security Council Resolution 1540 and the Global Initiative to Combat Nuclear Terrorism). The ONIS staff also fosters implementation of global nonproliferation requirements through engagement with foreign partners and the redirection of WMD expertise, and helps develop and implement mechanisms for transparent and verifiable nuclear reductions. The fiscal year 2008 budget request for the Office of Nonproliferation and International Security is $124 million. This request includes funds for providing technical support to strengthen the International Atomic Energy Agency safeguards system and supports programs to improve foreign governments' export control systems. This request will augment U.S. nonproliferation cooperation with China and India, and enhance transparency and scientist redirection activities with Russia, Ukraine, Kazakhstan, Libya and Iraq.

The budget request also supports activities to build up the nonproliferation component of the Global Nuclear Energy Partnership (GNEP) initiative. While GNEP is a long-term vision for the future of expanded use of nuclear power, NNSA plays an important role by providing leadership and technical expertise in the areas of safeguards technology, safeguards cooperation, and fuel supply arrangements to mitigate the proliferation risks that otherwise might accompany the expansion of nuclear power around the world envisioned by GNEP.

ELIMINATION OF WEAPONS GRADE PLUTONIUM PRODUCTION

Turning to programs that focus on halting the production of nuclear materials, the Elimination of Weapons Grade Plutonium Production (EWGPP) Program staff are working toward completing the permanent shutdown of two of the three remaining weapons-grade plutonium production reactors in Seversk and Zheleznogorsk, Russia. The fiscal year 2008 budget request of $182 million is a decrease of $44 million from the fiscal year 2007 operating plan, reflecting the planned completion of the fossil fuel heat and electricity facility at Seversk. The budget request provides the funding required to shut down these reactors permanently and to replace the heat and electricity these reactors supply to local communities with energy generated by fossil fuel plants by December 2008 in Seversk and by December 2010 in Zheleznogorsk. The reactors will be shut down immediately once the fossil-fuel plants are completed, eliminating the annual production of more than one metric ton of weapons-grade plutonium.

FISSILE MATERIALS DISPOSITION

In addition to curbing the production of dangerous nuclear materials, NNSA is working to reduce the existing stockpiles of nuclear materials in both Russia and the United States. To that end, the fiscal year 2008 Fissile Materials Disposition budget request of $609 million will contribute to the elimination of surplus U.S. and Russian weapon-grade plutonium and surplus U.S. highly-enriched uranium. Of this amount, $522.5 million will be allocated toward disposing of surplus U.S. plutonium, including $333.8 million for the Mixed Oxide (MOX) Fuel Fabrication Facility and $60 million for the Pit Disassembly and Conversion Facility (PDCF) and the Waste Solidification Building. Of the remaining amount, $66.8 million will be devoted to the disposition of surplus U.S. HEU and $20.2 million will be focused on supporting activities common to both programs.

This budget request also provides funding for ongoing efforts to dispose of surplus U.S. HEU, including down blending 17.4MT of HEU in support of establishing the Reliable Fuel Supply Program, available to countries with good nonproliferation credentials that face a disruption in supply that cannot be corrected through normal commercial means. This initiative marks the first step towards a key GNEP policy aim of creating a reliable nuclear fuel mechanism, providing countries a strong incentive to refrain from acquiring enrichment and reprocessing capabilities.

NONPROLIFERATION AND VERIFICATION RESEARCH AND DEVELOPMENT

The fiscal year 2008 budget requests $265 million for Nonproliferation and Verification Research and Development. This effort includes a number of programs that make unique contributions to national security by researching the technological advancements necessary to detect and prevent the illicit diversion of nuclear materials. Within the Proliferation Detection Program, fundamental research is con-

ducted in fields such as radiation detection, which supports national and homeland security agencies. It also advances basic and applied technologies for the nonproliferation community with dual-use benefit to national counter-proliferation and counter-terrorism missions. Specifically, this program develops the tools, technologies, techniques, and expertise for the identification, location, and analysis of the facilities, materials, and processes of undeclared and proliferant WMD programs. As the sole provider for the science base to the U.S. national nuclear test monitoring system, the Nuclear Explosion Monitoring Program produces the nation's operational sensors that monitor from space the entire planet to detect and report surface, atmospheric, or space nuclear detonations. This program also produces and updates the regional geophysical datasets enabling operation of the Nation's ground-based seismic monitoring networks to detect and report underground detonations.

NAVAL REACTORS

The Naval Reactors fiscal year 2008 budget request of $808 million is an increase of $26 million from the fiscal year 2007 operating plan. Naval Reactor's development work ensures that nuclear propulsion technology provides options for maintaining and upgrading current capabilities, as well as for meeting future threats to U.S. security.

The majority of funding supports Naval Reactor's number-one priority of ensuring the safety and reliability of the 103 operating naval nuclear propulsion plants. This work involves continual testing, analysis, and monitoring of plant and core performance, which becomes more critical as the reactor plants age. The nature of this business demands a careful, measured approach to developing and verifying nuclear technology, designing needed components, systems, and processes, and implementing them in existing and future plant designs. Most of this work is accomplished at Naval Reactors' DOE laboratories. These laboratories have made significant advancements in extending core lifetime, developing robust materials and components, and creating an array of predictive capabilities.

Long-term program goals have been to increase core energy, to achieve life-of-the-ship cores, and to eliminate the need to refuel nuclear-powered ships. Efforts associated with this objective have resulted in planned core lives that are sufficient for the 30-plus year submarine (based on past usage rates) and an extended core life planned for CVN 21 (the next generation aircraft carrier). The need for nuclear propulsion will only increase over time as the uncertainty of fossil fuel cost and availability grows.

Naval Reactors' Operations and Maintenance budget request is categorized into six areas: Reactor Technology and Analysis; Plant Technology; Materials Development and Verification; Evaluation and Servicing; Advanced Test Reactor (ATR) Operations and Test Support; and Facility Operations.

The $218 million requested for Reactor Technology and Analysis will support work that ensures the operational safety and reliability of reactor plants in U.S. warships and extends the operational life of Navy nuclear propulsion plants. This work includes continued development of the Reactor System Protection Analysis for the next generation aircraft carrier, CVN 21. These efforts also support continued work on core design concepts for submarines.

The increasing average age of our Navy's existing reactor plants, along with future extended service lives, a higher pace of operation and reduced maintenance periods, place a greater emphasis on our work in thermal-hydraulics, structural mechanics, fluid mechanics, and vibration analysis. These factors, along with longer-life cores, mean that for years to come, these reactors will be operating beyond our previously-proven experience base.

The $115 million requested for Plant Technology provides funding to develop, test, and analyze components and systems that transfer, convert, control, and measure reactor power in a ship's power plant. Naval Reactors is developing components to address known limitations and to improve reliability of instrumentation and power distribution equipment to replace aging, technologically obsolete equipment. Development and application of new analytical methods, predictive tests, and design tools are required to identify potential concerns before they become actual problems. This enables preemptive actions to ensure the continued safe operation of reactor plants and the minimization of maintenance costs over the life of the ship. Additional technology development in the areas of chemistry, energy conversion, instrumentation and control, plant arrangement, and component design will continue to support the Navy's operational requirements.

The $110 million requested for Materials Development and Verification supports material analyses and testing to provide the high-performance materials necessary

to ensure that naval nuclear propulsion plants meet Navy goals for extended warship operation and greater power capability. These funds support the test assemblies for use in ATR, post irradiation examination of the materials tested at ATR, and destructive and non-destructive examinations of spent navy nuclear fuel and reactor component materials.

The $204 million requested for Evaluation and Servicing sustains the operation, maintenance, and servicing of Naval Reactors' operating prototype reactor plants. Reactor core and reactor plant materials, components, and systems in these plants provide important research and development data and experience under actual operating conditions. These data aid in predicting and subsequently preventing problems that could develop in fleet reactors. With proper maintenance, upgrades, and servicing, the two prototype plants will continue to meet testing needs for at least the next decade.

Evaluation and Servicing funds also support the implementation of the dry spent fuel storage production lines that will put naval spent fuel currently stored in water pools at the Idaho Nuclear Technology and Engineering Center (INTEC) on the Idaho National Laboratory (INL) and at the Expended Core Facility (ECF) on the Naval Reactors facility in Idaho into dry storage. Additionally, these funds support ongoing decontamination and decommissioning of inactive nuclear facilities at all Naval Reactors sites to address their "cradle to grave" stewardship responsibility for these legacies and minimize the potential for any environmental releases.

The $58.8 million requested for Advanced Test Reactor Operations and Test Support sustains the ongoing activities of the INL ATR facility, owned and operated by the Office of Nuclear Energy (NE), Science and Technology.

In addition to the budget request for the important technical work discussed above, facilities funding is required for continued support of Naval Reactor's operations and infrastructure. The $60 million requested for facilities operations will maintain and modernize the program's facilities, including the Bettis and Knolls laboratories as well as ECF and Kesselring Site Operations (KSO), through capital equipment purchases and general plant projects.

The $10 million requested for construction funds will be used to support the project engineering and design of a materials research technology complex and ECF M290 receiving and discharge station and to support the design and construction of a shipping and receiving and warehouse complex.

OFFICE OF THE ADMINISTRATOR

This account provides for all Federal NNSA staff in Headquarters and field locations except those supporting Naval Reactors and the Secure Transportation Asset couriers. The fiscal year 2008 budget request is $394.7 million, an increase of $54 million over the fiscal year 2007 operating level.

This budget request is consistent with the funding trajectory needed for personnel support in an account that is comprised of over 70 percent salaries and benefits. NNSA needs to attain a steady-state staffing level of about 1,950 FTEs in fiscal year 2008 to support current mission needs and to implement workforce planning for succession. Information Technology (IT) for the Federal staff is also included in this account, and the fiscal year 2008 IT Request reflects efficiencies planned for A–76 efforts initiated in fiscal year 2006. The outyear budget addresses significant challenges due to the impacts of escalation on payroll and needed support to the NNSA Federal staff.

The budget request includes funding for activities that were previously funded by the former Offices of Environment, Safety, and Health and Security and Safety Performance Assurance that transferred to the NNSA. Pursuant to section 3117 of the John Warner National Defense Authorization Act for fiscal year 2007 (Public Law 109–364), beginning in fiscal year 2008, the functions, personnel, funds, assets, and other resources of the Office of Defense Nuclear Counterintelligence of the NNSA are transferred to the Secretary of Energy, to be administered by the Director of the Office of Counterintelligence of the Department of Energy.

HISTORICALLY BLACK COLLEGES AND UNIVERSITIES (HBCU) SUPPORT

A research and education partnership program with the HBCUs and the Massie Chairs of Excellence was initiated by Congress through earmarks in the Office of the Administrator Appropriation in fiscal year 2005, fiscal year 2006 and fiscal year 2007. The NNSA has implemented an effective program to target national security research opportunities for these institutions to increase their participation in national security-related research and to train and recruit HBCU graduates for employment within the NNSA. The NNSA goal is a stable $10 million annual effort. In fiscal year 2008, the Office of the Administrator appropriation will provide con-

tinued funding of $1 million to support certain HBCU activities. The programs funded in the Weapons Activities Appropriation will provide approximately $4 to $6 million of support to HBCU programs. In addition, the Defense Nuclear Nonproliferation Appropriation will provide approximately $2 to $3 million to this program. Lastly, the Naval Reactors Program will fund approximately $1 million of HBCU programs in fiscal year 2008.

CONCLUSION

I am confident that NNSA is headed in the right direction in the coming fiscal year. The budget request will support continuing our progress in protecting and certifying our Nation's strategic deterrent, transforming our nuclear weapons stockpile and infrastructure, reducing the global danger from proliferation and weapons of mass destruction, and enhancing the force projection capabilities of the U.S. nuclear Navy. It will enable us to continue to maintain the safety and security of our people, information, materials, and infrastructure. Taken together, each aspect of this budget request will allow us to meet our national security responsibilities during the upcoming fiscal year and well into the future.

A statistical appendix follows that contains the budget figures supporting our Request. I look forward to answering any questions on the justification for the requested budget.

FISCAL YEAR 2008 BUDGET TABLES

NATIONAL NUCLEAR SECURITY ADMINISTRATION—APPROPRIATION AND PROGRAM SUMMARY

[In millions of dollars]

	Fiscal Year 2006 Current Appropriations	Fiscal Year 2007 Operating Plan	Fiscal Year 2008 Request
National Nuclear Security Administration (NNSA):			
Office of the Administrator	354.2	340.3	394.7
Weapons Activities (after S&S WFO offset)	6,355.3	6,275.6	6,511.3
Defense Nuclear Nonproliferation	1,619.2	1,683.3	1,672.6
Naval Reactors	781.6	781.8	808.2
Total, NNSA	9,110.3	9,081	9,386.8

NOTE: The fiscal year 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, Public Law 109–148.

The NNSA budget justification contains information for 5 years as required by sec. 3253 of Public Law 106–065. This section, entitled Future Years Nuclear Security Program (FYNSP), requires the Administrator to submit to Congress each year the estimated expenditures necessary to support the programs, projects and activities of the NNSA for a 5-year fiscal period, in a level of detail comparable to that contained in the budget.

OUT-YEAR APPROPRIATION SUMMARY—NNSA FUTURE YEARS NUCLEAR SECURITY PROGRAM (FYNSP)

[In millions of dollars]

	Fiscal Year 2008	Fiscal Year 2009	Fiscal Year 2010	Fiscal Year 2011	Fiscal Year 2012
NNSA:					
Office of the Administrator	395	405	415	425	436
Weapons Activities (after S&S offset)	6,511	6,705	6,904	7,111	7,324
Defense Nuclear Nonproliferation	1,673	1,798	1,845	1,893	1,942
Naval Reactors	808	828	849	870	892
Total, NNSA	9,387	9,736	10,013	10,299	10,594

WEAPONS ACTIVITIES—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2006 Current Appropriation	Fiscal Year 2007 Operating Plan	Fiscal Year 2008 Request
Weapons Activities:			
Directed Stockpile Work	1,372,327	1,425,722	1,447,236
Science Campaign	276,670	270,458	273,075
Engineering Campaign	247,907	162,786	152,749
Inertial Confinement Fusion Ignition and High Yield Campaign	543,582	489,706	412,259
Advanced Simulation and Computing Campaign	599,772	611,973	585,738
Pit Manufacturing and Certification Campaign	238,663	242,392	281,230
Readiness Campaign	216,567	201,713	161,169
Readiness in Technical Base and Facilities	1,654,840	1,613,241	1,662,144
Secure Transportation Asset	209,979	209,537	215,646
Nuclear Weapons Incident Response	117,608	133,514	161,748
Facilities and Infrastructure Recapitalization Program	149,365	169,383	293,743
Environmental Projects and Operations	.....	.....	17,518
Safeguards and Security	797,751	761,158	881,057
Other	.....	17,000	.....
Subtotal, Weapons Activities	6,425,031	6,308,583	6,545,312
Use of Prior Year Balances:			
Security Charge for Reimbursable Work	−32,000	−33,000	−34,000
Use of Prior Year Balances	−37,734	.....	.....
Total, Weapons Activities	6,355,297	6,275,583	6,511,312

Public Law Authorization: John Warner National Defense Authorization Act for fiscal year 2007 (Public Law 109–364).

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009	Fiscal Year 2010	Fiscal Year 2011	Fiscal Year 2012
Weapons Activities:				
Directed Stockpile Work	1,483,417	1,520,502	1,558,515	1,597,478
Science Campaign	282,741	275,622	270,390	275,626
Engineering Campaign	147,090	144,448	142,614	145,417
Inertial Confinement Fusion Ignition and High Yield Campaign	406,098	413,186	411,851	407,487
Advanced Simulation and Computing Campaign	598,241	583,643	570,873	582,243
Pit Manufacturing and Certification Campaign	291,945	339,462	357,622	347,269
Readiness Campaign	190,477	184,703	180,357	183,946
Readiness in Technical Base and Facilities	1,698,403	1,765,458	1,862,729	1,952,633
Secure Transportation Asset	228,300	237,749	253,037	262,118
Nuclear Weapons Incident Response	169,835	178,327	187,243	196,605
Facilities and Infrastructure Recapitalization Program	286,572	297,096	304,330	312,000
Environmental Projects and Operations	32,471	29,923	30,864	31,574
Safeguards and Security	924,410	969,881	1,017,575	1,067,604
Subtotal, Weapons Activities	6,740,000	6,940,000	7,148,000	7,362,000
Security Charge for Reimbursable Work	−35,000	−36,000	−37,000	−38,000
Total, Weapons Activities	6,705,000	6,904,000	7,111,000	7,324,000

DEFENSE NUCLEAR NONPROLIFERATION—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2006 Current Appropriation	Fiscal Year 2007 Operating Plan	Fiscal Year 2008 Request
Defense Nuclear Nonproliferation:			
Nonproliferation and Verification Research and Development	312,658	270,387	265,252
Nonproliferation and International Security	74,250	128,911	124,870

DEFENSE NUCLEAR NONPROLIFERATION—FUNDING PROFILE BY SUBPROGRAM—Continued

[In thousands of dollars]

	Fiscal Year 2006 Current Appropriation	Fiscal Year 2007 Operating Plan	Fiscal Year 2008 Request
International Nuclear Materials Protection and Cooperation	422,730	472,730	371,771
Global Initiatives for Proliferation Prevention	39,600	.....	.....
HEU Transparency Implementation	19,288	.....	.....
Elimination of Weapons-Grade Plutonium Production	187,100	225,754	181,593
Fissile Materials Disposition	468,773	470,062	609,534
Global Threat Reduction Initiative	96,995	115,495	119,626
Subtotal, Defense Nuclear Nonproliferation	1,621,394	1,683,339	1,672,646
Use of Prior Year Balances	−92,215	.....	.....
Total, Defense Nuclear Nonproliferation	1,619,179	1,683,339	1,672,646

NOTE: The fiscal year 2006 Current Appropriation column includes additions for international contributions to the Elimination of Weapons-Grade Plutonium Production Program in the amount of $12,677,000, and the use of prior year balances in the amount of $2,215,000 for an approved appropriation transfer action to the Office of the Administrator.

Public Law Authorization: John Warner National Defense Authorization Act of 2007, (Public Law 109–364).

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009	Fiscal Year 2010	Fiscal Year 2011	Fiscal Year 2012
Defense Nuclear Nonproliferation:				
Nonproliferation and Verification Research and Development	305,105	335,564	353,047	364,528
Nonproliferation and International Security	133,041	158,693	166,479	174,276
International Nuclear Materials Protection and Cooperation	408,209	402,458	407,161	414,009
Elimination of Weapons Grade Plutonium Production	138,929	24,507	.....	.....
Fissile Materials Disposition	660,796	771,190	802,786	813,378
Global Threat Reduction Initiative	151,920	152,588	163,527	175,809
Total, Defense Nuclear Nonproliferation	1,798,000	1,845,000	1,893,000	1,942,000

NAVAL REACTORS—FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2006 Current Appropriation	Fiscal Year 2007 Operating Plan	Fiscal Year 2008 Request
Naval Reactors Development:			
Operations and Maintenance (O&M)	734,877	747,648	765,519
Program Direction	29,997	31,380	32,700
Construction	16,731	2,772	10,000
Total, Naval Reactors Development	781,605	781,800	808,219

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).

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2009	Fiscal Year 2010	Fiscal Year 2011	Fiscal Year 2012
Naval Reactors Development:				
Operations and Maintenance	771,700	795,700	822,500	836,800
Program Direction	33,900	35,100	36,400	37,700
Construction	22,400	18,200	11,100	17,500

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM—Continued

[In thousands of dollars]

	Fiscal Year 2009	Fiscal Year 2010	Fiscal Year 2011	Fiscal Year 2012
Total, Naval Reactors Development	828,000	849,000	870,000	892,000

Senator DORGAN. Mr. D'Agostino, thank you very much for your testimony.

I'd like to ask a few questions, then I will call on my colleagues and then I will finish with the remainder of my questions so that my colleagues have ample time as well.

RELIABLE REPLACEMENT WARHEAD

Let me ask first about the RRW program. I want to have you tell us how that came to be. What was, what created the existence of RRW? Some colleagues here in the Congress say that is an outgrowth of the program that was rejected, the Earth Penetrater Bunker Buster program and it morphed into an RRW program. Can you tell me, what is the origin of the RRW program?

Mr. D'AGOSTINO. Certainly, Mr. Chairman. But, I'd like to dispel the notion that it is an outgrowth of any, so-called bunker buster. The RRW program is a natural piece or element in the stockpile stewardship strategy. As you're aware, in the early 1990s the country decided to forego underground testing and a few years after that we endorsed a strategy of stockpile stewardship. This is the idea of spending resources into upgrading our science facilities to understand what happens as weapons age and to embark, essentially, on what we are in right now, a life extension program strategy.

Life extension program means taking the existing warheads that we have and investing money to build those warheads exactly like they were built 10, 20, 30, 40, 50 years ago to make sure that they would perform as in the past because we aren't going to do a test anymore, underground test.

RRW came out as a result of confluence of two things. One, our science tools expanded greatly. Our computing capability, the models and codes that we use to simulate the aging warheads, as well as this life extension program, made us realize that we're dealing with warheads that were designed quite differently. They were designed to maximize the yield of a warhead to the weight of the warhead itself. We wanted the most tightly designed warhead on the top of that missile because the Department of Defense, at the time, was interested in lots of weapons and being able to launch them long distances. And, it was also at a time when we were constantly designing new warheads every 10, 20 years we were exercising our capability. We never worried about the aging of weapons.

And so, as we looked at what happens in the future, can a weapon that was designed to be replaced every 20 to 25 years last 30, 40, 50, 60 years? And, especially what does that do to our margins and more importantly, what does that do to our confidence? We don't want to be in a situation where we have to conduct an underground test.

So, we decided to embark on an RRW approach because our concern was that we wanted to be able to add more design margin into the warhead. We wanted to put security features into the warhead which addressed the future threats, not the threats that we had in the past. And, we're also concerned about not wanting to replicate cold war processes and cold war techniques because these are very expensive.

Senator DORGAN. Mr. D'Agostino, I want to be able to ask you a second question.

Mr. D'AGOSTINO. Oh,——

Senator DORGAN. Thank you.

Mr. D'AGOSTINO. [continuing]. Certainly.

Senator DORGAN. I want to ask a couple questions about RRW. I do have some questions for Mr. Tobey. But, several weeks ago, you and General Cartwright were in front of the Senate Armed Services Committee. Senator Reed asked you a question and I reviewed that because part of RRW relates to the question of whether there needs to be testing. And, let me read you the transcript because I want to try to understand what this means.

Quoting Senator Reed, "If it becomes clear at some point that it is not possible to certify without testing, would you support terminating the effort?" General Cartwright, "I would come back to this subcommittee and tell you why we've got to that position and what the criteria or what the detail was behind that and then we would have that discussion." Then Senator Nelson said, "If it becomes clear at some point that it wouldn't be possible to certify the RRW without nuclear testing, would you support terminating the effort?" Mr. D'Agostino, you indicated, I'm quoting you, "I would say that because it's one of the most significant criteria that we've had to proceed down this path, we would have to examine that. I mean, we'd have to say, 'Why would we go forward and continue with the effort.'"

Today's testimony, you talk about offering a reduced likelihood that we will ever again need to conduct an underground nuclear test. The question is, is there any reason for someone to read some subtle shift here? It seemed to me there might be a subtle shift. I think most of us proceed under the assumption that the, the understanding is, that RRW will not require testing. Is that still your position?

Mr. D'AGOSTINO. My position is certification of an RRW design will not require underground testing. There's a broader question: As weapons age there's no guarantee, in fact no one can guarantee today's stockpile might not require an underground test. We don't know all of the details on how materials age. And so, to certify the RRW, in my view, based on the information I've reviewed and the proposal submitted by Los Alamos and Lawrence Livermore, would not require underground testing to certify it.

I'd like to add, because the design margins on the RRW are based solidly on tested history that already existed. The country's invested a lot of money in developing a nuclear test database. Taking advantage of that I'm confident that what we have in an RRW design, at this point, again, it's only on paper and that's where it will stay until we decide to move forward, but that we are further away and have a reduced likelihood compared to a cold war stock-

pile. I'm concerned that if we stay with a cold war stockpile, as it currently exists, that our chances are testing are much greater than if we shifted to an RRW strategy.

Senator DORGAN. The, my understanding is that the State Department has not done any studies. And, I wonder if the Department of Energy has with respect to whether the activities of an RRW will have any impact on our objectives with respect to nonproliferation. I mean, this will be a larger international debate. Has there been an analysis of that, the consequences of that by the Department of Energy? I believe it has not been done by the Department of State.

Mr. D'AGOSTINO. If I could answer that, I could ask Mr. Tobey to follow with me. When we, before we made an RRW decision and announcement, we did consult with our allies in NATO and we also talked to Russia and China about the strategy we're approaching. In almost all cases, we had, it was well understood why we were proceeding down this path. There was no study to my knowledge, per se, of directly taking, essentially a straw vote if you will, on exactly how things were done.

Mr. TOBEY. Mr. Chairman, we have given that matter some thought. And, I think, frankly, the questions that you're asking are exactly the right ones.

In analyzing nonproliferation or disarmament impacts of such a system, I think the right questions relate to whether or not such a system would reduce or increase the need for nuclear testing, whether it would reduce or increase pressures to, or would enable a reduction or an increase, pressure for an increase in the size of arsenals, and whether or not it would improve the safety and security in weapons. I think by most standards, and certainly the objectives of the RRW Program would be to lead to conditions that would actually improve nonproliferation and disarmament objectives. So therefore, it is entirely consistent with our nonproliferation policy.

Senator DORGAN. I have one additional question, then I will defer to my colleagues and then I will ask some questions at the end.

Back in 1974, then Secretary of State indicated that he felt it was urgent to create "global standards for nuclear security." And, it's been now roughly 30 years. We're still not quite there. We do have some standards, but without the kind of definition, I think, most people feel is necessary. Mr. Tobey, can you describe to me what efforts are underway, from your standpoint, with respect to those issues?

Mr. TOBEY. Certainly, and one of the most important nonproliferation efforts we have underway is meant to address exactly that. Last year, Presidents Bush and Putin, just before the G–8 Summit in St. Petersburg, announced the global initiative to combat nuclear terrorism. I think there are two ways to look at this program. One, it's an effort to apply the lessons we've learned and the standards we've developed and the practices we put into place in former Soviet states worldwide.

Another one is to allow for the practical means to implement the legal requirements of U.N. Security Council Resolution 1540. We've started with a small core of states, the G–8 plus four others, Kazakhstan, Australia, China, and Turkey. We were joined later by

Morocco. We adopted, first, the statement of principles. We've since had a meeting to adopt a work program and we hope to greatly expand the organization in a meeting next month in June in Kazakhstan.

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

We've been joined by the ranking member, Senator Domenici. I will call on Senator Domenici, then I will call on Senators in order of appearance.

Senator Domenici.

Senator DOMENICI. Mr. Chairman, I think that would be a bit unfair, so I would ask that we not do it. And, because I was late and it was my own fault. I attest that to everyone. Please don't think it was more important than any old meeting. I just, it just got away from me. So, you can assume it was a very fun meeting or a lot of fun or something.

I just didn't get away from it. And, I looked up and I thought, "My God, D'Agostino is finished and I'm almost finished."

So, I would rather go about third and that will be fair for you and fair for me.

Senator DORGAN. All right. Well, as former chairman you certainly, we would certainly want to recognize your right to proceed next——

Senator DOMENICI. I'll go after——

Senator DORGAN [continuing]. As ranking member. All right.

Senator Craig.

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

GLOBAL NUCLEAR ENERGY PARTNERSHIP

The NNSA's 2008 budget includes $10 million for nonproliferation activities within Global Nuclear Energy Partnership (GNEP). Is this enough to provide the global security that is required for a program of this magnitude?

Mr. Tobey.

Mr. TOBEY. Senator, I think it's a good start. As you know, we're at the very early stages of the Global Nuclear Energy Partnership. I think it would be fair to regard GNEP as a nonproliferation program. I believe it is such for four reasons. First, it should diminish incentives on States to have indigenous enrichment programs. Second, it should allow us to reduce separated stock, stockpiles of separated plutonium. Third, we intend to use it to improve proliferation resistant reactor technology. And fourth, we aim to improve safeguards technology.

Senator CRAIG. So, you referenced it as a good start, therefore, I used the word is it enough, is it adequate based on where we are with this initiative, to fund it appropriately?

Mr. TOBEY. Yes sir, it is. I meant good start in the sense that the GNEP program will proceed. We will need to spend more money on nonproliferation efforts related to it in the future.

Senator CRAIG. Europeans have been recycling used nuclear fuel for over 30 years without an incident or hint of separated material theft. Are you looking at their programs and incorporating their experiences into GNEP?

Mr. TOBEY. We're certainly looking at their programs. Although I think what we're trying to do is to reach a situation in which we

would not have, as I mentioned, separated stocks of plutonium, pure plutonium or nearly pure plutonium, which are a greater nonproliferation threat. If you look at incidents that have been made public about nuclear materials that have gotten loose I think it would tend to indicate that those are the cases in which we need to be concerned about. So, we hope to use advanced technology to avoid pure plutonium or nearly pure plutonium.

Senator CRAIG. I think my concern, as it relates to the program and the long-term character of getting it online, costs, and all of that, is that as much of the successes around the world that we can incorporate, we ought not be spending our time, therefore, reinventing when there are successes out there that are measurable and usable.

Mr. TOBEY. Well, we certainly would like to learn from the experience of others. I think we would also like to be technology leaders, in this regard. And hopefully improve the nonproliferation characteristics of the technology for recycling fuel.

Senator CRAIG. Thank you, Mr. Chairman.

Gentlemen, thank you.

Senator DORGAN. Senator Craig, thank you.

Senator Reed.

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

And, thank you gentlemen for your testimony.

PIT PRODUCTION/RELIABLE REPLACEMENT WARHEAD

Mr. D'Agostino, do you know how many and what types of pits the complex would require to make in 2030 as part of your forward looking analysis?

Mr. D'AGOSTINO. I'm sorry Senator Reed. I missed the first part of the question.

Senator REED. Do you know how many and what type of pits the complex will be required to make in 2030, if you're doing your 2030 planning now?

Mr. D'AGOSTINO. Right now our plan is to build an interim capability of between 30 and 50 pits by the 2012 timeframe and to increase our capability, given our current requirements. The DOD, the Department of Defense, which sets the requirements for the Department of Energy, has currently projected, based on what I would say a pre-RRW type stockpile, of a need to go to about 125 pits per year. Which is the idea of being able to, over a 40-year period, replace the pits in the ongoing in steady state, nuclear stockpile. Every 30 or 40 years you'd be replacing a pit. The size, the number and type of pits, are clearly very dependant on the size of the stockpile itself and so there's that linkage there.

Senator REED. And, also dependant upon the progress on the RRW?

Mr. D'AGOSTINO. I think so for a couple of reasons. One, because of the RRW, we'll have an opportunity when we look at the RRW replacement strategy to look at pits that we already have built, essentially, in the past that can potentially be reused in future stockpiles.

As you're probably aware, we had tasked our laboratories to take a hard look at the design and to look at the lifetimes of plutonium metal and the pits itself. That analysis was completed last year

and we had the JASONS take an independent look at that and they validated the fact that our plutonium pit life, metal life times are a bit longer than we had expected. Up to between 85 and 100 years in some cases. That's good news because it provides us the flexibility to look at pits that we've already built. And, I think, ultimately, will allow us to have the smallest plutonium capability that the country might need instead of getting in to building a pit capability of 125 and up. We might be looking at 125 and down from the size of plutonium capability.

Senator REED. The pit manufacturing and certification campaign also includes $24.9 million for the consolidated plutonium center.

Mr. D'AGOSTINO. Yes, sir.

Senator REED. Specifically indicate how you're going to spend that money.

Mr. D'AGOSTINO. That money would be used to do preliminary design. I don't like to look at it as a building right now because it's far from that. It's to do the studies that need to be done to determine the exact size that it needs to be to handle our future stockpile, and to take a look at the technologies that might need to be in this facility.

As I mentioned earlier in my opening, one of the answers that I gave earlier, we're interested in making a design that's manufacturing a simple and as environmentally safe and as worker safe as possible. In the past, that was not a consideration. It's not that people in the past didn't care about these topics, it's that 30–40 years later we know a lot more about impacts of these materials on human safety. So, those types of studies, technology development activities and siting studies to support the work that we're going to be doing because we're looking at a number of different sites. That's what the $24 million is for.

Senator REED. I think the chairman opened up some very important questions with respect to RRW and I want to follow up. Some of these are very specific.

First, the RRW schedule presently is in phase what?

Mr. D'AGOSTINO. Right now we are in what we call phase 2A, which is a design definition and cost study phase. That's what I would propose that we were going to be doing in fiscal year 2007. That's what we were authorized to do, and into fiscal year 2008. That phase is very important because it will provide, what I call the detailed cost, the detailed scope, and the detailed schedule. That is not just the Department of Energy's cost, scope, schedule, but includes our work with the United States Navy, because it's their interface with the Navy systems. That needs to be done in order for us to be in a situation where we can look at how that influences the size of the stockpile, our life extension strategy, and the number of different types of systems, which I think are so important for both the committee and as well as myself to understand.

Senator REED. Thank you very much.

I have additional questions, but I'll wait for another round, Mr. Chairman. Thank you.

Senator DORGAN. Senator Murray.

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

PACIFIC NORTHWEST NATIONAL LABORATORY

And, I just have a quick parochial issue I wanted to query you about. And, it's an issue of the Pacific Northwest National Laboratory that's in my home State of Washington and I think you're aware of the need to replace the unique facility that supports an important national security mission. It's going to be affected by the Hanford clean up schedule. And, I wanted to thank you for your active support in this project that involves partners from the Office of Science and Department of Homeland Security (DHS) as well. And, I noticed that the NNSA budget does not include funds in 2008 for this project, and I wanted to find out from you if you continue to support this project.

Mr. D'AGOSTINO. I'll answer the question. I'd like to ask my colleague to amplify if he could. I appreciate your comments. We do support this project. The type of relationship we have with the Department of Homeland Security and my sister organization within the Department, the Office of Science, lays out what I would say, a commitments page on how we are going to integrate funding requests. In fiscal year 2008, the NNSA element of that is zero dollars. There are more details and probably Will can take it from here and talk about how we've integrated the three organizations together.

Senator MURRAY. Mr. Tobey.

Mr. TOBEY. Certainly, Senator Murray. The zero dollars is really a reflection of the fact that the NNSA has been out ahead of the other two partners, well ahead of the other two partners in our spending rate on this. And frankly, I think it just made sense for us to be at approximately the same rate of spending as the other two partners. It doesn't reflect a lack of support for the program.

Senator MURRAY. And, I assume that you would not object if money's added to the budget for this project?

Mr. TOBEY. Well, of course I support the President's budget, Senator.

Senator MURRAY. Okay. Well, I would then ask, I assume you're going to request additional, or sufficient funding in the 2009 request for where you need to be.

Mr. TOBEY. We're certainly going to try and make sure that we support the project, we would very much like it to go forward. We would like the spending for it to be proportionate among the partners that are funding it.

Senator MURRAY. Okay. Thank you very much, Mr. D'Agostino.

Mr. D'AGOSTINO. Thank you, Senator.

Senator MURRAY. We do appreciate your support of this. This is very critical and we want to make sure it continues to move forward. And, we know the importance of all the partners involved in it, but we've got to keep it moving. So, thank you very much.

Mr. D'AGOSTINO. Thank you, Senator.

Senator DORGAN. Thank you, Senator Murray.

Senator Domenici.

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

Senator Feinstein, it's good to see you here. I didn't think I would see you on this issue as soon as this. And, I assume I will

hear you address this issue in a negative manner, the new nuke formation. I hope not.

PREPARED STATEMENT

But, I want to say, I have an opening statement that I would just ask you make a part of the record.

Senator DORGAN. Without objection.

[The statement follows:]

PREPARED STATEMENT OF SENATOR PETE V. DOMENICI

Thank you Mr. Chairman, I would like to welcome our witnesses. We have Tom D'Agostino, Acting Administrator for NNSA who is joined by Admiral Kirkland Donald, Naval Reactors, and Mr. Will Tobey, Nuclear Nonproliferation.

Gentlemen, I appreciate your participation and hard work at the NNSA. You have a challenging job and these budgets make your job an even greater challenge.

Mr. D'Agostino, I would like to congratulate you for executing the Reliable Replacement Warhead design competition and making a difficult selection between the two extremely innovative designs.

As an original sponsor of the RRW program, I continue to believe that this program provides the best opportunity to transform the stockpile and reduce the overall number of warheads and weapons systems.

It is clear to me that without a demonstrated capacity to produce a weapon that applies state-of-the-art use controls, increased reliability margins, and the ability to be certified without testing, military leaders will not accept a significantly smaller stockpile than we have today as they manage future risks through a massive inventory of weapons. Mr. D'Agostino, I want to compliment you for your advocacy of this program. You have worked hard to articulate the vision for this program since its inception in the fiscal year 2005 Energy and Water Conference Report.

However, if this program is to survive and we are to realize the goal of a smaller deterrent, then it is vital for this administration to defend this program.

Today, I will be sending a letter to the Secretary of Defense, Secretary of State and the National Security Advisor urging them to take a more active role in supporting the RRW program and to answer the concerns that have been raised with the creation of the RRW weapon system.

This administration has a strong record on reducing our nuclear stockpile. They are committed to reducing the stockpile to its lowest levels since the Eisenhower Administration, and the RRW is consistent with this objective.

For anyone interested in further reducing our nuclear stockpile and building on the current momentum—now is the time for action, and the RRW program is the right vehicle.

Now let me turn to the other aspects of this budget request.

I do have concerns about the cuts to the science, engineering and experimental activities that support the science-based stockpile stewardship activities. Funding for these activities has been cut by more than $113 million in this request. I believe the focus on transformation puts too much emphasis on facilities and not enough on science.

Going forward it is vital that we sustain our scientific capabilities, especially with an RRW design. The JASONs, an independent team charged with evaluating the RRW program, also indicated that resolving important scientific questions is critical to having confidence in the stockpile without underground testing.

The facts speak for themselves; all three of the labs received a net reduction in funding, while funding for the manufacturing plants was increased despite the fact there is $60 million in unobligated balances at the plants.

I am surprised by the differences between the Office of Science and NNSA budget requests for fiscal year 2008. The Office of Science is committed to fully utilizing its experimental facilities and expanding its computational and simulation capabilities.

The NNSA budget has taken the opposite strategy and reduced funding for science and experimental activities and proposes to reduce the number of NNSA computers from three machines to two.

I do not believe this strategy is sustainable.

Now let me turn to Nonproliferation. One of the most challenging projects before this subcommittee has been the MOX plant. This facility remains the preferred alternative to eliminating 34 tons of excess weapons-grade plutonium and fulfills our commitments under the Fissile Materials Agreement with Russia.

I am told by NNSA that the MOX plant remains the most cost effective and timely solution to eliminate this material.

I continue to support this initiative and believe DOE should do more to dispose of excess plutonium as a means to mitigate the rising security costs. The fiscal year 2008 request includes $881 million for security, an increase of $120 million above the fiscal year 2007 level. I am concerned that security costs continue to take a larger and larger bite out of the mission.

Mr. D'Agostino, your testimony only makes brief mention of your consolidation efforts. I would like to learn more about NNSA's strategy to permanently dispose of our excess material and put a stop to the rising security costs.

Mr. Chairman, I believe we need to give very close scrutiny to the level of assistance we are providing Russia. When we initiated many of the projects under the Cooperative Threat Reduction initiative, Russia did not have the financial means to protect and secure nuclear material within its country.

Now, that picture has changed and Russia enjoys a budget surplus as they have profited immensely from the high price of crude oil and natural gas. I no longer support providing massive subsidies to Russia's military establishment and believe they should now be expected to pay for their full share of the nonproliferation obligations.

I intend to work with the NNSA to identify areas where we can reduce our subsidies to Russia.

Finally, I would like to make mention of the success of the Naval Reactor program. This program supports the safe and reliable operations of 103 nuclear plants in our naval warships.

I am very proud of the long-term record of success of this program and I wish you well in the future.

Mr. Chairman, I appreciate your patience and I will have several questions for our witnesses.

Senator DOMENICI. But, I want to say, for a small committee, we have a very big sized plate that is full, not just full of money, but full of some of the most important issues to the American people that any subcommittee, any full committee should have, much less this small subcommittee that you chair. That people wonder, what in the world is energy and water anyway.

And, we have a series of funds in here for Russia. Let's go back about 8 or 10 years, and I want to look at this with you very in-depth because I'm wondering whether we ought to give them anything. I was the proponent of the Russian programs. But, Russia's got more money than we do to spend. If they don't care about the nonproliferation, I'm just wondering why we should. These are nonproliferation programs, pure American dollars. That's one program.

We've got GNEP in here, at least we've got to fund some of it. It's a huge program to finish the closed fuel cycle on nuclear energy, of nuclear waste and the development of nuclear power. Big monster program with three or four stopover points where buildings would be built, technology would be applied that is, as much as the biggest we've got around would be built anew. Do we do it or not? Do we have enough money? Good questions. Clearly, we have some big problems with whether or not the entity that you run today, Mr. D'Agostino, NNSA, whether it's working right or not. We're not going to have a long time in my opinion.

Mr. D'AGOSTINO. Right.

Senator DOMENICI. Before it's determined that you cleaned it up and fixed it, or you didn't and it failed.

Mr. D'AGOSTINO. Right.

RELIABLE REPLACEMENT WARHEAD

Senator DOMENICI. That's a giant job after we had so much faith in that new approach to handling the weaponry. Then we have last, but not least, the RRW program.

I want to say to you, sir. If you represent the administration, and if they favor this program like I assume they do. And, if they assume, like I do, that it is a tremendous approach to reducing the stockpiles of nuclear weapons dramatically in the United States, both in number and size, within a reasonable time. And, that the same should occur and accrue to the Soviet Union, Russia, who has big monsters and they keep rebuilding them, monstrous bombs. And, we are supposed to set the world on edge here by telling that we are for the newest of technology in the RRW and to get on with the first, the second little batch of funding, which is going to bring a huge debate. And sir, if you represent the administration, you better leave this hearing and advise them that we better hear from some very big members of this administration who are charged with this problem and who have credibility. Because they are going to be attacked, this program is going to be attacked as being not what we say it is, or what you say it is, but something else, without any question.

Mr. D'AGOSTINO. Yes, sir.

Senator DOMENICI. The opposite. I have found lacking, and I told the chairman, I found lacking the Secretary of Defense's ideas and yet, this is a defense program as much as it is not. I found that Secretary Rice was not forthcoming, at least had not been. And, I found that the Secretary of Defense has not been forthcoming. And, I believe that in short order this subcommittee ought to know from all of them, how they stand and why, and can we really do this, and is it good for the country and why.

It's not too tough for me. I don't need much explaining right now. I'm not that smart, but I got a jump start because we funded a little bit of it last year. I think you know that. But, to me, if we can not convince people that it is time to have a new generation, completely different kind of nuclear weapons, a complete gigantic build down.

Incidentally, this administration has a done a terrific job of building down the nuclear stockpile. They are the only administration that comes close to reducing to the levels of the Eisenhower administration, in reducing warheads that Americans had available for war use. This administration did it in spades. Now they want, without testing, they aren't saying, "Let us test." They're adding to this that they won't test, right? Is that right, Mr. D'Agostino?

Mr. D'AGOSTINO. Yes, sir. To certify the warhead, that's right.

Senator DOMENICI. This whole new thing will say, "We'll produce the weapon and we'll produce assurance it will work. It will be small, it will be different, and you won't have to test it." Right?

Mr. D'AGOSTINO. That's right, sir. That's right. To certify the warhead we will not have to test. I believe it will reduce the likelihood, certainly, especially compared to the stockpile we have right now, we would ever need to test.

Senator DOMENICI. Mr. Chairman, I have about 20 more that I'll put in later. I do want to thank you for your diligence and say what a great start this subcommittee's had, and is going to have under your leadership. In my opening remarks, if I don't get any more of them in here, I will put them in the record.

I'll close by saying, Admiral, I hope that every time you appear before this subcommittee, the fact that you are asked no questions

does not mean that, that we have anything but the greatest admiration for the work you do. If every department of the Federal Government could accomplish its mission pursuant to its goal as set and never miss the pencil point, we would have short hearings and great praise.

Admiral DONALD. Yes, sir. Thank you very much. It's an honor to appear before this subcommittee, and I do appreciate the support the subcommittee's provided over the years to this program. It's been a large part of the success.

Senator DORGAN. Senator Domenici, thank you.

Senator Allard.

PREPARED STATEMENT

Senator ALLARD. Thank you, Mr. Chairman. I have a statement I'd like to make a part of the record if I might.

Senator DORGAN. Without objection.

[The statement follows:]

PREPARED STATEMENT OF SENATOR WAYNE ALLARD

Thank you, Mr. Chairman, for holding this important hearing today on the National Nuclear Security Administration budget request for the coming fiscal year 2008.

Over the years I have consistently supported sustaining our nuclear weapons stockpile, as well as efforts to develop concepts for future weapons. I believe that our Nation's national security is strengthened by our possession of such weapons.

Some opponents of these weapons believe that they are a threat to our civilization. Others believe our possession of such weapons raises the possibility that they might be used. Many believe that if the United States dismantled its nuclear stockpile, then other nations would follow suit. And, unfortunately, some believe that nuclear weapons should be destroyed no matter the cost to our national security.

These arguments do not always reflect the global security environment. First, as more than 50 years of deterrence has proven, the best way to ensure that a nuclear weapon is not used is to have a strong national defense, including nuclear weapons.

Additionally, opponents have attacked the Bush Administration's nuclear weapons initiatives over the past few years, including the feasibility study for the Robust Nuclear Earth Penetrator, the development of Advanced Concepts, enhanced test readiness, and the construction of a new modern pit facility.

The question that I continue to raise is where do we go from here? After the test moratorium went into effect and the stockpile stewardship program ramped up, most of our efforts became centered on sustaining our current nuclear stockpile. Given the political dynamics of the post-cold war era, this strategy seemed to make sense. But, we must all recognize that this decision only put off, at least for the time being, a larger policy decision about the future of the U.S. nuclear weapons stockpile. We must face the facts that our current stockpile is on average approaching 20 years in age.

Again, thank you Mr. Chairman for bringing us here today and I look forward to hearing Mr. D'Agostino's testimony today on these and many other issues.

SECURITY AT NATIONAL LABORATORIES

Senator ALLARD. It seems like the Department of Energy consistently has problems that raise concerns about being able to protect our Nation's secrets. And, we've just got a inspector general's report, March 2007, where we have computers that are missing, as far as inventories are concerned. And, I'm brought back to—was it 1997, 1998 I—think, Senator Domenici, where we had computer and security problems related to computers at Los Alamos and our national laboratories.

Senator DOMENICI. Yes.

Senator ALLARD. And, we are back in with the agencies that have some of our Nation's top secrets losing computers again. And, I'm wondering if you can explain to us how that happens?

Mr. D'AGOSTINO. This is my question?

Senator ALLARD. Yes.

Mr. D'AGOSTINO. Admiral?

Senator ALLARD. How do you pronounce your name?

Mr. D'AGOSTINO. D'Agostino, Senator.

Senator ALLARD. D'Agostino. Okay.

Mr. D'AGOSTINO. Yes.

Senator ALLARD. Got you.

Mr. D'AGOSTINO. Thank you. It's hard. I believe you might be referring to the counterintelligence laptops.

Senator ALLARD. This is an inspector general report and it was on the counterintelligence section, yes.

Mr. D'AGOSTINO. That's right. With respect to control of material, of computers and security in general because I think it's not just a problem that exists at one site. It's something that the Secretary and I are very concerned about across all areas.

Most recently, as you are well aware, we had a concern at Los Alamos National Laboratory last fall that resulted in multiple inspections by the inspector general, and the Government Accountability Office to look at what is going on with respect to cyber-security. We call it cyber-security. What we have found as a result of that, we had too many directives that were issued, by memo or email and not enough, actually, written down in a clear concise way and put into the contracts themselves. So the contractors had, what I would say, is too much conflicting information.

Since that time, the Secretary had directed our Chief Information Officer to look at this particular problem specifically and the inspector general investigation that was done. He commissioned a special task force to look at that specific problem. Mr. Pike, who is the Chief Information Officer, provided a report. I was part of that task force that looked at that. We came out with a number of recommendations to deal with it.

The Secretary is implementing those recommendations, in fact, two of the biggest recommendations were to start from scratch and simplify the cyber-security directives to make sure that it's clear what we expect from our contractors, how we expect our contractors to perform. And, more importantly, put those requirements in the contracts themselves.

Those contract modifications are being put into the contracts themselves and then the next step is follow through with oversight by the Federal site offices and headquarters to make sure that we tie expectations and performance, money, and reward fee that we have to it. I can't explain that specific incident and I apologize. I don't have the details behind that particular incident on the laptops, but I know the Secretary is very concerned about this particular problem and we're taking a look at it, not just at the nuclear weapons laboratories and not just across the eight nuclear weapons sites, but across all 17 laboratories within the Department of Energy.

Senator ALLARD. It's my experience here in the Senate that this is a chronic problem with the Department of Energy losing track

of computers. We always set up a committee to check it out and recommendations are applied and, you know, 4 or 5 years later it erupts again. And, I'm hoping that somebody around here is beginning to take this problem seriously. I think it's intolerable, from my point of view.

Mr. D'AGOSTINO. Right.

Senator ALLARD. My question is, do you have money to make sure that you have proper controls over our Nation's classified information?

Mr. D'AGOSTINO. I know the answer to that question is yes and I'll explain how. In fact, right now within the NNSA our cyber-security budget has gone up by more than 15 percent compared to fiscal year 2007. But, actually there's more to it than that.

For fiscal year 2009—we're putting our budget together for that right now—we're applying what we call risk-based and risk management decision processes to make sure that we know what it takes to fund that area. My expectation in 2009 is we'll be seeing additional resources in this area to address these particular problems. Resources are part of the problem, but the other part of the problem is attitude and understanding and having clear expectations.

The one thing I've learned in this job over the last couple of years and in Defense programs is that setting clear, simple expectations is very important, having the expectations defined in contracts and in performance expectation, performance evaluation plans, and tying financial resources to those expectations so it actually drives behavior. I think that's how were going to get to solving this problem.

Senator ALLARD. Mr. Chairman, I have one more question. I can either ask it now, if you'd like, or wait for another round.

Senator DORGAN. You may proceed.

Senator ALLARD. Okay, thank you.

Senator DORGAN. Then I'll call on Senator Feinstein.

Senator ALLARD. Thank you.

MIXED OXIDE FUEL FABRICATION FACILITY

I strongly support the Mixed Oxide Program in Savannah. I think it's also referred to as MOX Plus, am I correct?

Mr. D'AGOSTINO. We just call it MOX.

Senator ALLARD. Okay. When do you plan to complete your design work for the facility and then when do you plan on to begin construction and have you got any thoughts about cost scheduling?

Mr. TOBEY. Senator, the design is some 90 percent complete at this point. Small portions of the designs balance will go on for years because it just makes sense to do some of the design as the building is completed. We're ready to begin construction as soon as we're permitted by law, after August 1 of this year. And, it would, the construction would go on for some 15 years, is the baseline.

Senator ALLARD. And, when do you think you'll be able to process materials?

Mr. TOBEY. The construction will be complete in 2016. We'd be able to process materials immediately thereafter.

Senator ALLARD. Thank you.

Mr. TOBEY. And, it would run for 15 years after that.

Senator ALLARD. Thank you, Mr. Chairman.

Senator DORGAN. Senator Allard, thank you.

Senator Feinstein.

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

Mr. D'Agostino, I want to thank you for the time you spent with me on Monday.

Mr. D'AGOSTINO. Yes, ma'am.

RELIABLE REPLACEMENT WARHEAD

Senator FEINSTEIN. I want to say that you're a straight shooter and that you're honest and direct. And, I want you to know that I really appreciate this.

Mr. D'AGOSTINO. Thank you.

Senator FEINSTEIN. I believe I now have a very good idea of what is involved in this warhead. This is a real point of conscious for me. I grew up following Hiroshima, 15 kilotons, and Nagasaki, 7 kilotons. And, I saw the wake of that all during my childhood. And, the mushroom cloud was the thing we most feared growing up——

Mr. D'AGOSTINO. Right.

Senator FEINSTEIN [continuing]. In this very great country. A December 2006 report by the national laboratories, has showed us that the plutonium pits have a lifespan of at least 85 years. And, it's my understanding that next week, the American Association for the Advancement of Science is expected to issue a report calling on the administration to develop a bipartisan policy on the future of nuclear weapons and nuclear weapons policy before moving ahead with the RRW. My vote on this, depends on whether I believe this is, in fact, a new nuclear warhead. I told you that Monday. I have thought about it all day Tuesday. I've gone over in my mind, those things that we shared in that classified briefing.

I worked with Sam Nunn, when he was in the Senate of the United States. And, I want to quote for a moment, his testimony on March 29 before the House Energy and Water Appropriations Subcommittee. And he noted, and a quote, "On the RRW itself, if Congress gives a green light to this program in our current world environment. I believe that this will be misunderstood by our allies, exploited by our adversaries, complicate our work to prevent the spread and use of nuclear weapons and make resolution of the Iran and North Korea challenges all the more difficult." That's Sam Nunn, who's the chairman of the Nuclear Threat Reduction. And, I think very well respected for his background and work in this area.

I would hope that every member of this subcommittee would get a classified briefing on this proposed new, proposed change in the warhead. Let me ask this question. Has the NNSA assessed the impact of the United States development of a new warhead on U.S. nonproliferation efforts, including efforts to convince other countries not to acquire nuclear weapons? And, how do you justify this cost to our nonproliferation efforts?

Mr. D'AGOSTINO. Thank you, Senator. I appreciate your comments earlier.

I'm going to answer it and I'd like Mr. Tobey, as well, to talk a little bit about the international piece. His folks spend a tremendous amount of time overseas talking about this very subject. I

don't recall if you were in the room when I responded earlier to the idea.

Before we made the announcement on the Reliable Replacement Warhead concept, we did talk to our allies, the North Atlantic Treaty Organization (NATO), as well as other allies, including Russia and China about the strategy and the understanding that we want to reduce the size of our stockpile. As I mentioned to you earlier this week, I'm committed to making sure that when we reduce the size of our stockpile and we look at a future nuclear deterrent, that my responsibility is to make sure that that deterrent is as safe and as secure as humanly possible, as our technology allows it to be. I'm convinced that our cold war stockpile has, even though we assess it on an annual basis right now.

Senator FEINSTEIN. You assess that it's safe and secure on an annual basis?

Mr. D'AGOSTINO. Assess it, assess it's safe and secure on an annual basis. That over time, we'll be put into a situation where this country will be faced with a question that I don't want the President, whomever the President may be in the future, to have to decide whether we need to conduct an underground test. I want to stay as far away from the underground test question as possible.

The question in my view, becomes if there is a future nuclear deterrent, and I do understand Senator Nunn's comments, then how should, what should it look like? I believe it should be small, as small as possible.

I believe the nuclear footprint on the United States, how many sites and the size of the sites and how much money the Nation invests over a lifetime, should be commensurate with that. I believe that the Nuclear Posture Review that was put out a few years ago, which was the concept of replacing the large number of nuclear warheads as a nuclear deterrent during the cold war is not as good as having a small number of very safe and secure warheads with the ability of the Nation to respond in the future.

Right now we are faced, I believe, with a fairly important point, as you are absolutely right, on what strategy is the right strategy. I'm concerned that if we go down a track of, without considering this, without understanding what RRW really means, then we won't actually have the information that I can present to you and say, "This is what it really means with respect to how small the stockpile can be."

Senator FEINSTEIN. Which you don't have yet.

Mr. D'AGOSTINO. I don't have that, that's right, ma'am. And, that's what I'd like to do in the next 9 to 12 months, is to develop the cost, the schedule, and scope with the United States Navy to give you a real number. How much it costs? What are the offsets? How small does the stockpile get as a result of this? What does this mean to nuclear testing, exactly what does this mean to nuclear testing? And, how many more nuclear weapons should we be dismantling? I want to be able to put that in writing, almost like a contract, if you will.

Senator FEINSTEIN. Could you speed it up and do it before we vote on whether to approve this appropriation?

Senator DORGAN. Would the Senator yield on that point?

Does the appropriation request for this coming fiscal year also include some small amount of money for an RRW–2, which would be a follow up, follow-on contract? And, if so, what, what's the purpose of talking about a second RRW before the Air Force, prior to making the decision the Senator from California is asking?

Mr. D'AGOSTINO. That's a good question, sir. We have to look at our B61 bomb. The B61 bomb is an Air Force bomb. It was designed in the early 1960s, essentially, almost 40, 45, 50 years ago. It's got vacuum tubes inside the system itself. We have other concerns that I'll be glad to talk specifically in a classified session, I'll be glad to talk about that.

And so, the idea was, do we—right now, we're going to be doing a life-extension plan, starting in the 2012, 2010 to 2012 timeframe. And the question is, does it make sense to rebuild a bomb? As we will do if we don't move forward in a different direction or we build bombs the same way we did back in the 1950s and 1960s? I think that's irresponsible to do that. The technology has changed so much in the last 50 years. The threats have changed so much in the last 50 years. It would be irresponsible for us to replicate the past.

I don't think it's right for our workforce, it makes them work on components like Beryllium. Beryllium is a very hazardous material, and causes berylliosis, which is a disease we didn't know about 50 years ago. In fact, this Nation is spending money right now, essentially compensating our workers who, over the past 40 years have devoted their life to national security, and now are finding themselves sick. I don't want to get into that in the future.

Senator FEINSTEIN. Would you go back to your proposal?

Mr. D'AGOSTINO. I think it would make sense and I want to make sure the subcommittee gets the detailed information on the cost, the scope and the schedule of what an RRW could do, and that's what we're working on right now. We are authorized and appropriated to do that, and we are doing that. And it's going to carry forward into 2008.

When we get that information together, and when we can look at what this means to the size of the stockpile, to what things we take off the table from our current plans, and how does this impact the actual infrastructure—and I use that term to describe buildings and processes—and how much money we save from that, I think the actual data that I have right now is compelling, but I want it to be, what we call, budget quality. In other words, the quality that I feel I can stand behind, and come to this.

Senator FEINSTEIN. I thought what you had said to me earlier, that it might be possible to actually speed up the reduction of the nuclear fleet, so to speak.

Mr. D'AGOSTINO. Oh, okay, yes, ma'am. We were talking about dismantling warheads.

Senator FEINSTEIN. Right.

WARHEAD DISMANTLEMENT

Mr. D'AGOSTINO. Yes, ma'am. A little bit different from RRW, we're going as quickly as possible given the resources to work with the Navy to get the picture right.

On dismantlements, what we did last year was we made a unilateral decision outside of the Defense Department space, to accel-

erate by about 25 percent, on average, our dismantlements of cold war nuclear warheads.

In fact, in fiscal year 2007, this year, we're in right now, we had made a commitment, I made the commitment to the Secretary, and the Secretary talked to the Secretary of Defense, of a 49 percent increase in the number of warheads we're dismantling, compared to fiscal year 2006.

In all likelihood, we're going to not only hit that target, we're going to exceed it. We'll probably dismantle twice as many warheads this year as last year. The key will be keeping on that pace year in and year out. Right now, even though we've dismantled 13,000 warheads in the timeframe I mentioned earlier, in the 1990s, and we have a number of warheads to dismantle, that what we've got is a plan that takes us out into the early 2020 decade. And, ultimately, in the end, we need to pull that date, the end date, up forward.

Senator FEINSTEIN. How many warheads are in the RRW, long-term program?

Mr. D'AGOSTINO. If you take the concept to its end. If we believe that we're going to have fewer and safer and securer, it would be the number of warheads that I can talk about publicly, it's the Moscow Treaty number of 1,700 to 2,200 warheads plus, a number of what we call reliable spares.

Because, when we say operationally deployed, these are warheads that are with the Department of Defense, whether they're in silos or at Navy bases, and we need to maintain a fraction of that number within the Department of Energy because we do surveillance. We take some systems out and we replace them to check on their quality.

That is ultimately the number that you need to understand and that I need to understand that the Department of Defense can collectively come to. I have in my mind what it could be, it would be not appropriate, I don't believe, to discuss it in public until I've had a chance to talk to the Defense Department.

Senator FEINSTEIN. So, we could sit down with you, again, in a classified way and go over some of this?

Mr. D'AGOSTINO. Yes, ma'am——

Senator FEINSTEIN. Because it's very important.

Mr. D'AGOSTINO. [continuing]. Yes ma'am, I'd be glad to do that, I will look forward to it, thank you.

Senator FEINSTEIN. Thank you.

Thank you, Mr. Chairman.

Senator DORGAN. Senator Feinstein, thank you.

I think that might be a good idea, I'm interested in this issue of deployed weapons, versus total weapons, and the circumstances surrounding that, weapons spares, et cetera.

Mr. D'AGOSTINO. Yes, sir.

Senator DORGAN. And I think that is most appropriately discussed, I think, in a classified setting.

Senator Domenici, did you have other questions you wish to ask?

Senator DOMENICI. First I want to say to the members of the subcommittee that are here, and in particular, Senator Feinstein, that it is quite amazing, as a Senator, to be able to say in the record this afternoon that great issues like the one we are dis-

cussing are frequently done without a lot of television, via a hard-working subcommittee. I'd say this one works hard, it couldn't produce anything if it didn't, it's so complex, unless we just abdicated to someone and said, "We don't want to do anything," and your questioning indicates to me that you can join in a discussion that is predicated upon good sense of the past, and some good thinking about the future, even if it's in the most complicated, and almost horrific context, that has to do with building nuclear weapons and dismantling and destroying them.

I do want to say to you that someone like me whose age you would just have to guess, because I'm in such great shape, nobody knows I'm a very old man, and people think I'm 55—pretty good, right? But, what I wanted to say to you, whatever generation I came from, I had the same recollection of the bombs, and I learned an awful lot more about it by being not too far from Los Alamos for my childhood.

When we used to drive to Los Alamos as a family, in our family car, just for the pleasure of being turned down by the armed guards at Los Alamos who would tell this wonderful little American family, "Well, you can go no further, make a U-turn and go home." And we used to all wonder in our car, and talk with my dad, who had only a fourth grade education, about all of the things we imagined that were going on behind that high wall. That was it, that was the central focus for all of the building that has occurred since then, that you are aware of.

I then involved myself very deeply in the next phase around here, which had to do with stopping testing, underground testing, unless the American future was at stake. And, I learned all I could about that, and for the first time, in spite of my great friend Sam Nunn, who just called me yesterday for a wonderful, ever-so-often conversation, if I had that I would have asked him about it, but I forgot. Because we agree on most things, but I would ask him if he would sit down with me, and discuss the alternatives, which I think he must do. Because his voice is too loud to remain unfettered, he must tell us what he will do, if he won't do this.

Because that's going to end up being the question—if we're not going to do this, in terms of a dismantlement and change, what are we going to do? Are we going to leave this stockpile as our legacy, this one, and say, "We just hope we never have to test." I don't want to do that, because I feel kind of confident that this subcommittee could make a good decision. And I think we ought to make the decision, not leave it for 10 years from now, when somebody will make it secretively, and you'll hear about it as a puff out there in Nevada, because we can't tell the world what we did.

MIXED OXIDE FUEL FABRICATION FACILITY

Now, having said that, I wanted to ask you about MOX, and the facility—how is it coming, and if we budget what the President asks for, where will we be? Whose got MOX?

Mr. D'AGOSTINO. Well, I'm going to ask Mr. Tobey to comment on that, and I can follow through.

Mr. TOBEY. Senator, as you probably know, we are ready to start construction after August 1 of this year. We're eager to do so, we believe it's an important program. It's consistent with U.S. national

security and nonproliferation interests. We would aim to have the facility complete by 2016, and to operate it for at least 15 years thereafter.

Senator DOMENICI. What is it going to do, so we'll all have on the record—we're going to build this building and do something, what are we going to do?

Mr. TOBEY. In the first instance, we will dispose of at least 34 metric tons of U.S. plutonium access to defense needs.

Senator DOMENICI. Where did we get that?

Mr. TOBEY. Pardon me?

Senator DOMENICI. Where did we get that?

Mr. TOBEY. From the dismantlement of weapons.

Senator DOMENICI. Our own?

Mr. TOBEY. Yes sir. And it will also, it is part of an agreement with Russia under which Russia would also dispose of 34 metric tons of weapons-grade plutonium.

Senator DOMENICI. And I'm very glad to say, as a member of this subcommittee, I had something to do with that. In fact, I sat over there in Russia, with the President of the United States, seeing if they would agree. They agreed, and it took 3 more years before we could get started. Now, we have people saying, we shouldn't build in the United States—shouldn't proceed in the United States.

I knew all the answers that I, questions I asked, but it's absolutely impractical to me to have a facility that over the ages, we could not build because of political problems. It approved on all sides, and then the Russians agree to dismantle and deliver the equivalent of 34 tons of plutonium to be run through a MOX facilitating plant to produce mixed oxide fuel. That's what it is, isn't it?

Mr. TOBEY. Yes, sir.

Senator DOMENICI. Where it gets its name—that's going to be reusable, isn't it?

Mr. TOBEY. Yes, it would become fuel for U.S. reactors.

Senator DOMENICI. Fuel for U.S. reactors——

Mr. TOBEY. With significant value.

Senator DOMENICI [continuing]. And we have people not wanting to do it. I wonder what they would want to do with the residual that is high-flying plutonium. And we get to run it through this piece of equipment, and it changes from that to something much less maligned than its current status, is that right?

Mr. TOBEY. Yes, sir, it is. There are no good alternatives, certainly none that would provide the nonproliferation benefits. And frankly, simply continuing to store the material, using 50-year life cycle costs, is the most expensive thing we could do with it.

Senator DOMENICI. You got it.

Mr. TOBEY. And, given that the half-life of plutonium is 24,000 years, it's not unreasonable to use a 50-year life cycle cost standard.

Senator DOMENICI. I thank you very much, and I want to say to the chairman that I would like to join in a more in-depth briefing if you would like that, and of course, the Senator from California wants to do that, and I would like to go with you so we don't have to do it twice if you think that's a good idea.

Senator DORGAN. Senator Domenici, I think what we will do is arrange a classified briefing and invite members of the sub-

committee to it, so that we can have a fuller discussion in a classified setting of all of these issues.

Mr. TOBEY. Yes, Mr. Chairman.

Senator DORGAN. Senator Reed. I have no further questions.

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

RELIABLE REPLACEMENT WARHEAD

I want to just cover some specifics. I think the questions have been asked, but I just want to nail things down. We're in phase 2A right now in the RRW, when do you anticipate requesting permission from the Nuclear Weapons Council and the Congress to start phase 3?

Mr. D'AGOSTINO. Senator, I'd expect it'll take us 9 to 12 months to finish this phase 2A activity, probably putting us in the January/February timeframe of next year, roughly. Then we would take that decision to the Nuclear Weapons Council. I sit on the Nuclear Weapons Council with Mr. Krieg and others from the Defense Department.

We will look at that phase 2A study. In particular, we will look at what it does to what we call the nuclear weapons stockpile memorandum. This is a memorandum the President ultimately signs and sends over to Congress, which provides the details on the size of the stockpile. And, I think what I—not only do I believe as a matter of course, but I think it's important for this Congress is to understand how RRW drives the size of that and provides the details of the stockpile.

We will have a vote within the Nuclear Weapons Council on whether to move forward on what we call phase 3, which is a little bit of a development phase, or design development phase, where we would do some engineering work. We would run more calculations, maybe do some materials tests, so that would be later on next year.

Senator REED. Later on, being July, June, August—just to——

Mr. D'AGOSTINO. We're having our first meeting with the Navy out at Lawrence Livermore on May 1, so I'll have a schedule, probably in another 2 months that I can come talk to you about, sir.

Senator REED. Just, specifically, and you've already, I think, answered this in response to other questions—the RRW design is a new warhead, will be a new warhead, correct?

Mr. D'AGOSTINO. It is a new design for an existing warhead. I'm not a lawyer, but it's an existing military capability. It's a replacement warhead, but it's a new design for that warhead.

Senator REED. The warhead is the one for the Navy program, the D–5 missile program?

Mr. D'AGOSTINO. It's to replace the W76, that's right, sir.

Senator DOMENICI. Senator?

Senator REED. Yes, sir.

Senator DOMENICI. Can I ask you if you would do me a favor?

Senator REED. Yes, sir.

Senator DOMENICI. Out in the audience are 10 trainees from the NNSA Training Program, Mr. D'Agostino, it's your training program for students from up in your country?

Mr. D'AGOSTINO. Yes, Senator, they are what we call Future Leaders. The average age in the NNSA is close to 50 years, and we recognize that we need to train and bring in the best folks we

can, similar to the model that Admiral Rickover and Admiral Donald go off and interview and bring in bright people, bring new ideas into the organization. Ten of them are here, sir.

Senator DOMENICI. Could they stand up?

Mr. D'AGOSTINO. Sir.

Senator DOMENICI. Mr. Chairman, I greatly appreciate you permitting us to do this, and could I just welcome them, thank you for coming, and we hope you have a good time.

Mr. D'Agostino, thank you for being so cordial to them.

Mr. D'AGOSTINO. Thank you, sir. I appreciate it, it's good to see them here. I appreciate having them here.

Senator DORGAN. All of us welcome you, and we hope that you've enjoyed the subcommittee hearing, and we appreciate your service to our country by serving in public service, which is a very honorable and important thing to do. So, we welcome you here.

Senator Reed.

Senator REED. I think a critical question here, with respect to RRW is the issue of testing. Is it a specific objective of the program to be able to eliminate the need for testing in the future? Yes or no, is that going to be a specific objective?

Mr. D'AGOSTINO. I want to be very precise in my answer, I think it's a little bit more difficult than a yes or no. But, here's what I'm going to say—we will not move forward with RRW, if it requires a test to certify that warhead. That is not something I would recommend to the Nuclear Weapons Council. It would be a long discussion in the Nuclear Weapons Council before that happened.

Now, we do assess, on an annual basis, our stockpile for testing. I can't predict what might happen 40 years from now, as that warhead ages, but that's not, my view, is not moving forward.

Senator REED. Because Admiral Donald's been so cooperative, he never gets asked a question.

NAVY HOME PORTING

Admiral Donald—how does your Office of NAVSEA and the Department of Energy participate in the overall EIS process for Navy home porting changes for potential additional submarines for Guam? In 20 words or less.

Admiral DONALD. Yes, sir, we participate with the Navy anytime there's an environmental impact statement or a home port change or a significant—potential significant impact to the environment. We participate as part of that team, obviously with concerns about the facilities that may be needed to support the nuclear-powered ships in the area, obviously with our environmental record, that subject is a matter of public record as well. And that's part of that consideration should that, any expansion be required in that area.

NONPROLIFERATION RESEARCH AND DEVELOPMENT

Senator REED. Thank you, sir. The chairman's been very kind, but I have one additional question, Mr. Tobey. You might want to take this for the record, because we, we talked about this before, I think, in the Armed Services Committee, which is—if additional funding were available for nonproliferation research and development, how would you use it? And—would you like to take that one back and send us a note, or——

Mr. TOBEY. I think I actually would like to answer that, if that's all right, Senator?

If the Congress appropriated, and the President signed additional funding for research and development, I think we would direct that funding toward greater efforts on radiological detection. That's a critical effort that will support our abilities across the board, as you may understand, and as we've discussed. We're moving our efforts from those that are concentrated mainly on the former Soviet states, to threats that are originating elsewhere, and also from the immediate facilities that house nuclear weapons and material where our work is coming to closure, to being more vigilant on borders, and in other places.

And, in order to meet the emerging threat, we do need to work on radiological detection, we are working on radiological detection, and the President's budget does support that. But, that would be an area of additional interest.

Senator REED. Thank you very much.

Thank you, Mr. Chairman, you've been very kind.

Senator DORGAN. Senator Reed, thank you very much.

These are—as I indicated when I started—very complicated issues. And I have tried very hard to meet with a lot of people, study these issues, try to understand these issues in recent months. And there's a lot to know, and a lot to understand, and many answers that you don't have, Mr. D'Agostino, and I don't have, and Senator Domenici doesn't have—but we have to try to, as best we can, think through these issues, in the context of what is in the best long-term interest of this country.

The survival of this planet, I think, depends on our getting these things right. We've been very lucky that for 60 years, we have not had another nuclear weapon used in anger. Because once one is, a planet in which there are 15,000 to 20,000 nuclear weapons, and the release of them back and forth, this civilization will cease to exist, at least as we know it.

I said earlier, at another hearing, that I very much opposed and felt it reckless for those at a time, who talked about the potential use of nuclear weapons, the need to build new nuclear weapons, the need to build designer nuclear weapons, the need to be able to burrow into caves and create bunker busters, and some talked about nuclear weapons were simply another weapon, and they were usable, were needed to be used under certain circumstances, I view that as pretty reckless, and pretty troubling, personally.

Because there are a lot of nuclear weapons that exist, and because our country has signed up to a treaty that says we agree to some sort of goal at some point, not described with respect to time, that we would like to abolish nuclear weapons. Because of all of that, I mean, the question for all of us now is how do we reach into the future, and describe a future without nuclear weapons, or at least moving toward the reduction of nuclear weapons?

I want to just tell you, I read a book awhile back that describes something I'd previously read in a—I believe, Time or Newsweek, about October 11, I believe it was exactly 1 month after September 11, 2001. A time during which a CIA agent code named Dragon Fire reported that a small, I believe 10 kiloton, at least, a small Russian nuclear weapon had been stolen, and had been smuggled

into either New York City or Washington, DC, by terrorists, and was to be detonated in a major American city. That didn't hit the press, was not a part of a public story, but for about 1 month, at least, there was great, great concern about whether or not that report was accurate.

It was later discovered to have not been an accurate intelligence report, but in the post-mortem, the evaluation was that it was perfectly plausible, that perhaps someone could have stolen a 10 kiloton nuclear weapon. Perhaps, if stolen, and gotten by a terrorist organization, it was plausible that it could have been smuggled into an American city, and plausible that such a weapon could have been detonated. And then we wouldn't be talking about several thousand casualties, we'd perhaps be talking about several hundred thousand casualties.

That is the angst about the potential loss of, or stealing of one nuclear weapon. One. There are about, we believe, 20,000 on this Earth. I think the survival of our planet depends on our getting all of this right—we've been very lucky for 60 years. Maybe we'll be lucky for the next 600 years, I don't know.

We have, in fact, a Stockpile Stewardship program in this country, that goes on, has gone on for some while. That means that we work on the weapons that exist, to make sure that they are weapons that are available in the event that we were threatened as a country, so there's nothing new about stockpile stewardship, about people in your organization that routinely do this kind of work.

The RRW program, my colleague from California raises definitional questions, I don't know the answers to those. I think the discussions that will continue now in the early stages of this program, we'll try to find those definitions, and try to think through—what are the consequences, Senator Domenici asked, what are the consequences of not proceeding? Senator Feinstein would ask, what are the consequences of proceeding? That's the sort of thing, it seems to me, that this country needs to grapple with as a set of policies.

Senator Domenici today has said that—and he showed me the letters—that he has written to the Secretary of State, Secretary of Defense, and one other—and I think, this is—as I—the reason I describe all of this at the end of this hearing, is this is not just some other issue. Senator Domenici is right—this subcommittee has in its lap some very serious questions to answer.

You, Mr. D'Agostino, run an organization that is very, very important, and also needs to get this right, working with us to get it right, and I've said previously, with some of the folks who have appeared, I'm impressed with the quality of some of the folks who have come to public service, I'm very impressed, Mr. D'Agostino, with your willingness to sit with us——

Mr. D'AGOSTINO. Thank you.

Senator DORGAN [continuing]. You and I have had a chance to visit on a couple of occasions, and have traveled to New Mexico to Sandia. I thank you for serving our country.

I'm not sure how I come out on all of this at this point. I'm trying to understand it all, it's very complicated. And I don't think my colleague, Senator Domenici, would allege it's simple at all——

Senator DOMENICI. Oh.

Senator DORGAN [continuing]. It's very complicated, for everybody on all sides.

But I pledge that I, and I think all members of this subcommittee want to try to find a way to get to the right answer here on these issues. Because I think the survival of the planet, at some point, I don't think it's expressing it too starkly—depends on our doing the right thing.

And, so I want to thank the witnesses for coming. Mr. Tobey, thank you, you have a very important part of this. I'm going to submit to you some questions, and Mr. D'Agostino, I'm going to submit some additional questions to you.

Mr. D'AGOSTINO. Sure.

Senator DORGAN. Admiral, thank you for your service.

And, let me again, to the new leaders, say to you—I think public service is an unbelievable honor. Those of you who come to Government and say, "I want to be a part of this," thanks for doing that, and it's nice to see an agency that worries about the future. I think it's sort of crass and unbelievably inept of you, Mr. D'Agostino, to define 50 years of age as old.

Mr. D'AGOSTINO. I apologize.

Senator DORGAN. But, we welcome to those of you, if you choose to have them, it does you no service on this subcommittee, does it?

But in any event, thanks for being worried about renewal for those old codgers who are nearing 50.

Mr. D'AGOSTINO. I don't have much hair.

Senator DORGAN. Senator Domenici, thank you, and let me thank the witnesses, this hearing is recessed.

Senator DOMENICI. Mr. Chairman?

Mr. D'AGOSTINO. Thank you, Mr. Chairman.

Senator DORGAN. Yes?

Senator DOMENICI. I just want to say, and then you certainly are welcome to comment, you used the word that we have been "lucky" for the last 60 years, I think you really mean, we have been fortunate. We have not been lucky—we have spent more brain power of the highest quality, and more money, if money means anything, than on any other issue or program that has to do with military, we've spent more on nuclear weapons and the defense that goes with them, and defending from them, and making sure they're never used. Because most of what we spend money on is to make sure nobody uses them, because they know they can't use them, because they know for absolutely for certain, that it would be a useless gesture. We spend much on that. And there's much to learn from how well we've done as we move ahead with what we contemplate in the future.

And I know what you meant, and you know what I meant. I sounded flippant a couple of times, in speaking about Sam Nunn, I didn't intend to be, and you don't intend to be, and use any of the words here, they're all most difficult.

Senator DORGAN. No, I think, but I use the word luck for this reason. I think in 1945 had someone said, "You know what? We're going to build thousands of additional nuclear weapons, thousands of them, and by the way, in the next 62 years, none will be used in anger, that's going to require some unbelievably good work, and a little luck."

Senator DOMENICI. You got it.

Senator DORGAN. I think most people would believe that to be the case.

ADDITIONAL COMMITTEE QUESTIONS

The subcommittee will submit the balance of the questions for your response in the record.

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

QUESTIONS SUBMITTED TO HON. THOMAS P. D'AGOSTINO

QUESTIONS SUBMITTED BY SENATOR PETE V. DOMENICI

COMPLEX 2030

Question. Mr. D'Agostino, Last year GAO reviewed the NNSA's Complex 2030 and had several recommendations that NNSA address as part of its $1.5 billion transition plan. The GAO was critical of the NNSA decision to proceed with a plan, without knowing the military requirements for the stockpile.

GAO recommended that DOD should provide clear, long-term requirements for the stockpile, including quantity, type and mission. Based on this information NNSA could then develop cost estimates based on the military requirements and then develop a transformation plan to support the preferred stockpile.

Mr. D'Agostino, it appears that without the Department of Defense requirements it would be tough to develop an accurate or precise transformation plan.

Has the Department of Defense provided its long-term requirements for the stockpile? What about pit capacity and future RRW requirements?

Answer. The President defines the size and composition of the nuclear weapons stockpile by his Nuclear Weapons Stockpile Plan (NWSP), which is reviewed annually. The official requirements documents, such as the NWSP, may lag expectations relative to the size and composition of the future stockpile. Consequently, our transformation plans must be sufficiently robust to cover a realistic range of future requirements.

With the President's commitment to achieving the smallest possible stockpile size consistent with national security, future production requirements are likely to support a much smaller stockpile. In evaluations led by the Department of Defense, we have established a range of possible stockpile scenarios that bound the most likely threat environments of the future. For each scenario, we have determined warhead production capabilities and capacities, including the manufacturing quantities needed for plutonium and highly enriched uranium components. Thus, the range of possible scenarios provides bounds for production capabilities and capacity ranges that we might need in the future. The capabilities to design, certify, and produce Reliable Replacement Warhead (RRW) concepts and to manufacture 125 (net) pits per year are consistent with these evaluations.

As warhead quantities are reduced, it is important to recognize that defining future capability requirements becomes more important than specifying capacities. We must have a given capability (e.g., manufacturing uranium parts with specific characteristics) regardless of whether we are making one or several hundred warheads. We frequently find that the capacity provided by the mere existence of a specific capability is sufficient to provide quantities needed to support a small stockpile. For example, a new plutonium facility designed according to modern lean manufacturing, safety, and security practices could have a minimum capacity in the range of 125 RRW pits per year and a lower value for legacy pits. Reducing the design capacity further would not result in significant reductions in facility square footage or cost. However, eliminating a specific capability requirement reduces the floorspace and fixed-cost for maintaining that capability in a state of readiness. One benefit of an RRW approach is that fewer challenging or problematic capabilities must be maintained when compared to legacy systems, thus, enabling better optimization of the Complex in the long-term.

Question. Without the DOD requirements, how has the NNSA adopted the transformational plan? What if one or more of the elements such as the RRW isn't implemented?

Answer. We need to transform the nuclear weapons complex infrastructure whether we proceed with Reliable Replacement Warhead (RRW) concepts or retain

legacy designs. However, RRW concepts enable better optimization of the Complex in the long-term because some specific capabilities (e.g., beryllium component production) do not have to be retained. A primary objective of nuclear weapons complex transformation is to establish a responsive infrastructure capability that is sustainable and cost-effective for the long-term. There are key capabilities that must be present to meet this objective. The Complex must have functional capabilities to: (1) design, develop, and certify nuclear weapons; (2) manufacture and surveillance of plutonium components; (3) manufacture and surveillance of uranium components; (4) produce and manage tritium; (5) manufacture and surveillance of non-nuclear components; (6) assemble and disassemble nuclear weapons and components; (7) storage and transport of nuclear weapons and material; and (8) provide the science, engineering, and technology essential to our nuclear deterrent and our ability to respond to technological surprise. In the absence of detailed projections of stockpile size and composition for future decades or without an RRW, transformation plans must be sufficiently robust to cover a realistic range of future requirements.

Question. Have you reviewed the GAO findings and how has this changed your strategy as a result?

Answer. The Government Accountability Office (GAO) findings in Views on Proposals to Transform the Nuclear Weapons Complex (GAO–06–606T) reiterated that decisions regarding nuclear weapons complex transformation must be based on good information. We concur and thus the GAO findings have not changed our strategy. Specific findings identified four actions that the GAO felt were critical to successful transformation:

—Clear long-term requirements from the Department of Defense (DOD) for the nuclear stockpile.

The National Nuclear Security Administration has been working jointly with the DOD to establish a range of possible stockpile scenarios that bound the most likely threat environments of the future. For each scenario, we have determined required warhead production capabilities and capacities, including plutonium and highly enriched uranium operations with some sprint capacity. This set of possible scenarios bounds the range of production capacities that we might need in the future to plan proposed production facilities. Given that stockpile projections will never be exact or remain stable for decades into the future, bounding future estimates of required production capabilities and capacity ranges are sufficient.

—Accurate cost estimates of the proposals for transforming the weapons complex.

We have undertaken a process in compliance with the National Environmental Policy Act before issuing a Record of Decision containing specifics for the plan to transform the physical infrastructure of the Complex. Transforming the physical infrastructure is costly and impacts other transformation actions. Cost estimates of the alternatives for transforming the weapons complex are being prepared in parallel with the ongoing preparation of the Complex 2030 Supplement to the Stockpile Stewardship and Management Programmatic Environmental Impact Statement (PEIS). Business case studies are progressing concurrently with the PEIS, which are considering life cycle costs, decontamination and demolition costs, present worth analyses, cash flow analyses, qualitative analyses, and comparative costs. These business case studies will be instrumental in determining the course of action to be chosen in the late 2008 Record of Decision.

—A clear transformation plan containing measurable milestones.

We are committed to establishing annual "Getting the Job Done" lists and multi-year Complex 2030 transformation progress measures. These represent measurable milestones that are meaningful to stakeholders. However, a number of the progress measures of greatest interest to stakeholders are dependent on the Complex 2030 Record of Decision to be released in late 2008.

—An Office of Transformation with the authority to make and enforce its decisions on transformation.

In order for transformation to be successful, new approaches must be firmly anchored in the culture of the entire enterprise. This means implementing line organizations and programs must own the new approaches to ensure changes are sustainable and will outlast any single office. The Office of Transformation, which was established in June 2006, is my agent of change within the National Nuclear Security Administration (NNSA) for nuclear weapons complex transformation. It is establishing transformation implementation strategies and ensuring ownership of changes by existing line organizations. While the Office of Transformation has my full support, I am the one responsible for seeing that the commitments we make to transformation are implemented. I have the authority to make and enforce decisions on transformation.

Let me clarify one comment about the cost of transformation. There is no $1.5 billion transition plan in our documents or the April 2006 GAO report. Some media

and non-governmental organizations have incorrectly quoted a November 2006 GAO report estimating a total $150 billion cost of the NNSA nuclear weapons enterprise over the next 25 years as equal to the cost of transformation. NNSA plans to achieve transformation to Complex 2030 through existing programs and management structure, and within projected funding levels. If major new facilities are justified, incremental funding requests for capital projects will be supported by business case analyses.

CLOSING LOS ALAMOS NATIONAL LABORATORY

Question. Some Members of Congress have suggested closing LANL. It strikes me that this would be contrary to our Nation's national security needs and unachievable based on the LANL mission responsibilities.

It's no secret that I am a supporter of our national laboratories and I believe we should continue to take necessary steps to improve the safety and security at the labs—as well as make the necessary investments to continue to support world class scientific research.

Mr. D'Agostino, can you detail for us why we need LANL and what role they play in our national security.

Answer. From a National Nuclear Security Administration (NNSA) perspective, Los Alamos National Laboratory (LANL) is responsible for the majority of warheads in the nuclear weapons stockpile. Personnel at the laboratory are intimately involved with the maintenance, surveillance, and assessment of the warheads designed at LANL. LANL plays a key role in the annual assessment of the safety and reliability of the nuclear weapons stockpile, in the absence of nuclear testing. We are presently still tied to our underground test data for our legacy systems. Advances in science and technology enable a Reliable Replacement Warhead (RRW) strategy and will provide a future predictive capability for legacy and RRW-type systems; LANL is critical in the advance of our science and technology base. The experienced staff and the premier facilities at LANL are key to our nuclear weapons program. LANL also contributes to other aspects of national security such as threat reduction and support to the Department of Defense and the Department of Homeland Security and analysis of intelligence information. Overall, LANL is a critical contributor of science and technology that underpins U.S. national security.

Question. Can you also elaborate the practical impacts to science and research if we were to shut down the lab and divide up the workforce?

Answer. Los Alamos National Laboratory (LANL) continues to have a critical role in the National Nuclear Security Administration (NNSA) science and research program through its people and facilities. Closing LANL would seriously damage the science and research for the Stockpile Stewardship Program.

People can be encouraged to move but a move cannot be mandated. With the demographics of the designer community, it is likely that we would lose the majority of the remaining experienced designers. In addition, we will also loose experienced staff in other LANL areas of key technical expertise: weapons materials and chemistry support for the complex, nuclear physics, and computational science.

Within the areas of defense science and research, LANL provides at least three major and unique elements required for Stockpile Stewardship: neutron cross-sections to reduce uncertainties in nuclear weapon performance calculations; radiography to assess implosion performance; and an integrated plutonium production and research facility. LANL's Los Alamos Neutron Science Center (LANSCE) is a multipurpose facility that supports materials research and hydrodynamics research through proton radiography and neutron scattering in a classified environment. This is unique in the complex and has supported Reliable Replacement Warhead (RRW) designs already, as well as supporting improved understanding and predictive capability for legacy as well as RRW designs. LANSCE also supports basic neutron science through the Lujan Center. The Dual Axis Radiographic Hydrodynamic Test (DARHT) Facility is a unique radiographic facility and, when the second axis becomes available with multi-pulse capability, DARHT will be unique in the world. The multi-axis and multi-pulse capabilities of DARHT will significantly enhance our understanding of the implosion phase of nuclear weapons, especially as we assess the legacy systems or implement improved safety and surety features without nuclear testing. The plutonium complex at LANL has an integrated research capability to support the pit manufacturing activities. Such capabilities could not be replicated somewhere else without a severe loss of capability and a decade gap in restarting the operations. Superblock, which NNSA is presently committed to move out from, does not have the capacity to take over all TA–55 functions.

In addition, LANL has numerous smaller scale research and development (R&D) capabilities required for Stockpile Stewardship, responding to emerging threats, and

advancing science broadly for national security. Among these are the capability for classified beryllium manufacturing R&D, plutonium-238, high explosives chemistry, actinide chemistry, uranium R&D, and tritium R&D. LANL is an international leader in criticality science and its applications in safety, materials transportation and detection. LANL makes significant contributions in astrophysics, climate analysis, biology and forensics. Shutting down LANL and reassigning people would have an immediate and possible irreparable impact on the nuclear weapons program and, to a lesser degree, the broad national security science infrastructure.

RELIABLE REPLACEMENT WARHEAD

Question. As you know, I was hopeful that the New Mexico RRW design team would be named the lead design. However, that was not the case. You selected the Livermore design based on several criteria, but it was clear that avoiding underground testing was a key driver in your decision.

As an original sponsor of the RRW design competition I continue to support the project as it is vital if we are to transform the stockpile to a significantly smaller stockpile that is cheaper and safer to maintain.

Your budget provides $88 million for the RRW program. Can you please tell me how this funding will be spent and how this will support a Congressional decision to proceed with the engineering design authorization next year?

Answer. The fiscal year 2008 request funds the Reliable Replacement Warhead (RRW) Phase 2A study. The National Nuclear Security Administration's (NNSA) intent is to develop high fidelity baseline schedules and cost estimates. The laboratories will further refine the concept design and work with the plants concurrently during the Phase 2A study to support a sound planning effort. This activity will include: some revising and extending of the selected design, analyzing and scheduling the required development work, planning and executing any required peer reviews, developing the detail cost estimate. As and example the certification plan will be prepared in detail including identifying and scheduling the hydrodynamic experiments required and computational analyses necessary for certification. Some computations and potentially some technology tests will be performed during the study to assure that the project scope is correctly assessed. NNSA will return to Congress at the appropriate time to seek both authorization and appropriations to proceed into the engineering development phase, if the Nuclear Weapons Council decides to proceed with development of the RRW.

Question. Can you tell me what role Los Alamos will play in the RRW design and how they will be integrated into the project?

Answer. Los Alamos National Laboratory (LANL) will lead the independent peer review team for the Reliable Replacement Warhead (RRW) and participate in development of technologies and advanced science analysis for potential insertion in the future stockpile. Until a long-term pit manufacturing capability is in place, the pit manufacturing facility at LANL will implement the manufacturing process for the RRW pits eventually manufacture them during Phase 3A.

COMPLEX 2030—FACILITIES BEFORE SCIENCE

Question. Mr. D'Agostino, I am deeply concerned about the funding profile for the Science and Technology accounts within the NNSA.

It is clear from recent budget requests that the NNSA has put more emphasis on facilities and security than on supporting the science based stockpile stewardship activities.

However, considering the fact that the Complex 2030 transformation is based around the Reliable Replacement Warhead, I believe this warrants more scientific research in order to develop the weapon system without underground testing.

The JASONs study group, which is undertaking a review of the RRW design, found that, "though we see no insurmountable obstacles to certification of the RRW at present, there are substantial scientific challenges to developing a new stockpile system . . ."

Mr. D'Agostino, how can you meet all the life extension responsibilities for existing weapons systems and support the RRW program with declining science and technology budgets?

Answer. The current Life Extension Programs for the B61 and W76 are either in the production phase or entering into the production phase at the end of this fiscal year. The research for these existing life extensions is largely complete. The National Nuclear Security Administration strategy provides that Nuclear Weapons Council (NWC) approved Life Extension Programs would continue as directed, but Reliable Replacement Warhead (RRW) programs would be developed to replace legacy Life Extension Program efforts. In the science and technology arena, we are

committed to the work required to support the stockpile and to develop predictive capabilities. We are at a period where we are completing the construction of major science facilities, and the associated development and construction costs are decreasing. We are moving to exploit these new facilities to advance the science and technology base for the program. However, we believe that we can do more within the present planned budgets by integrating our science and technology efforts across the laboratories, for example: ensuring access to the premier facilities and computational capabilities and developing integrated science and technology roadmaps. The broader science and technology needed to support the health of our nuclear weapon design and production can be augmented via enhanced integration with other agencies, and broader interaction with the general scientific community. The Complex would then be operated in a more cost effective manner. The combination of these factors (replacing life extensions with RRW, reductions in construction costs, and integration of resources) should allow us to meet needs within decreased science and technology budgets.

Question. Can you please provide for me in writing your science and engineering R&D plan for the next 5 years that will answer the technical questions surrounding the RRW program and show me where this plan is financed in our budget?

Answer. Science and engineering research and development (R&D) necessary for fundamental support of Weapon Activities as well as direct support of the Reliable Replacement Warhead (RRW) program is programmed within Defense Programs' Campaign structure. The Science, Engineering, Inertial Confinement Fusion Ignition and High Yield, and Advanced Simulation and Computation Campaigns together comprise about $1.42 billion in the fiscal year 2008 budget, while an additional $0.44 billion is requested for addressing manufacturing and production readiness in the Readiness and Pit Manufacturing and Certification Campaigns. The basic R&D activities within each Campaign are described in the fiscal year 2008 budget request, consistent with the Program Plans maintained for each of the six Campaigns. Collectively the R&D activities that the Campaigns undertake are described in the fiscal year 2007–2011 Stockpile Stewardship Plan. As a relevant technology becomes more mature and the technical questions more unique to the specific weapon, the effort shifts to Directed Stockpile Work and the RRW program.

An integrated planning effort by the program efforts above, the predictive capability framework, is ongoing to ensure timely delivery of science and technology to the program. The end goal of a predictive capability for nuclear weapons should in of itself increase efficiency by ensuring validated models that can be applied to all systems to increase confidence and decrease the repeat work frequently done system by system. The predictive capability framework plan will be completed this fiscal year. Due to the complexity of these activities, some of the scientific advances cannot be completed in time for the first RRW certification process, but the first RRW is designed to have sufficient margin and tie to nuclear test history to offset the higher uncertainties.

INSUFFICIENT FUNDING FOR Z OPERATIONS

Question. In the fiscal year 2007 NNSA budget, hearing last year Ambassador Brooks promised that I would be pleased with the funding provided for Z machine—I am not pleased. This budget continues to support past practice of providing everything and more for NIF, while providing insufficient funding for Z.

This budget continues funding Z from three separate accounts and fails to fully fund operations at a full shift. This is in direct contrast with the priorities of the Office of Science budget, which makes operational runtime a top priority.

(NNSA provided $26 million to High Average Power Laser R&D in fiscal year 2007, which NNSA admits has little to no bearing on the weapons program)

Why does the Department continue to play games with the Z budget when it funds projects like the High Average Power Laser program that does not support the weapons program?

Answer. The National Nuclear Security Administration (NNSA) has requested $63.9 million for operation and use of the Z Facility at Sandia National Laboratories (SNL) in fiscal year 2008. These funds are provided for activities in pulsed power fusion and other areas of high-energy-density weapons physics. This amount of funding will enable a solid program of experiments which meets high priority NNSA requirements as defined in joint plans developed by the Science, Inertial confinement Fusion Ignition and High Yield, and Advanced Simulation and Computing Campaigns. Compared to the fiscal year 2007 request, funding was shifted from other activities in fiscal year 2008 to increase funding for Z activities to this level. Requested enhancements of the SNL pulsed power program beyond this level were

carefully considered, but determined to be of insufficient priority for funding based on program requirements.

NNSA allocated $26 million to Inertial Fusion Technology for these activities ($10 million for the Nike laser at the Naval Research Laboratory and $16 million for the High Average Power Laser (HAPL) program) in the fiscal year 2007 Operating Plan submitted to Congress on March 16, 2007. No funds are requested for the Nike or HAPL activities in the fiscal year 2008 budget request due to the need to fund higher priority activities.

Question. Why does the Department continue to fund Z from 3 or more accounts, when NIF is funded from a single account (Inertial Confinement Fusion)?

Answer. Funding for the Z facility at Sandia Laboratories is currently provided from three different accounts: Readiness in Technical Base and Facilities (RTBF), the Inertial Confinement Fusion (ICF) program, and the Science Campaign. Funding provided by the ICF program and the Science Campaign covers their areas of responsibility, namely, pulsed power fusion and non-ignition weapon physics, respectively. The Department is aware of the unintended confusion arising from these multiple categories. In the fiscal year 2009 budget submission, the National Nuclear Security Administration has proposed consolidating all operational funding for Z in the ICF Campaign in the same manner as currently done for Omega and the National Ignition Facility.

CHEMISTRY AND METALLURGY RESEARCH FACILITY REPLACEMENT

Question. The Departments commitment to long-term support of the CMR-Replacement facility seems to have changed substantially over the past 2 years.

Mr. D'Agostino, when you attended the groundbreaking in Los Alamos, you declared this facility vital to the mission. The fiscal year 2006 budget request proposed $160 million for fiscal year 2008 and now the fiscal year 2008 request has been reduced to $95 million. Your budget request now seems to reflect a wait and see attitude as it pertains to the CMR-Replacement.

At the same time, the NNSA has provided $25 million to initiate design work on the Consolidated Plutonium Center as part of your Complex 2030 plan, despite the fact that the Defense Department has not provided you with a total pit requirement or justification for any additional pits beyond what can be already produced.

With flat budgets, I do not believe the NNSA has the luxury of spending money on new facilities without a clear justification or need.

Mr. Schoenbauer, do you recall when the House and Senate Energy and Water bill eliminated funding for the proposed Modern Pit Facility in fiscal year 2006?

Answer. The termination of the Modern Pit Facility project did not eliminate the need to manufacture plutonium pits in sufficient quantities to support the nuclear weapons stockpile. In the year 2000, our plutonium strategy assumed two facilities to meet our long-term mission requirements. One facility would support plutonium research and development (R&D) and surveillance and a second would support pit manufacturing at a capacity greater than 50 net pits per year to the stockpile. The Chemistry and Metallurgy Research Replacement (CMRR) Facility and other buildings in the Los Alamos National Laboratory (LANL) TA–55 complex were to execute plutonium R&D mission. The Modern Pit Facility, as a separate facility at a site to be determined, was to execute the mission to manufacture pits in sufficient quantities to support the legacy stockpile.

The events of September 11, 2001, evolving information on plutonium aging, current stockpile projections, and development of reliable replacement warhead concepts have changed our strategy from the year 2000. Increasing physical security costs for special nuclear materials (SNM) are driving us to fewer sites with Category I/II quantities of SNM and increased reliance on hardened, engineered-security facilities. Thus, our Complex 2030 planning scenario assumes that we will have Category I/II quantities of plutonium at only one site (e.g., a consolidated plutonium center (CPC)) in the long-term for R&D, surveillance and manufacturing. Los Alamos is one of five sites under consideration for the plutonium mission.

Our Complex 2030 planning scenario also assumed that we would rely on TA–55 at LANL, supported by a CMRR, for interim pit production until a CPC became available in 2022. Our business case analyses indicated this was an appropriate choice for a CMRR with a total project cost estimate in the range of $850 million. In late 2006, LANL completed an independent review of the planned CMRR and the revised the cost estimate for the Nuclear Facility (NF) approximately doubled. This greatly weakened the business case for CMRR–NF to only support interim pit production and would have required an unacceptable budget re-alignment over the next 5 years to retain the original CMRR schedule. Thus, our revised CMRR approach to best manage risks includes: (1) completing the CMRR Radiological Laboratory

and Utilities Office Building; (2) continuing with design of the CMRR–NF, and (3) deferring commitments to construct the CMRR–NF until completion of the Complex 2030 Record of Decision in late 2008. In parallel with preparation of a Complex 2030 Supplement to the Stockpile Stewardship and Management Programmatic Environmental Impact Statement, we are evaluating business cases for all plutonium facility alternatives. These alternatives include several CMRR–NF options and long-term consolidation of all plutonium functions to Los Alamos.

Question. What makes you think that by changing the name and doubling the request, we would be interested in funding a similar facility, just 2 years later?

Answer. The consolidated plutonium center (CPC) is not a name change for the Modern Pit Facility. The CPC would be the one site in the nuclear weapons complex in long-term for all research and development, surveillance and manufacturing involving Category I/II quantities of plutonium. The CPC would represent a consolidation of many functions performed at Lawrence Livermore National Laboratory Building 332, and Los Alamos National Laboratory plutonium facilities. The fiscal year 2008 funds are requested to provide conceptual CPC design definition and alternative evaluations necessary to support upcoming plutonium facility decisions. These alternative evaluations include options for Los Alamos as a possible site for a CPC.

EXPERIMENTAL HYDRO TESTS

Question. What impacts do you foresee on hydro testing as a result of funding reductions you have recommended within the Directed Stockpile Work Account?

Answer. The total funding for the hydrodynamic experimental program in the Directed Stockpile Work (DSW) account is not changing. However, the total funding has been re-aligned from one line (Stockpile Services) to three lines: Stockpile Systems, Life Extension Programs, and Stockpile Services. The reason for this change was to fund activities more consistent with the scope of the newly established DSW Work Breakdown Structure.

Question. What are the likely impacts to the Life Extension Program as a result of reductions in funding for hydro tests in fiscal year 2008?

Answer. No major impact. All major hydrodynamic experiments funded by the Directed Stockpile Work Hydrodynamic testing program scheduled to support current Life Extension Programs have been conducted.

HIGH PERFORMANCE COMPUTING

Question. Mr. D'Agostino, as you know, the NNSA and its laboratories have developed the world's fastest computing architecture. This was developed in response to establishment of the stockpile stewardship program and the necessity to simulate weapons performance in order to maintain the existing underground testing moratorium.

I am concerned that NNSA does not have a long term R&D strategy to keep the Nation at the forefront of High Performance Computing. It is my understanding that both NNSA and the DOE Office of Science are contributing less than $20 million to be a minority partner in a much larger DOD R&D program.

Due to the rapid technological advance in this field, I believe the Department of Energy must establish a 10-year R&D roadmap for High Performance Computing by integrating the NNSA and Office of Science efforts.

Why doesn't the NNSA and the DOE Office of Science work together on a joint engineering R&D program to develop the next computing breakthrough rather than take a minor stake in a DOD computing R&D program as provided in this request?

Answer. The National Nuclear Security Administration (NNSA) has a proven track record of successful research and development (R&D). However, while computing R&D is important to providing the capabilities we will need to be successful, it is not our main driver. Our system investments are strongly influenced by NNSA mission need. We are investing in the Roadrunner architecture, which we took unilateral responsibility for developing, but are expanding to include a wider science community. We are also acquiring a capability to attack the problem of quantifying and aggregating uncertainties in our simulation tools with a system designated "Sequoia," to be located at Lawrence Livermore National Laboratory. This too will be a unilateral effort to start, but will involve a larger community as it takes shape. We exercise strong control over Roadrunner and Sequoia as we expect those machines to make critical mission contributions to the NNSA.

NNSA's advanced architecture investments include an important, co-funded collaboration with the Office of Science for Blue Gene R&D to capitalize on the success of Blue Gene/L and produce future generations of high-performance, low-power systems.

Our participation in the Department of Defense High Productivity Computing Systems (HPCS) program, which includes participation by other Government agencies, including the DOE Office of Science, is but one investment in our portfolio of advanced system developments. While we invest a small amount in HPCS compared to the source selection authority, we participate as an equal in technical debates. The Defense Advanced Research Projects Agency (DARPA) recognizes that much of the technical experience of designing and deploying supercomputers lies in other agencies. Consequently, our small investment belies our larger technical influence. The result is a win-win situation for both DARPA and NNSA.

Currently NNSA is meeting other programmatic needs for computing R&D and contributing meaningfully to the Nation's overall computing R&D. All of these investments are captured in the Advanced Simulation and Computing (ASC) program 2020 Roadmap as well as the ASC Platform Acquisition Strategy.

Question. Do you believe the NNSA labs could contribute to the development of a High Performance R&D program that would support research into advanced architectures, software and algorithm development?

Answer. The National Nuclear Security Administration's (NNSA) laboratories could and they do make such contributions. The Advanced Simulation and Computing (ASC) program and the NNSA laboratories have historically been world leaders in these areas and continue to be so today. Our need to predict with confidence the performance of a nuclear weapons systems will drive us to exa-scale computing, 1,000 times peta-scale, by 2018 as defined in our Roadmap. We are focused on and driven by that need for predictivity not only for Stockpile Stewardship, but also for broad national security issues. As a consequence, we are investing in advanced architectures, operating environments and algorithms that we believe are essential to meeting our mission responsibilities. We share our technology advances and should participate in any national program to advance architecture, software and algorithm development.

Question. I find it a little disappointing that the Office of Science is expanding its purchase of high performance computers for DOE labs as part of the American Competitiveness Initiative, while NNSA is cutting the number of high-speed computers it supports from 3 to 2. Why is the Office of Science expanding, while NNSA is contracting?

Answer. Funding for the Advanced Simulation and Computing (ASC) program has been declining since fiscal year 2005, while the American Competitiveness Initiative is infusing new money into basic science. With respect to ASC, the nuclear weapons complex has been challenged to reduce its footprint. One method being pursued is to reduce duplicate capabilities across the complex and computer operations is one area where such savings are possible. It should be noted that the National Nuclear Security Administration (NNSA) has drawn down by moving to two major facilities, one in New Mexico and one in California. The enabling technologies associated with secure distance computing make it possible for scientists at one site to compute seamlessly and effectively at any other of the Department's classified sites and thus the ability for computing to meet mission needs is not eroded. Our consolation was motivated by both budget constraints and NNSA's commitment to support the transformed "Complex 2030."

The Office of Science has been explicitly funded to increase its capability at the high end of computing and simulation. While NNSA will be more challenged by budget tightening, our mission will force us to continue our long tradition of supporting American competitiveness. Our recent partnerships in bringing Red Storm and Blue Gene to market are stellar examples of improving our Nation's competitiveness while supporting our primary mission driver. NNSA's mission is national security and classified while the Office of Science's is general and open. The Department of Energy is well positioned for collaboration with all the elements of the American Competitiveness Initiative.

Question. In your budget justification I can find no mention of the Roadrunner platform, but did see that the Department is ready to embrace a new system called Sequoia. What is the Department's strategy on deployment on new computing platforms?

Answer. Both Roadrunner and Sequoia are included in the National Nuclear Security Administration's Platform Acquisition Strategy, and are key steps in achieving our long range strategic goal of predicting with confidence the performance of a nuclear weapon. The Roadrunner final delivery is scheduled for fiscal year 2008, pending a favorable technical review of this high-risk, high-reward system. Sequoia final system delivery is scheduled for fiscal year 2011, also pending favorable technical reviews, with delivery of a smaller-scale early technology system in late fiscal year 2008 on which to begin software porting and scaling in preparation for the final sys-

tem. Both system delivery schedules are contingent on projected budget appropriations

ESTABLISHMENT OF A JOINT HIGH ENERGY PLASMA PROGRAM

Question. The fiscal year 2006 Conference Report and the fiscal year 2007 Senate E&W bill urged the Department to bring together the NNSA and the Office of Science to support a joint high energy density physics program to provide non-weapons scientists access to NNSA facilities such as Z machine. This would also expand the R&D possibilities for weapons programs as well. While it is still in its early stages, I want you to know I appreciate your efforts to enable this level of cooperation.

However, I am disappointed to find out that this program, which supports research in high-energy physics consistent with the ICF program is largely funded out of the Science Campaign.

Considering that the ICF campaign is flush with cash and has expanded every year, what is the justification for not funding this research out of this program?

Answer. Both the National Nuclear Security Administration (NNSA) and the Office of Science recognize the importance of stewarding high energy density physics and have established a joint program in high energy density laboratory plasmas (HEDLP). The funding request for this program is more than $24 million, split almost equally between NNSA and the Office of Science. Due to the late date in the fiscal year 2008 budget request preparation cycle when the joint program was established, the fiscal year 2008 request supports the joint program which represents primarily existing activities.

In formulating the fiscal year 2008 submission, funding for university grants and centers in HEDLP were moved from the Inertial Confinement Fusion (ICF) Ignition and High Yield Campaign to the Science Campaign. This was done in order to simplify program execution by placing all university accounts in a single Budget & Reporting Classification code. Thus, the joint program has not placed additional financial burdens on the Science Campaign. Programmatic oversight of university activities will continue to be performed by the ICF Ignition and High Yield and Science Campaigns as it has in the past, and the ICF Ignition and High Yield Campaign will serve as the NNSA integration point for execution of the NNSA and Office of Science joint program.

The President's request for the ICF Ignition and High Yield Campaign has decreased annually since 2005.

Question. Can you identify other NNSA programs that are appropriate for similar collaboration? What about High Performance Computing?

Answer. The Office of Defense Programs within the National Nuclear Security Administration (NNSA) and the Office of Science created the Defense Programs/Office of Science Strategic Council to appropriately integrate strategic planning on science of significant mutual interest. The goal is to assure senior planning leaders, including the Deputy Administrator for Defense Programs and the Under Secretary of Energy for Science, have awareness of each organization's plans and budgets to enable these program elements to leverage total value.

The Council exchanges information at least two strategic times during the budget process: (1) as budgets are in final preparation for submission to the Office of Management and Budget and (2) after submission of the President's budget to Congress as staff briefings and testimony are being prepared. Such exchanges are deemed necessary to guarantee planning information is shared at these strategic planning phases.

With respect to high performance computing, the NNSA requirement for classified computing is inconsistent with the Office of Science's mission to support open science. Consequently, the two offices do not share production computing systems. In addition, NNSA supercomputers are sized to meet mission needs and operate 24 hours per day performing weapons calculations.

RELIABLE REPLACEMENT WARHEAD-2

Question. The Nuclear Weapons Council has directed the Department to proceed with a RRW–2 conceptual study. As part of this study, will the NNSA consider the reuse of existing pits as a priority? With the positive news on pit aging, it only makes sense to consider using pits that are already in the stockpile.

How would pit reuse impact the administration's Complex 2030 strategy? How many fewer pits would be required as a result of such a reuse decision?

Answer. Pit reuse has the potential to relax near-term demand for quantities of new pits manufactured at the interim Los Alamos National Laboratory production facilities. This provides additional time to improve long-term pit manufacturing ca-

pacities. Long-term demand for new pits would not be significantly reduced unless we forego the safety and security advantages that can only be provided through newly-manufactured Reliable Replacement Warhead (RRW) pits. If we want to achieve proposed RRW safety and security objectives without an underground nuclear test, the number of existing pits applicable for reuse in RRWs is limited to the hundreds, not thousands.

Plutonium aging results should not be extrapolated to have a much broader meaning in predicting the life of legacy stockpile weapons than is technically justified. The plutonium aging study only addressed one particular aging phenomenon (intrinsic radiation damage) in one component (a pit) among dozens of nuclear explosive package components and thousands of other components in a typical nuclear weapon.

NATIONAL IGNITION FACILITY

Question. It is my understanding that the NIF project is now in its final year of construction and will cost $3.5 billion, nearly $2.5 billion over estimate and 7 years late. Now NNSA will proceed with the National Ignition Campaign, which is estimated to cost over $4 billion, and it is already experiencing programmatic and budget growth just as the construction project enjoyed. As an example of this lack of budget discipline, I understand the NIC program will now support direct drive experiments on what was billed as an indirect drive machine.

What assurances does this subcommittee have that this program will stick to the programmatic and budget discipline we were promised when the program was rebaselined in 2005?

Answer. The National Ignition Facility (NIF) Construction Project is now over 90 percent complete and has maintained the identical scope and essentially the same schedule and budget that were determined and agreed to when it was rebaselined in 2001. The only minor changes to the schedule and budget were in response to Congressional redirection in 2005.

The National Ignition Campaign (NIC) was initiated in June 2005. It is being pursued under the discipline of Enhanced Management methods including earned value accounting. It has not experienced any scope or budget growth beyond the $1.6 billion that was specified in its original baseline (detailed in the NIC Execution Plan which was signed by all of the participating organizations: General Atomics, Lawrence Livermore National Laboratory, Los Alamos National Laboratory, Sandia National Laboratories and the Laboratory for Laser Energetics at the University of Rochester); in fact the fiscal year 2008 submission reduces the NIC approximately $8 million below the June 2005 baseline. The rigorous reporting required under Enhanced Management and a detailed milestone structure provides the basis for monitoring programmatic and budget discipline.

The NIC involves preparation of the NIF for experimentation in conjunction with NIF Project completion, and is thus a highly facility intensive activity. NIF completion and the NIC are managed as an integrated activity using the same discipline and successful project management tools developed for the NIF Project. The execution of complex ignition experiments in late fiscal year 2010, only 1½ years after NIF Project completion, would not be possible without this discipline.

Question. The National Ignition Campaign (NIC) goal is to conduct ignition experiments on NIF in 2010. The baseline approach is indirect drive with beryllium ablators. Please provide information and justification for all other elements within NIC that are NOT directly related to the baseline approach? For example, is it credible to believe that the direct drive approach—including the necessary targets—can be ready for experiments in the same time frame? What is the metric for switching ignition baselines in the NIC program?

Answer. Direct drive both reduces risk for the indirect drive program and provides an additional ignition option, which is prudent given the unprecedented challenge of achieving ignition in the laboratory.

Direct drive studies at Omega are currently examining physics and technology issues critical to the success of indirect drive. An important recent example is the University of Rochester achievement of record compressed densities in cryogenic deuterium-tritium capsules. This critically important result provided important new knowledge regarding capsule physics and the operation of cryogenic systems. This knowledge will directly benefit the indirect drive program.

From its inception, the National Ignition campaign (NIC) has included direct drive as a backup risk mitigation strategy (contained in the approved NIC Execution Plan). A milestone in fiscal year 2009 provides a decision point for moving forward with facilitization of polar direct drive on the National Ignition Facility (NIF). The mainline strategy remains indirect drive, and the bulk of NIF resources will

be devoted to it. Only if major unforeseen problems arise with indirect drive will a change to direct drive be considered. No provision is being made to conduct direct-drive ignition experiments (with appropriate targets etc.) in the same time frame as indirect-drive experiments. However, the direct drive concept will continue to be developed and tested on the Omega laser system at the University of Rochester as part of the NIC effort in order to minimize the delay in achieving ignition in the unlikely event that the indirect approach fails, and because the direct-drive approach may provide higher gain at lower energy than indirect-drive ignition, potentially providing additional capabilities for Stockpile Stewardship in the post-NIC time frame.

Many of the key scientific and technical issues associated with ignition are common to both direct and indirect drive. Because of this commonality, the University of Rochester team provides scientific leadership for both direct drive and certain key aspects of indirect drive. It is thus appropriate to consider the University of Rochester program not as a "backup" but rather a critical intellectual component of the Inertial Confinement Fusion Ignition and High Yield Campaign and the NIC.

SANDIA NATIONAL LABORATORIES ION BEAM LABORATORY

Question. Mr. D'Agostino, I understand the Sandia has managed the MESA project in such a fashion that it will come in under budget and ahead of schedule. The lab has proposed to use the budget savings to support a small project known as the Ion Beam Lab, which has fallen into disrepair.

Does NNSA support this project? When do you expect to provide approval for this funding transfer to occur?

Answer. The National Nuclear Security Administration (NNSA) supports building a replacement Ion Beam Laboratory at Sandia National Laboratories in New Mexico. The project team has submitted a justifiable mission need for the project which is under review. NNSA has provided justifications in the President's fiscal year 2008 budget requesting Congress to authorize the project. Upon congressional authorization and completion of the Microsystems and Engineering Sciences Applications (MESA) facility, NNSA will request Congress to approve transferring the uncosted balance from MESA project to start the Ion Beam Laboratory in fiscal year 2009. MESA is scheduled to be completed at the end of fiscal year 2008 and we expect the cost under-run to be sufficient to pay for the project capital costs. Additional expenditures from the operating expense funds will be required to complete the Ion Beam Laboratory.

HEAVY WATER INVENTORY

Question. Mr. D'Agostino, it is my understanding that the Spallation Neutron Source located at the Oak Ridge National Laboratory is in need of heavy water to support experiments on that machine. I recall that the Savannah River Site is storing a large amount of such material that it might provide to this Office of Science laboratory. Can NNSA help the Oak Ridge Lab and provide sufficient quantities of heavy water to support the experiments on the SNS?

Answer. The Savannah River Site does hold a large inventory of surplus heavy water, assigned to the Office of Environmental Management (EM) for disposition. The quality of this material is lower (more tritium contamination) than the material in the National Nuclear Security Administration (NNSA) reserve, but portions of this material may be adequate to meet Spallation Neutron Source (SNS) requirements. There is also a possibility the material may not meet the SNS requirements. In that case, this material could be used as barter to exchange for material meeting the SNS specification, from a commercial heavy water producer. There is material in the NNSA inventory that meets the SNS requirements, but it is critical that this material be retained to support planned Defense Programs activities. NNSA cannot replace the material from commercial sources due to use restrictions.

The NNSA will work with EM and the Office of Science to identify suitable materials at Savannah River, and to have those materials transferred to SNS.

SECURITY GUARDS AT PANTEX ON STRIKE

Question. Mr. D'Agostino, I understand the security guards at the Pantex Plant have been on strike since Sunday evening and you are operating the plant using security personnel from various sites around the complex.

Can you please update us on the status of the negotiations and if you are optimistic this strike can be resolved in the near future?

Answer. Negotiations have been ongoing since February 22, 2007. The Pantex Guards Union (PGU) voted to strike effective April 16, 2007, at 0001 hours. BWXT and the PGU have continued to negotiate since then, although the Federal mediator

and negotiating parties agreed to a week-long "cooling off" period that ended May 2, 2007. The PGU has offered various reasons for maintaining the work stoppage but the most recent central issues appear to be wages, medical benefit cost shares, and the desire for two additional paid days off each year. We are optimistic that an agreement can be reached quickly if both sides continue to negotiate in good faith.

Question. How long can the Department sustain it security readiness using this substitute guard force?

Answer. Security of the Pantex Plant will not be degraded at any time during the strike, regardless of its duration. Contingency force planning assumptions called for up to 60 days of continuous security readiness while maintaining plant operations through the use of non-union augmentation personnel from other sites and the Office of Secure Transportation. If the strike begins to approach the 60 day threshold, several additional alternatives will have to be considered, including but not limited to additional contingency force augmentation and a reduction of plant operations.

MOX PROGRAM

Question. The Department recently produced the independent cost estimate and corrective action plan for the Mixed Oxide Fuel Fabrication Facility as required by the Defense Authorization Act for fiscal year 2007. The new project baseline is now $4.7 billion. In addition, you have agreed to the recommendations for the Inspector General to improve project oversight, establish achievable milestones, and include performance goals into future contract negotiations. With a new project baseline are you prepared to move forward with construction once the congressional moratorium expires in August?

Answer. Yes, DOE is prepared to move forward with construction once the congressional moratorium expires in August.

MOX ALTERNATIVES

Question. I noticed in the budget request that the Office of Environmental Management has decided to proceed with a $500 million vitrification plant for an estimated 13 tons of non-MOXable plutonium. This plant seems to confuse many people who believe this is an acceptable solution for the weapons grade material identified for destruction in the MOX facility. Can you please clarify the Department's position regarding its plutonium disposal strategy?

Answer. The Department's proposed baseline approach for disposition of surplus weapons-usable plutonium consists of a MOX Fuel Fabrication Facility, a Pit Disassembly and Conversion Facility, and a Waste Solidification Building to dispose of at least 34 metric tons (MT) of weapon-grade plutonium, a proposed Plutonium Vitrification process to vitrify up to 13 MT of non-pit plutonium, and the operation of the H-Canyon/HB-Line facilities to process approximately 2 MT of plutonium bearing materials. DOE is currently evaluating the cost and feasibility of reducing or eliminating the mission that is currently being considered for the small-scale plutonium vitrification process and fabricating more surplus plutonium into MOX fuel. If feasible, it could permit DOE to use the MOX Facility and H-Canyon/HB-Line facilities to dispose of approximately 43 MT of surplus plutonium.

Question. Specifically, can the Department add the 34 tons of weapons grade material to the smaller vitrification plant? What impact would it have on the cost and schedule of this project? Are there any technical challenges that remain unanswered?

Answer. No. The small-scale vitrification process cannot be scaled-up to dispose of an additional 34 metric tons of weapon-grade plutonium. The radiation exposure from vitrifying plutonium in lanthanide borosilicate glass for up to 13 metric tons is manageable because the process will limit worker radiation exposure to levels well within acceptable limits. However, managing worker radiation exposure becomes problematic for much greater quantities of plutonium. Therefore, DOE would have to consider using ceramic immobilization instead. However, the amount of time needed to immobilize an additional 34 metric tons of surplus plutonium with high level waste would extend beyond the planned operating life of the Defense Waste Processing Facility at the Savannah River Site, and an insufficient quantity of high-activity waste remains to be processed at the Defense Waste Processing Facility to immobilize all of the surplus plutonium. Moreover, immobilization of plutonium in a ceramic form has never been done before and would require significant research and development before the facility could be designed and constructed. This approach is likely to take an additional 12–14 years before operation could begin and would likely result in significant cost increases and schedule delays. There would

also be legal, political, and environmental concerns with redirecting the disposition strategy at this point.

GNEP AND MOX

Question. I have heard speculation that the MOX facility could be easily redesigned to process spent nuclear fuel and could serve as both a recycling facility and fuel fabrication facility. Has the Department looked at modifying this facility to serve as either a spent fuel recycling facility or as a fuel fabrication facility for advanced reactors? If so, what do you believe is the most promising option for expanding the mission of this facility? How will this impact the schedule and cost of this project?

Answer. The MOX Facility is a fuel fabrication facility and does not have the capability to recycle spent nuclear fuel; a separate, dedicated recycling facility would be required. With regard to fabricating fuel for advanced reactors, the MOX Fuel Fabrication Facility may be capable of fabricating start-up fuel for fast reactors as part of the Global Nuclear Energy Partnership (GNEP), if an oxide fuel form is selected for that program. Currently, DOE is evaluating both metal and oxide fuel forms for the start-up fuel. A decision on the fuel form for fast reactors will be made at a future time. The MOX Facility would not be able to produce transmutation fuel loads for advanced fast reactors as envisioned by GNEP because that fuel would contain all the transuranic elements from the recycled light water reactor fuel.

Given that the necessary GNEP fuel-related decisions are in the future, it is not reasonable to delay construction of the MOX facility to incorporate the potential GNEP required design and construction changes. Continued delays in MOX construction will result in increased costs and postpone the start of facility operations. DOE will continue to evaluate the option to use the MOX Facility in support of fast reactor start-up fuel as the requirements for GNEP are developed. In 2008, the Secretary of Energy plans to determine a path forward for GNEP.

In addition to the possibility of fabricating start-up fuel for GNEP advanced reactors, the MOX Facility could potentially provide the following capabilities:

—Disposition of additional surplus impure plutonium (currently planned for the proposed Plutonium Vitrification process at the Savannah River Site), if the chemical and isotopic impurities can be economically removed from the material; and

—Disposition of additional weapons plutonium (beyond the 34 MT) that is expected to be declared surplus as plutonium requirements are reevaluated, in connection with transformation of the nuclear weapons stockpile.

RUSSIA'S MOX COMMITMENT

Question. It is my understanding that the Russians have proposed to fulfill their commitment under the Fissile Materials Agreement to burn the plutonium in the existing BN–600 reactors and add an additional 6 reactors to burn MOX fuel. This will of course require the Russians to build a MOX fabrication facility. As far as I can tell, the Russians have yet to provide a firm commitment on their funding or schedule.

In addition, Russia's financial outlook has changed substantially from when this program was initiated. Russia now enjoys a budget surplus and earned $315 billion in oil and gas revenue last year, an increase of 96 percent from 1999.

Will U.S. negotiators demand to see a much larger contribution to the project costs from the Russians?

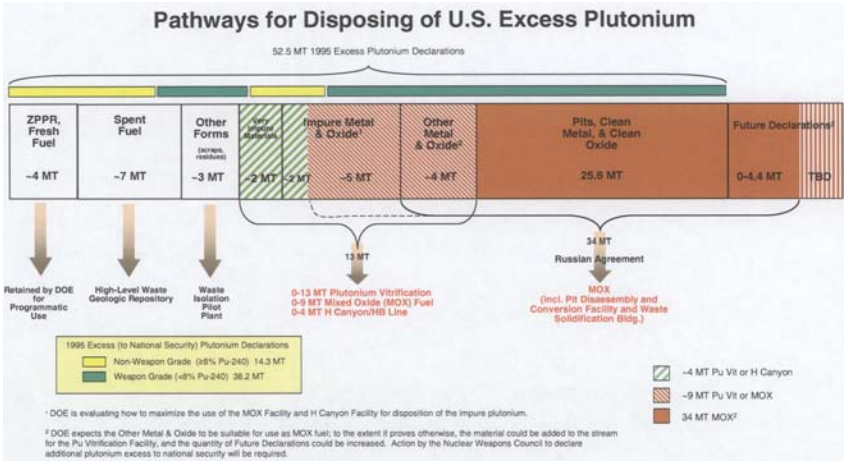
Answer. Rosatom recently provided DOE with a proposed technical plutonium disposition plan that is consistent with Russia's future nuclear energy strategy. Under this plan, Russia would irradiate weapon-grade plutonium as MOX fuel in fast reactors. Although no agreement has been reached on specific cost sharing arrangements pending final Russian Government approval of its technical disposition program, senior Rosatom officials have indicated that Russia could provide significant funding. We are currently reviewing Russia's proposed disposition plan to ensure that it is technically and financially credible, and will be discussing it further with Russian officials in the near future.

EXPANSION OF MOX

Question. When this program was first conceived back in 1998, the United States identified upwards of 50 tons of weapons-grade plutonium that was excess to the mission. Is this material still available and theoretically able to be used in producing Mixed Oxide Fuel?

Answer. In 1995, the U.S. Government declared 52.5 metric tons (MT) of plutonium (both weapon-grade and non-weapon-grade) excess to national security needs.

Of that quantity, approximately 4 MT have been retained for a non-military programmatic use, approximately 3 MT of scraps and residues have been disposed of at the Waste Isolation Pilot Plant, and approximately 7 MT in the form of spent fuel are designated for direct disposal in a high-level waste geologic repository. Of the remaining approximately 38.5 MT, a minimum of 25.6 MT is suitable for fabrication into MOX fuel, an additional approximately 4 MT is considered likely to be suitable for MOX fuel, and another approximately 5 MT might be suitable for MOX fuel after additional material analysis and characterization can be performed. To the extent the latter approximately 9 MT proves unsuitable for MOX, that material could be vitrified, and would be replaced in the 34 MT planned for disposition under the 2000 U.S.-Russian Plutonium Management and Disposition Agreement with future declarations of additional excess plutonium from weapons pits. The remaining approximately 4 MT (out of the approximately 38.5 MT) is considered unsuitable for use as MOX fuel, and would be disposed of either through vitrification or processing through Savannah River Site's H-Canyon/HB-Line facilities and subsequent disposal with the SRS waste stream. See chart below.



Question. Would the economics or design of the plant change significantly if a policy decision were made to increase the amount of plutonium to be processed through this plant?

Answer. The MOX facility is nominally designed for a 40-year life. The 34 metric tons disposition mission will require approximately 13 years. As a result, the MOX facility is capable of fabricating significant additional quantities of plutonium into MOX fuel. Once built, it will cost approximately $185 million per year to operate the MOX facility. Changes to the design of the facility are dependent on the specific characteristics of the plutonium to be fabricated into fuel in the future.

NNSA'S PLUTONIUM CONSOLIDATION AND DISPOSITION STRATEGY

Question. I am very concerned about the growing security budget and the financial impact it has on the defense and nonproliferation missions. Instead of waiting for a new multi billion dollar consolidated plutonium facility that is still years away from construction, I am more interested in taking steps now to consolidate and dispose of excess plutonium.

Can you please provide me with a written explanation of the Department's overall plutonium disposition strategy that includes schedule, estimated cost and potential impact it might have on out-year security funding.

Answer. The Department has prepared a "Business Case, Proposed Baseline Approach for Disposing of Surplus Plutonium," dated April 2007 (attached). The estimated cost, schedule, and future year funding requirements are contained in the Business Case.

BUSINESS CASE—DEPARTMENT OF ENERGY'S PROPOSED BASELINE APPROACH FOR DISPOSING OF SURPLUS PLUTONIUM, APRIL 2007

Executive Summary

This report presents DOE's plan to dispose of inventories of surplus weapons-usable plutonium[1] and includes a discounted cash flow analysis which takes into account the time value of money.[2] Data contained in the analysis are based on information provided by the National Nuclear Security Administration and the offices of Environmental Management and Nuclear Energy with input provided by Dr. David Kosson, Chair of Civil and Environmental Engineering, Vanderbilt University; Dr. Ian Pegg, Professor of Physics and Associate Director of the Vitreous State Laboratory, Catholic University; and Dr. David Gallay, Program Director, LMI Government Consulting.

DOE's proposed baseline approach is designed to accomplish the following three objectives:

—Dispose of[3] approximately 43 metric tons of surplus weapons-usable plutonium (both weapon and non-weapon grade) so that this material is rendered inaccessible and unattractive for weapons use while protecting human health and the environment. This goal is consistent with long-standing United States national security and nonproliferation policy with respect to eliminating, where possible, the accumulation of stockpiles of highly enriched uranium and plutonium;

—Encourage Russia to dispose of 34 MT of its surplus weapons plutonium consistent with the September 2000 U.S.-Russia Plutonium Management and Disposition Agreement; and

—Consolidate surplus non-pit plutonium currently stored throughout the DOE Complex in order to reduce the risks associated with storage of such materials at multiple sites and to help reduce storage and safeguards and security costs for nuclear materials.

DOE's current proposed baseline approach[4] for disposing of approximately 43 metric tons of surplus plutonium involves the following:

—Construct and operate a Mixed Oxide (MOX) Fuel Fabrication Facility, a Pit Disassembly and Conversion Facility (PDCF), and a Waste Solidification Building (WSB) to dispose of at least 34 MT of weapon-grade plutonium;

—Design, construct and operate a small-scale plutonium vitrification process in the basement level of the K-Reactor Building to vitrify up to 13 MT of non-pit plutonium[5] with high level waste; and

—Operate the existing H-Canyon/HB-Line facilities to process approximately 2 MT of plutonium-bearing materials for disposal through the Savannah River Site radioactive waste system (for vitrification with high level waste in the De-

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[1] This report addresses surplus weapons-usable plutonium covered by Public Law 107–107 and section 4306 of the Atomic Energy Defense Act, as amended. Surplus weapon-grade plutonium, as defined in the U.S.-Russia Plutonium Management and Disposition Agreement (less than 10 percent Pu–240 and withdrawn from nuclear-weapons programs) is a subset of surplus weapon-usable fissile materials.

U.S. national security and nonproliferation objectives include the disposition of 43 MT of surplus plutonium by rendering it unusable for nuclear weapons use and encouraging Russia to dispose of its surplus weapons plutonium. The 43 MT includes plutonium which has been declared surplus and some plutonium which may be declared surplus to national security defense needs in the future. This does not include surplus plutonium that already has a disposition pathway such as spent fuel, scraps, and residues. The analyses pursuant to the National Environmental Policy Act addressed the environmental impacts of disposition of up to 50 MT of such surplus weapons-usable plutonium, including plutonium that may be declared surplus in the future.

[2] This is consistent with the information used previously in DOE's 2006 report entitled, Disposition of Surplus U.S. Materials, Comparative Analysis of Alternative Approaches, and with DOE's 2007 Business Case Analysis of the Current U.S. Mixed Oxide (MOX) Fuel Strategy for Dispositioning 34 Metric Tons of Surplus Weapon-Grade Plutonium, although those reports: (1) do not discount future cash flows, and (2) the earlier studies analyzed the combined plutonium and uranium storage costs in lieu of the plutonium storage cost as described in this study.

[3] The phrase "dispose of" is used in this paper, consistent with the phraseology appearing in the 2000 U.S.-Russia Plutonium Management and Disposition Agreement. This paper addresses the costs of disposition prior to ultimate disposal (of mixed oxide spent fuel and vitrified plutonium with high-level waste) in the planned geologic repository for spent fuel and high-level waste at Yucca Mountain, Nevada.

[4] The proposed actions described in the following bullets are subject to appropriate review under the National Environmental Policy Act (NEPA), subsequent decisions, and compliance with other applicable law.

[5] This 13 MT includes approximately 2 MT of material currently proposed to be processed in the HB-Line, and vitrified in the Defense Waste Processing Facility and approximately 4 MT of material currently proposed to be fabricated into MOX fuel.

fense Waste Processing Facility) concurrent with the recovery of enriched uranium for subsequent down-blending to low enriched uranium and sale.

Based on a recent review by outside experts (cited above), and an assessment by Shaw-AREVA MOX Services (MOX contractor) of what plutonium materials can likely be fabricated into MOX fuel, DOE is currently evaluating the cost and feasibility of reducing or eliminating the mission that is currently being considered for the proposed small-scale Plutonium Vitrification process. Preliminary indications are that this approach could result in cost savings of approximately $500 million (estimated total project cost in constant 2006 dollars, excluding operating costs), although actual savings may change as the design of the small-scale Plutonium Vitrification process progresses. The Department is evaluating the feasibility of the following approach:

—Construct and operate a Mixed Oxide (MOX) Fuel Fabrication Facility, a Pit Disassembly and Conversion Facility (PDCF), and a Waste Solidification Building (WSB) to dispose of at least 39 MT of weapon-grade plutonium;

—Operate the existing H-Canyon/HB-Line facilities to process approximately 4 MT of plutonium-bearing materials for disposal through the Savannah River Site radioactive waste system (for vitrification with high level waste in the Defense Waste Processing Facility) concurrent with the recovery of enriched uranium for subsequent down-blending to low enriched uranium and sale.

Constructing and operating a Mixed Oxide (MOX) Fuel Fabrication Facility at the Savannah River Site for disposing of surplus plutonium is in the U.S. national interest and consistent with national security and nonproliferation objectives. Doing so will convert plutonium into forms not readily usable for weapons, and will encourage Russia to dispose of 34 metric tons of its excess weapons plutonium in accordance with the 2000 U.S.-Russia Plutonium Management and Disposition Agreement. Proceeding with the U.S. MOX program will also help reduce storage costs for nuclear materials, reduce safeguards and security costs, and support the Department's efforts to consolidate nuclear materials throughout the DOE Complex. The Department of Energy believes that irradiating plutonium as MOX fuel in existing commercial reactors is a prudent and effective means for disposing of surplus plutonium compared to other less mature disposition technologies.

MOX is a proven technology that has been in widespread use in Europe for over three decades. Moreover, the design of the U.S. MOX facility is 90 percent complete, the Nuclear Regulatory Commission (NRC) has issued a construction authorization, and DOE's contractor has submitted a license application to the NRC for operation of the MOX facility. In addition, MOX fuel lead assemblies, made from surplus weapons plutonium, are currently being successfully tested in a commercial reactor in South Carolina. Thus far, DOE has spent approximately $735 million on the MOX program for design, licensing, and site preparation activities as well as for the fabrication and irradiation of MOX fuel lead assemblies.[6]

DOE's proposed baseline approach provides a disposition path for the currently identified surplus plutonium that is or will be declared surplus in the future. It enables the Department to consolidate special nuclear material (SNM), including the removal of all surplus plutonium from Hanford as well as reducing the inventory of surplus plutonium at the Lawrence Livermore National Laboratory (LLNL) and the Los Alamos National Laboratory (LANL) by 2009. This would result in a reduction of existing Category I special nuclear materials storage (CAT I) facilities, and ultimately would result in the fewest number of DOE CAT I storage facilities, at the earliest date in time. The proposed consolidation would also facilitate the Department's plan to achieve its "Complex 2030" objectives, a more modern, smaller and efficient weapons complex.

As evidenced in the financial analysis, this proposed baseline approach would recover uranium and plutonium from the disposition of surplus fissile materials for energy production providing over $2 billion in revenues[7] (in constant 2006 dollars) to the U.S. Treasury. Included in this proposed baseline approach is approximately 2 MT of plutonium-bearing materials to be processed through H-Canyon/HB-Line at Savannah River. The net present value cost of this proposed approach (i.e. MOX,

[6] The approximately $735 million in sunk costs are not included in this baseline financial analysis. Sunk costs were included in the calculation of life cycle costs provided to the House Committee on Appropriations in March 2007, in accordance with specific direction from that Committee.

[7] Revenue is comprised of approximately $1.5 billion from the sale of MOX fuel and $700 million from the sale of uranium from dismantled nuclear weapons pits. Both are based on the prevailing price of uranium, which has been extremely volatile in recent years The discounted cash flow analysis used in this Business Case conservatively assumes that uranium and enrichment market prices that prevailed in November 2006 will prevail throughout the period of interest when the fuel materials will enter the market.

the proposed small-scale Vitrification, and H-Canyon) over a 28-year period is approximately $11.1 billion.

In addition to encouraging Russia to dispose of 34 metric tons of weapons plutonium, the capability to disassemble large numbers of nuclear weapons pits in the United States and fabricate the resulting plutonium into MOX fuel utilizes a mature technology and could potentially provide the following capabilities:

—Disposition of additional weapons plutonium (beyond the 34 MT) that is expected to be declared surplus as plutonium requirements are reevaluated, in connection with transformation of the nuclear weapons stockpile. While additional declarations would have to be approved by the President based on advice from the Secretaries of Defense and Energy, the MOX and PDCF facilities, once constructed and operating, could readily be used for this purpose. The Deputy Administrator for Defense Programs will specifically raise this request with the Nuclear Weapons Council.

—Currently, DOE is evaluating both metal and oxide fuel forms for use as the start-up fuel for fast reactors in support of the Global Nuclear Energy Partnership (GNEP). A decision on the fuel form for the fast reactors will be made at a future time. Given that the necessary GNEP fuel-related decisions are in the future, it is not reasonable to delay construction of the MOX facility to incorporate the potential GNEP required design and construction changes. Continued delays in MOX construction will result in increased costs and postpone the start of facility operations. DOE will continue to evaluate the option to use the MOX facility in support of fast reactor start-up fuel as the requirements for GNEP are developed. In 2008, the Secretary of Energy plans to determine a path forward for GNEP.

—Disposition of additional impure plutonium, e.g. plutonium containing levels of chlorides, fluorides and Pu-240, currently proposed to be dispositioned in DOE's proposed small-scale Plutonium Vitrification process. The Department is evaluating the cost and technical feasibility of maximizing the use of the MOX facility and reducing the mission that is currently being considered for the proposed small-scale Plutonium Vitrification process.

In conclusion, DOE's proposed baseline approach for disposing of surplus plutonium (MOX, the proposed small-scale Plutonium Vitrification process, and H-Canyon) would meet U.S. national security and nonproliferation objectives for disposing of 43 MT of surplus plutonium by rendering it unusable for nuclear weapons use, and encouraging Russia to dispose of its surplus weapons plutonium. In addition, the proposed baseline approach will help reduce storage costs for nuclear materials, reduce safeguards and security costs, and support the Department's efforts to consolidate nuclear materials within the DOE Complex.

BACKGROUND

The end of the cold war left a legacy of surplus weapons-usable fissile materials both in the United States and the former Soviet Union, leaving substantial quantities of plutonium, no longer needed for defense purposes. The global stockpiles of weapons-usable fissile materials pose a danger to national and international security in the form of potential proliferation of nuclear weapons and the potential for environmental, safety, and health consequences if the materials are not properly safeguarded and managed. In September 1993, in response to these concerns, President Clinton issued a Nonproliferation and Export Control Policy which committed the United States to seek to eliminate, where possible, the accumulation of stockpiles of highly enriched uranium or plutonium, and to ensure that where these materials already exist, they are subject to the highest standards of safety, security, and international accountability.

In early 1994, the U.S. National Academy of Sciences issued a report evaluating a number of plutonium disposition alternatives ranging from sending it into space to burying it under the ocean floor, before recommending two promising alternatives for further study: (1) fabrication and use as fuel, without reprocessing, in existing or modified nuclear reactors, or (2) immobilization in combination with high-level radioactive waste. To achieve a high degree of proliferation resistance, the National Academy of Sciences recommended that the national objective should be to make the surplus weapon-grade "plutonium roughly as inaccessible for weapons use as the much larger and growing quantity of plutonium that exists in spent fuel from commercial reactors," a state they defined as the spent fuel standard. This standard would require a form from which extraction and use in weapons of any residual plutonium and other fissile materials would be as difficult or unattractive as the recovery of residual plutonium from spent commercial fuel.

On March 1, 1995, approximately 200 metric tons of U.S.-origin weapons-usable fissile materials were declared surplus to U.S. defense needs (38.2 MT of weapon-grade plutonium and 174.3 MT of highly enriched uranium). In addition, DOE announced that it had 14.3 metric tons of other than weapon-grade plutonium that would be included in the disposition program.

Subsequently, the Department of Energy convened a team of laboratory, independent oversight and interagency experts to determine a range of reasonable disposition alternatives. Following a number of nationwide scoping meetings, the team released a screening report in March 1995 that pared 37 potential disposition options down to 11; 5 for reactor, 4 for immobilization and 2 for direct geologic disposal (deep borehole). The screening process led the Department to conclude that going beyond the spent fuel standard using advanced technologies, such as fast reactors and accelerators, was not appropriate. Such advanced options were found to require substantial additional research and development, with related increased costs and time, in order to provide the same assurance of technical viability as other, more readily available technologies.

At the April 1996 Moscow Nuclear Safety Summit, the leaders of the seven largest industrial countries and the Russian Federation issued a joint statement endorsing the need to render the surplus fissile materials (both highly enriched uranium and plutonium) in Russia and the United States to a high degree of proliferation resistance. Subsequently, former Russian President Yeltsin declared up to 50 metric tons of plutonium and 500 metric tons of highly enriched uranium as surplus to Russia's defense needs in September 1997.

Following the preparation of a Programmatic Environmental Impact Statement which evaluated various storage and disposition options, DOE issued a Record of Decision (ROD). In the 1997 ROD, DOE decided that it would consolidate the storage of weapons-usable plutonium at upgraded and expanded existing and planned facilities at the Pantex Plant in Texas and the Savannah River Site (SRS) in South Carolina, and continue the storage of weapons-usable HEU in upgraded facilities at DOE's Y–12 Plant at the Oak Ridge Reservation in Tennessee. After certain conditions were met, most plutonium stored at the Rocky Flats Environmental Technology Site in Colorado would be moved to Pantex and SRS. Plutonium stored at the Hanford Site, the Idaho National Engineering and Environmental Laboratory (INEEL), and the Los Alamos National Laboratory (LANL) would remain at those sites until disposition (or moved to storage prior to disposition). In accordance with the ROD, DOE would provide for disposition of surplus plutonium by pursuing a strategy that allowed: (1) immobilization of surplus plutonium for disposal in a repository pursuant to the Nuclear Waste Policy Act, and (2) fabrication of surplus plutonium into mixed oxide (MOX) fuel for use in existing domestic commercial light-water reactors.

In July 1998, the Department issued a draft Surplus Plutonium Disposition Environmental Impact Statement (SPD EIS) which analyzed candidate sites for plutonium disposition. The environmental consequences of siting, constructing, operating, and ultimately decommissioning the facilities under consideration for the plutonium disposition mission at one or more of four DOE sites was described in the draft SPD EIS issued in July 1998. In addition to assessing the environmental consequences of the disposition alternatives, DOE analyzed the cost and schedule differences between alternatives, taking into account information obtained during site visits, similar nuclear/industrial project costs, informal vendor quotations, previous estimates for similar equipment, parametric cost models, site-specific labor rates, and operational staffing requirements and salaries. A cost report was issued in July 1998 that focused on the differences in cost for siting the facilities at the different locations. In September 1998, at the Clinton-Yeltsin Summit, the two leaders committed their countries to enter into a bilateral plutonium disposition agreement.

In April 1999, DOE issued a Supplement to the draft SPD EIS, to address, among other things, impacts at the specific reactor sites which were identified pursuant to the contract with DOE's newly selected MOX contractor. In November 1999, DOE issued the Surplus Plutonium Disposition Final Environmental Impact Statement. This follow-on EIS evaluated the environmental impacts of conducting plutonium disposition activities at the following DOE locations: Hanford, Savannah River, Idaho National Engineering and Environmental Laboratory (INEEL) and the Pantex Plant. This was followed, in January 2000, by a decision that: the Pit Disassembly and Conversion Facility, the Mixed Oxide Fuel Fabrication Facility, and the Plutonium Immobilization Facility would be located at SRS; up to 33 MT of plutonium would be fabricated as mixed oxide fuel at the Savannah River Site; and up

to 17 MT of plutonium would be immobilized at the Savannah River Site.[8] The Department reasoned that pursuing this approach provided the best opportunity for U.S. leadership in working with Russia to implement similar options for reducing Russia's excess plutonium. Further, it would send the strongest possible signal to the world of U.S. determination to reduce stockpiles of surplus weapons-usable plutonium as quickly as possible and in an irreversible manner.

Also in November 1999, DOE issued an additional cost report, Plutonium Disposition Life-Cycle Costs and Cost-Related Comment Resolution Document, which provided the full life-cycle costs for the Preferred Alternative as stated in the draft SPD EIS.

Making good on a pledge made at a 1998 Summit, the United States and Russia entered into a Plutonium Management and Disposition Agreement in September 2000 that committed each country to dispose of 34 metric tons of surplus weapon-grade plutonium.

In 2001, DOE undertook a review of U.S. plutonium disposition cooperation with Russia so as to identify a more cost-effective approach. The review considered more than 40 approaches for plutonium disposition, with 12 distinct options selected for detailed analysis (six MOX-based reactor disposition options, two advanced reactor disposition options, and four non-reactor options (immobilization and long-term storage). This resulted in a refined approach under which the United States would rely on the irradiation of MOX fuel to dispose of surplus plutonium. After preparation of a Supplemental Analysis pursuant to the National Environmental Policy Act, the Department issued an amended Record of Decision which, among other things, cancelled immobilization. Under the new approach, 34 MT of surplus plutonium would be fabricated into MOX fuel, including approximately 6.5 metric tons of impure plutonium previously destined for immobilization.

In 2006, DOE again evaluated its strategy for disposing of currently identified surplus weapons-usable plutonium, plus 26 MT of surplus highly enriched uranium for which viable disposition paths had not been identified. DOE's 2006 report titled, Disposition of Surplus U.S. Materials, Comparative Analysis of Alternative Approaches showed that all of the "going forward" various alternatives were within a few percentages of each other (in constant 2006 dollars), illustrating that monetary cost was not a major discriminating factor. In the case of storage, DOE would still have to incur the cost of disposition at the conclusion of the storage mission.

In March 2007, the Department also submitted to Congress a report titled, Business Case Analysis of the Current U.S. Mixed Oxide (MOX) Fuel Strategy for Dispositioning 34 Metric Tons of Surplus Weapon-Grade Plutonium, which included a business case rollup of going forward costs (in constant 2006 dollars) of various disposition alternatives. This report reconfirmed that the MOX approach was the most suitable disposition alternative and showed that continued storage was the most expensive alternative over time.

DESCRIPTION OF DOE'S SURPLUS FISSILE MATERIALS

In accordance with the U.S.-Russia Plutonium Management and Disposition Agreement, the MOX facility will fabricate at least 34 MT of surplus weapon-grade plutonium into MOX fuel for subsequent irradiation in existing commercial reactors. The majority of the material is comprised of surplus pits, clean plutonium metal, and clean oxide (approximately 25.6 MT). The remaining quantity of plutonium is comprised of weapon-grade oxides that are acceptable to the MOX process and from future weapons dismantlements. Some of the metal and oxides are impure, and until physical sampling, analysis and characterization can be performed on individual cans containing this material, the final quantities could vary. Based on currently available information, the 34 MT of weapon-grade plutonium is comprised of the following:

—25.6 MT of surplus plutonium pits, clean metal, and clean oxide;

—Approximately 4 MT of other metal and oxide; and

—Approximately 4.4 MT from future declarations of additional surplus pits.

In August 2006, DOE identified a small-scale plutonium vitrification process that could be used to dispose of up to 13 MT of plutonium. This 13 MT includes 4 MT of other metal and oxide that DOE currently believes are suitable for MOX and approximately 2 MT that is currently planned to be processed in the H-Canyon facility.

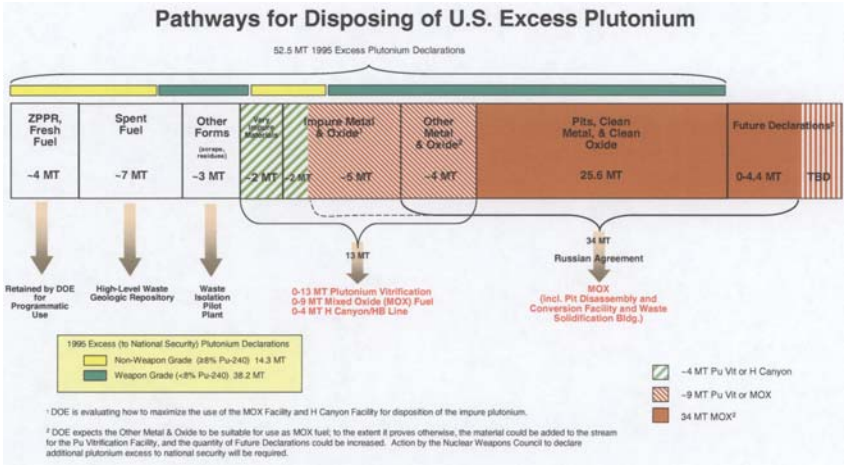
Based on currently available information, the 13 MT of plutonium is proposed to be distributed among the three facilities (MOX, the proposed small-scale Plutonium Vitrification process, and H-Canyon) based on the following material characteristics:

[8] About 4 MT of the 17 MT has been subsequently designated for programmatic use.

Disposition Approach	Quantity	Characteristics
MOX	~4 MT	Other Metal & Oxide: Clean WG (Weapon-Grade) (less than 10 percent Pu-240) Oxide and Slightly Impure WG Oxide.
Plutonium Vitrification Facility	[1] ~5 MT	Impure Metal & Oxide: Clean FG (Fuel-Grade) (greater than 10 percent but less than 19 percent Pu-240) Metal; Clean FG Oxide; Impure Plutonium Oxide with Chloride; Impure Plutonium Metal with Chloride.
	[2] ~2 MT	Impure Metal & Oxide: Power-Grade Oxide (19+ percent Pu-240); Fast Flux Test Facility Green Fuel (70 percent Uranium); Plutonium Oxide with Fluoride; Plutonium Oxide with Beryllium (Be); Plutonium Oxides and Metal with Thorium.
H-Canyon	~2 MT	Very Impure Materials: Material from 3013 Container Surveillances; Plutonium-Beryllium Metal; Plutonium-Vanadium Metal; Pu-Depleted Uranium Metal; Plutonium-Tantalum Metal; and Oxide with High Uranium Content.

[1] As discussed elsewhere in this analysis, some or all of this material may be fabricated into MOX fuel in the MOX facility.
[2] As discussed elsewhere in this analysis, some of this material may be processed in H-Canyon.

DOE will evaluate how to maximize the use of the MOX Facility for disposition of the non-pit plutonium currently being considered for the proposed small-scale Plutonium Vitrification process which is in the very early stages of design (less than 5 percent complete). DOE will continue to address technical and cost uncertainties as part of the Conceptual Design process and will arrive at a decision as to the need for the Plutonium Vitrification project as part of Critical Decision-1, planned for late 2007. The following is a graphical presentation showing the potential pathways for disposing of 52.5 MT of U.S. weapons-usable plutonium, which was declared surplus in 1995 (including spent fuel and fresh fuel retained for programmatic use), as well as plutonium which may be declared surplus in the future:



FINANCIAL ANALYSIS OF DOE'S PROPOSED BASELINE PLUTONIUM DISPOSITION APPROACH

DOE's proposed baseline approach includes a MOX Fuel Fabrication Facility, a Pit Disassembly and Conversion Facility (PDCF), and a Waste Solidification Building (WSB) to dispose of 34 MT of weapon-grade plutonium; a proposed Plutonium Vitrification process in the basement level of the K-Reactor Building to vitrify an expected 7 MT of non-pit plutonium (but potentially up to 13 MT of non-pit plutonium) currently unsuitable for fabrication into MOX fuel; and the H-Canyon/HB-Line facilities to process approximately 2 MT of plutonium bearing materials at the Savannah River Site to recover enriched uranium for subsequent down-blending and sale.

DOE uses a discounted cash flow analysis (or DCF) as the basis for its Business Case which takes into account the time value of money. The DCF method determines the present value of future cash flows by discounting them to the present using the U.S. Government's appropriate discount rate, as prescribed by OMB. This is necessary because cash flows (project related cost outflows and revenue stream

inflows from the sale of MOX fuel and down-blended low enriched uranium) occur in different time periods. This approach is consistent with the information used previously in DOE's 2006 report entitled, Disposition of Surplus U.S. Materials, Comparative Analysis of Alternative Approaches, and with DOE's 2007 Business Case Analysis of the Current U.S. Mixed Oxide (MOX) Fuel Strategy for Dispositioning 34 Metric Tons of Surplus Weapon-Grade Plutonium, although those reports do not discount future cash flows.

The underlying conditions of the economic analysis are as follows:

—The analysis is based on estimates published previously in DOE/NNSA budget documentation (updated, where appropriate) and on the approved, externally reviewed and validated MOX total project cost baseline. The analysis did not independently develop or verify any of those estimates.

—Revenues from the sale of MOX reactor fuel and uranium from dismantled pits are included, where applicable.

—All cash flows represent relevant differences in expected current and future costs and revenues among the alternatives. Previous sunk costs are not considered.

—The net present value costs are in discounted 2006 dollars.

—The common time period is 2007 through 2034 and therefore includes current year expenditures.

—The discount rate (representing the Government's time value of money) is 3 percent, as prescribed in OMB Circular A–94.

The "going forward" cost, in net present value terms and excluding sunk costs, of DOE's proposed baseline approach is approximately $11.1 billion. A detailed analysis and assumptions follow:

NET PRESENT VALUE COST TO DOE OVER A 28-YEAR PERIOD—MOX, VITRIFICATION AND H-CANYON OPERATIONS

[In millions of dollars]

Cost Element	Net Present Value Cost
MOX	3,402
PDCF	2,214
WSB	544
Other Plutonium Disposition Costs [1]	333
Vitrification	797
H-Canyon	340
Storage	3,426
Net Present Value	11,056

[1] Includes estimated costs associated with reactor modifications, reactor irradiation services, procurement of uranium feed materials, and fuel qualification.

MOX, Plutonium Disposition, H-Canyon Operations
Millions of Dollars
(Constant 2006 $)

Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
		FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34
Real discount rate	3%																												
MOX Plant (34 MT)																													
Capital costs (TPC)		254	358	421	391	321	325	448	261	154	62																		
Operating costs (OPEX)											183	183	183	183	183	183	183	183	183	183	183	183	183	183					
Revenue (Value of MOX fuel to gov't)											-50	-105	-105	-105	-105	-105	-105	-105	-105	-105	-105	-105	-105	-105	-65				
Deactivation																										46			
Post-deact surv & mon w/term value																											6	6	206
Total annual cash flows		254	358	421	391	321	325	448	261	154	195	78	78	78	78	78	78	78	78	78	78	78	78	78	-65	46	6	6	206
Net present value	**$3,402**																												
PDCF (see above)																													
Capital costs (TPC)		42	49	62	154	225	257	389	365	304	191	173	127																
Operating costs (OPEX)		10	11	18	16	16	17	18						111	102	101	101	101	101	101	52								
Revenue (Value of LEU fuel to gov't)														-100	-100	-100	-100	-100	-100	-100									
Deactivation																						28							
Post-deact surv & mon w/term value																							10	10	10	10	10	10	343.3
Total annual cash flows		52	60	80	170	242	274	407	365	304	191	173	127	11	2	1	1	1	1	1	52	28	10	10	10	10	10	10	343
Net present value	**$2,214**																												
WSB (see above)																													
Captial costs																													
Capital coss TEC Costs		15.5	18.8	40	48	62.9	8.2																						
OPC Costs		4.5	3.9	4.2	8.3	12.2	6.2	3																					
Operating costs (OPEX)						4.2	20.4	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5					
Deactivation																										15			
Post-deact surv & mon w/term value																											1.5	1.5	51.5
Total annual cash flows		20	22.7	44.2	56.3	79.3	34.8	28.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	15	1.5	1.5	1.5	51.5
Net present value	**$544**																												
Other MOX Program Costs																													
Total annual cash flows		14.3	15.12	13.17	24.75	39.99	32.3	42.21	40.2	28.62	27.1	20.6	14.6	13.1	20.6	14.5	7.38	7.41	7.38	7.39	7.39	7.43	7.41	7.389	7.4	7.4	7.4		
Net present value	**$333**																												
Vitrification (7 MT)																													
Capital costs																													
Conceptual Design		10																											
TEC Costs			15	40	153	100	100	22																					
OPC Costs				10	9	9	10	20																					
Operating costs (OPEX)								40	75	75	75	75	75	75															
Total annual cash flows		10	15	50	162	109	110	82	75	75	75	75	75	75	0	0	0												
Net present value	**$797**																												
H Canyon (2 MT)																													
Operations (With Other Missions)		30	35	35	35	65	65	65	65																				
Total annual cash flows		30	35	35	35	65	65	65	65																				
Net present value (With Other Missions)	**$340**																												
Operations (Without Other Missions)		220	220	220	220	220	220	220	220																				
Total annual cash flows		220	220	220	220	220	220	220	220	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net present value (Without Other Missions)	**$1,544**																												
Storage Costs (43 MT)																													
Hanford		90	75	68																									
KAMS - SRS																													
Operations		83	90	90	90	90	90	90	90	90	90	90	90	90															
S&S		56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9	56.9															
Pantex operating (w/term value)		16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	549.3
Pantex mod							10	46	46																				
LLNL		58	58	58	58	58	58	58	58																				
LANL		50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50												
Total annual cash flows		353.9	345.9	338.9	270.9	270.9	280.9	316.9	317	212.9	213	213	213	213	66	66	66	16	16	16	16	16	16	16	16	16	16	16	549.3
Net present value	**$3,426**																												

Assumptions:

—MOX construction begins August 1, 2007; the facility becomes operational in 2016 and operates through 2029.

—PDCF becomes operational in 2019 and operates through 2026.

—WSB becomes operational in 2013 and operates through 2029.

—Proposed Plutonium Vitrification process becomes operational in 2013 and operates through 2019.

—For surplus non-pit plutonium, approximately 2 MT is processed through H-Canyon/HB-Line, approximately 4 MT is processed through the MOX facility, and the remaining 7 MT is vitrified in the proposed Plutonium Vitrification process.

—All cash flows are represented in 2006 (real) dollars.

—Consolidation of surplus, non-pit plutonium to SRS begins in 2007 and is completed in 2009.

—H-Canyon/HB-Line are maintained as a safeguards Category II facility.

—The primary mission for H-Canyon/HB-Line is to process aluminum clad spent fuel and recover enriched uranium, which continues through 2019. The costs associated with the "with other missions" are the costs attributable to operating the facility for processing plutonium whereas the costs associated with the "without other missions" are the costs to operate the facility if the plutonium mission carries the full costs of facility operations. The numbers are derived from the actual annual operating costs.

—The MOX total project cost is based on the current approved project baseline ($4.8 billion). Note: The Revised Continuing Appropriations Resolution, 2007 (Public Law 110–5) provides that the Secretary of Energy may not make available funds for construction activities for the MOX facility until August 1, 2007. This delay results in an increase to the MOX total project cost which is included in the net present value calculations.

—The project cost for PDCF and WSB is based on the project data sheet in the fiscal year 2008 President's budget.

—The project costs for Plutonium Vitrification are based on the pre-conceptual cost range approved at CD–0, and are the same as those appearing in the fiscal year 2008 President's budget.

—Costs for all storage facilities are based on actual operating costs and/or those costs projected by each of the sites.

—Storage costs for LLNL and LANL continue until programmatic materials are removed consistent with Complex 2030 goals in the years 2014 and 2022 respectively. Pantex storage costs continue due to continued storage of programmatic material. Storage costs are based on the total, actual operating costs of the storage facilities for both surplus and non-surplus programmatic materials. These costs include security costs and the required staffing to operate and maintain a Category 1 Security facility. Such costs are incurred regardless of the quantity of materials stored in the facility and would be incurred so long as surplus or programmatic materials are stored at the facilities. The facilities at Pantex, LLNL, and LANL contain both programmatic and surplus materials and accordingly, storage costs would be incurred until all of the materials (surplus and programmatic) have been removed. For these reasons, it is not appropriate to allocate incremental storage costs for only surplus plutonium.

—The estimated nearer-term plutonium storage costs of $3.4 billion represent the storage costs to the Department until removal of surplus plutonium from Hanford, LLNL, and LANL pursuant to DOE's Complex 2030 and material consolidation goals. If consolidation of the surplus plutonium does not proceed and the materials continue to be stored at present locations, then an incremental storage cost of approximately $6 billion would be incurred, in addition to the future cost to dispose of the materials at a later time. Storage (without disposition) would be the most expensive option because the discounted (net present value) storage costs are within 10 percent of the proposed baseline approach and do not account for the additional cost to dispose of the material.

—The net present value costs are consistent with the information used previously in DOE's 2006 report entitled, Disposition of Surplus U.S. Materials, Comparative Analysis of Alternative Approaches, and with DOE's 2007 Business Case Analysis of the Current U.S. Mixed Oxide (MOX) Fuel Strategy for Dispositioning 34 Metric Tons of Surplus Weapon-Grade Plutonium, but differ in that: (1) the earlier studies did not discount the costs, and (2) the earlier studies analyzed the combined plutonium and uranium storage costs in lieu of the plutonium storage cost as described in this study. If DOE continues to store surplus materials at Hanford, LANL, and LLNL, cost savings from removing

plutonium pursuant with Complex 2030 initiative and materials consolidation would not be realized.

—Costs are included for construction of six magazines to increase storage efficiency for surplus pits in Zone 4 at Pantex.

—Costs of operating H-Canyon/HB-Line without other missions represent the total cost of operating H-Canyon/HB-Line and are based on actual annual operating costs. This scenario would occur if other planned missions do not take place and H-Canyon/HB-Line was operated solely for plutonium disposition.

—Revenues from the sale of MOX fuel and the uranium from dismantled pits are based on the price of uranium as of November 2006.

—A terminal value is used to assign an equivalent financial value to those activities assumed to continue indefinitely, such as storage and surveillance and monitoring.

EVALUATION OF ALTERNATIVE STORAGE AND DISPOSITION APPROACHES

The following section compares the Department's proposed baseline approach with other storage and disposition approaches on the basis of nonproliferation aspects, institutional factors, technical maturity and technical uncertainty, and cost and schedule considerations. Plutonium disposition approaches are grouped into two distinct categories. Those approaches in the first category meet U.S. national security and nonproliferation objectives concerning the disposition of surplus plutonium by rendering it unusable for nuclear weapons, and encourage Russia to dispose of its surplus weapons plutonium. Specific approaches in this category include: DOE's proposed Baseline Approach (MOX, the proposed small-scale Plutonium Vitrification process and H-Canyon/HB-Line) and Maximize Utilization of MOX and H-Canyon/HB-Line. The second category contains those approaches that fail to accomplish these objectives and include: large-scale (41 MT) Immobilization Facility and H-Canyon, Consolidate and Vitrify (~13 MT) Non-Pit Plutonium at SRS While Continuing to Store Surplus Pits at Pantex, Consolidate the Storage of Non-Pit Plutonium (~13 MT) at SRS and Store Surplus Plutonium (~43 MT) In-Place at Current Locations.

APPROACHES THAT MEET U.S. NATIONAL SECURITY AND NONPROLIFERATION OBJECTIVES

Proposed Baseline Approach (MOX, Plutonium Vitrification and H-Canyon).—The proposed baseline approach consists of: (1) construct and operate a MOX Fuel Fabrication Facility, a Pit Disassembly and Conversion Facility, and a Waste Solidification Building to dispose of 34 MT of weapon-grade plutonium; (2) design, construct and operate a plutonium vitrification process in the basement level of the K-Reactor Building to vitrify up to 13 MT of non-pit plutonium; and (3) operate the existing H-Canyon/HB-Line facilities to process approximately 2 MT of very impure plutonium bearing materials at the Savannah River Site, along with the mission to recover enriched uranium for subsequent down blending and sale.

DOE's proposed baseline approach for disposing of surplus plutonium meets all of the programmatic objectives. The detailed design of the MOX facility is about 90 percent complete, and the technology has been in use throughout Europe for three decades. The proposed Plutonium Vitrification process, on the other hand, is in the very early stages of design (less than 5 percent complete). As such, there remains uncertainty associated with the design and cost estimates and therefore, future cost growth is likely. DOE will continue to address technical and cost uncertainties as part of the Conceptual Design process. The MOX fuel fabrication facility, once operational, could potentially provide the following capabilities: disposition of additional plutonium from future weapons dismantlement, if declared surplus; possible fabrication of start-up fuel for GNEP fast reactors depending on fuel form selected and the 2008 determination of the GNEP path forward by the Secretary of Energy; and disposition of additional surplus impure plutonium (currently planned for Plutonium Vitrification), if the chemical and isotopic impurities can be economically removed from the material. This approach will incur additional costs if there is delay in pursuing the currently planned program.

Maximize Utilization of MOX and Operate H-Canyon (MOX and H-Canyon).—Construct and operate a MOX Fuel Fabrication Facility, a Pit Disassembly and Conversion Facility, and a Waste Solidification Building to dispose of approximately 39 MT of weapon-grade and fuel-grade plutonium, and to operate the existing H-Canyon/HB-Line facilities to process approximately 4 MT of certain impure and very impure plutonium bearing materials at the Savannah River Site, together with the mission to recover enriched uranium for subsequent down blending and sale.

As with the proposed baseline approach, this approach meets all of the programmatic objectives. Overall, it has the highest degree of technical maturity and is therefore likely to have the least unplanned programmatic cost growth. The pro-

posed small-scale Plutonium Vitrification process is in the very early stages of design (less than 5 percent complete). As such, there remains uncertainty associated with the design and cost estimates and therefore, future cost growth is likely. DOE will continue to address technical and cost uncertainties as part of the Conceptual Design process. Engineers are currently evaluating the cost and technical feasibility of maximizing the use of the MOX facility and reducing the mission that is currently proposed for the small-scale Plutonium Vitrification process. If feasible, it could permit DOE to use MOX and H-Canyon to dispose of the approximately 43 metric tons of surplus plutonium. Preliminary indications are that this approach may result in cost savings of approximately $500 million (estimated total project cost in constant 2006 dollars, excluding operating costs) when compared to the proposed baseline approach, although actual savings may change as the design of the small-scale Vitrification process progresses. Moreover, this approach would require minor modifications to the H-Canyon. As mentioned above, the MOX fuel fabrication facility, once operational, could potentially provide the following capabilities: disposition of additional plutonium from future weapons dismantlement, if declared surplus; and possible fabrication of start-up fuel for GNEP fast reactors depending on a decision by the Secretary of Energy on the scope of the GNEP program scheduled for June 2008.

APPROACHES THAT FAIL TO MEET U.S. NATIONAL SECURITY AND NONPROLIFERATION OBJECTIVES

Immobilization Facility and H-Canyon.—Under this approach, DOE would design, construct, and operate a new, large-scale (approximately 41 MT) stand-alone Plutonium Immobilization Plant (using ceramification technology, since immobilization of such a large amount of plutonium would not be feasible using vitrification in a borosilicate glass due to the high radiation levels produced). A Pit Disassembly and Conversion Facility would be needed to take apart nuclear weapons cores and convert the resulting plutonium metal to an oxide form for ceramification as would a Waste Solidification Building. Operation of the existing H-Canyon/HB-Line facilities would be used to process approximately 2 MT of plutonium bearing materials at the Savannah River Site, together with the mission to recover enriched uranium for subsequent down blending and sale.

This approach is likely to be seen by Russia as being inconsistent with the U.S.-Russia Plutonium Management and Disposition Agreement and is unlikely to encourage Russia to dispose of its surplus weapon-grade plutonium. Russia continues to view immobilization as another form of storage because it does not degrade the isotopics of the weapon-grade plutonium as would irradiation in a nuclear reactor. Therefore, Russia continues to believe that weapon-grade plutonium from the immobilized waste form could be retrieved for use in new nuclear weapons. This approach does support the program objectives of consolidating and disposing surplus plutonium in support of Complex 2030 and related DOE goals. Plutonium immobilization maintains the commitment to U.S. nonproliferation goals by potentially dispositioning 43 MT of plutonium in an intrinsically theft resistant form. The ability to complete the 41 MT immobilization mission with high level waste located at the Savannah River Site is not possible, however, because of an insufficient quantity of high level waste needed to fill the waste canisters, in order to provide an intrinsically self protecting theft-resistant form. Immobilization[9] of plutonium in a ceramic matrix also has a high degree of technical uncertainty because of the relatively low technical maturity associated with this technology. As a result, substantial future cost growth to accomplish plutonium immobilization is likely, and the overall programmatic cost is expected to be greater than DOE's current planned baseline program. In addition, significant program delays are likely because of the currently low technical maturity of this option, coupled with required new evaluations associated with such a major program change (e.g., extensive research and development, facility design and construction are likely to mean that an Immobilization Facility could not become operational for an additional 12–14 years).

Consolidate and Vitrify Non-Pit Plutonium at SRS and Continue to Store Pits at Pantex.—Design, construct and operate a Plutonium Vitrification process in the basement level of the K-Reactor Building to vitrify up to 13 MT of non-pit plutonium; operate the existing H-Canyon/HB-Line facilities to process approximately 2 MT (included in the preceding 13 MT) of plutonium bearing materials at the Savan-

[9] Immobilization of plutonium in a ceramic form has never been done before and designs for an immobilization facility do not exist. This approach would require extensive research and development followed by a detailed engineering effort to design an immobilization facility. This approach is likely to take between 10–12 years before construction can begin and result in significant cost increases and schedule delays.

nah River Site, with the mission to recover enriched uranium for subsequent down blending and sale, and continue to store DOE's inventory of surplus pits at Pantex.

This alternative approach would result in the disposition of approximately 13 MT of mostly non-weapon-grade plutonium but leaves thousands of surplus nuclear weapon pits in storage at Pantex. Thus, this approach does not meet U.S. national security and nonproliferation objectives with respect to rendering DOE's entire inventory of surplus plutonium unusable for future weapons use and does not encourage Russia to dispose of its surplus weapons plutonium. Upgrades would be needed at Pantex to continue to store the surplus nuclear weapons pits. As stated previously, the proposed small-scale Plutonium Vitrification process is in the very early stages of design (less than 5 percent complete). As such, there remains uncertainty associated with the design and cost estimates and therefore, future cost growth is likely.

Consolidate the Storage of Non-Pit Plutonium at SRS.—Under this approach, DOE would: consolidate the storage of up to 13 MT of non-pit plutonium from Hanford, Los Alamos National Laboratory and Lawrence Livermore National Laboratory at SRS; continue to operate the existing H-Canyon/HB-Line facilities to process approximately 2 MT of plutonium bearing materials together with the mission to recover enriched uranium for subsequent down blending and sale; and continue to store indefinitely DOE's inventory of surplus nuclear weapons pits at Pantex.

This alternative approach would not meet U.S. national security and nonproliferation objectives with regard to disposing of 43 MT of surplus plutonium by rendering it unusable for nuclear weapons use and would not encourage Russia to dispose of its surplus weapons plutonium. Since it would also fail to provide a disposition pathway out of the Savannah River Site for surplus plutonium brought there for disposition, existing law currently prohibits the further shipment of this plutonium to SRS under certain circumstances to achieve consolidation. This approach would not prevent the accumulation of stockpiles of surplus plutonium, deferring final disposition decisions and costs until the future. Upgrades would still be needed at Pantex to continue to store thousands of surplus nuclear weapons pits.

Store Surplus Plutonium In-Place at Current Locations.—DOE would continue to store surplus plutonium at current locations, i.e., Savannah River Site, Pantex, Hanford, Los Alamos National Laboratory and Lawrence Livermore National Laboratory. Under this approach, the existing H-Canyon/HB-Line facilities would process approximately 2 MT of plutonium bearing materials already at the Savannah River Site, with the mission to recover enriched uranium for subsequent down blending and sale.

This alternative approach would not meet U.S. national security and nonproliferation objectives. It would not meet U.S. obligations under the 2000 U.S.-Russia Plutonium Management and Disposition Agreement and would not encourage Russia to dispose of its surplus weapons plutonium. This approach would defer final disposition decisions and costs until some time in the future. Storage costs, discounted to the present, are within approximately 10 percent of DOE's planned baseline disposition costs, over the equivalent time period.[10] At the conclusion of the storage period, DOE would still have to fund an expensive disposition program, or continue to pay storage costs.

CONCLUSION

DOE's proposed baseline approach for disposing of surplus plutonium (MOX, proposed small scale Plutonium Vitrification process, and H-Canyon) would meet U.S. national security and nonproliferation objectives for disposing of 43 MT of surplus plutonium by rendering it unusable for nuclear weapons use, and would provide the best chance of encouraging Russia to dispose of its surplus weapons plutonium. In addition, the proposed baseline approach would help reduce storage costs for nuclear materials, reduce safeguards and security costs, and support the Department's efforts to consolidate nuclear materials within the DOE Complex.

The detailed design of the MOX facility, a key element of the baseline approach, is about 90 percent complete, and the technology has been in use throughout Europe for three decades. The Nuclear Regulatory Commission (NRC) has authorized construction and DOE's contractor has submitted a license application to the NRC for operation of the MOX facility. In addition, MOX fuel lead assemblies, containing surplus weapons plutonium, are currently being successfully tested in a commercial

[10] The 2007 Business Case Analysis of the Current U.S. Mixed Oxide (MOX) Fuel Strategy for Dispositioning 34 Metric Tons of Surplus Weapon-Grade Plutonium showed that storage costs in constant 2006 dollars for 50 years of storage would be $15.45 billion and would exceed the base case costs.

nuclear reactor in South Carolina and the irradiation of MOX fuel will generate electricity through which revenues are produced for the U.S. Treasury. Moreover, the MOX fuel fabrication facility, once operational, could potentially provide the following capabilities: disposition of additional plutonium from future weapons dismantlement, if declared surplus; possible fabrication of start-up fuel for GNEP fast reactors depending on a decision by the Secretary of Energy on the scope of the GNEP program scheduled for June 2008; and disposition of additional surplus impure plutonium (currently planned for Plutonium Vitrification), if the chemical and isotopic impurities can be economically removed from the material.

CYBER SECURITY FUNDING—INSUFFICIENT TO ADDRESS THE RISK

Question. It is clear that the cyber budgets have failed to keep pace with the enormous investment in physical security, despite the fact that every day of the year our classified network is attacked thousands of times by foreign entities looking for access to our national security secrets.

Has the NNSA requested a risk analysis of the Department's massive physical security buildup vs. the limited investment it has made in cyber security?

Answer. In December 2006, the NNSA Chief Information Officer (CIO) requested that a cyber security risk analysis be completed by each Site. The preliminary analyses were to be completed by February 2007, and the final analyses and reports are due to be completed in May 2007. After the NNSA CIO works with sites to identify and quantify the risks, the Administrator must review the risks of both cyber and physical and distribute the budget submission accordingly. In addition to the risk analysis, in 2007, the NNSA OCIO will publish a cyber security threat statement and risk assessment methodology to be used consistently across the NNSA complex.

Question. Considering that our country is constantly under cyber attack, wouldn't you agree that an independent review of the investment over the past several years would be helpful to know if we accurately assessed the risks by making physical security our priority?

Answer. Independent reviews of cyber and physical security are conducted annually by the Office of Independent Assessment (OA) and by the Office Inspector General (OIG). Cyber security has increasingly become a priority over the past several years, and budget requests reflect a change in the "balancing" of risks based on a revitalization of the cyber security program within DOE and NNSA.

Loss of Personal Data

Question. It greatly disturbs me that a subcontractor was able to walk out of Los Alamos lab with classified material last October, but I am equally frustrated with the numerous instances where the Federal Government has failed to protect personal information of employees. Last year, computer hackers were able to steal 1,500 names from NNSA's Albuquerque Service Center.

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

Answer. The Department's CIO published policy on the handling of Personally Identifiable Information (PII) in July 2006. The NNSA CIO further published implementing guidance in August 2006 that outlines the requirements for protection and reporting of PII and PII related information. These guidelines are in compliance with the OMB requirements for PII. In addition, the DOE and NNSA procured encryption software for use throughout the Department to facilitate the requirements implementation.

SUBCOMMITTEE RECESS

Senator DORGAN. This hearing is recessed.

[Whereupon, at 4:04 p.m., Wednesday, April 18, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2008

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 2008 Energy and Water Development Appropriations Act.]

DEPARTMENT OF DEFENSE—CIVIL

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS—CIVIL

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 $28,767,000 contained in the proposed budget for fiscal year 2008, to the U.S. Army Corp of Engineers' capability of $98,352,000, and the Mississippi River Levee maintenance allocation be increased from the proposed $10,726,000 to $34,538,000.

Reduced funding, combined with the inability to let construction contracts under a continuing contract clause, has left thousands in Louisiana vulnerable to the adverse effects of a deficient levee system. Construction of levee enlargements is essential if the levee is to contain high river stages that are sure to come eventually.

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. This comes at a time when the State of Louisiana is still reeling from the effects of devastation caused by serious lack of funding for levees in the past. Administration after administration has cut funding for levee systems and flood control, providing less and less with each new Federal budget. The current proposed budget is no exception, with only $260,000,000 allocated for the entire Mississippi River and Tributaries (MR&T) project. We request that be increased to the Corp's capabilities of $500,000,000.

Less than $10 billion has been invested in the MR&T Project since its authorization following the great flood of 1927, a fraction of the billions that have been spent trying to restore the damage to lives and property created by levee failures following Hurricane Katrina. Billions spent that have made almost no impact.

We urge Congress to increase funding to the Corps of Engineers in fiscal year 2008, to ensure that the Corps is not forced to halt of 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. Prior to August 2005, the MR&T projects had a performance-to-cost ratio of 24-to-1 on work completed. Hurricane Katrina changed that ratio drastically. The economic justification for increased funds for levee construction in Louisiana cannot be questioned or disputed.

PREPARED STATEMENT OF THE CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

Testimony for the United States Army Corps of Engineers Tropicana and Flamingo Washes Flood Control Project, Las Vegas, Nevada.—$12,500,000 construction appropriations, which includes appropriations for work performed pursuant to Section 211 of the Water Resources Development Act of 1996.

Presented herewith is testimony in support of $12,500,000 for the final construction appropriation necessary for the U.S. Army Corps of Engineers (Corps) to complete the Tropicana and Flamingo Washes flood control project (hereafter referred to as the Project) in Clark County, Nevada, and to reimburse the non-Federal sponsors, Clark County and the Clark County Regional Flood Control District, for work performed in advance of the Federal Project pursuant to Section 211 of the Water Resources Development Act (WRDA) of 1996.

The President's fiscal year 2008 Civil Works budget request to Congress identifies no funding for this Project. It is imperative that we receive the requested Federal funding to protect residents of the rapidly growing Las Vegas Valley in Southern Nevada from devastating floods.

Some history of previous funding requests and budgeting challenges associated with bringing this Project to a close need to be explained and outlined. On March 6, 2006, we learned that fiscal year 2004 and 2005 appropriations for the Project were reprogrammed to other projects in the Los Angeles District in the amount of approximately $7,000,000. While a commitment was made to us by the Corps to reinstate these funds in fiscal year 2006, they were not made available to us due to language changes in the Conference Report that accompanies H.R. 2419. In order to see the construction of the Project continue, we asked and received permission to use the $3 million of Section 211 funds from fiscal year 2006 appropriations to increase funding of Construction General. We also contributed an additional $1 million to the Project by advancing our 5 percent cash commitment earlier than originally anticipated. These steps were necessary to prevent the Project from shutting down in mid-construction. In fiscal year 2007, we submitted testimony requesting $22 million for Construction General and Section 211. We now learn that under current Continued Resolution Authority, the Project may receive Federal funding in fiscal year 2007 in the amount of only $12.4 million—the lesser of the two budgets authorized by the House and Senate. This is almost $10 million less than the original request. And to further muddy the waters, the President's fiscal year 2008 Civil Works budget request to Congress identifies no funding to complete this Project.

Because the Corps' budget requests are made well in advance of the fiscal year 2008 budget being announced, the Corps may have assumed—that if we had received the $22 million request in 2007—the Project would have been completed and no further funding for Section 211 or construction would have been requested or necessary. Clearly, now, that's not what occurred and another $12.5 million is necessary to bring the Project to a close and provide what is due under Section 211.

The non-Federal sponsors are, therefore, requesting $12.5 million for both the final construction funding and reimbursement to the local sponsors of this Project. Funding at this level will allow the Federal commitments made in the past to be finally realized and completed in fiscal year 2008.

The Feasibility Report for the Project was completed in October 1991, and congressional authorization was included in the WRDA of 1992. The first Federal appropriation to initiate construction of the Project became available through the Energy and Water Resources Development Appropriations Bill signed into law by the President in October 1993. The Project Cooperation Agreement (PCA) was fully executed in February 1995. Federal appropriations to date have totaled $281.7 million (allocations $239.1 million), allowing continued Project construction. The total cost of the flood control portion of the Project is currently estimated at $336.3 million, higher than originally anticipated primarily due to the delay in Federal appropriations which has resulted in increases in real estate and construction costs.

In order to provide the required flood protection in a timely fashion, the non-Federal sponsors are implementing certain features in advance of the Federal Government pursuant to Section 211 of WRDA 1996. An amendment to the PCA was fully executed on December 17, 1999, that formalizes the provisions of Section 211 of WRDA 1996. Section 211(f) of WRDA 1996 recognized the Project as one of eight projects in the Nation to demonstrate the potential advantages and effectiveness of non-Federal implementation of Federal flood control projects. The work funded by the non-Federal sponsors and completed is substantial and includes features that were designed by the non-Federal sponsors and constructed by either the Federal Government or the non-Federal sponsors. The language contained in the fiscal year 2000 Energy and Water Development Bill, Senate Report 106–58, states in part, "The Committee expects . . . every effort to even out reimbursement payments to

lessen future budgetary impacts." To date, only $13.5 million has been reimbursed of the previously authorized $20.6 million.

The local community had constructed certain elements of the Project prior to the execution of the PCA. These Project elements required modifications in order to fit into the Corps' plan and fulfill the need for a "total fan approach" to the flooding problems in the Las Vegas Valley. The work performed by the non-Federal sponsors, construction of Red Rock Detention Basin and Flamingo Detention Basin, has been accounted for in Section 104 credits and totals $9,906,000.

We have already realized some benefits from construction of flood control features on the Project We have removed 18.7 square miles of flood zones from Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps. This was accomplished through the completion of various project elements. We anticipate removal of additional flood zones when the Project is completed.

In summary, the Project is an important public safety project designed to provide flood protection for one of the fastest growing urban areas in the Nation. We ask that the committee provide the Secretary of the Army with $12.5 million, in fiscal year 2008, in order to meet prior requests to complete the Project and to reimburse the non-Federal sponsors the Federal proportionate share of the work completed by the sponsors in advance of the Federal Government.

The committee is aware that flood control measures are a necessary investment required preventing loss of life and damages to people's homes and businesses. Flood control is a wise investment that will pay for itself by preserving life and property and reducing the probability of repeatedly asking the Federal Government for disaster assistance. Therefore, when balancing the Federal budget, we believe a thorough analysis will show that there is substantial future Federal savings in disaster assistance that supports sufficient appropriations through the Civil Works Budget.

LAS VEGAS GROWTH, SPECIFIC PROJECT BENEFITS AND FLOODING HISTORY

The Las Vegas Valley continues to experience unprecedented growth. In the past 20+ years, people have moved into our area from all parts of the Nation to seek employment, provide necessary services, retire in the Sunbelt, and become part of this dynamic community. Approximately 6,000 people relocate to the Las Vegas Valley every month of the year. Currently the population exceeds 1.9 million. The latest statistics show that more than 31,000 residential units are built annually. Once all of these factors are combined, the result is that the Las Vegas Valley continues to be one of the fastest-growing metropolitan areas in the Nation.

The Project being constructed by the Corps is designed to collect flood flows from a 174-square-mile contributing drainage area. The Project includes three debris basins, five detention basins, 28 miles of primary channels, and a network of lateral collector channels. The debris basins collect flood flows from undeveloped Federal lands at the headwaters of the alluvial fans and trap large bedload debris before it enters the channels and causes erosion damage. The detention basins greatly reduce the magnitude of the flood flows so that the flows can be safely released and conveyed through the urbanized area at non-damaging rates. A primary system of channels collects outflows from the debris and detention basins and conveys these floodwaters through our urban area. Lateral collector channels, which are funded locally, collect runoff from smaller developed watersheds and deliver it to the primary channels. Since flood flow over the alluvial fans, which ring the Las Vegas Valley, is so unpredictable in terms of the direction it will take during any given flood, all of the components of the Project are critical.

In recent history, torrential rains deluged the Las Vegas Valley the morning of July 8, 1999, causing widespread drainage problems and major damages to public and private properties. Some of the greatest rainfall depths occurred over the southwest portions of the Las Vegas Valley resulting in significant flows in the Tropicana and Flamingo Washes. The runoff from this intense rainfall caused widespread street flooding and record high flows in normally dry washes and flood control facilities. The news media reported two deaths during this flood event, one of which was a drowning in the Flamingo Wash. Damages to public property caused by this storm were estimated at $20.5 million. The President declared Clark County a Federal Disaster Area on July 19, 1999, recognizing the severity of damages to public and private properties. Significant damages could have been avoided if the Project had been fully implemented. However, those features of the Project that were completed did help to mitigate damages.

On August 19, 2003 another flash flood hit the Las Vegas Valley and damaged hundreds of homes and businesses. Again in the winter of 2004–2005, the area experienced heavier then normal rainfall amounts. That winter brought twice the area's

average annual rainfall causing flooding along the Virgin and Muddy Rivers in Clark County, Nevada. Several areas in the Las Vegas Valley also experienced drainage problems. While the flood control features built as part of the Project helped to protect vast areas of our community, storms of this magnitude only reinforce the need to expeditiously build all flood control projects in the Las Vegas Valley.

PREPARED STATEMENT OF THE CITY OF FLAGSTAFF, ARIZONA

RIO DE FLAG FLOOD CONTROL PROJECT

Chairman Dorgan, Ranking Member Domenici, 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 2008 and for an increased authorization, or 902(b) fix, for the project. 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 3 fiscal years, Rio de Flag received more than $11 million to continue construction on this important project. We are extremely grateful that the subcommittee boosted this project well above the President's request both years, and we would appreciate your continued support for this project in fiscal year 2008.

Like many other projects under the Army Corps's jurisdiction, Rio de Flag received no funding in the President's fiscal year 2008 budget, although the Corps has expressed a capability of $8 million to continue construction on the project. 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 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 & 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.

Madame Chairwoman, 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 2008 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 2008.

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.

Finally, I strongly support inclusion of a 902(b) fix that was included in the fiscal year 2007 Senate Energy and Water Development Appropriations bill (as Section 113), which will increase the authorization of the project from $35 to $54 million, but was not included in the final bill due to the passage of the continuing resolution for fiscal year 2007. Nevertheless, because of the Corps' commitment to this project, on November 9, 2006, the Corps announced that they had approved a waiver to their policy to allow the construction contract award of Clay Avenue Wash Detention Basin prior to reauthorization of the total project. The current estimate for construction of the basin is $4.6 million. Without this increased authorization for the project, it cannot move forward as planned. Therefore, it is critically important that this provision is inserted in the bill:

"SEC. ____. The project for flood damage reduction, Rio de Flag, Flagstaff, Arizona, authorized in section 101(b)(3) of the Water Resources Development Act, 2000, is modified to authorize the Secretary to construct the project, at a total cost of $54,130,000, with an estimated Federal cost of $34,970,000, and an estimated non-federal cost of $19,160,000."

As you may know, project construction and implementation of Rio de Flag was authorized in the Water Resources Development Act (WRDA) of 2000. The total project cost is now estimated to be $54,100,000 in and above the reconnaissance study or the feasibility study. The non-federal share is currently $24,000,000 and the Federal share is currently $30,000,000. Final project costs must be adjusted based on Value Engineering and final design features. It is important to note the City of Flagstaff has already committed more than $10,500,000 to this project, and an additional $2,000,000 in excess of its cost share agreement. This clearly demonstrates the city's commitment to completing this important project. Through this investment in the project, the city has entered into the Project Cooperation Agreement (PCA) with the Department of the Army.

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 has already secured the necessary property rights to begin construction in 2004. Implementation of the city's Downtown and Southside Redevelopment Initiatives ($100,000,000 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 at grade crossings.

Both design and construction are divided into two phases. Phase I construction commenced in 2004. Phase II of the project commenced in 2005.

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—approximately $30 million—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 2008 Energy and Water Development Appropriations bill. I also strongly support the inclusion of an increased authorization, or 902(b) fix, for the project from $35 to $54 million. Thank you in advance for your consideration.

PREPARED STATEMENT OF THE ARKANSAS RIVER BASIN INTERSTATE COMMITTEE

Mr. Chairman and members of the committee, I am Paul Latture II, Arkansas Chairman of the Arkansas River Basin Interstate Committee, from Little Rock, Arkansas.

It is my privilege to present this statement on behalf of the Arkansas members of our committee in support of adequate funding for water resource development projects in our area of the Arkansas River Basin. Other members of the committee are: Mr. Jack Long, Little Rock; Mr. Jeff Pipkin, Russellville; Mr. Scott McGeorge, Pine Bluff; and Mr. Buck Shell, Van Buren.

The public investment in the McClellan-Kerr has paid significant dividends over the life of the project. The most recent investment included the completion of the Montgomery Point Lock and Dam. Since the opening of Montgomery Point, there has been a 10 percent increase in total tonnage on the system. In 2005, there was an 8 percent increase in tonnage. This is a direct result of the increased reliability of the system. Without Montgomery Point Lock and Dam, the river system would have been closed 25 percent of the time, according to Corps of Engineers officials. We fully expect that tonnage will continue to increase. But maintaining the high reliability of the system depends on protecting the investment by funding projects such as the significant backlog of Operations and Maintenance that has built up over the years, by completing the Arkansas-White River Cut-off study and construction, and by fulfilling the wish of Congress in completing the 12-foot channel project.

Mr. Chairman, Public Law 108–137 authorized a 12-foot channel on the McClellan-Kerr Arkansas River Navigation System. The Corps is now obligated to operate and maintain the system as a 12-foot channel. Over 90 percent of the system currently is adequate for a 12-foot channel. Deepening the remainder of the channel to 12 feet will allow carriers to place 43 percent more cargo on barges, which will reduce the amount of fuel consumed and emissions released. Funds in the amount of $7.0 million were allocated in fiscal year 2005. Those funds were used to complete the Feasibility Study and Environmental Impact Statement with the balance used on engineering, design, and construction activities. Environmental benefits include the creation of new aquatic habitat through new dike construction and the construction of Least Tern islands through beneficial use of dredged material. The Corps of Engineers has developed a comprehensive plan to execute the project in the States of Arkansas and Oklahoma to the best advantage of both States and the best use of the funds.

Therefore, we request $40 million to maintain the authorized depth and execute the plan to its full capability in fiscal year 2008. This investment will increase the cost competitiveness of this low cost, environment-friendly transportation mode and help us combat the loss of industry and jobs to overseas.

Arkansas-White Rivers Cutoff Study is to determine a permanent solution to prevent the developing cutoff from joining the Arkansas and White River near the confluence of the McClellan-Kerr Arkansas River Navigation System and the Mississippi Rivers. If not corrected this occurrence could have a dramatic adverse affect on the navigation system. Unless corrected, this will effectively drain the water from the navigation system and halt the movement of commerce on the system.

We request an appropriation of $3.5 million of which $400,000 will complete the study and $3.1 million will be used for design and construction activities at Jim Smith Lake and along the banks of the Arkansas and White Rivers to support navigation.

Maintenance of the Navigation System.—In preparation for the deepening of the navigation system from 9 to 12 feet, there is a backlog of maintenance items that has been deferred due to insufficient budgets to allow proper maintenance. These maintenance items are required even to support navigation at the 9-foot depth in order to not jeopardize the reliability of the system. Therefore, we request funding for the Little Rock District of the Corps of Engineers to be at least $26 million for the upcoming fiscal year for routine and deferred channel maintenance. These funds would be used for such things as repair of bank stabilization work, needed advance maintenance dredging, and other repairs needed on the system's components that have significantly deteriorated over the past three decades.

Mr. Chairman, we respectfully request that the committee consider these requests as the most important to our transportation system at this time. We must maintain this country's transportation infrastructure or little else will matter in the future.

PREPARED STATEMENT OF THE BOARD OF LEVEE COMMISSIONERS FOR THE YAZOO-MISSISSIPPI DELTA

On behalf of the thousands of citizens in its 10-county district in Mississippi, the Yazoo-Mississippi Delta Levee Board respectfully urges Congress to fund the Mississippi River and Tributaries Project (MR&T) to the full U.S. Army Corps of Engineers' 2008 capability of $500 million.

While the totality of the Mississippi Valley Flood Control Association's requested fiscal year 2008 Civil Works Requested Budget (documentation for which is attached) represents badly needed work items throughout the Mississippi Valley, we shall speak specifically to those critically important flood control needs within our levee district in this space allotted us.

The Mainline Mississippi River levee system is one of the great engineering successes in America. For 75 years it has protected lives and livelihoods within the shadow of the Father of All Waters, and it will continue to do so in the years ahead—but only if properly strengthened and maintained. We urge Congress to appropriate the needed $98.352 million to maintain our levees and keep our citizens safe and dry. Within that we will be able to do two seepage control projects at Farrell and Trotter's.

It is only through a lack of required funding that one of the most successful and non-controversial flood control projects in the United States has come to a grinding halt in our district. The Upper Yazoo Project (UYP), which our board is proud to sponsor, is the prototypical example of what a flood control project should be—effective, environmentally sound, universally favored. While flood control efforts in other areas are threatened or stalled by lawsuits and citizen upheaval, the UYP has everyone's blessing, and is absent only the funds to complete it.

Restoring the Yazoo/Coldwater/Tallahatchie river system to its flow capacity and stopping interbasin transfer of flood waters, the UYP is about two-thirds complete. The city of Greenwood, Mississippi, is already receiving its benefits. But upstream, such areas as Marks, Lambert, Moorhead, Mississippi Delta Community College, Tutwiler, Glendora, Sumner and Webb are not—and will not unless Congress dedicates the $22.5 million which the Corps of Engineers needs for scheduled work in 2008.

We implore Congress to appropriate the needed $22.5 million for the UYP so that structures might be constructed, a bridge relocated, and another section of the river system restored to its proper capacity. Thousands of our citizens remain unprotected from flood waters; we turn to Congress to give them relief.

Working hand-in-hand with the UYP in a common sense approach to flood control is the Mississippi Delta Headwater Project, through which waters and the stream-filling silts which they carry, are controlled. The UYP would clear out our waterways, the Delta Headwater Project would reduce the rate at which they would resilt. We urge Congress to appropriate the needed $25 million for this effort to continue in 2008.

Without proper mitigation practices, of course, all flood control projects would be threatened. Our levee district is very concerned that mitigation lands, once acquired, are not being rapidly enough turned over to Federal and State wildlife management agencies to ensure the desired public benefits. A lack of management monies is frequently blamed for that, so we are asking that adequate funds be appropriated and designated for proper management authority and practice on mitigation lands.

Mississippi's four flood control reservoirs play a critical role in managing water from the hills and avoiding untimely releases into the low-lying Delta where they can wreak havoc. But as critical as these facilities are, they are aging and maintenance monies are deeply needed to ensure their integrity. Therefore we ask that respective maintenance funds be allocated for these reservoirs as follows:

—Sardis Lake—$14.784 million.
—Arkabutla Lake—$9.975 million.
—Enid Lake—$10.927 million.
—Grenada Lake—$11.299 million.

Due to the nature of its alluvial soils, bank stabilization is a critical need in the Delta and within our district. In the past, the Corps had the authority to prioritize this pervasive problem and deal directly with those situations in which significant public importance was involved—hospitals, major thoroughfares, schools and the like. One example in our district is where bank failure threatens major transportation arteries near the Rising Sun community south of Greenwood. But the empowering language for such no longer exists. We urge that either this language be restored for such projects nationwide, or, in the alternative, we urge Congress to specifically allocate the needed $820,000 needed to address this problem which potentially affects thousands.

The Big Sunflower River Maintenance Project is jointly sponsored by Mississippi's two levee boards. The Draft Supplemental Environmental Impact Statement for this project, which would restore flood control capacities to 130 miles of channels by removing sediment built up over the past 40 years, will be released later this year and we request that $2.5 million be appropriated to allow right-of-way acquisition to continue and to award the dredging contract.

The Corps of Engineers has the capacity to Initiate Tributaries Reformulation on inland feeder streams, many of which lie in our district, and we urge that Congress appropriate the $2 million Corps 2008 capacity for this needed work.

In another issue specific to our district, funds are needed to initiate a study of Gunn Bayou, south of Belzoni. Poor drainage causes localized flooding in this area.

There are, however, two policy issues which combine to potentially threaten not only these, but every flood control project in the country—the recently abandoned principles of Continuing Contracts and Reprogramming. Now absent these two longstanding practices, the Corps has lost the flexibility to continue works in progress and reallocate funds by priority. We urge Congress to restore the practices of Continuing Contracts and Reprogramming throughout the MR&T.

Finally, through the implementation of revised Levee Certification guides and some unfortunate and ill-advised flood insurance zone language, the Federal Emergency Management Agency has created a situation in which both future investment in the Delta and homeowner finances are threatened. The new FEMA levee protection guide and subsequent flood zone rating appears to ignore the protection afforded by the levee system for 75 years and stands to send homeowner insurance costs skyrocketing, according to one estimate, anywhere from 500 to 1,600 percent.

We urge Congress to seriously review and address this issue.

PREPARED STATEMENT OF THE ARKANSAS RIVER BASIN INTERSTATE COMMITTEE

Mr. Chairman and members of the committee, I am James M. Hewgley, Jr., Oklahoma Chairman of the Arkansas River Basin Interstate Committee, from Tulsa, Oklahoma.

It is my privilege to present this statement on behalf of the Oklahoma members of our committee in support of adequate funding for water resource development projects in our area of the Arkansas River Basin. Other members of the committee are: Mr. Ted Coombes, Tulsa; Mr. A. Earnest Gilder, Muskogee; Mr. Terry McDonald, Tulsa; and Mr. Lew Meibergen, Enid, who also serves as Chairman of the combined Arkansas River Basin Interstate Committee representing the five States within the Arkansas River Basin.

Mr. Chairman, Public Law 108–137 authorized a 12-foot channel on the McClellan-Kerr Arkansas River Navigation System. The Corps is now obligated to operate and maintain the system as a 12-foot channel. Over 90 percent of the system currently is adequate for a 12-foot channel. Deepening the remainder of the channel to 12 feet will allow carriers to place 43 percent more cargo on barges, which will reduce the amount of fuel consumed and emissions released. Funds in the amount of $7.0 million were allocated in fiscal year 2005. Those funds were used to complete the Feasibility Study and Environmental Impact Statement with the balance used on engineering, design, and construction activities. Environmental benefits include the creation of new aquatic habitat through new dike construction and the construction of Least Tern islands through beneficial use of dredged material. The Corps of Engineers has developed a comprehensive plan to execute the project in the States of Arkansas and Oklahoma to the best advantage of both States and the best use of the funds.

Therefore, we request $40 million to maintain the authorized depth and execute the plan to it's full capability in fiscal year 2008. This investment will increase the cost competitiveness of this low cost, environment-friendly transportation mode and help us combat the loss of industry and jobs to overseas.

Tow Haulage Equipment—Oklahoma.—We request funding of $6.5 million to initiate the installation of tow haulage equipment on the locks located along the Arkansas River portion of the McClellan-Kerr Arkansas River Navigation System. Total cost for these three locks is $6.5 million. This project will involve installation of tow haulage equipment on W.D. Mayo Lock and Dam No. 14, Robert S. Kerr Lock and Dam No. 15, and Webbers Falls Lock and Dam No. 16, on the Oklahoma portion of the waterway. The tow haulage equipment is needed to make transportation of barges more efficient and economical by allowing less time for tows to pass through the various locks.

Arkansas-White Rivers Cutoff Study is to determine a permanent solution to prevent the developing cutoff from joining the Arkansas and White River near the confluence of the McClellan-Kerr Arkansas River Navigation System and the Mississippi Rivers. If not corrected this occurrence could have a dramatic adverse affect on the navigation system. Unless corrected, this will effectively drain the water from the navigation system and halt the movement of commerce on the system.

We request an appropriation of $3.5 million of which $400,000 will complete the study and $3.1 million will be used for design and construction of a permanent fix at Jim Smith Lake.

Maintenance of the Navigation System.—In preparation for the deepening of the navigation system from 9 to 12 feet, there is a backlog of maintenance items that has been deferred due to insufficient budgets to allow proper maintenance. These maintenance items are required even to support navigation at the 9 foot depth in

order to not jeopardize the reliability of the system. Therefore, we request additional funding in the amount of $1,549,000—plus the amount from Little Rock, over and above normal funding, for deferred channel maintenance. These funds would be used for such things as repair of bank stabilization work, needed advance maintenance dredging, and other repairs needed on the system's components that have deteriorated over the past three decades.

In addition to the system-wide needed maintenance items mentioned above, the budget for the Corps of Engineers for the past several years has been insufficient to allow proper maintenance of the McClellan-Kerr Arkansas River Navigation System—Oklahoma portion. As a result, the backlog of maintenance items has continued to increase. If these important maintenance issues are not addressed soon, the reliability of the system will be jeopardized. The portion of the system in Oklahoma alone is responsible for returning $2.6 billion in annual benefits to the regional economy. The fiscal year 2006 O&M President's budget for Tulsa District was $8.2 million less (over 11 percent) than the fiscal year 2005 appropriation, which will result in no funding being available for critical infrastructure maintenance in fiscal year 2006. The fiscal year 2007 O&M President's budget is currently proposed at $72.4 million which is presently $10 million more than the fiscal year 2006 budget. This $10 million increase is offset by higher energy, labor, and construction costs. We therefore request that $2.1 million be added to the budget to accomplish critical infrastructure maintenance items on the Oklahoma portion of the system as follows:

McClellan-Kerr.—$600,000 to repair plate seals for the weirs;

Robert S. Kerr.—$1,500,000 to repair erosion and construct emergency mooring wood dolphins.

Mr. Chairman, we respectfully request that the committee consider these requests as the most important to our transportation system at this time. We must maintain this country's transportation infrastructure or little else will matter in the future.

PREPARED STATEMENT OF THE UPPER MISSISSIPPI RIVER BASIN ASSOCIATION (UMRBA)

[In millions of dollars]

	President's Request	UMRBA Recommendation
Construction General:		
Upper Miss. River Restoration Program (aka EMP)	23.46	33.52
Lock and Dam 3 (Major Rehabilitation) [1]	.....	5.0
Lock and Dam 11 (Major Rehabilitation) [1]	6.3	6.3
Lock and Dam 19 (Major Rehabilitation) [1]	0.70	1.47
Lock and Dam 24 (Major Rehabilitation) [1]	0.34	0.49
Locks 27 (Major Rehabilitation) [1]	7.54	11.26
Upper Mississippi and Illinois Rivers Navigation and Ecosystem Sustainability Program (if construction is authorized)	.....	16.2
Operation and Maintenance: O&M of the Upper Mississippi and Illinois Rivers Navigation System [2]	187.23	279.41
General Investigations: Upper Mississippi and Illinois Rivers Navigation and Ecosystem Sustainability Program (PED)	.....	24.0

[1] Funding for major rehabilitation projects would be shifted to the O&M account under the President's budget proposal. Major rehabilitation would still be cost-shared 50 percent from the Inland Waterways Trust Fund.

[2] The administration has modified the structure of the O&M account in its fiscal year 2008 budget. Rather than budgeting for individual projects, the O&M request is organized by region and by business line within region. The UMRBA is addressing its testimony to that portion of the Region 7 navigation business line that is attributable to O&M of the Upper Mississippi and Illinois Rivers navigation system. Thus, we have disaggregated numbers from the President's budget.

The Upper Mississippi River Basin Association (UMRBA) is the organization created in 1981 by the Governors of Illinois, Iowa, Minnesota, Missouri, and Wisconsin to serve as a forum for coordinating river-related State programs and policies and for collaborating with Federal agencies on regional issues. As such, the UMRBA works closely with the Corps of Engineers on a variety of programs. Of particular interest to the basin States are the following:

UPPER MISSISSIPPI AND ILLINOIS RIVERS NAVIGATION STUDY

It has been more than 2 years since the Corps completed its 14-year Upper Mississippi and Illinois Rivers Navigation Study, issuing the final feasibility report in September 2004 and the Chief's Report in December 2004. While Congress has not yet authorized the recommended integrated plan for navigation improvements and ecosystem restoration, it has provided preconstruction engineering and design (PED)

funding to insure that necessary planning and design work can proceed, in anticipation of construction authorization. Congress appropriated $13.5 million for PED in fiscal year 2005 and $10.0 million in fiscal year 2006. A similar bridging strategy will be necessary in fiscal year 2008 if authorization remains pending.

PED.—The UMRBA supports $24.0 million for PED in fiscal year 2008, despite the fact that the administration has once again not included PED in its budget request. Many of the large scale projects, such as new locks or fish passage at dams, require 3 years or more of PED before they can move to construction. It is thus critical that PED work continue without pause and be sustained over time. In the past, PED funding has been directed to both navigation improvements and ecosystem restoration projects. This has not necessarily meant providing identical amounts to these two major components on an annual basis, but has involved attempting to ensure meaningful and substantial progress in planning for both navigation improvements and ecosystem restoration. If the Corps were to receive PED funding of $24.0 million in fiscal year 2008, it is anticipated that approximately $1.5 million would be directed to program management and completion of the economic reevaluation interim report, with the $22.5 million balance divided roughly evenly between navigation measures (including small scale measures and lock design at three sites) and ecosystem restoration plan formulation and evaluation. (NOTE.—The PED allocation for fiscal year 2007 remains to be determined. It is imperative that the Office of Management and Budget permit the Corps to allocate reasonable and necessary funds to PED in fiscal year 2007. Approximately $18.0 million is needed for fully functional PED this year.)

Construction.—If the integrated navigation and ecosystem restoration program is authorized for construction this year, construction could be initiated on several projects in fiscal year 2008. In that event, UMRBA would recommend construction funding of $16.2 million. This funding would support mooring cells at 3 sites, switchboats, channel work upstream of Lock 22, fish passage at L&D 22, and several other ecosystem restoration projects, with approximately $7.6 million going to navigation improvements and $8.6 million going to ecosystem projects. This initial fiscal year 2008 construction increment would also enable the Corps to launch major construction activities, including work on large scale measures, in fiscal year 2009, with full program implementation possibly beginning in fiscal year 2010.

UPPER MISSISSIPPI RIVER RESTORATION PROGRAM (AKA EMP)

In fiscal year 2007, the Upper Mississippi River Restoration Program, commonly known as the Environmental Management Program (EMP), marked 20 years as the premier program for restoring the river's habitat and monitoring the river's ecological health. Members of Congress, agency leaders, stakeholder groups, and members of the public all joined the Corps of Engineers in celebrating the EMP's many successes, including both significant contributions to river science and dramatic on-the-ground habitat improvements. Given this tremendous record of success, the UMRBA is pleased that the administration has again identified the EMP as one of six construction projects considered to be national priorities. Even with this emphasis, however, the administration has requested only $23.46 million for the EMP in fiscal year 2008. This would continue the trend of the past 10 years, in which the annual EMP appropriation has fallen short of the authorized funding level. The UMRBA strongly urges Congress to appropriate full funding of $33.52 million for the EMP in fiscal year 2008.

The administration's proposed $23.46 million budget would support planning, engineering, design, and construction work on 23 habitat restoration projects. In addition, the fiscal year 2008 request would support modest expansion of targeted research and data acquisition and management efforts under the Long Term Resource Monitoring Program (LTRMP), which has suffered substantially from the funding shortfalls in recent years. However, to realize its full promise, the EMP requires funding at the full authorized amount of $33.52 million. This would support construction on three additional projects. It would also permit accelerated work on several other projects, thereby increasing overall program efficiency. Finally, funding at the full capability level would support LTRMP research on critical science questions and the acquisition of data needed for balanced river management, such as LIDAR terrain data. Therefore, the UMRBA urges Congress to fund the EMP at its full authorized amount of $33.52 million.

UMRBA remains concerned about a 2006 directive from OMB that $3 million of fiscal year 2007 EMP funding be devoted to development of a "10-year aquatic ecosystem restoration plan." Such a plan is unnecessary and would duplicate plans that the Corps completed as part of the 2004 Navigation Study. It is unclear whether OMB will renew this directive now that fiscal year 2007 funding allocations are

being made, or attempt to apply it in fiscal year 2008. However, given the backlog of EMP habitat restoration projects awaiting construction, and the vast number of unmet needs under the LTRMP, it would be misguided to divert construction funds from this important work to develop a plan that is largely duplicative. Congress should direct the Corps to use EMP funds exclusively for construction of habitat restoration projects and long term monitoring, as authorized in the 1999 Water Resources Development Act.

UMRBA recognizes that one of the biggest challenges facing future restoration efforts on the Upper Mississippi River (UMR) will be integrating the work that is currently done under EMP with the new ecosystem/navigation authority being proposed. Congress is currently considering authorization of a new dual-purpose authority for the Corps, as recommended in the navigation feasibility study. For now, however, the EMP remains the single most effective and long-standing UMR ecosystem restoration program. Moreover, the EMP's monitoring element is entirely unique and would not be replicated under some versions of the proposed new authority. Therefore, fully funding the EMP is as important today as it has ever been. The EMP must not languish as questions related to future program streamlining and coordination are being addressed.

MAJOR REHABILITATION OF LOCKS AND DAMS (L&D)

Most of the locks and dams on the Upper Mississippi River System are over 60 years old and many are in serious need of repair and rehabilitation. For more than 20 years, the Corps has been undertaking major rehabilitation of individual facilities throughout the navigation system in an effort to extend their useful life. This work is critical to ensuring navigation reliability and safety.

The UMRBA supports the President's fiscal year 2008 budget request for major rehabilitation work at L&D 11 ($6.3 million) and supports increasing the President's request for rehabilitation work at L&D 19 ($1.47 million), L&D 24 ($0.49 million), and Locks 27 ($11.26 million). Funding at these levels will permit timely and efficient rehabilitation of these critical navigation structures. Major rehabilitation of L&D 11 and L&D 19 could be completed in fiscal year 2008. The planned work spans a broad range, including gate repair/replacement, concrete work, and mechanical and electrical upgrades.

The UMRBA also supports funding for a major rehabilitation project that is not included in the President's request: L&D 3 at $5.0 million. Navigation safety and embankment failure have been a concern for over 20 years at L&D 3, and river pilots agree that this is the most dangerous stretch of the Upper Mississippi to navigate. Should there be an accident, the adjacent embankments, which have been severely weakened by age and past accidents, could be breached. In this event, commercial navigation would be curtailed and two large power plants would be forced to shut down.

OPERATION AND MAINTENANCE (O&M) OF THE UPPER MISSISSIPPI RIVER NAVIGATION SYSTEM

The Corps is responsible for operating and maintaining the Upper Mississippi River System for navigation. This includes channel maintenance dredging, placement and repair of channel training structures, stream gaging and water level regulation, and routine care and operation of 29 locks and dams on the Mississippi River and 7 locks and dams on the Illinois River. The fiscal year 2008 budget request totals approximately $187.23 million for O&M of this river system. These funds are critical to the Corps' ability to maintain a safe and reliable commercial navigation system, while protecting and enhancing the river's environmental values.

Unfortunately, the President's fiscal year 2008 budget represents a further widening of the gap between the amount requested and the amount required for adequate operation and maintenance of the navigation system. In fiscal year 2006, the gap between the President's request and the Corps' capability was $52.14 million. In fiscal year 2008, this shortfall has increased to $92.18 million. For segments of the Upper Mississippi System, this will mean multiple years during which resources have not supported even baseline operation and maintenance, resulting in an increasing backlog, elimination of important stream gages, and a growing risk of failures and service interruptions. Responses to these continued fiscal pressures may include reductions in lock operating hours and cancellations of ongoing contracts. Funding beyond the President's request is needed to restore basic service levels, coordinate major maintenance with major rehabilitation at L&D 11 and 19, and undertake a variety of other critical O&M work.

The UMRBA supports increased funding for O&M of the Upper Mississippi and Illinois River System to meet routine operation and maintenance needs, and to ad-

dress the growing unfunded maintenance backlog. The Upper Mississippi River System is simply too valuable to invite disaster through chronic underfunding of basic O&M. For fiscal year 2008, O&M funding totaling $279.41 million is needed on the Upper Mississippi River System to address ongoing needs and critical backlog items.

INLAND WATERWAYS USER FEES

In releasing the President's fiscal year 2008 budget request for the Corps of Engineers, Assistant Secretary of the Army John Woodley announced that the administration plans to propose a new inland waterways user fee. There are many important unknowns, including most notably the form and magnitude of this new fee and its relationship to the existing inland waterways fuel tax, authorized as part of the 1986 Water Resources Development Act. Given the lack of specifics, the UMRBA has not taken a position, but would urge Congress to proceed with great care in response to any such proposal. The impacts on operators and shippers are potentially profound and issues such as economic disruption, equity among waterways beneficiaries, and implications for the Nation's intermodal system must be fully understood and evaluated. The UMRBA States would be very concerned with any proposal that would undermine the vitality and efficiency of the Upper Mississippi River System, which is so central to the region's economy.

PREPARED STATEMENT OF THE MISSISSIPPI VALLEY FLOOD CONTROL ASSOCIATION

My name is M.V. Williams and I reside in Germantown, Tennessee. I am the president of the West Tennessee Tributaries Association. It is also my pleasure and a privilege afforded me by the other nine members of the executive committee, to serve as chairman of that committee that has the responsibility for the management and direction of the Mississippi Valley Flood Control Association in accordance with policies duly adopted by the association. This statement on behalf of the association presents their views on the fiscal year 2008 budget for the Mississippi River and Tributaries Project and their request for $500 million.

Since there are new members on the subcommittee and to refresh the memory of those that have served previously, I will briefly discuss the Mississippi Valley Flood Control Association which is an agency composed almost entirely of public bodies having local responsibility for flood control, drainage, bank stabilization and navigation improvements in parts of Illinois, Kentucky, Tennessee, Missouri, Arkansas, Mississippi and Louisiana. Our members are public officials who for the most part are elected by the people. The Association represents practically all of the levee and drainage districts, municipalities, port and harbor commissions and other State agencies in the Mississippi River Valley. These organizations and agencies are political subdivisions of the various States in which they are organized and function. We provide an agency through which all the people of the Mississippi River Valley may speak and act jointly on all flood control, navigation, bank stabilization and major drainage problems. We have appeared before the subcommittee and served the people in the Mississippi River Valley for over 70 years.

Our Association is comprised of a very large group of individuals who are businessmen, property owners, conservationists, farmers, attorneys, doctors, wildlife enthusiasts, engineers, accountants, environmentalists, civil servants and elected officials from all political parties. Since 1935, our president and two vice presidents have been members of the United States Congress, a fact of which we are extremely proud. Our president this year is that great public servant and one of the real heroes of the Vietnam conflict, the Congressman from the Third District of Iowa, the Honorable Leonard Boswell. Our two vice presidents are Congressmen Roger Wicker from Mississippi and Edward Whitfield from Kentucky.

The value of flood control and economic reality of the need for waterborne commerce is well known by the Congress. Therefore I will not go into details but for the sake of confirming what is already known, let me tell you that since 1928 the Nation has invested $12 billion for the Mississippi River and Tributaries Project. For that investment the Nation has realized a return of $425.5 billion that includes savings on transportation costs and flood damages prevented. That's a return on investment of $35.50 for every $1 invested. What a wonderful investment of taxpayers' dollars.

Today we find ourselves again faced with an inadequate budget from the executive department but fortunately for us and the other citizens of this great Nation, the Congress in its wisdom has always recognized the value of such an investment and has consequently, with only rare exceptions, appropriated more dollars for the Mississippi River and Tributaries Project than has been requested by the executive department. We hope that happens again this year.

We are in Washington for our 72nd Annual Spring Meeting and as improbable as it may seem we find the U.S. Army Corps of Engineers under fire from within the executive branch and of course the so-called environmentalists. This is the same Corps of Engineers that has in peace time for over 225 years built the infrastructure that is the envy of the rest of the civilized world and that has also defended our Nation in times of conflict. My war of participation was World War II which as all of you know involved numerous amphibious landings. Leading each of those landings were the U.S. Army Amphibious Engineers who were competently led by General Daniel Noce who served as District Engineer in the Memphis District during the record flood of 1937. General Noce was well aware of the training and experience that both young army officers and civilians had gained while part of the Mississippi Valley Division and he recruited the cadre of the amphibious engineers from that group. In fact the Corps of Engineers has defended our Nation from the War for Independence to the war on terror, from Bunker Hill to Baghdad. I know of no justification for the attitude that some have taken concerning the Corps of Engineers. This attitude is having and will continue to have a detrimental impact on economic development in this country.

I am well aware that the purpose of this statement is to discuss fiscal year 2008 appropriations for the Mississippi River and Tributaries Project but I believe it is appropriate to mention at this time new policies being implemented by the Federal Emergency Management Agency in their map modernization program. This program is a 5-year program that was initiated in 2004 and consists of updating the flood insurance rate maps. We've been told that 20 percent of all counties nationwide are scheduled for update.

Of great concern to us and should be of concern to everyone is a new zone designation known as Zone X (shaded) which will be all the areas outside the 100-year flood zone protected by levees. In the case of the lower Mississippi River Valley, from approximately Cape Girardeau, Missouri to the Gulf of Mexico, this is an area of some 35,000 square miles or 22,400,000 acres. A warning will be placed on the new flood insurance rate maps that will, among other things, state that within this area communities should issue evacuation plans and encourage property owners to purchase flood insurance.

This large area that is protected not only by the Mississippi River and Tributaries Levees but also by the entire Comprehensive Flood Control System consisting of not only levees but bank revetments, river cut-offs, floodways, floodwalls, diversions, flood storage reservoirs, control structures and many other improvements that have made certain that no Mississippi River Main Line Levee has failed since 1928, the year that the Congress directed the Corps of Engineers to build the system. There have been a number of floods of record proportions since then but not one failure. The design flood for the Mississippi River and Tributaries Project is to protect against a flood predicted by the weather bureau as the "maximum possible" and provides for the disposal of all water predicted as possible.

This unwarranted new Zone X on Flood Insurance Rate Maps will have a dramatic and costly burden on all the residents, businesses and industries along the lower Mississippi River and its tributaries and this economic disaster will be felt over this entire Nation. The language proposed will frighten lenders and companies looking for industrial sites, impact crop loans as well as causing millions of dollars to be spent for unnecessary flood insurance premiums. This is such a serious matter that we would suggest strongly that the appropriate congressional committees hold hearings on this matter to determine what if any engineering basis the Federal Emergency Management Agency used to develop this new policy.

Again, this statement is in support of the Mississippi River and Tributaries Appropriations and our request is being made only after careful and thoughtful considerations of the amount necessary to prevent the cancellation of on going contracts and to do the minimum amount of required maintenance work. The Mississippi River and Tributaries Project is unique in the fact that the appropriations allocated are used not only for construction but also for maintenance and not only for flood control but also for navigation and includes all environmental considerations including mitigation and restoration as well as irrigation and water supply.

It is our collective opinion that to meet the requirements outlined above, the appropriation for the Mississippi River and Tributaries Project for fiscal year 2008 should be $500 million. In order to preserve the integrity of our flood control and navigation systems that represents a large investment of national assets and to preserve and enhance the natural environment of the Mississippi River Valley and to continue the authorized work that is underway, the appropriation request is justified and should be considered as a wise investment in the future well-being of this great Nation.

As we noted in our statement last year, of utmost importance to the overall success of the project is the completion of the work in both Louisiana and Mississippi to bring the deficient levees up to the required grade and section. Additional funds are needed here and because of the scope of the work the restrictions on reprogramming authorities and the elimination of the use of continuing contracts both need to be waived in order that this work to protect thousands of acres of valuable land and the lives of thousands of citizens can be completed as rapidly as possible. Because of these restrictions, contracts had to be shut down at considerable cost and the loss of valuable construction time. We ask the subcommittee for help in this important matter.

With the help of the Congress over the years, we have made progress in the Mississippi River Valley and for that we are extremely grateful but there is much to be done before the job is completed and the people in the valley and the entire Nation may reap the benefits of what has been done.

We have attached a sheet to this statement that reflects the Mississippi Valley Flood Control Association's request for Appropriations for the Mississippi River and Tributaries Project for fiscal year 2008.

MISSISSIPPI VALLEY FLOOD CONTROL ASSOCIATION—FISCAL YEAR 2008 CIVIL WORKS REQUESTED BUDGET—MISSISSIPPI RIVER AND TRIBUTARIES APPROPRIATIONS

PROJECT AND STATE	MVFCA REQUEST
SURVEYS, CONTINUATION OF PLANNING AND ENGINEERING & ADVANCE ENGINEERING & DESIGN:	
Memphis Harbor, TN	
Germantown, TN	
Lower Steele Bayou	
Homochitto River	
Fletcher Creek, TN	
Memphis Metro Storm Water Management, TN	
Bayou Meto, AR	$2,550,000
Southeast Arkansas	800,000
Coldwater Basin Below Arkabutla Lake, MS	425,000
Quiver River, MS	
Spring Bayou, LA	500,000
Point Coupee to St. Mary Parish, LA	
Atchafalaya Basin Floodway Land Study, LA	200,000
Alexandria, LA to the Gulf of Mexico	1,950,000
Morganza, LA to the Gulf of Mexico	6,350,000
Donaldsonville, LA to the Gulf of Mexico	3,500,000
Tensas River, LA	
Donaldsonville Port Development, LA	
Collection & Study of Basic Data	495,000
TOTAL GENERAL INVESTIGATIONS	16,770,000
CONSTRUCTION:	
St. John's Bayou-New Madrid Floodway, MO	13,300,000
Eight Mile Creek, AR	
Helena & Vicinity, AR	
Grand Prairie Region, AR	37,800,000
Bayou Meto, AR	22,450,000
West Tennessee Tributaries	
Nonconnah Creek, TN	500,000
Wolf River, Memphis, TN	
August to Clarendon Levee, Lower White River, AR	
St. Francis Basin, MO & AR	7,000,000
Yazoo Basin, MS	67,125,000
Atchafalaya Basin, LA	34,000,000
Atchafalaya Basin Floodway, LA	10,894,000
MS Delta Region, LA	722,000
Channel Improvements, IL, KY, MO, AR, TN, MS & LA	64,547,000
Mississippi River Levees, IL, KY, MO, AR, TN, MS & LA	98,352,000
SUBTOTAL—CONSTRUCTION	356,690,000
SUBTOTAL—MAINTENANCE	283,669,000
SUBTOTAL—MISSISSIPPI RIVER & TRIBUTARIES	657,129,000

MISSISSIPPI VALLEY FLOOD CONTROL ASSOCIATION—FISCAL YEAR 2008 CIVIL WORKS REQUESTED BUDGET—MISSISSIPPI RIVER AND TRIBUTARIES APPROPRIATIONS—Continued

PROJECT AND STATE	MVFCA REQUEST
LESS REDUCTION FOR SAVINGS & SLIPPAGES	157,129,000
GRAND TOTAL—MISSISSIPPI RIVER & TRIBUTARIES	500,000,000

PREPARED STATEMENT OF THE LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT (LADOTD)

On behalf of LADOTD and the Association of Levee Boards of Louisiana (ALBL), we present recommendations for fiscal year 2008 appropriations for U.S. Army Corps of Engineers Civil Works Projects in Louisiana.

Hurricanes Katrina and Rita in 2005 totally devastated Louisiana and had a ripple effect throughout the Nation. Over 1,500 Louisiana residents lost their lives, over 200,000 homes were severely damaged or destroyed, and over 400,000 Louisiana citizens are still displaced. The true cost of these storms in lives, property, and wetlands loss—will never be known. Coastal Louisiana may never fully recover. All of the coastal infrastructure—ports, oil and gas pipelines, refineries (two large refineries in St. Bernard parish were out of service for months), chemical plants, production platforms, offshore supply depots, navigation channels, locks, etc.—were severely damaged whether or not they were protected by levees. The impact on Louisiana left a ripple effect on the economy of the whole country which cannot be ignored. Energy prices increased significantly because of the disruptions in production, delivery and refining. Damages to Louisiana's deepwater ports, which export nearly 60 percent of the Nation's grain products, disrupted agricultural markets worldwide. This was truly a national tragedy requiring a national response. The levee system intended to protect the New Orleans area completely failed. Worse yet, the project remains incomplete 40 years after authorization—due mostly to funding constraints. Ironically, one protection system, Larose to Golden Meadow, survived these two storms, but has been completely overlooked for accelerated funding. Present funding is not enough to bring it to 100 percent completion, and when complete, this would still not provide protection against the 1 percent chance of flooding.

It is equally tragic that another protection system still remains incomplete and vulnerable to a project flood. The Mississippi River and Tributaries Project (MR&T) has been underway since 1928 and isn't scheduled for completion until beyond 2031. Flooding from the Mississippi River would produce damages of a magnitude much greater than what was experienced during Hurricanes Katrina and Rita. A far greater portion of the State would be impacted. For these reasons, we consider the administration's proposed budget for the MR&T Project of $260 million for fiscal year 2008 to be entirely unacceptable. This amount is not enough to adequately fund the Corps projects in the New Orleans and Vicksburg Districts, let alone the entire Mississippi River Valley. We strongly support the Mississippi Valley Flood Control Association's request of $500 million for the MR&T Project.

Supplemental funding has previously been received to complete numerous ongoing hurricane protection projects and the SELA project. This is not enough, however, to provide protection against the 1 percent chance, or greater, of flooding in any given year. We respectfully encourage this committee to look at newly revised cost estimates and necessary funding required to raise the system to a protection level above the original project storm. Although these projects are important, there are still numerous other projects for navigation, flood protection, and coastal restoration that either are unfunded or lack adequate funds to continue in a timely manner. In making the following funding recommendations for Louisiana projects regarding specific construction, studies, and operation and maintenance items, we would hope that Congress and the administration will honor their prior commitments to infrastructure development and continue to fund our requests. We believe these types of water resources projects are the most cost effective projects in the Federal budget, having to meet stringent economic criteria not required by other programs.

FLOOD CONTROL, NAVIGATION, HURRICANE PROTECTION & WATER RESOURCES PROJECTS SUMMARY OF RECOMMENDED APPROPRIATIONS FISCAL YEAR 2008 FOR LOUISIANA

LADOTD & ALBL requests funding for the following projects that differs from what is in the fiscal year 2008 administration budget or is a project of particular

importance for the State. Those items that have been appropriately funded have not been included.

LOUISIANA PROJECTS	ADMINISTRATION BUDGET	LOUISIANA REQUEST
GENERAL INVESTIGATIONS:		
STUDIES:		
Amite River—Ecosystem Restoration, LA		$1,000,000
Amite River & Tributaries, LA Bayou Manchac		1,000,000
Atchafalaya River, Bayous Chene, Boeuf & Black		500,000
Calcasieu Lock, LA		600,000
Calcasieu River Basin, LA	$395,000	395,000
Calcasieu River & Pass Navigation, LA		360,000
Plaquemines Parish, LA		500,000
Southwest Coastal LA Hurricane Protection, LA		2,000,000
St. Charles Parish Urban Flood Control, LA		400,000
West Baton Rouge Parish, LA		543,000
West Shore—Lake Pontchartrain, LA		778,000
Bossier Parish Levee & FC		300,000
Cross Lake Water Supply		384,000
PED:		
Bayou Sorrel Lock, LA	1,371,000	2,500,000
Port of Iberia, LA		1,500,000
Southwest, AR (AR, LA)		400,000
NEW STUDIES:		
Baptiste Collette, LA		300,000
Donaldsonville Port Development		500,000
Red River Waterway, LA–12 Foot Channel		100,000
CAP:		
Port Fourchon Enlargement, LA		1,300,000
CONSTRUCTION GENERAL:		
Comite River, LA		24,000,000
East Baton Rouge Parish, LA		2,000,000
Inner Harbor Navigation Canal Lock, LA		6,000,000
Larose to Golden Meadow		14,700,000
Southeast, LA		169,000,000
Red River Below Den Dam (AR, LA)		10,000,000
Red River Emergency (AR, LA)		6,000,000
J Bennett Johnston WW, Miss. R. to Shreveport	1,500,000	15,000,000
Ouachita River Levees		1,600,000
Ouachita River Bank Stabilization		5,000,000
OPERATIONS & MAINTENANCE GENERAL:		
Atchafalaya River, Bayous Chene, Boeuf & Black	6,717,000	42,000,000
Arataria Bay Waterway		3,800,000
Bayou Lacombe		900,000
Bayou Lafourche	1,273,000	3,500,000
Bayou Segnette		1,500,000
Bayou Teche	209,000	209,000
Calcasieu River & Pass	16,108,000	32,000,000
Calcasieu River Dredge Disposal Plan	2,000,000	2,000,000
Freshwater Bayou	5,570,000	11,000,000
Gulf Intracoastal Waterway	21,851,000	36,000,000
Houma Navigation Canal	135,000	4,200,000
Mermentau River	1,685,000	6,300,000
Mississippi River, Baton Rouge to the Gulf	59,424,000	120,000,000
Mississippi River Gulf Outlet at Veince	290,000	6,000,000
Waterway Empire to the Gulf		5,000,000
WW. IWW to Bayou Dulac		250,000
Ouachita & Black Rivers (AR, LA)	9,865,000	20,143,000
Bayou Bodcau	766,000	2,226,000
Caddo Lake	196,000	261,000
Wallace Lake	211,000	278,000
Bayou Pierre	35,000	35,000
J Bennett Johnston Waterway	10,431,000	16,471,000
Lake Providence Harbor	25,000	546,000
Madison Parish Port	4,000	81,000

MISSISSIPPI RIVER AND TRIBUTARIES PROJECT SUMMARY OF RECOMMENDED APPROPRIATIONS FISCAL YEAR 2008 FOR LOUISIANA

LADOTD & ALBL requests funding for the following projects that differs from what is in the fiscal year 2008 administration budget or is a project of particular importance for the State. Those items that have been appropriately funded have not been included.

LOUISIANA PROJECTS	ADMINISTRATION BUDGET	LOUISIANA REQUEST
FC, MR&T GENERAL INVESTIGATIONS:		
Alexandria to the Gulf	$200,000	$1,950,000
Donaldsonville to the Gulf		3,500,000
Morganza to the Gulf, PED		6,500,000
Spring Bayou Area, LA		500,000
NEW STUDIES:		
Atchafalaya Basin Floodway System Land Study, LA	200,000	200,000
FC, MR&T CONSTRUCTION:		
Atchafalaya Basin	23,800,000	34,000,000
Atchafalaya Basin Floodway System	1,800,000	10,000,000
Channel Improvement (N.O. Dist.)	15,747,000	15,747,000
Mississippi Delta Region		722,000
Mississippi River Levees, LA (N.O. Dist.)	5,267,000	10,200,000
Mississippi River Levees (AR, LA, MS) (V. Dist.)	18,500,000	47,300,000
Morganza to the Gulf (pending authorization in WRDA)		14,000,000
Channel Improvement (AR, LA, MS) (V. Dist.)	23,585,000	29,585,000
FC, MR&T MAINTENANCE:		
Atchafalaya Basin	11,019,000	28,000,000
Atchafalaya Basin Floodway System	2,291,000	2,700,000
Baton Rouge Harbor (Devil's Swamp)	17,000	70,000
Bayou Cocodrie and Tributaries	41,000	41,000
Bonnet Carre Spillway	2,367,000	5,000,000
Channel Improvement (N.O. Dist.)	12,025,000	16,500,000
Dredging (N.O. Dist.)	700,000	700,000
MS Delta Region	125,000	225,000
Old River	9,045,000	20,000,000
Mississippi River Levees (LA) (N. Dist.)	3,702,000	3,774,000
Mississippi River Levees (AR, LA, MS) (V. Dist.)	2,100,000	2,700,000
Revetments & Dikes (AR, LA, MS) (V. Dist.)	15,400,000	15,400,000
Boeuf & Tensas Rivers	2,667,000	6,047,000
Red River Backwater	2,500,000	6,550,000
Lower Red River	45,000	45,000

Please note that the needed additional funds to give the New Orleans Area that protection that is needed is not included in the above request. We believe it is proper that the funds for repairing and improving the existing hurricane protection systems continue to be provided through emergency supplemental appropriations so as not to detract from projects that must go through the normal appropriations process. We solicit your continued support in providing the supplemental funding necessary to complete the work.

PREPARED STATEMENT OF THE LITTLE RIVER DRAINAGE DISTRICT

My name is Dr. 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 President's budget for the Civil Works portion of the U.S. Army Corps of Engineers for fiscal year 2008. The President's budget requests of $4.871 billion for Civil Works by the U.S. Army Corps of Engineers for the next fiscal year is totally inadequate and only represents 60 percent of the Corps capability. An amount of $8 billion is more realistic.

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.

Over 50 percent of our locks and dams are 50 to 60 years old. These facilities have exceeded their life expectancy by 10 to 20 years. In 10 years that percentage will have grown to almost 60 percent unless improvements are made.

We are witnessing unscheduled lock outages now and to continue as we are that number will continue to grow if we do not step forward with a specific plan to restore, rebuild and reconstruct lock and dams on our waterway systems. We already have leaking gates, crumbling lock walls and frequent unscheduled closures occurring which hurt and curtail economic growth to our Nation. Parts are actually having to be made for some repairs because manufactures no longer exist and such parts are not available.

Today our fuel needs alone are 75 percent dependent upon foreign oil sources. Waterborne transportation is far more energy efficient than truck or rail modes. Our Nation, our consumers and our producers will all benefit from more use of our river navigation upgrades. Less fuel would be needed to move mass quantities of goods, lives would be saved due to the more safer means of transportation, the many miles of highways throughout our Nation would not be adversely impacted, our environment would be enhanced because of less exhaust emissions and our farmers, manufacturers and other producers could compete with the world markets.

Further, to have a modern water transportation system would provide an excellent means to transport mass military equipment and troops throughout our Nation should such a need arise. How sad it would be to have an aging lock and dam system in place and fail during such a crisis. This Nation can construct modern infrastructure for others but seems to let its own taxpayers depend upon ancient features with no immediate plans to improve them. We can and we must set in order a program to modernize this valuable part of our infrastructure. It is past time to get this done.

Our competing nations such as Brazil and China have committed much more for fiscal year 2008. China has committed more than $12 billion to their waterway infrastructure yet we are pleading for only two-thirds of that amount. We have a backlog within this part of our infrastructure of improvements that has grown from $200 million in 1998 to more than $1 billion in fiscal year 2008 just for operations and maintenance. We appreciate very much Congress stepping forward as they did in 2006 and increasing the needed funds substantially. You should not be burdened with this task each year.

We believe Congress needs to intervene and reverse the trend of OMB, and of past and present 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 as well as local businesses who will provide needed materials.

We believe the improvement and modernization and the growth of our waterway infrastructure should be done, but we believe it needs to be done with a plan. We believe the Corps of Engineers has the capability and they should and must develop a plan for construction of any new projects. We also believe they need to complete projects that are already started before we begin new ones. We also believe the backlog of operations and maintenance of the existing system needs to be done before any new starts are authorized, however, there may be some emergency new starts which would be wise to commence provided the funds are available and provided a systematic modernization is ongoing. We must get away from "knee jerk" emergency type repairs and replacements.

We must prioritize projects and eliminate projects that are not returning benefits back to this Nation. We must have our Federal Government live up to the commitments they have made to the citizens of this Nation. Private interest have made many investments based upon faith in the Federal Government following through on what it promised and what they had been told would be provided to them within a reasonable period of time. If a project is to be funded entirely by the Federal Government as directed by Congress then we must fulfill that obligation. If local interest is to provide a portion of the cost then local interest must meet that mandate as well. However, we do not need to hold any projects up because local interests are not financially able to meet their cost sharing needs provided that project returns a benefit back to this Nation. Let us move forward with a plan and let us work that plan and rebuild and bring our waterway infrastructure into the 21st Century properly.

I will now turn my comments to one specific project which the U.S. Army Corps of Engineers has been authorized by Congress to administer, namely, the Mis-

sissippi River and Tributaries Project (MR&T) and one portion of that project which benefits the citizens of Southeast Missouri and Northeast Arkansas, namely, the St. Francis Basin Project.

The Corps of Engineers has a stated capability of $500,000,000 for fiscal year 2008 in the MR&T Project. We ask you to give consideration to provide funding levels at $500,000,000. This will provide some limited but needed new construction and some major maintenance. The President's budget contains only $260,000,000 which is far from adequate.

The Mississippi River and Tributaries Project was authorized following a record flood in 1927 that inundated more than 26,000 square miles of the Mississippi River Valley. Over 700,000 people were left homeless and many lives were lost. Most, if not all, East-West commerce was stopped and it adversely effected the economy and the environment of our Nation. After that devastating event Congress in its infinite wisdom passed a bill and established the Mississippi River and Tributaries Project (MR&T) and authorized the U.S. Army Corps of Engineers to develop a plan to prevent such a disaster in the future. This project currently is a separate line item in the budget. To remove it will destroy the continuity of this much needed project.

To date the MR&T Project has prevented flood damages and provided other benefits resulting in acurrent benefit/cost ratio of $28 to $1. Truly this is a wise investment for our Nation. Likewise countless lives have been spared from the construction of this great project. Also our Nation receives nearly $1 billion of navigational benefits each year due to this project. It is readily seen this project had merit from the beginning and continues to reward the citizens not only of the valley itself but of the citizens of the entire Nation. It is a wise investment for this country and it is good for our economy. It will be a vital link to the defense of our Nation in the event of an attack by our enemies. This project must be targeted for swift completion and then properly maintained. What an investment for our great Nation this project has been! Find any other project of any nature which approaches this ratio.

Further, we are very concerned and strongly opposed to the administration's recommendation in its fiscal year 2008 budget to use funds from the Inland Waterways Trust Fund to pay for part of the operation and maintenance cost of the inland waterways as well as some construction. The trust fund was established in 1978 and was to be made available for construction and rehabilitation for navigation on the inland and coastal waterways not for operations and maintenance. This is not what our Nation agreed to in 1978 and is not what was renewed under WRDA in 1986. We petition this Congress to stand up and have our Nation live up to the promises made to the contributors of that trust fund and abide by past agreements.

Investing in our waterways is a great way to stimulate the economy and at the same time be building and making investments into a system for the future which will return back more dollars than expended. We petition you to give this vital industry of our Nation a strong endorsement and do all you can to ensure our waterways systems stay competitive with our foreign competitors.

At a time when we need to stimulate our economy, at a time that safety from terrorist activities needs to be enhanced and at a time that many in our Nation are concerned about cleaner air, cleaner water, etc., we have a great opportunity to meet those needs. We must make sound investments into our infrastructure which will give back more monies to the taxpayers of this country than was invested while at the same time be increasing our defense capabilities should our Nation be attacked from an outside force.

Our District, as well as other Drainage and Levee Districts in Missouri and Arkansas, is located within the St. Francis River Basin. This is a project item of the Mississippi River and Tributaries Project.

The St. Francis Basin Project was authorized by Congress in 1928 for improvements by the U.S. Army Corps of Engineers. The initial authorization was justified by a projected benefit-cost ratio of 2.4:1. Today this ratio is 3.6:1 and the project is still not completed. As you can see this also has been a wise investment of our Federal tax dollars. Few projects, such as this one, where funds are provided by the Federal Government return more than they cost. This one does and we need to complete it in a timely fashion.

Local interests have done their part in providing rights of way, roads, utilities and the like. Our government now needs to fulfill their obligatory part of the project and bring it to completion as quickly as possible.

The amount allocated for maintenance in the St. Francis Basin Project for fiscal year 2007 was $880,000,000. This is a funding level that permits adequate funding to maintain the features within that project on which the Corps of Engineers has made improvements and which it is the responsibility of the Federal Government to maintain. As a matter of information the Memphis District U.S. Army Corps of

Engineers was able to execute 99 percent of the available funds for maintenance within that project for fiscal year 2006.

The President's budget for fiscal year 2008 contains no monies for construction whereas the Corps of Engineers has the capability of $7 million. We request $7 million for construction for this project.

The President's budget has $4.725 million for maintenance for the St. Francis Project. The Corps of Engineers has a stated capability of $23.475 million.

We believe the Corps could adequately use $15 million each year for maintenance within this basin. We realize there are budgetary restraints this year and respectively request Congress to approve funding for maintenance in the St. Francis Basin Project for fiscal year 2008 in the amount of $23.475 million. This should provide funds for adequate maintenance of the features within this basin which need attention annually.

Many positive changes have occurred to and within our sector of our Nation because of this project. We who live there welcome these changes. We, local interest, in Southeast Missouri and Northeast Arkansas want this project brought to completion and adequately maintained. We have waited over 70 years and we believe it is time to complete this wise investment for our Nation.

A question that could and should be asked is where will we get the money? True, our Nation is facing record deficits but surely some of the monies planned to be sent abroad to build, restore and improve other nations' infrastructure could be reduced substantially and be used for the benefit of our taxpayers and Nation. Please give this proposal some thought.

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 committee 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 committee has done for us in the past. We trust you will hear our pleas once more and act accordingly.

PREPARED STATEMENT OF THE CITY OF SAN MARCOS, TEXAS

SAN MARCOS RIVER ECOSYSTEM RESTORATION PROJECT

Mr. Chairman and members of the subcommittee: on behalf of the city of San Marcos, Texas, I am pleased to submit this statement in support of our request for an earmark of $439,000 for a U.S. Army Corps of Engineers Section 206 Ecosystem Restoration Project for the San Marcos River in the fiscal year 2008 bill.

The city of San Marcos seeks this allocation for the development of the Detailed Project Report/Integrated Environmental Assessment (DPR/EA) as the next step toward completing a $4,520,000 project with Federal and local match to restore degraded aquatic and terrestrial habitat in the upper San Marcos River.

San Marcos is located in south central Texas in Hays County, approximately 30 miles southwest of Austin, Texas. The proposed restoration area is located within the city limits of San Marcos along and within the San Marcos River and its headwaters. The study area consists of an approximate 1.0-mile stretch of the San Marcos River and associated riparian corridor. The ecosystem restoration project will restore and enhance degraded aquatic and terrestrial habitat along and within the San Marcos River.

The spring-fed San Marcos River offers one of rarest aquatic ecosystems found in the United States. The headwaters of the river originate from underground springs from the Edwards Aquifer, producing millions of gallons of crystal clear, constant temperature water daily. The river creates a unique ecosystem supporting five threatened or endangered species that live in the San Marcos River (San Marcos salamander, fountain darter, Texas wild rice, San Marcos gambusia, and Comal Springs riffle beetle).

The San Marcos River has attracted humans to its banks for more than 12,000 years, making San Marcos one of the oldest continuously inhabited places in the United States. The city of San Marcos has strived for the past 40 years to protect the river by establishing parks along its banks and restricting intense development.

Still, the constant use of the popular river over many decades has impacted the riparian and aquatic habitat of the river, requiring restoration of this valuable waterway. The San Marcos River and associated tributaries have experienced aquatic ecosystem degradation due to a variety of human factors. Impoundment of water upstream, in its tributaries, and within the study area has altered the normal flow regime of the San Marcos River. The native aquatic plant communities within the

San Marcos River have been diminished by invasive exotic and generalist plant species.

Increased nutrient and sediment loads from overland surface flow, tributary runoff, non-point sources and storm water drainage have reduced water quality and in-stream habitat values within the river. The majority of the bottomland plant community within the study area is highly disturbed and fragmented due primarily to urban encroachment, installation of hardpan surfaces, recreational disturbance and invasion of non-native plant species.

This degradation has resulted in the loss of high quality in-stream and riparian habitat for plant and wildlife species within the study area. The proposed restoration plan will help restore aquatic and terrestrial habitat that has degraded due to human activity, including critical habitat for the federally-listed species.

The city of San Marcos applied for U.S. Army Corps of Engineers Section 206 Aquatic Restoration Grant funds in 2002 to turn around the trend toward degradation in our river corridor. A Preliminary Restoration Plan (PRP) was developed by the U.S. Army Corps of Engineers and submitted in March 2003. The PRP was approved and moved forward to the next phase, the development of a Detailed Project Report (DPR).

However, at this stage, Federal funding for this program was reduced, placing the city of San Marcos PRP on the backburner. Funding this project is essential to restore integrity to the San Marcos River, the central point of our community for tourism, recreation, and quality of life.

This project will directly benefit the environment by increasing biodiversity, carrying capacity, stability and productivity of native plant and wildlife species endemic to the area. Additional benefits include improvement of existing recreational opportunities, enhancement of water quality, and improvement of natural aesthetics.

Specifically, the project will restore and sustain approximately 22.0 acres of riparian woodland habitat, 6.0 acre of tall grass prairie habitat, 4.0 acres of emergent wetland habitat and 16.0 acres of aquatic habitat within a highly urbanized area. The total project cost is estimated at $4,520,000, which will be cost-shared 65 percent Federal Government and 35 percent city of San Marcos. The Federal share is $2,938,000 with a local match of $1,582,000.

The only COE Section 206 projects that will now receive funding are those that have congressional support.

Therefore, we ask you to approve a special appropriation earmark for $439,000 for the San Marcos River Section 206 Project to fund the restoration. Thank you for your consideration of this project.

PREPARED STATEMENT OF THE ST. FRANCIS LEVEE DISTRICT OF ARKANSAS

EXECUTIVE SUMMARY

The Mississippi Valley Flood Control Association fiscal year 2008 Civil Works budget, Mississippi River and Tributaries Appropriations—Requesting Appropriations of $7 million for Construction and $23.475 million for Maintenance and Operation in the St. Francis Basin Project and a total of $500 million for the Mississippi River and Tributaries Project. The reason for this seemingly large request is to be assured that the Corps of Engineers may fully fund on-going and future construction contracts as directed in the fiscal year 2006 appropriations act. Our requests are detailed in the tables attached to this statement.

BACKGROUND INFORMATION

My name is Rob Rash, and my home is in Marion, Arkansas, located on the west side of the Mississippi River and in the St. Francis Basin. I am the CEO/Chief Engineer of the St. Francis Levee District of Arkansas. Our District is the local cooperation organization for the Mississippi River and Tributaries Project and the St. Francis Basin Project in Northeast Arkansas. Our District is responsible for the operation and maintenance of 160 miles of Mississippi River Levee and 75 miles of St. Francis River Tributary Levee in Northeast Arkansas.

The St. Francis Basin is comprised of an area of approximately 7,550 square miles in Southeast Missouri and Northeast Arkansas. The basin extends from the foot of Commerce Hills near Cape Girardeau, Missouri to the mouth of the St. Francis River, 7 miles above Helena, Arkansas, a total distance of 235 miles. It is bordered on the east by the Mississippi River and on the west by the uplands of Bloomfield and Crowley's Ridge, having a maximum width of 53 miles.

The Mississippi River and Tributaries Project and the St. Francis Basin Project provide critical flood protection to over 2,500 square miles in Northeast Arkansas alone. This basin's flood control system is the very lifeblood of our livelihood and prosperity. Our resources and infrastructure are allowing the St. Francis Basin and the Lower Mississippi Valley to develop into a major commercial and industrial area for this great Nation. The basin is quickly becoming a major steel and energy production area. The agriculture industry in Northeast Arkansas and the Lower Mississippi Valley continues to play an integral role in providing food and clothing for this Nation. This has all been made possible because Congress has long recognized that flood control in the Lower Mississippi Valley is a matter of national interest and security and has authorized the U.S. Army Corps of Engineers to implement a flood control system in the Lower Mississippi Valley that is the envy of the civilized world. With the support of Congress over the years, we have continued to develop our flood control system in the Lower Mississippi Valley through the Mississippi River and Tributaries Project and for that we are extremely grateful.

Although, at the current level of project completion, there are areas in the Lower Mississippi Valley that are subject to major flooding on the Mississippi River. The level of funding that has been included in the President's Budget for the overall Mississippi River and Tributaries Project is not sufficient to adequately fund and maintain this project. The level of funding will require the citizens of the Lower Mississippi Valley to live needlessly in the threat of major flood devastation for the next 30 years. Timely project completion is of paramount importance to the citizens of the Lower Mississippi. Ten and Fifteen Mile Bayou improvements are just one of many construction projects necessary for flood relief in the St. Francis Basin. Ten and Fifteen Mile Bayou improvements were reauthorized by Congress through the Flood Control Act of 1928, as amended. Section 104 of the Consolidated Appropriation Act of 2001 modified the St. Francis Basin to expand the project boundaries to include Ten and Fifteen Mile Bayous and shall not be considered separable elements. Total project length of 38 miles includes Ten and Fifteen Mile Bayou, Ditch No. 15 and the 10 Mile Diversion Ditch that provide flood control for West Memphis and Vicinity. Without additional funds, construction would be delayed and West Memphis and Vicinity will continue to experience record flooding as seen December 17, 2001. West Memphis and Vicinity would experience immediate flood relief when the first item of construction is completed.

Next I feel that it is imperative that I mention at this time new policies being implemented by the Federal Emergency Management Agency in their Map Modernization Program. This is a 5-year program that was initiated in 2004 and consists of updating the Flood Insurance Rate Maps. We've been told that 20 percent of all counties nationwide are scheduled for update.

Of great concern to us and should be of concern to everyone is a new Zone Designation known as Zone X (Shaded) which will be all the areas outside the 100-year flood zone protected by levees. In the case of the Lower Mississippi River Valley, from Cape Girardeau, Missouri to the Gulf of Mexico, this is an area of some 35,000 square miles or 22,400,000 acres. A warning will be placed on the new Flood Insurance Rate Maps that will, among other things, state that within this area, communities should issue evacuation plans and encourage property owners to purchase flood insurance.

This large area is protected by the Mississippi River and Tributaries Levees but also by the entire Comprehensive Flood Control System consisting of not only the well designed, well constructed, well maintained, massive levees but also bank revetments, river cut-offs, floodways, floodwalls, diversions, flood storage reservoirs, control structures and many other improvements that have made certain that no Mississippi River Main Line Levee has failed since 1928, the year that Congress directed the Corps of Engineers to build the system. There have been a number of floods of record proportions since 1928 but not one failure. The American Taxpayer has invested billions of dollars in this system and their money up to now has been well spent. The Federal Emergency Management Agency seems to think it has been wasted. Not so!

The Design Flood for the Mississippi River and Tributaries Project is to protect against a flood predicted by the Weather Bureau as the "Maximum Possible" and provides for the disposal of all water predicted as possible. This unwarranted new Zone X (Shaded) on Flood Insurance Rate Maps will have a dramatic and costly burden on all the residents, businesses and industries along the Lower Mississippi River and its Tributaries and this economic disaster will be felt over this entire Nation. The language proposed will frighten Lenders and Companies looking for Industrial Sites, impact Crop Loans as well as causing millions of dollars to be spent for unnecessary flood insurance premiums. This is such a serious matter that we would suggest strongly that the appropriate congressional committees hold hearings on

this matter to determine what if any engineering basis the Federal Emergency Management Agency used to develop this new policy.

PROPOSED FUNDING

We support the amount of $500 million requested by the Mississippi Valley Flood Control Association for use in the overall Mississippi River and Tributaries Project. This is the minimum amount that the Executive Committee of the Association feels is necessary to maintain a reasonable time line for completion of the overall Mississippi River and Tributaries Project. Also, the amounts that have been included in the President's budget for the St. Francis Basin Project; construction, operation and maintenance have not been sufficient to fund critical projects. These declined amounts have resulted in a significant backlog of work within the St. Francis Basin. Therefore, our District is requesting capabilities of $7 million for the St. Francis Basin Project construction funds and $23.475 million for the St. Francis Basin operation and maintenance funds. The amounts requested for the St. Francis Basin Project are a part of the total amounts requested for the Mississippi River and Tributary Appropriations of the Civil Works Budget.

SUMMATION

With the tragedy that struck the Gulf Coast, we must now turn our attention to the future and attempt to make certain that at least the flooding does not take place again. We can prevent that; the Dutch, the English and the Italians have done it and so can we if we treat flood control as something that we must do. The citizens of this great Nation deserve it.

There are four anomalies of nature that cause death and destruction to our Nation. They are: (1) earthquakes; (2) hurricanes; (3) tornadoes; and, (4) floods. The first three we can do very little if anything about except to prepare for the worst. We can build protection against floods, against the "maximum probable flood," one that has an "improbable occurrence but nevertheless a remotely possible one."

In order to provide such protection we believe that three things must be done.

First, the environmental laws, or at least the way they are interpreted for flood control projects, must be changed or we stand to lose more lives and have another absolute environmental catastrophe such as the one we have witnessed in New Orleans and along the Gulf Coast. Second, cancel all cost-sharing for flood control projects unless we do intend to only protect those that can afford it and ignore those that can not. Third, relax the requirements for the benefits-to-cost ratio for flood control projects for one reason, it is impossible to assign a dollar value to a human life. It is our opinion that these things must be done, for without flood control, nothing else really matters.

Again, we thank the Congress and this committee for all your help in the past and thank you in advance for your kind considerations of our requests for fiscal year 2008.

PROJECT AND STATE	MVFCA REQUEST
Wappapello Lake, MO	$14,000,000
Mississippi River Levees	34,538,000
Mississippi River Channel Maintenance	72,549,000
Memphis Harbor, TN	2,866,000
Helena Harbor, AR	563,000
Greenville Harbor, MS	372,000
Vicksburg Harbor, MS	445,000
St. Francis River & Tribs., AR	23,475,000
White River Backwater, AR	1,440,000
North Bank, Arkansas River, AR	270,000
South Bank, Arkansas River, AR	257,000
Boeuf & Tensas Rivers, LA	7,447,000
Red River Backwater, LA	5,500,000
Yazoo Basin, Sardis Lake, MS	14,784,000
Yazoo Basin, Arkabutla Lake, MS	9,975,000
Yazoo Basin, Enid Lake, MS	10,927,000
Yazoo Basin, Grenada Lake, MS	11,299,000
Yazoo Basin, Greenwood, MS	2,438,000
Yazoo Basin, Yazoo City, MS	694,000
Yazoo Basin, Main Stem, MS	3,525,000
Yazoo Basin, Tributaries, MS	1,018,000
Yazoo Basin, Whittington Aux Channel, MS	191,000

PROJECT AND STATE	MVFCA REQUEST
Yazoo Basin, Big Sunflower, MS	2,196,000
Yazoo Basin, Yazoo Backwater, MS	979,000
Lower Red River, South Bank, LA	80,000
Bonnet Carre, LA	4,857,000
Old River, LA	21,243,000
Atchafalaya Basin, LA	28,641,000
Atchafalaya Basin Floodway, LA	2,609,000
Baton Rouge Harbor Devil's Swamp, LA	717,000
Mississippi Delta Region, LA	225,000
Bayou Cocodrie & Tribs, LA	41,000
Inspection of Completed Works	1,987,000
Mapping	1,521,000
TOTAL MR&T MAINTENANCE	283,669,000
CONSTRUCTION:	
Surveying and Mapping	16,770,000
St. John's Bayou-New Madrid Floodway, MO	13,300,000
Grand Prairie Region, AR	37,800,000
Bayou Meto, AR	22,450,000
Nonconnah Creek, TN	500,000
St. Francis Basin, MO & AR	7,000,000
Yazoo Basin, MS	67,125,000
Atchafalaya Basin, LA	34,000,000
Atchafalaya Basin Floodway, LA	10,894,000
MS Delta Region, LA	722,000
Channel Improvements, IL, KY, MO, AR, TN, MS & LA	64,547,000
Mississippi River Levees, IL, KY, MO, AR, TN, MS & LA	98,352,000
SUBTOTAL—CONSTRUCTION	356,690,000
SUBTOTAL—MAINTENANCE	283,669,000
SUBTOTAL—MISSISSIPPI RIVER & TRIBUTARIES	657,129,000
LESS REDUCTION FOR SAVINGS & SLIPPAGES	157,129,000
GRAND TOTAL—MISSISSIPPI RIVER & TRIBUTARIES	500,000,000

PREPARED STATEMENT OF THE BOARD OF MISSISSIPPI LEVEE COMMISSIONERS

Mr. Chairman and members of the committee: This statement is prepared by Peter Nimrod, Chief Engineer for the Board of Mississippi Levee Commissioners, Greenville, Mississippi, and submitted on behalf of the Board and the citizens of the Mississippi Levee District. The Board of Mississippi Levee Commissioners is comprised of 7 elected commissioners representing the counties of Bolivar, Issaquena, Sharkey, Washington, and parts of Humphreys and Warren counties in the Lower Yazoo Basin in Mississippi. The Board of Mississippi Levee Commissioners is charged with the responsibility of providing protection to the Mississippi Delta from flooding of the Mississippi River and maintaining major drainage outlets for removing the flood waters from the area. These responsibilities are carried out by providing the local sponsor requirements for the congressionally authorized projects in the Mississippi Levee District. The Mississippi Levee Board and the Mississippi Valley Flood Control Association support an appropriation of $500 million for fiscal year 2008 for the Mississippi River & Tributaries Project. This is the minimum amount that we consider necessary to allow for an orderly completion of the remaining work in the Valley and to provide for the operation and maintenance, as required, to prevent further deterioration of the completed flood control and navigation work.

It is apparent that the administration loses sight of the fact that the Mississippi River & Tributaries Project provides protection to the Lower Mississippi Valley from waters generated across 41 percent of the continental United States. These waters flow from 31 States and 2 provinces of Canada and must pass through the Lower Mississippi Valley on its way to the Gulf of Mexico. We will remind you that the Mississippi River & Tributaries Project is one of, if not the most cost effective project ever undertaken by the United States Government. The foresight of the Congress in their authorization of the many features of this project is exemplary.

The many projects that are part of the Mississippi River & Tributaries Project not only provide protection from flooding in the area, but the award of construction con-

tracts throughout the Valley provides assistance to the overall economy of this area that is also encompassed by the Delta Regional Authority. The employment of the local workforce and purchases from local vendors by the contractors help stabilize the economy in one of the most impoverished areas of our country.

Thanks to the additional funding provided by the Congress over the last several years over and above the administration's budget, work on the Mainline Mississippi River Levee Enlargement Project is continuing. Of the original 69 miles of deficient levees in the Mississippi Levee District, 12.7 miles of work has been completed, 19.3 miles are currently under contract, and another 7.9 miles will be awarded in fiscal year 2008. Right of way has been acquired and the bids for 3.4 miles of work were opened in November 2005. With the combined crippling effect of the elimination of continuing contracts and the restrictions on reprogramming authorities, this item was terminated. Of the 19.3 miles currently under contract, the Corps had to negotiate a work "slow-down" because of a lack of sufficient funds for the contractor to work at full performance. This will push completion of these deficient areas out another year! We are requesting $98.35 million for construction on the Mainline Mississippi River Levees in the Lower Mississippi Valley Division which will allow the Vicksburg and Memphis districts to keep existing contracts on schedule and award contracts to avoid any future unnecessary delays in completing this vital project. We are all well aware that the Valley some day will have to endure a Project Flood, we just don't know when. We must be prepared.

The President's fiscal year 2008 budget did not include funding for any construction projects within the Yazoo Basin. These are all projects authorized and funded so wisely by the Congress. This action is especially difficult to understand during a time when our Nation needs an economic boost. All of these projects are encompassed in the footprint of the Delta Regional Authority, an area recognized by the Congress as requiring special economic assistance to keep pace with the rest of our great Nation. We can not lose sight of the fact that all of these projects are required to return more than $1 in benefits for each $1 spent. No project authorized and funded by the Congress should be indiscriminately terminated without the benefit of having the opportunity to complete the study process and subsequent construction after complying with the Corps Policy and Guidelines.

The Final Report for the Yazoo Backwater Project will be released this year. The Yazoo Backwater Project will provide economic and environmental benefits to parts of six counties in the south Mississippi Delta. This project will build a pump that will evacuate floodwater that is generated over 4,093 square miles in the Mississippi Delta. The pump will lower the 100 year flood event by 4.5 feet thereby reducing urban and rural structural damages, providing benefits to the remaining agricultural lands, and reducing the frequency and duration of floods. Reforestation easements will be purchased on up to 55,600 acres of existing agricultural land which will provide benefits in every environmental category—wetlands, terrestrial, aquatics, and waterfowl resources as well as vastly improving water quality. The recommended plan for the Yazoo Backwater Project will balance economics with the environment. This is a model project that should be the standard for future public works projects in the United States. We are requesting this project be funded by the Congress in the amount of $15 million. These funds will allow the Corps to begin acquisition of the reforestation easements and initiate the award of the pump supply contract.

The Draft Supplemental Environmental Impact Statement for the Big Sunflower River Maintenance Project will be released later this year. This maintenance project will restore flood control capacities to 130 miles of channels by removing sediment that has built up over the past 40 years since the channels were originally improved. Our request for $2.196 million will allow right-of-way acquisition to continue and for the award of the first dredging contract. The residents in the Mississippi Delta continue to suffer damages from flooding while they wait for this maintenance project to reach their area.

Work on the Delta Headwaters Project has proven effective in reducing sediments to downstream channels. To discontinue this project will only increase sediment in downstream channels diminishing water quality, reducing the level of protection to the citizens of the Delta and increasing required maintenance. We are requesting $25 million to continue this project.

The Upper Yazoo Project is critical to the Delta. The Corps of Engineers operates 4 major flood control reservoirs on the bluff hills overlooking the Mississippi Delta. These reservoirs hold back heavy spring rains and must have adequate outlet channel capacity to pass this excess runoff during the summer and fall months. Without completion of the Upper Yazoo Project, the Corps is forced to hold flood water from the previous spring, thereby reducing the ability to provide protection from the current year's flood water. We urge the Congress to provide $22.5 million allowing con-

struction to continue and the award of additional channel enlargement items. With this appropriation, work can be completed to Glendora which will provide relief to Marks, Mississippi.

Maintenance of completed works cannot be overlooked. The four flood control reservoirs overlooking the Delta have been in place for 50 years and have functioned as designed. Required maintenance must be performed to avoid any possibility of failure during a flood event. We are asking for $10.875 million for Arkabutla Lake, $15.042 million for Sardis Lake, $10.927 million for Enid Lake, and $11.38 million for Grenada Lake. Additional funding will be used to place rip rap, add needed infrastructure, and repair and upgrade existing infrastructure around all the lakes.

We are requesting $34.5 million for Maintenance of the Mainline Mississippi River Levees in the Lower Mississippi Valley Division which will provide for repair of levee slides, slope repair, and repair of the gravel maintenance roadway which is so vital to access during high water.

I have reviewed a great deal of information regarding the needs of providing flood protection to our area. Another major feature of the Mississippi River & Tributaries Project relates to navigation interests along the Mississippi River. Several of our ports have been informed that the President's budget does not include enough funding for Critical Harbor Dredging necessary to keep these harbors opened for navigation. Our port commissioners have been notified that lack of annual dredging will cause these ports to be a hazard to navigation and be shut down. This will impact the movement of over 4.5 million tons of cargo being shipped on our waterways annually from these ports. This equates to an additional 180,000 truck loads per year of products on our highways. It is imperative that funding be made available for Critical Harbor Dredging to allow continued operation of these facilities, which are key features to the economic growth of the region.

The Conference Report for Energy & Water Development Appropriations Act, 2006 funded the MR&T Project with $400 million. Unfortunately, the Conference Report included detrimental language that has crippled the Corps ability to get the MR&T Project done in a timely, efficient, and economically feasible way. The Conference Report eliminated the Continuing Contracts Clause that allowed the Corps to bid projects without all the funding in place before the project starts. This will significantly slow down all of our Corps projects. There have been no new starts in fiscal year 2006 or fiscal year 2007 for our critical Levee Enlargement & Berms Project because of this elimination. The Corps has used Continuing Contracts since 1922! The Corps of Engineers must be able to utilize Continuing Contracts on the MR&T Project.

The Conference Report also included Reprogramming Authorities restrictions which is limiting the Corps of Engineers ability to shift monies within the MR&T Project. Reprogramming Authorities allow money to move from one project that is behind schedule to another project that is ahead of schedule. The reprogramming authority is now very limited. Money is being wasted to "slow-down" and stop existing on-going work because of the language! The Reprogramming Authority restrictions must be relaxed for the MR&T Project in order for the Corps of Engineers to make maximum use of appropriations that Congress provides.

In conclusion, the Conference Report for 2006 was a record year for funding levels for the MR&T Project. The inclusion of the detrimental language of Reprogramming Authority restrictions and the elimination of Continuing Contracts Clause has crippled the Corps of Engineers ability to wisely spend that money that Congress has so wisely appropriated. We must remove this detrimental language in the fiscal year 2008 appropriations. The President's fiscal year 2008 budget for the MR&T Project provides only $260 million which is terribly inadequate and will not allow the Corps to proceed in the most economical manner.

On another note, new policies are being implemented by the Federal Emergency Management Agency (FEMA) in their Map Modernization Program. A new zone designation will show a shaded "Zone X" outside the 100 year flood zone but protected by levees. The entire Mississippi Delta is protected by the levee! An attached "Warning" will be on new Flood Insurance Rate Maps (FIRM) stating that the levee could fail! This will have a dramatic & costly affect to residents, businesses & industries along the Lower Mississippi River. New businesses will be frightened to build in a "flood zone." Flood insurance rates will increase. Our Mainline Mississippi River Levee system has not failed since the Corps built the current levee system in 1928! This is a needless and reckless act by FEMA as a result of failures on some hurricane protection levees in New Orleans in 2005 during Hurricane Katrina.

As members of the Congress representing the citizens of our Nation who live with the Mississippi River everyday, you clearly understand both the benefits provided by this resource, and the destructive force that must be controlled during a flood. On behalf of the Mississippi Levee Board, I cannot express enough, our appreciation

for your efforts in providing adequate funding over the last several years that has allowed construction to continue on our much needed projects and thank you in advance for your kind considerations of our requests for fiscal year 2008.

PREPARED STATEMENT OF THE CITY OF ARLINGTON, TEXAS

Mr. Chairman and members of the subcommittee: On behalf of the city of Arlington, Texas, I am pleased to submit this statement for the record in support of our request for funding in the amount of $9.75 million in the fiscal year 2008 Appropriation Bill for Energy and Water Development to support the city's continued efforts to reduce flood damage, improve public safety, reduce erosion and sedimentation, and enhance wildlife habitat and passive recreation within the Johnson Creek corridor through Arlington, Texas.

PROJECT EXECUTIVE SUMMARY

Johnson Creek, a tributary of the Trinity River, has been the topic of extensive study by the Corps of Engineers (Corps) and the city of Arlington, Texas (city) since the early 1980's due to a history of flooding, extensive erosion and sedimentation, recreational challenges and opportunities, and important wildlife habitat.

In 1990, the Corps proposed to address flooding by planning and allocating funds to channel and line with concrete substantial stretches of Johnson Creek. The city rejected this plan on the grounds that it provided flood relief at the expense of recreational opportunities, wildlife habitat and economic development. The city adopted in 1997 a more holistic alternative called the Johnson Creek Corridor Plan that received wide community support but was not fundable. In 1999, the Corps prepared an Interim Feasibility Report and Integrated Environmental Assessment for Johnson Creek in Arlington. The document recommended a National Economic Development (NED) Plan for flood damage reduction that also addressed the city's desires for enhanced wildlife habitat and recreation in the Johnson Creek corridor. In 2000, the city adopted the Corps' 1999 plan to purchase homes within the floodplain of Johnson Creek, create linear parks with trails, and acquire and restore open space for wildlife habitat and recreation.

In 2004, subsequent to the city's contract with the Corps, the city entered into a partnership with the Dallas Cowboys to build a new football stadium adjacent to the Texas Rangers' venue and land purchased and restored as part of the 1999 plan. In 2005, the Corps' 1999 plan was amended to remove approximately 90 acres of city-owned land north of Union Pacific Railroad tracks.

During ecological investigations associated with design and master plan development of the football stadium, a number of critical issues arose that the 1999 plan (as amended in 2005) only partially addressed. The city realized that a holistic, watershed approach, in conjunction with maximizing the use of on-site best management practices (BMPs), would be required to truly address flooding, water quality, and wildlife habitat/recreation issues at Johnson Creek. The challenge was that deviations from 1999 plan, which largely has been implemented, require explicit authorization from Congress.

In March 2006, the city prepared a watershed conservation plan entitled Johnson Creek: A Vision of Conservation that modifies the 1999/2005 authorized plan. The modified plan allows the city to: (1) implement and modify, if necessary, unfinished components of the 1999/2005 plan; (2) design and construct new bank stabilization, flood control, recreation, and habitat restoration projects on public lands and easements along Johnson Creek; (3) acquire and/or receive reimbursement for an additional 90 acres of environmental lands within Trinity River and/or Rush/Village Creek floodplain; and (4) obtain reimbursement for new acquisitions, if desired, and for the use of city parks for funded Federal projects.

Total project cost to implement the modified plan is estimated at $79,997,666, including contingency. This includes $30,000,000 in sunk costs for completed Johnson Creek projects.

PROJECT DESCRIPTION

The modified plan is divided into a minimum of two phases as summarized below:

Phase 1 includes property between Sanford Street and Randol Mill Road, plus a tributary of Johnson Creek south of the Dallas Cowboys stadium project. Phase 1 was selected for a variety of reasons as follow: (1) the riparian corridor has high potential for restoration to improve wildlife habitat, water quality, and recreational opportunities; (2) the property is owned by the city; (3) a significant portion of existing environmental stresses, particularly erosion and sedimentation, occur within

this area; (4) the city has identified this area as an entertainment district; and (5) this area includes the future Dallas Cowboys stadium, the existing Texas Rangers stadium, and a future Arlington, Texas town center called Glorypark. These developers have all agreed to provide matching money for the city to improve the green space within this corridor for environmental benefits listed above. Phase 1 work will provide the catalyst and inspiration for future work throughout the remainder of the watershed.

Phase 1 work is all new work and includes constructing a detention/sedimentation basin and overflow swale just west of the Stone Gate Mobile Park; bank stabilization and creek restoration including additional overflow swales; installing a pedestrian bridge across Johnson Creek; providing trails and other passive recreational amenities; and enhancing remaining green space for wildlife habitat. A regional detention/sedimentation basin proposed between Sanford Street and Division Street may be included in Phase 1 work if funding becomes available in time.

Phase 2 includes all remaining work upstream of the Phase 1 site area between Sanford Street and Vandergriff Park, and 90 acres of environmental land within Trinity River and/or Rush/Village Creek floodplain. Within the Johnson Creek corridor, Phase 2 work will occur within three main areas. At Vandergriff, Meadowbrook, and Julia Burgen Parks, proposed activities include creating a detention/sedimentation basin; restoring eroded creek banks and creek restoration; enhancing passive recreational opportunities using trails and other amenities; and enhancing wildlife habitat. Possible acquisition of three homes between Collins Street and Park Row Avenue may also occur as part of Phase 2.

The city has long recognized that the ecological health of Johnson Creek and its contributing watershed are inextricably tied to the quality of life of its residents. In this light, the city hopes to develop a stronger link between its residents and its natural surroundings by restoring the creek, and, in doing so, revitalizing the community. Immediate local benefits include flood damage protection, habitat restoration, improved water quality and public health, increased access to Johnson Creek for passive recreation, elevated community pride, and economic redevelopment. The project complements larger, regional efforts to improve water quality and maximize the function of floodplain communities in the Trinity River watershed. Nearly all local benefits also contribute to statewide water quality, stormwater management, flood control, and environmental planning efforts by the North Central Texas Council of Government, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, Corps of Engineers, Texas Parks and Wildlife, and Texas Commission on Environmental Quality.

FUNDING NEEDS

The modified plan, which includes completed components of the 1999/2005 plan and new Johnson Creek projects as described above, has a total estimated cost of $79,997,666, of which 35 percent will be provided by the city.

For fiscal year 2008, the city of Arlington, Texas is seeking $9.75 million from the U.S. Army Corps of Engineers Programs account through your Energy and Water Development Appropriations Subcommittee.

Thank you for your consideration of our request.

PREPARED STATEMENT OF THE STATE OF ILLINOIS

The State of Illinois supports the following projects in the administration's fiscal year 2008 budget proposal:

	Amount
SURVEYS:	
Illinois River Basin Restoration	$400,000
Great Lakes Navigation System Study	800,000
CONSTRUCTION:	
Chain of Rocks Canal	4,500,000
Chicago Shoreline	9,000,000
Des Plains River—Phase 1	6,620,000
East St. Louis Flood Protection Rehab	2,500,000
Illinois Waterway, Lockport Lock & Dam (Dam Safety)	20,445,000
McCook and Thornton Reservoir	33,500,000
Miss River Btwn. Ohio & Mo Rivers (Reg. Works)	2,100,000
Olmsted Lock & Dam	104,000,000
Upper Mississippi River Restoration	23,464,000

OPERATION AND MAINTENANCE

Illinois supports the Corps' budget for continued satisfactory maintenance and operation of navigation, flood control and multipurpose projects, as well as adequate manpower for public service activities related to the water resources in and bordering the State. Although, the administration's budget request contains nearly $142.4 million for operation and maintenance for the Corps Districts in Illinois, the administration has modified the structure of the O&M account by shifting the funding for rehabilitation projects to this account. This skews the O&M account funds, and the disaggregated numbers form the administration's budget indicate the Corps' future viability and commitment to maintain the inland waterway system, water supply and recreational reservoirs, and to maintain an operational and forecast dependent streamgaging network, can severely be impacted. As an example, there is a need for an additional $14.7 million to satisfy dredging needs and the backlog of maintenance for the Illinois River Waterway. Backlog of maintenance items for the Mississippi River in Rock Island and St. Louis Corps Districts is an additional $27.5 million.

Illinois also supports the administration's funding to the Corps for Lake Michigan diversion accounting. However, we request an additional $350,000 for the Corps to ensure that they have adequate appropriations to reconvene the Technical Committee for the accounting system to fulfill their dual measurement and accounting responsibilities.

Additionally, the contamination in the Inner Harbor area of Waukegan Harbor warrants designation of the harbor as an "Area of Concern" by the International Joint Commission. There is an ongoing USEPA Legacy Act project to identify an acceptable disposal site for a total clean up of the contaminants in the inner Harbor. The Corps of Engineers is a partner in that effort. One million dollars is the minimum needed to complete maintenance dredging of the contaminated outer harbor shoaling.

ADDITIONAL FUNDING PRIORITIES

The State of Illinois also recommends that additional funding be provided for the following projects, which are listed in the general priority order, in the fiscal year 2008 Corps of Engineers' budget:

Chicago Sanitary & Ship Canal Dispersal Barrier

The State of Illinois has been working closely with the Chicago District and other Great Lakes agencies at both the Federal and State level to keep Asian Carp from reaching the Great Lakes through the Chicago Waterway system. We entered into a Project Cooperation Agreement with the Corps to construct a second, more effective and permanent electrical barrier in the Chicago Sanitary and Ship Canal using the Corps' section 1135 program, and have contributed $1.8 million in State funds along with $475,000 from the other 7 Great Lakes States to match the Corps' contribution. Also, there has been unanimous agreement throughout the Great Lakes community that Congress needs to authorize and fund the U.S. Army Corps of Engineers to construct, operate and maintain a barrier control system. However, for the first time since Congress authorized the Corps to construct an aquatic nuisance species demonstration barrier in 1990 at 100 percent Federal cost, the President's proposed budget is asking the State of Illinois to contribute 25 percent of the total cost to make this barrier permanent. The President's proposed budget is also requiring the State of Illinois to contribute an additional $1,725,000 (this is in addition to the $1.8 million Illinois has already contributed along with $475,000 from the other 7 Great Lakes States) to allow the Corps to complete construction of Barrier II. Finally, this budget requires Illinois to fully fund the operation and maintenance of both barriers, which the Corps has estimated could run as high as $1.0 million per year. Therefore, the State of Illinois urges that the Corps receives $1.1 million to start construction on making the demonstration barrier permanent, and $6.9 million to complete Phase IIB of the Barrier II construction at full Federal expense, and an additional $1.0 million to carry out the operation and maintenance of both Dispersal Barrier projects annually.

The Chicago Harbor Lock Rehabilitation

The Chicago River Lock Rehabilitation is an important project for the State of Illinois. It will reduce leakage of Lake Michigan water into the Chicago Sanitary and Ship Canal and thus will reduce Illinois' Lake Michigan diversion. Reducing leakage at the Chicago River Lock is specifically mentioned in the list of activities in the 1996 Memorandum of Understanding that Illinois, the other Great Lakes States and the U.S. Department of Justice signed to resolve the dispute over Illinois' alleged

over diversion of Lake Michigan water. As part of the move to lakefront diversion accounting, improved control of Lake Michigan water used at the Chicago River Lock is essential. This project is also needed to ensure the safe operation of the lock itself. This lock is the second busiest lock in the country, and while almost all of the traffic is recreational, its value and importance to Chicago and the State is enormous. Currently, no funding is included in the fiscal year 2008 budget for this purpose. To rehabilitate the lock in fiscal year 2008, Illinois requests $7.0 million, which would primarily be used to fund the fabrication of two new gates for the west end of the lock.

Illinois River Basin Restoration

Section 519 of Water Resources Development Act 2000 authorized the Illinois River Basin Restoration. The fiscal year 2008 budget request proposes $400,000 in General Investigations funds for a comprehensive plan. However, the State of Illinois requests that this be increased to $2.0 million in General Investigation funds to complete much of the comprehensive plan that has been developed under other authorizations. Additionally, the State of Illinois requests $8.5 million of Construction General funds to continue construction in fiscal year 2008 of the projects that were authorized in section 519 as providing substantial restoration and environmental benefits through the comprehensive plan.

Des Plaines River—Phase One

Section 101(b–10) of the Water Resources Development Act of 1999 authorized Phase I of the Upper Des Plaines River Flood Control Project at a total cost of $68.3 million for the implementation of the six recommended projects. The Federal share is approximately $44.4 million (65 percent) and the estimated non-Federal cost is $23.9 million. While $6.6 million is designated to the levee 37 element of this project in this year's budget request, we are requesting an additional $3.0 million in the fiscal year 2008 budget to continue work with the remaining elements of the project.

Upper Mississippi and Illinois Waterway System Navigation Project

It has been more than 2 years since the Corps completed the feasibility phase of the Upper Mississippi and Illinois Waterway System Navigation Study, issuing the final feasibility report and Chief's Report in 2004. While Congress has not authorized construction yet, it has provided funding for Pre-construction, Engineering and Design (PED). Thus, Illinois is requesting an appropriation of $24.0 million for the Corps of Engineers to continue PED, and if authorized for construction, we recommend construction funding of $16.0 million. The proposed fiscal year 2008 budget contains no funding for this project.

Chouteau Island (Ecosystem Restoration)

The Corps of Engineers, St. Louis District, is continuing the feasibility study for ecosystem restoration for the Chouteau Island, Illinois, project authorized under section 514 (Missouri and Middle Mississippi Rivers Enhancement Project) of the Water Resources Development Act of 1999 (Public Law 106–53). The project is focusing on ecosystem restoration on IDNR-owned land on Chouteau, Gabaret, and Mosenthein Islands in Madison County. Illinois requests an appropriation of $150,000 for the Corps of Engineers to complete the Feasibility Study and initiate Design for the Chouteau Island, Illinois, project. The fiscal year 2008 budget contains no specific funding for this project.

Peoria Riverfront Development

We request the addition of $250,000 in General Investigations funds to finalize the design of the Lower Island of the Peoria Riverfront project. The fiscal year 2008 budget contains no funding for this purpose. The increase is needed to meet the design and construction schedule.

Des Plaines River Feasibility Study—Phase Two

An expansion of the Phase I Upper Des Plaines River study was authorized in section 419 of the Water Resources Development Act of 1999. The projected $25,000,000 in average annual damages, which will remain in the tributary floodplains of the Des Plaines River after the completion of Phase I project construction, is the basis for the expanded study of Phase II. State of Illinois, Lake County, Cook County, and Kenosha County all have appropriated funds under contract for cost sharing in the Phase II study effort. Currently, the fiscal year 2008 budget contains no funding to continue the Phase II study effort. Illinois requests an appropriation of $500,000 of General Investigation funds to continue the feasibility study in fiscal year 2008.

East St. Louis & Vicinity (Ecosystem Restoration & Flood Damage Protection)

The Corps of Engineers, St. Louis District, is continuing design of the project for ecosystem restoration and flood damage reduction at East St. Louis and Vicinity, Illinois (East Side Levee and Sanitary District), authorized by section 204 of the Flood Control Act of 27 October 1965 (Public Law 89–298). The project is focusing on ecosystem restoration within the American Bottoms area. The Water Resources Development Act of 2000 modified section 204 of the Flood Control Act of 1965, to make ecosystem restoration a project purpose. Accordingly, ecosystem restoration will be included with the flood control project. Illinois requests an appropriation of $700,000 for the Corps of Engineers to continue the Pre-Engineering and Design and documentation of the East St. Louis and Vicinity Project. Currently, the fiscal year 2008 budget contains no funding for this purpose.

KANKAKEE STATE LINE

We urge you to include $300,000 to fund the design and implementation phase of the State Line Kankakee Aquatic Ecosystem Restoration Act Project that was authorized under section 206 of the Water Resources Development Act of 1996, as amended. We are concerned that the funding level for section 206 Continuing Authorities Projects requested in the President's budget for fiscal year 2008 is not adequate to insure continuation of this project.

Wood River Levee

The Wood River Drainage and Levee District protects an urban and industrial area in the Mississippi River flood plain in Madison County, Illinois, upstream of the city of East St. Louis. Problems with the integrity of the flood protection system were documented during the 1993 flood including unexpected seepage problems that had to be handled as an emergency. The proposed project addresses both design deficiency and reconstruction issues. The design deficiency portion of the project has been approved; the reconstruction portion requires new authorization. The recommended actions are required to maintain the system's authorized level of protection. Illinois requests an appropriation of $700,000 for the design deficiency portion of the project for the Corps of Engineers to execute a Project Cooperation Agreement, construct a portion of the relief wells, and continue relief well design. The fiscal year 2008 budget contains no funding for this project.

Melvin Price Lock and Dam

The State of Illinois also requests $750,000 funding for the Corps to continue the cost-shared recreation facilities with the city of Alton and $2,400,000 to continue design and construction of punch list items. The fiscal year 2008 budget contains no funding for this project.

Upper Mississippi River Environmental Management Plan

Section 509 of the Water Resources Development Act of 1999 reauthorized the Upper Mississippi River System Environmental Management Program (EMP). In its 20 years of existence, the EMP has become the most significant effort to restore and protect the natural resource values of the Upper Mississippi River. While $23.64 million is in this year's budget request, we believe this level of funding is below the point that Corps can efficiently continue with the program. To pursue this program efficiently, we believe this program should be pursued at the reauthorized level of $33.25 million as described in section 509 of the Water Resources Development Act of 1999.

Upper Mississippi River Comprehensive Plan

Section 459 of the Water Resources Development Act of 1999 authorized the Upper Mississippi River Comprehensive Plan for the Corps to develop a 3-year study to address water resource and related land resource problems and opportunities in the Upper Mississippi and Illinois River Basins. We are requesting that $686,000 be provided in the Corps of Engineers General Investigations funding to advance the Upper Mississippi Comprehensive Plan to completion.

Sections 204, 206, and 1135 Enhancement Projects

Section 204, 206, and 1135 programs offer a wide range of opportunities to address fish and wildlife habitat needs which exist due to past Corps projects and ongoing ecosystem and dredging activities. The section 206 program provides a proactive tool for Federal participation in aquatic ecosystem restoration initiatives where the need for the aquatic restoration activity does not have to directly relate to a prior Corps sponsored project. The State of Illinois strongly urges full funding of these continuing authorities.

PREPARED STATEMENT OF THE SALT RIVER PIMA-MARICOPA INDIAN COMMUNITY AND THE CITY OF MESA, ARIZONA

Chairman Dorgan, Ranking Member Domenici, and distinguished members of the subcommittee, thank you for allowing us to testify on behalf of the Salt River Pima-Maricopa Indian Community (SRPMIC) and the city of Mesa in support of a fiscal year 2008 appropriation of $1.6 million for the Va Shly'ay Akimel, Arizona, project of the U.S. Army Corps of Engineers. This project will restore a degraded stretch of the Salt River in central Arizona, and it is critically important to the environmental ecosystem for the tribe, the city, and the region.

Construction of dams on the Salt River has damaged vegetation and wetlands along the Salt River basin. The Va Shly'ay Akimel project will restore ecosystem functions and value to a 14-mile reach of the river, within the Indian Community and the City of Mesa. The restoration project will improve approximately 1,487 acres of habitat, including 883 acres of cottonwood/willow community, 380 acres of mesquite bosque, 200 acres of wetlands, and 24 acres of Sonoran Desert scrub shrub. Restoration of this resource is particularly significant within the urban setting because riparian areas in the Southwest represent only 1 percent of the landscape, yet the survival of 75–90 percent of wildlife in the West is dependant on riparian areas. In Arizona, over 90 percent of riparian areas have been lost due to impacts from European settlement and urbanization.

Mr. Chairman, because of this subcommittee's efforts, over $4 million has been appropriated for the feasibility and preconstruction engineering and design phases of the Va Shly'ay Akimel project over the last 6 fiscal years. We are extremely grateful for the subcommittee's ongoing support of the project.

As a result of this prior funding, substantial progress is being made and the work needs to be continued. A Feasibility Study and Environmental Impact Study were completed in January 2005, determining the preferred plan for environmental restoration. Further project accomplishments in fiscal year 2006 and fiscal year 2007 included initiation of the design phase, mapping, completion of a value engineering study, initiation of Geotech Investigations, and preliminary engineering.

For fiscal year 2008, the Corps has a capability to utilize $1.6 million for continued PED, but the President's budget proposal only includes $658,000 for the project. Therefore, we request that the subcommittee will provide this higher level of funding in order to contain long-term costs and maintain an optimal project schedule.

As non-federal sponsors of this project, the SRPMIC and the city of Mesa fully recognize the importance of restoring the Salt River's environmental integrity as soon as possible. As a consequence, the tribe and city are committed to discharging the requisite cost-sharing obligations associated with the project at the higher funding level next year.

We also note that, as far as we know, this project is the only one in the Nation featuring a joint cost-share agreement between an Indian tribe and a local community. This makes it a unique project of the Corps of Engineers. We believe that our example of municipal-tribal cooperation can serve as a model for future joint projects of tribal communities and local governments.

In conclusion, given the progress thus far, scope, and environmental impacts, it is critically important that the Va Shly'ay Akimel project remain on an optimal schedule. Again, because the Corps has a maximum capability of fully utilizing $1.6 million for continued PED on this project in fiscal year 2008, we ask that the subcommittee fund that amount.

Thank you for your favorable consideration.

PREPARED STATEMENT OF THE CHAMBERS COUNTY-CEDAR BAYOU NAVIGATION DISTRICT, TEXAS

We express full support of the inclusion of the full capability of the USACE for fiscal year 2008 for construction of the project to deepen and widen Cedar Bayou, Texas.

President's budget included $0.

Funds needed in fiscal year 2008—$9,056,000 (Construction General).

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. 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 4 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 on at the mile markers that would be affected by this much-needed improvement. These industries include: Reliant Energy, Bayer Corporation, Koppel Steel, CEMEX, U.S. 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 $9,056,000 for 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 Asst. Secretary of the Army John P. Woodley. The PED will be completed early fall this calendar year. The project will then be ready for construction. The USACE capa-

bility of $9,056,000 for fiscal year 2008 represents the total Federal share of construction of the project.

PREPARED STATEMENT OF THE BRAZOS RIVER HARBOR NAVIGATION DISTRICT, FREEPORT, TEXAS

We express full support of the inclusion in the fiscal year 2008 budget for the full capability of the USACE of $721,000—General Investigation; $11,738,000—O&M.

President's budget included $721,000—General Investigation; $5,735,000 O&M.

Additional funds needed for fiscal year 2008 $4,003,000—O&M.

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 (soon to increase to seven) 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-foot deep Freeport Harbor Channel and a 70-foot 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 $2.6 million for this project.

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 $7 billion annually and generating over nearly 24,000 jobs in Texas, over 7,000 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.

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 2008

The administration's budget included the full Corps capability for the continuation of the feasibility study which will be conducted at a 50/50 Federal Government/local sponsor share. This will keep this project on an optimal and most cost-efficient time frame for the Federal Government and the local sponsor. We respectfully request that the full amount in the administration's budget remain in the Senate mark-up. In addition, the Corps capability for maintenance dredging for fiscal year 2008 is $11.738 million. The administration budget included $5.735 million. We respectfully request the addition of $6,002,000 in O&M.

PREPARED STATEMENT OF THE RED RIVER VALLEY ASSOCIATION

Mr. Chairman and members of the committee, I am Wayne Dowd, and pleased to represent the Red River Valley Association as its president. 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, Enclosure 1.

The resolutions contained herein were adopted by the Association during its 82nd Annual Meeting in Shreveport, Louisiana, on February 22, 2007, and represent the combined concerns of the citizens of the Red River Basin area as they pertain to the goals of the Association. Enclosure 2 represents a summary of the projects and funding levels supported by the Association.

The President's budget included $4.871 billion for the civil works programs. Even though it is $138 million more than fiscal year 2007 it is $458 million less than what Congress appropriated in fiscal year 2007, $5.329 billion (9 percent reduction). The problem is also how the funds are distributed. A few projects received their full "Corps Capability" to the detriment of many projects that received no funding. The $4.871 billion level does not come close to the real needs of our Nation. A more realistic funding level to meet the requirements for continuing the existing needs of the civil works program is $8 billion in fiscal year 2008. 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 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.

There are several policy changes proposed by the administration that we have concerns with.

—Major rehabilitation and endangered species projects were moved from the CG account to the O&M account. When you take out these major rehab projects the O&M proposed budget is actually less than fiscal year 2007. They have "disguised" an actual reduction in O&M project funding.

—They also propose to continue using the Inland Waterway Trust Fund (ITWF) to fund 50 percent of the major rehab projects that were moved to O&M. The IWTF was authorized for CG projects, not O&M. If this is allowed, it will then be easy to recommend that all O&M funding be taken from the IWTF and this can never be allowed to happen.

—Another proposal allocates O&M funding by region and eliminates funding by individual project. We do not accept this concept since you will loose ownership and identity of each project; therefore, losing grass root support. If this was done, due to reprogramming constraints, then reprogramming should be addressed. Major reprogramming issues are with CG projects, not with O&M projects.

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. Soon they may be subject to independent review. 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. If Congress provides a lump sum appropriation, to the Corps, for GI, CG and O&M, who will decide what gets funded? The answer is OMB and the administration. Congress will have given up its responsibility to provide a national budget. 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 priorities and who will determine that, OMB or Congress! We hope Congress keeps their responsibility to set civil works priorities.

We want to express our concern for "fully funded" contracts. In our fiscal year 2007 testimony we addressed this concern stating: "It is possible that the Corps will have a carryover that exceeds $1 billion." In fact the Corps had a $1.4 billion carryover. Our fear became reality and will grow to $3 billion at the end of fiscal year 2007 if this policy is not changed. Hundreds of projects are neglected that could be funded each year and will drastically increase in cost when actually done. This is a true waste of Federal funds and unfair to local sponsors who also share the increase in cost. Another serious consequence is that it neglects the workload distribution of Corps Districts. Are we prepared to consolidate and close down Districts that do not have the workload to support their current workforce?

The inland waterway tributary rivers continue to face scrutiny on what determines a successful waterway. This has an impact on the operations and maintenance funding a waterway receives. Using criteria that only considers tons, actually moved on the waterway, neglects the main benefit that justified the original waterway project, transportation cost savings. Currently there is no criteria used to consider "water compelled rates" (competition with rail). We know that there are industries not using our waterway because rail rates were reduced, to match the waterborne rates, the same year our waterway became operational. If the operation of our waterway were terminated the rail rates would increase. Many industries have experienced great "national" transportation savings without using the waterway, which is why the project was authorized.

The main problem is that there is no "post-project" evaluation for navigation projects. We support the development of such an evaluation and volunteer the J. Bennett Johnston Waterway and our efforts to develop one. Such an evaluation could be made once every 5 years to insure the waterway continues to meet the determined criteria. We also believe any evaluation adopted must have input from and be validated by the administration, Congress and industry. Too much money has been expended to use an evaluation that is unfair and disregards the true benefits realized from these waterway projects.

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. At the Port of Shreveport-Bossier "Steelscape" became operational in April 2006 processing steel, eventually employing 250 people and moving 500,000 tons per year on the Waterway. A major power company, CLECO, is investing $1 billion in its Rodemacher Plant near Boyce, Louisiana, on the lower Red River and is expected to move over 3 million tons of Coal and "petroleum coke", by the Waterway, in 2009. These projects are a reality and there are many more customers considering using our Waterway.

You are reminded that the Waterway is not complete; 6 percent remains to be constructed, $121 million. We appreciate Congress's appropriation level in fiscal year 2006 of $13 million; however, the President's fiscal year 2007 budget drastically cuts that to $1.5 million, which is unacceptable. There is a capability for $19.5 million of work, but we realistically request $12 million to keep the project moving toward completion.

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-foot, 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 calendar year 2007. There is great optimism that the study will recommend a favorable project; however, the administration must consider the benefit analysis by modern day criteria, not by 25-year-old standards. Benefit analysis is by administration policy and they can consider externality benefits that impact society today. This region of SW Arkansas and NE Texas continues to suffer major unemployment and this navigation project, although not the total solution will help revitalize the economy. We request funding of $400,000 to initiate planning, engineering and design, PED.

Flood Prevention.—The recent events in New Orleans have demonstrated 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, which will occur.

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. Appropriations of $5 million will construct one more levee section in Lafayette County, AR.

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. Funding has been appropriated in the past and approximately 50 miles of levees in the Natchitoches Levee District were completed this year. We request $2 million to continue this important project in Louisiana.

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 $6 million in fiscal year 2008.

Water Quality.—Nearly 3,500 tons of natural salts, primarily sodium chloride, enter the upper reaches of the Red River each day, rendering downstream waters unusable for most purposes. The Truscott Brine Lake project, which is located on the South Fork of the Wichita River in King and Knox Counties, Texas became operational in 1987. An independent panel of experts found that the project not only continues to perform beyond design expectations in providing cleaner water, but also has an exceptionally favorable benefit-to-cost ratio.

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. This year 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. This is based on a policy decision, although legal decisions state otherwise. We strongly disagree with this position, since the current local sponsor signed a cooperation agreement that did not include responsibility for O&M, no project documents require this and the project truly benefits four States, which makes it unreasonable to place the O&M burden on one local sponsor. Since 1987 the Federal Government has funded over $1.5 million per year for O&M. Completion of this project will reclaim Lake Kemp as a usable water source for the City of Wichita Falls, Sheppard AFB and the region. This project will provide improved water quality throughout the four States of the Red River providing the opportunity to use surface water and reduce depend-

ency on ground water. We request appropriations of $2,500,000 to continue the Wichita River features in Texas.

Over the past year 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 a letter from the Oklahoma Governor in support of a re-evaluation report. We request an appropriation of $1,625,000 to continue with this effort. Total request for the Chloride Control Project.—$4,125,000.

Water Supply.—Lake Kemp, just west of Wichita Falls, TX, is a major water supply for the needs of this region. Due to siltation the available storage of water has been impacted. A reallocation study is needed to determine water distribution needs and raising the conservation pool. Total O&M of $892,000 is requested for fiscal year 2008 ($210,000 is required for the base annual O&M, $467,000 for the study and $215,000 for backlog grouting & dam repair).

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 urge you to appropriate funding to address this serious issue at the expressed full Corps capability.

We are sincerely grateful to you for the past support you have provided our projects. We hope that we can count on you again to fund our needs and complete the projects started that will help us diversify our economy and create the jobs so badly needed by our citizens. We have included a summary of our requests for easy reference, Enclosure 2.

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.

ENCLOSURE 1.—RED RIVER VALLEY ASSOCIATION

The Red River Valley Association is a voluntary group of citizens bonded together to advance the economic development and future well being of the citizens of the four-State Red River Basin area in Arkansas, Louisiana, Oklahoma and Texas.

For the past 81 years, the Association has done notable work in the support and advancement of programs to develop the land and water resources of the Valley to the beneficial use of all the people. To this end, the Red River Valley Association offers its full support and assistance to the various Port Authorities, Chambers of Commerce, Levee and Drainage Districts, Industry, Municipalities and other local governing entities in developing the area along the Red River.

The Resolutions contained herein were adopted by the Association during its 82nd Annual Meeting in Shreveport, Louisiana on February 22, 2007, and represent the combined concerns of the citizens of the Red River Basin area as they pertain to the goals of the Association, specifically:

—Economic and Community Development;
—Environmental Restoration;
—Flood Control;
—Bank Stabilization;
—A Clean Water Supply for Municipal, Industrial and Agricultural Uses;
—Hydroelectric Power Generation;
—Recreation; and,
—Navigation.

The Red River Valley Association is aware of the constraints on the Federal budget, and has kept those constraints in mind as these resolutions were adopted. Therefore, and because of the far-reaching regional and national benefits addressed by the various projects covered in the resolutions, we urge the members of Congress to review the materials contained herein and give serious consideration to funding the projects at the levels requested.

RED RIVER VALLEY ASSOCIATION FISCAL YEAR 2008 APPROPRIATIONS—CIVIL WORKS

[In thousands of dollars]

	Fiscal Year 2006 Approp.	Fiscal Year 2007 Approp.	President Fiscal Year 2008 Budget	RRVA Fiscal Year 2008 Request
Studies (GI):				
Navigation into SW Arkansas: Feasibility	150			400
Red River Waterway, LA—12′ Channel, Recon				100
Bossier Parish, LA	75			300
Cross Lake, LA Water Supply Supplement	99			384
SE Oklahoma Water Resource Study: Feasibility	40			300
SW Arkansas Ecosystem Restoration: Recon Study	100			200
Cypress Valley Watershed, TX				100
Sulphur River Basin, TX	152			1,000
Washita River Basin, OK				250
Mangum Lake, OK				
Wichita River Basin, TX, Watershed Rehab: Recon	50			100
Red River Above Denison Dam, TX & OK: Recon				100
Red River Waterway, Index, AR to Denison Dam				
Mountain Fork River Watershed, OK & AR, Recon				
Construction General (CG):				
Red River Waterway:				
J. Bennett Johnston Waterway, LA	13,000		1,500	12,000
Index to Denison Reach, Bendway Weir Demo (Note.—Need language for full federal funded)				
Chloride Control Project, TX & OK	1,500			4,125
Wichita River, TX	1,125			2,500
Area VI, OK	375			1,625
Red River Below Denison Dam; AR & LA:				
AR & LA Levee Rehabilitation	3,000			5,000
Bowie County Levee, TX				
Red River Emergency Bank Protection	3,200			6,000
Big Cypress Valley Watershed, TX: Section 1135	530			500
Palo Duro Creek, Canyon, TX: Section 205				200
Millwood, Grassy Lake, AR: Section 1135	100			350
Little River County/Ogden Levee, AR, PED				300
McKinney Bayou, AR, PED				
Operation and Maintenance (O&M):				
J. Bennett Johnston Waterway, LA	11,804		10,431	14,000
Lake Kemp, TX—Total Need				892
Basic Annual O&M				210
Reallocation Study				467
Dam Repair/Grouting				215
Lake Texoma, TX & OK—Total Need				9,587
Basic Annual O&M				7,087
Suppl. EIS				500
Backlog Maintenance				2,000

NOTE.—Due to Continuing Resolution (CR)—Rules and funding levels for fiscal year 2007 are not known for this submission.

Prepared Statement of the Riverside County Flood Control and Water Conservation District

FISCAL YEAR 2008 WATER RESOURCES DEVELOPMENT APPROPRIATIONS

PROJECT	REQUEST
MURRIETA CREEK FLOOD CONTROL PROJECT: Construction General	$13,000,000
HEACOCK AND CACTUS CHANNELS: Special Authorization under WRDA	16,000,000
FUNDING FOR CERTIFICATION OF CORPS LEVEES: Inspection of Completed Works	([1])
NORCO BLUFFS BANK STABILIZATION PROJECT: Construction General	1,000,000
SAN JACINTO & UPPER SANTA MARGARITA RIVER WATERSHEDS SPECIAL AREA MANAGEMENT PLAN (SAMP): General Investigations	532,000
SANTA ANA RIVER—MAINSTEM: Construction General	67,840,000

[1] To be determined.

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT BOARD OF SUPERVISORS RESOLUTION NO. F2007–01 SUPPORTING FEDERAL APPROPRIATIONS FOR FLOOD CONTROL PROJECTS FOR FISCAL YEAR 2008

WHEREAS, the United States House of Representatives Committee on Appropriations, Subcommittee on Energy and Water Development, and the United States Senate Committee on Appropriations, Subcommittee on Energy and Water Development are holding hearings to consider appropriations for Flood Control and Reclamation Projects for fiscal year 2008 and have requested written testimony to be submitted to the committees during March 2007; and

WHEREAS, the Riverside County Flood Control and Water Conservation District supports the continuation of construction efforts on the critical flood control project on Murrieta Creek; the furtherance of construction activities on the Santa Ana River Mainstem project, including Prado Dam; the establishment of Special Legislation addressing the design and construction of the Heacock and Cactus Channels providing flood protection to March Air Reserve Base; the repair and completion of the Norco Bluffs Bank Stabilization Project: the establishment of a National Policy addressing the certification of Corps constructed levees, and the continuation of Corps efforts in completing the Special Area Management Plan for the San Jacinto and Santa Margarita River Watersheds; now, therefore,

BE IT RESOLVED by the Board of Supervisors of the Riverside County Flood Control and Water Conservation District in regular session assembled on February 6, 2007 that they support appropriations by Congress for fiscal year 2008 for the following projects:

U.S. ARMY CORPS OF ENGINEERS

PROJECT	REQUEST
Murrieta Creek Flood Control,Environmental restoration and Recreation Project: Construction—General	$13,000,000
Heacock and Cactus Channels (MARB): Special Legislation	16,000,000
Norco Bluffs Bank Stabilization Project: Construction—General	1,000,000
Certification of Corps Constructed Levees: National Policy	([1])
San Jacinto & Upper Santa Margarita River Watersheds (Riverside County): Special Area Management Plan (SAMP)	532,000
Santa Ana River Mainstem: Construction—General	96,500,000

[1] To be determined.

BE IT FURTHER RESOLVED that the General Manager-Chief Engineer is directed to distribute certified copies of this resolution to the Secretary of the Army, Members of the House of Representatives Committee on Appropriations and Subcommittee on Energy and Water Development, the Senate Committee on Appropriations and Subcommittee on Energy and Water Development, and the District's Congressional Delegation—Senators Dianne Feinstein and Barbara Boxer, Congressmen Ken Calvert and Darrell Issa, and Congresswoman Mary Bono.

MURRIETA CREEK FLOOD CONTROL, ENVIRONMENTAL RESTORATION AND RECREATION PROJECT

Murrieta Creek poses a severe flood threat to the cities of Murrieta and Temecula. Overflow flooding from the undersized creek with a tributary watershed area of over 220 square miles has periodically wreaked havoc on the communities—most recently in 1993 when nearly $20 million in damages was incurred by the public and private sectors. As the area continues to develop, the potential damages (direct and indirect) will only continue to increase. In 1997 the U.S. Army Corps of Engineers initiated studies on the Creek. The final outcome of this endeavor was congressional authorization in 2000 of the $90 million, multifaceted project known as the Murrieta Creek Flood Control, Environmental Restoration and Recreation Project.

This project is being designed and will be constructed in four distinct phases. Phases 1 and 2 include channel improvements through the city of Temecula. Phase 3 involves the construction of a 250-acre detention basin, including 160 acres of new environmental habitat and over 50 acres of recreational facilities. Phase 4 will include channel improvements through the city of Murrieta. Equestrian, bicycle and hiking trails as well as a continuous vegetated habitat corridor for wildlife are components of the entire 7-mile long project.

The Omnibus Appropriations Bill for fiscal year 2003 provided $1 million for a new construction start for this critical public safety project and construction activities commenced in the fall of 2003 on Phase 1. Appropriations for fiscal year 2004 and additional funds allocated allowed the Corps to continue construction on Phase

1, which was completed in December 2004. Phase 2 traverses Old Town Temecula, one of the hardest hit areas during the flooding of 1993. The Corps anticipates having a Phase 2 construction contract ready to award in the winter of 2007. The District, therefore, respectfully requests the committee's support of a $13,000,000 appropriation in fiscal year 2008 to allow the Corps to complete the Design Documentation Report, and initiate construction on Phase 2 of the long awaited Murrieta Creek Flood Control, Environmental Restoration and Recreation Project.

HEACOCK AND CACTUS CHANNELS—PROTECTION OF MARCH AIR RESERVE BASE

Heacock and Cactus Channels are undersized, earthen channels that border the eastern and northern boundary of the March Air Reserve Base (MARB). Substantial vegetation becomes established within both channels and impedes the conveyance of tributary storm flows to an existing outlet located downstream. Storm flows overtop the Cactus Channel and traverse MARB causing major disruption of the Base's operation, including the fueling of airplanes and transport of troops and supplies. The record rainfall of 2004/2005 also caused extensive erosion along Heacock Avenue jeopardizing existing utilities within the road right of way and cutting off access to approximately 700 residences within the city of Moreno Valley.

Under section 205 of the Continuing Authorities Program (CAP), the Corps received $100,000 in fiscal year 2005 and completed an Initial Appraisal Report which determined the feasibility of proceeding with a project to provide flood protection to this sensitive area. With the $546,000 received in fiscal year 2006 the Corps completed a Project Management Plan, executed a Feasibility Cost Sharing Agreement and is nearing completion of the Feasibility Study. However, this study found that MARB would receive approximately 85 percent of the benefits from constructing this project making the use of section 205 funds inappropriate. Therefore, the project will require Special Authorization under WRDA to approve and authorize the project and appropriate the $16,000,000 needed to provide flood protection to the base.

The District requests support from the Committee for Special Authorization under WRDA approving the project and authorizing appropriations of $16,000,000 to complete the design and construct the project providing this critical military installation flood protection.

CERTIFICATION OF CORPS CONSTRUCTED LEVEES

As part of the Federal Emergency Management Agency's (FEMA) Map Modernization Program, the District, as well as all other agencies, cities and counties in the Nation are being required to provide certification of the reliability of all levee structures providing flood protection to our citizens. Many of these projects were constructed by the U.S. Army Corps of Engineers and in these cases, FEMA is requesting that the certification be provided by the Corps. Certification involves an extensive amount of geotechnical analysis, including field and lab material testing, slope stability and seepage checks, hydrologic and hydraulic verification and other costly and time consuming activities, as well as the review of operation and maintenance records. These projects have an established Federal interest. Therefore, a National Policy needs to be established addressing the need for these federally constructed projects to be certified by the Corps and authorizing the Corps to perform the required analysis. Furthermore, the Corps should also be authorized to provide Federal assistance for design and construction costs associated with any necessary rehabilitation, repair or reconstruction of projects that are found not to meet the CFR 65.10 FEMA criteria. Non-conforming levees put the public at risk and should be a Federal priority. Within our District, there are three Corps constructed levees requiring this Federal certification: Santa Ana River Levees constructed in 1958, Chino Canyon Levee constructed in 1972 and San Jacinto River Levee constructed in 1982.

The District requests support from the committee for the establishment of a National Policy addressing this issue and the authorization and funding needed for the Corps to meet its obligations to the numerous local sponsors of federally constructed levees throughout the country. The Los Angeles District needs an appropriation of $3,000,000 for fiscal year 2008 under the Inspection of Completed Works—CA Operations and Maintenance Appropriation 3123 to accomplish the needed certification work.

NORCO BLUFFS BANK STABILIZATION PROJECT

The Norco Bluffs Bank Stabilization project consists of a soil cement toe protection structure constructed to the 100-year flood level at the base of the bluff, and a stable earthen buttress fill constructed to the top of the bluff along the Santa Ana

River, in the city of Norco. The bluff stabilization work extends easterly from the Interstate 15 bridge to near Center Avenue. The estimated total cost of the project was approximately $14 million. The Corps received a total of $7.2 million in construction funds in the fiscal year 1998, fiscal year 1999 and fiscal year 2000 Federal budgets for the project. Since the available Federal funding fell short of that necessary to construct the entire project at once, the project was broken into two phases and Phase 1 was completed in May 2000. This included a soil cement toe protection structure along the entire length of the project, as well as construction of approximately 1,300 feet of buttress fill in the most critical reach of the bluffs, between Valley View and Corona Avenues. The Phase 2 contract involved the construction of the balance of the buttress fill and construction of most of Phase 2 was completed in December 2003, with the exception of hydroseeding the slopes, which was deferred until the appropriate season to ensure successful establishment of the native vegetation. Unfortunately, the record rainfall of the 2004/2005 season caused damages to the project that must be repaired in order to complete the project.

The District requests support from the committee for a fiscal year 2008 appropriation of $1,000,000 to complete the repairs, hydroseed the slopes and turn the project over to the District.

SANTA ANA RIVER—MAINSTEM

The Water Resources Development Act of 1986 (Public Law 99–662) authorized the Santa Ana River—All River project that includes improvements and various mitigation features as set forth in the Chief of Engineers' Report to the Secretary of the Army. The Boards of Supervisors of Orange, Riverside and San Bernardino Counties continue to support this critical project as stated in past resolutions to Congress.

For fiscal year 2008, an appropriation of $67,840,000 is necessary to provide funding for the following activities: $20,000,000 for Reach 9 of the Santa Ana River immediately downstream of Prado Dam, $2,840,000 for the Seven Oaks Dam project and $45,000,000 for Prado Dam.

The District respectfully requests that the committee support an overall $67,840,000 appropriation of Federal funding for fiscal year 2008 for the Santa Ana River Mainstem Project.

PREPARED STATEMENT OF THE SACRAMENTO AREA FLOOD CONTROL AGENCY

Dear Mr. Chairman and members of the subcommittee: On behalf of the Sacramento Area Flood Control Agency (SAFCA), its member agencies and the millions of people that may be directly or indirectly impacted by floods in Sacramento, we extend our sincere appreciation to the committee for the past consideration and support extended to the ongoing local, State and Federal effort to reduce flood risk in the Capital of California.

According to the U.S. Army Corps of Engineers (Corps), Sacramento's flood risk continues to be the highest of major urban areas in the country. Located at the confluence of the Sacramento and American Rivers, the Sacramento floodplain contains 165,000 homes, over 488,000 residents, 1,300 government facilities including the State Capital, and businesses providing 200,000 jobs. It is the hub of a 6-county regional economy that provides 800,000 jobs for 1.5 million people. A major flood along the American River or the Sacramento River would cripple this economy, cause between $7.0 billion and $16.0 billion in direct property damages and likely result in significant loss of life.

The devastating flood of February 1986 revealed that Sacramento's defenses provided less than 100-year flood protection, far less than previously thought. SAFCA was created in 1989 to work with the Corps and the State to improve the Sacramento region's flood protection as rapidly as possible. Much progress has been made since then, with a combined investment of over $428 million in levee improvements, reservoir operations, and floodplain restoration. Nevertheless, much remains to be done. In collaboration with the Corps and the State, SAFCA is pursuing completion of levee improvements needed to achieve the minimum 100-year level of flood protection, while advancing measures which will lead to better than 200-year flood protection over the next decade.

SAFCA's Federal fiscal year 2008 Federal budget requests are shown in order of priority in Table 1. Consistent with previous years' requests, SAFCA top priority is achieving 100-year level flood protection for the Sacramento area. While this goal has now been achieved for most of the community, work along the tributaries of Morrison Creek needs to move forward at Corps capability to achieve this level of

protection for about 6,000 residential properties (about 16,000 people). Therefore the South Sacramento Streams Group Project remains the top priority.

The American River Common Features Project needs to continue at capability as well, to complete project elements needed to safely convey 160,000 cfs in the Lower American River.

The Folsom Dam Joint Federal Project relies on the authority of the Folsom Dam Modifications Project and Reclamation's Dam Safety Program for the construction of an auxiliary spillway on the south abutment of the dam. This is the cornerstone of Sacramento's 200-year flood program, for which planning and design need to proceed at Corps capability levels. SAFCA supports the continuing planning for up to a 3.5 foot raise of Folsom Dam embankments, as well as construction of the Folsom Dam Bridge through fiscal year 2008.

TABLE 1.—FEDERAL FISCAL YEAR 2008 APPROPRIATIONS REQUESTS

[In millions of dollars]

PROJECT	Proposed 2008 Federal Budget Feb 2007	SAFCA 2008 Request Feb 2007	Requested Increase
South Sacramento Streams Group: Construct levee and channel improvements to prevent flooding in south Sacramento where floodwaters from four creeks threaten 100,000 residents	8.000	11.000	3.000
American River Common Features: Raise and reinforce levees to assure 100-year flood protection for the urban Sacramento area from the American and Sacramento Rivers	12.000	34.800	22.800
Folsom Dam Outlet Modifications: Enlarge and retrofit Folsom Dam outlet gates to more efficiently manage flood storage in Folsom Reservoir	6.000	6.000	.....
American River Plan (Folsom Dam Mini-Raise): Continue design of the Folsom Mini-Raise	4.500	5.000	1.500
American River Plan (Folsom Dam Mini-Raise, Bridge Component): Construct permanent bridge to replace the Folsom Dam Road	14.000	46.700	31.700
Natomas Phase I Reimbursement: Previously appropriated funds, not yet received by SAFCA for federally authorized and completed work on the North Area Local Project	.....	4.500	4.500
Sacramento River Bank Protection: Repair critical erosion sites and mitigate for impacts throughout the Sacramento River Flood Control System, including the urban Sacramento area	21.528	64.800	43.272
TOTAL	66.028	172.800	106.772

Updates on progress on each of the referenced projects is provided in the following paragraphs.

SOUTH SACRAMENTO COUNTY STREAMS GROUP PROJECT

This project will provide a minimum of 100-year flood protection from the Morrison Stream Group, including Morrison Creek, Florin Creek, Elder Creek, and Union House Creek when completed. This project protects the existing community, as well as helps facilitate the city's economic development goals for the South Sacramento region. SAFCA, the State, and the Corps are working together to expedite construction of this project. Levee improvements around the Regional Wastewater Treatment Plant were completed in 1996. The Morrison Creek north levee from the Sacramento River east to the Union Pacific Railroad, and north to Brookfield Drive were completed in 2005–2006. In 2007 levee improvements will be constructed on Morrison Creek and tributaries as far east as Franklin Boulevard. SAFCA's goal is to implement Phase 2 levee improvements eastward to Highway 99 by 2012 to provide 100-year flood protection from Morrison Creek flooding.

AMERICAN RIVER COMMON FEATURES PROJECT

American River Levees

Construction of the Mayhew levee improvements has been a high priority and construction is planned for late summer 2007. Additional levee improvements to address gaps in the slurry walls along the American River levees on both sides of the river, and to provide levee height parity are expected to go to construction in 2008. This work will go a long way towards meeting the goal of safely conveying 160,000

cubic feet per second through Sacramento, which will be required to provide 200-year flood protection on the American River.

Natomas General Re-evaluation Report (GRR)

The Corps is studying alternatives for levee improvements needed to provide the Natomas basin with 200-year flood protection. The Corps study will proceed concurrently with SAFCA's construction of those improvements. The State Reclamation Board has requested section 104 Credit for levee improvements constructed by SAFCA, with the goal of obtaining Federal reimbursement for State and SAFCA funding for construction of these improvements over the next several years. Funding for the Corps study effort is needed to keep the Corps study on schedule for completion of the GRR in 2009, thus paving the way for Congressional reimbursement for State and SAFCA expenditures in 2010 and beyond.

Pocket General Re-Evaluation Report (GRR)

SAFCA has initiated reconnaissance planning for measures which may be needed to provide 200-year flood protection for the Sacramento River East levee south of the American River. SAFCA will request that the Corps initiate a second GRR under the American River Common Features Authority, with the goal of expediting the alternative formulation process for any levee improvements which may be needed in this reach.

FOLSOM DAM MODIFICATIONS: JOINT FEDERAL PROJECT

This project will include construction of a new auxiliary spillway on the east abutment to Folsom Dam. This new spillway will both provide sufficient release capacity to allow Folsom Dam to control the 200-year flood, as well as to safely pass a Probable Maximum Flood without overtopping the dam. Since June of 2005 the Corps, Reclamation, the State of California, and SAFCA have rapidly advanced planning for this project, including a joint EIR/EIS, a Corps Post Authorization Change (PAC) Report by the Corps, and a Reclamation Dam Safety Modifications Report. All these reports will be completed by late Spring 2007, setting the stage for excavation to begin on the auxiliary spillway and related Reclamation dam safety work in October 2007. The project will be jointly constructed by the Corps and Reclamation, with the State and SAFCA serving as non-Federal cost sharing partners. The Corps will continue to design their portion of the JFP with construction starting in following years.

FOLSOM DAM RAISE PROJECT

Based on current Corps design studies, a raise of up to 3.5 feet of the dikes and wingdams around Folsom Lake may be constructed under this project authority in conjunction with the Folsom Dam Modifications project. The Folsom Dam Bridge, an authorized part of this project, is currently under construction by the Corps, with a planned opening for traffic by the end of 2008. Ecosystem restoration is also an authorized component of this project, focusing on improving salmonid habitat in the Lower American River through improved temperature control for Folsom Dam releases.

NATOMAS PHASE I REIMBURSEMENT

SAFCA is seeking reimbursement for work completed on Natomas levees under Federal authority. A total of $21 million in reimbursements have been authorized and appropriated, of which $16.5 million has been paid to SAFCA, leaving about $4.5 million which has been appropriated but not reimbursed to SAFCA. SAFCA needs the $4.5 million to help fund SAFCA's flood control improvement efforts.

SACRAMENTO RIVER BANK PROTECTION PROJECT

During the Construction season of 2006, an impressive amount of bank protection was completed along the Sacramento River including nine critical erosion sites along the Sacramento River east levee protecting Sacramento. The work has continued in 2007, during which another three sites were under construction. This program, executed by the Corps in close collaboration with the State, has been very effective in rapidly addressing serious erosion defects in levees protecting the Sacramento area and in other parts of the central valley. Additional funding, as well as new implementation authority, will be needed to continue repairs of critical erosion issues within the river system.

PREPARED STATEMENT OF THE NATIONAL CORN GROWERS ASSOCIATION

The National Corn Growers Association (NCGA) appreciates the opportunity to share with the subcommittee our energy and water development appropriations priorities for fiscal year 2008. In general, our appropriations priorities include an overall increase in U.S. Army Corps of Engineers' funding to address the needs of our failing inland waterways system; $24 million for pre-construction engineering and design (PED) for the project entitled "UMR–IWW System Navigation Study, IL, IA, MN, MO, & WI" (Authority: section 216, Flood Control Act of 1970 (Public Law 91–612)); and continued support for the Department of Energy's Biomass Technologies Program.

NCGA represents nearly 33,000 corn farmers from 46 States. NCGA also represents more than 300,000 farmers who contribute to corn check off programs and 26 affiliated State corn organizations across our country, working together to create new opportunities and markets for corn growers.

America's corn producers continue to make a significant and important contribution to our Nation's economy. Over the last 5 years, the Nation's corn crop has averaged 10.3 billion bushels resulting in an annual average farm gate value of almost $22 billion. The relatively stable production over the past 10 years, made possible by innovation in production practices and technological advances, has helped to ensure ample supplies of corn for livestock, an expanding ethanol industry, new biobased products and a host of other uses in the corn industry.

Key to our success is reliable, cost-effective and efficient transportation—whether by barge, truck or rail. Competition among these modes of transportation helps farmers receive their farm inputs, meet their customers' demand for timely delivery of products and successfully compete with foreign producers. Without a competitive transportation system, the promise of expanded trade and commercial growth is empty, job opportunities are lost, and we will be unprepared for the global challenges of this new century.

U.S. ARMY CORPS OF ENGINEERS

Our country's inland navigation system plays a critical role in our Nation's economy, moving more than a billion tons of domestic commerce valued at more than $300 billion. Each year, more than 1 billion bushels of grain (over 60 percent of all grain exports) move to export markets via the inland waterways system. Inland waterways relieve congestion on our already over-crowded highways and railways that run through cities. One jumbo barge has the same capacity as 58 trucks or 15 rail cars. A typical 15-barge tow on our Nation's rivers is equivalent to 870 trucks.

Additionally, navigation offers transportation with unparalleled environmental benefits. Barges operate at 10 percent of the cost of trucks and 40 percent of the cost of trains, while releasing 20 times less nitrous oxide, 9 times less carbon monoxide, 7 times less hydrocarbons, and burning 10 times less high-price fuel.

Unfortunately, investment in the inland waterways system has not kept pace with its needs and is deteriorating. Funding (in constant dollars) for operations and maintenance (O&M) on America's inland navigation system has remained flat for more than two decades. During this period, an increasing amount of routine maintenance on waterways infrastructure has been deferred. This deferred maintenance has become unfunded maintenance, and the aging waterways infrastructure, combined with the growing O&M backlog, has created today's average of 30 unscheduled lock shutdowns per year.

Over the past 5 years the U.S. Army Corps of Engineers reported more than 150 emergency lock closures on America's inland navigation system. Several high-profile closures have raised reliability concerns among shippers, carriers, the U.S. Army Corps of Engineers, and ultimately consumers who pay increased costs for expensive transportation delays.

Tight O&M funding and the resultant "fix-as-fail" policy have led to a self-defeating cycle where routine maintenance dollars are now needed for emergency repairs. As critical maintenance needs grow, they become candidates for major rehabilitation—a trend that is not good for the waterways industry or for the Nation.

NCGA is appreciative of the successful efforts made by this subcommittee in recent years to increase the budget for the U.S. Army Corps of Engineers. NCGA strongly supports continuing this trend with a significant increase over last year's funding levels to address the critically needed repairs and delayed construction schedules facing the Corps. It's important to get our inland waterways infrastructure back on track so we can meet the ever-increasing demands of the global marketplace.

PRE-CONSTRUCTION ENGINEERING AND DESIGN

The Upper Mississippi River and Illinois Waterway's infrastructure was built in the 1930's with a life expectancy of 50 years. As a result, the infrastructure is approaching 80 years of age, is undersized for efficient passage of today's tows, and is deteriorating from a lack of investment in both operation and maintenance and necessary capital improvements to rehabilitate these antique structures. As with our highways and interchanges, the purpose of modernization on the Upper Mississippi and Illinois Rivers is to make the entire system more efficient.

NCGA supports funding pre-construction engineering and design as a means to accelerate the precursor to construction of 7 new 1,200 foot locks on the Upper Mississippi River and Illinois Waterway in anticipation of authorization through the Water Resources Development Act. Specifically, NCGA requests $24 million in PED funding for Locks 20, 21, 22, 24, and 25 on the Upper Mississippi and the LaGrange and Peoria locks on the Illinois Waterway (Project: "UMR–IWW System Navigation Study, IL, IA, MN, MO, & WI" Authority: section 216, Flood Control Act of 1970 (Public Law 91–612)).

The PED program is overseen by the Navigation & Ecosystem Sustainability Program (NESP), formed with the conclusion of the navigation study. NESP continues the research and monitoring recommended under the dual purpose river plan outlined in the Corps of Engineers' November 2004 Chief's Report.

In previous years, PED funding was used for preparations of a re-evaluation report and detailed planning and design activities including 8 projects for navigation efficiency and 19 projects for ecosystem restoration. Projects included lock design, fish passage studies, detailed planning and design for mooring cells and switch boat implementation and detailed planning for ecosystem restoration projects including island building, backwater restoration, side channel restoration, wing dam alteration, island-shoreline protection and dam embankment lowering.

We strongly encourage the committee to support continued PED funding as part of an initial process to modernize our aging and deteriorating infrastructure and for much needed ecosystem restoration for the Upper Mississippi and Illinois Rivers.

BIOMASS TECHNOLOGIES PROGRAM

The United States needs to displace imported petroleum with ethanol. Corn grain ethanol is the only economically viable solution over the next decade and is one of the leading ways to start weaning the United States from imported oil. Using starch from corn grain to produce ethanol provides farmers with higher profit margins even while fuel customers pay lower prices. Over the next decade, corn grain can meet all of the growth in ethanol demand and still meet growth in the livestock feed, human food and export sectors.

The current Federal biomass technologies program is focused on long-term cellulose research. Cellulose research will not have any meaningful economic impact for a decade or more. A successful research and development (R&D) portfolio always balances near, mid and long-term goals, and biomass research should use a similar strategy.

In the near term, R&D investments in corn grain ethanol production technology could have a strongly positive economic impact while immediately decreasing dependence on imported oil. Examples of R&D investment opportunities include improving production and utilization of animal feed (DDGS), co-production of biobased chemicals, utilization of corn kernel fiber, and decreasing natural gas use in ethanol plants. Sufficient supply of affordable ethanol will ensure the markets and infrastructure will be poised for the larger impacts coming in the mid to long-term.

NCGA recommends the committee commit at least 25 percent of the fiscal year 2008 allocation for the biomass technologies program towards near-term research that enables corn grain.

Thank you for the support and assistance you have provided to corn growers over the years.

PREPARED STATEMENT OF THE CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION

We respectfully request fiscal year 2008 appropriation of funds for two priority watershed restoration and agricultural water supply protection projects in Oregon and Washington, the Umatilla Basin Water Supply Project (previously funded under the Umatilla Basin Project Phase III, OR) and the Walla Walla General Investigation Stream Flow Restoration Feasibility Study (previously funded under the Walla Walla River Watershed, OR & WA).

—For the Umatilla Basin Water Supply Project, Oregon, we request an appropriation of $1 million in the Bureau of Reclamation, Pacific Northwest Region, Water and Related Resources budget. This request will build upon the $450,000 committed by the Bureau of Reclamation to the Project in fiscal year 2007.

—For the Walla Walla River Watershed, Oregon and Washington, we request an appropriation of $650,000 in the U.S. Army Corps of Engineers, Portland Division, Walla Walla District, General Investigations budget. This project is also known as Walla Walla River Basin Feasibility Report/Environmental Impact Statement.

Both the Umatilla Basin Water Supply Project and the Walla Walla General Investigation Stream Flow Restoration Feasibility Study are ongoing projects and have had administration and/or congressional line item funding in past fiscal years.

UMATILLA RIVER BASIN, OREGON WATER SUPPLY PROJECT

By letter dated March 19, 2007, the Office of the Secretary of Interior responded favorably to the formal requests of the Washington and Oregon delegations and of the Confederated Umatilla Tribes, Westland Irrigation District and Governor Theodore Kulongoski to initiate Umatilla Basin water development projects and concurrent settlement of the Tribe's reserved water rights. Counselor to the Secretary, L. Michael Bogert, wrote "I will ask the Secretary's Indian Water Rights Office to appoint an Assessment Team . . ." and "I will also ask the Bureau of Reclamation to move forward with a concurrent appraisal level study of water supply options, including a full Phase III exchange . . . to help resolve the Tribe's water rights claims."

The Bureau of Reclamation, subsequent to issuance of the March 19 letter from Counselor Bogert, has committed $450,000 to fiscal year 2007 work on the Umatilla Basin water supply appraisal study.

The Umatilla Basin Water Supply Project is authorized by the Reclamation Feasibility Studies Act of 1966, 80 Stat. 707, Public Law 89–561 (Sept. 7, 1966).

The fiscal year 2008 request of $1 million to the U.S. Bureau of Reclamation will follow up the $450,000 fiscal year 2007 work and should complete the majority of the estimated 2-year appraisal level study. It is anticipated that the full appraisal study project will be completed in 2009 in order to inform the concurrent Interior Department Indian Water Rights Assessment Team's work products. In 2009, Interior should have a clear project or suite of projects necessary to satisfy water rights of the Confederated Umatilla Tribes on the Umatilla Indian Reservation and in the Umatilla River.

This fiscal year 2008 request follows on the work of the Bureau of Reclamation, authorized by the Umatilla Basin Project Act of 1988 (Public Law 100–557; 102 Stat. 2782 Title II), to construct and operate the Phase I Exchange with West Extension Irrigation District and the Phase II Exchange with Hermiston and Stanfield Irrigation Districts. Heralded as one of the most successful stream flow restoration and salmon recovery projects in the Columbia River Basin, the Umatilla Basin Project resulted in partially restored stream flows in the Umatilla River and successful reintroduction of spring Chinook, fall Chinook and Coho salmon. After nearly a century of dry river bed in summer months and extinction of all salmon stocks, there has been an Indian and non-Indian salmon fishery nearly every year in the Umatilla River since the project was completed in the mid-1990s.

Completion of the Water Supply Study and the concurrent Tribal Water Rights Assessment is supported and endorsed by the Honorable Governor Ted Kulongoski and by local irrigation districts including specifically Westland Irrigation District, the Umatilla County Commission, and local municipalities including specifically the City of Irrigon.

WALLA WALLA BASIN, OREGON AND WASHINGTON, GI FEASIBILITY STUDY

In its sixth and final full year prior to completion, the U.S. Army Corps of Engineers' feasibility study will select the project necessary to restore stream flows in the Walla Walla River. Drained nearly dry during summer months by irrigation in Oregon and Washington, the Walla Walla River is within the aboriginal lands of the Confederated Umatilla Tribes and the complete loss of salmon violates the agreement by the United States in the Treaty of 1855 to protect these fish.

Approximately $2.6 million of Federal funds have either been budgeted or appropriated through fiscal year 2007 (this includes an estimate $300,000 for fiscal year 2007 based upon continuing resolution uncertainties).

The Feasibility Study Project is authorized by the Senate Committee on Public Works, July 27, 1962 (Columbia River and Tributaries), 87th Congress, House Docu-

ment No. 403 and initiated as a result of a positive Reconnaissance Report for the Walla Walla River Watershed (1997) under a General Investigation study.

The Confederated Tribes of the Umatilla Indian Reservation is the formal sponsor of the Corps of Engineers Feasibility Study and has provided over $3.1 million in in-kind contributions. Additionally, the State of Washington Department of Ecology has provided $400,000 to the Feasibility Study.

Support for the completion of the Feasibility Study and moving to construction of the project is strong and diverse and includes the Honorable Governor of Washington Christine Gregoire, the Honorable Governor of Oregon Ted Kulongoski, the Walla Walla Watershed Alliance, the Walla Walla Basin Watershed Council, basin irrigation districts, local State legislators and many local and regional advocacy groups.

In closing, the CTUIR appreciates the opportunity to provide this testimony in support of adding funds for the ongoing projects, Umatilla River Basin Water Supply Project, Bureau of Reclamation, and for the Army Corps of Engineers Walla Walla River Basin Watershed Restoration Feasibility Study. Both projects are critically important to protecting existing agricultural economies, completing future water supply development and concurrently restoring stream flows and recovering threatened salmon and other Columbia River Basin fish stocks.

Thank you.

PREPARED STATEMENT OF THE NATURE CONSERVANCY

Mr. Chairman and members of the Subcommittee, I appreciate the opportunity to present The Nature Conservancy's recommendations for the Army Corps of Engineers' fiscal year 2008 appropriations. We understand that the Subcommittee's ability to fund programs within its jurisdiction is limited by the tight budget constraints but appreciate your consideration of these important programs.

The Nature Conservancy is an international nonprofit organization dedicated to the conservation of biodiversity. Our mission is to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive. Our on-the-ground conservation work is carried out in all 50 states and in 30 countries with the support of approximately one million members. To date, we have helped conserve more than 117 million acres and 5,000 river miles around the world. The Conservancy owns and manages approximately 1,400 preserves throughout the United States—the world's largest private system of nature sanctuaries. However, we recognize that our mission cannot be achieved by protected areas alone; thus, our projects increasingly seek to accommodate compatible human uses, especially in the developing world, to address sustained human well-being.

The Conservancy has several concerns with the new starts/project advancement ban in the fiscal year 2006 Energy and Water Appropriations bill. As the largest nonfederal sponsor of ecosystem restoration projects (by number of projects, not total funding), this policy has significantly impacted the Conservancy's ecosystem restoration efforts. The ban has halted a number of restoration projects that are widely supported by local communities, that are important to biodiversity, and that have received significant prior investment of both federal and nonfederal resources. The Conservancy urges the Subcommittee not to renew the ban on new starts/project advancement.

The Conservancy urges the Subcommittee to support the following appropriation levels in the fiscal year 2008 Energy and Water Development Appropriation bill:

Construction General Priorities

Section 1135: Project Modification for the Improvement of the Environment.—The Section 1135 Program authorizes the Army Corps of Engineers (Corps) to restore areas damaged by existing Corps projects. This program continues to be in extremely high demand with needs far greater than the $30 million appropriated in fiscal year 2006. While we recognize that the fiscal year 2006 appropriations were in excess of the authorized levels, funding shortfalls continue to hold up many important projects. The Conservancy is the nonfederal cost share partner on five ecologically significant Section 1135 projects including Spunky Bottoms (IL), a floodplain restoration/reconnection project on the Illinois River that needs $150,000 to continue planning; Chain Bridge Flats (DC), a floodplain restoration on the Potomac River that needs $210,000 to initiate the reconnaissance phase; Jim Woodruff Lock and Dam Fish Passage (FL), a river habitat restoration on the Apalachicola River that needs $100,000 to initiate the reconnaissance phase; and Village of Oyster Ecosystem Restoration (VA), a restoration of intertidal wetlands and upland habitat

that needs $99,000 to continue the feasibility study. In order to reduce the funding backlog, the Conservancy strongly encourages full funding of $25 million for Section 1135 in fiscal year 2008, an increase over the President's $11.2 million request.

Section 206: Aquatic Ecosystem Restoration.—Section 206 is a newer program that authorizes the Corps to restore aquatic habitat regardless of past activities. This is another popular restoration program with demand far exceeding both the authorized level and the fiscal year 2006 appropriation. The Conservancy is the nonfederal cost-share partner on four Section 206 projects that restore important habitats, including Camp Creek (OR), a headwaters stream restoration project that needs $525,000 to continue the feasibility study; Bootheel Creek (FL), a wet flatwood and depression marsh habitat restoration project that needs $85,000 to initiate the planning and design analysis phase; and Emiquon Preserve (IL), a floodplain reconnection and restoration project that needs $300,000 to continue planning. To reduce the funding backlog, the Conservancy strongly encourages $25 million for Section 206 in fiscal year 2008, an increase over the President's $11.3 million request.

Upper Mississippi River System Environmental Management Program.—The Environmental Management Program (EMP) is an important Corps program that restores habitat and conducts long-term resource monitoring of the Upper Mississippi and Illinois Rivers. EMP is a unique federal-state partnership involving five states (IL, IA, MN, MO and WI). EMP was reauthorized in WRDA 1999 with an increased authorization of $33.2 million. The Conservancy supports full funding of $33.2 million for fiscal year 2008, an increase over the President's $23.5 million request.

Estuary Habitat Restoration Program.—The Estuary Restoration Act was approved by Congress in 2000 to recognize the importance of a national strategic plan and multi-level partnerships to address problems plaguing our nation's estuaries. With a goal of restoring a million acres of estuary habitat by 2010 through the Estuary Habitat Restoration Program, the Act encourages coordination among all levels of government, and engages the strengths of the public, nonprofit and private sectors. The Conservancy supports the President's $5.0 million request for the Estuary Habitat Restoration Program to promote restoration projects that benefit fish, shellfish and wildlife; improve surface and groundwater resources; provide flood control; and enhance recreational opportunities.

Missouri River Fish and Wildlife Recovery.—The Missouri River contains more than 500 species of mussels, fish, amphibians, reptiles, birds and mammals, five of which are either listed or candidates for listing under the Endangered Species Act. The Corps has completed 30 projects along the river in the lower four states (IA, KS, MO and NE) resulting in more than 40,000 acres of restored aquatic and floodplain habitat. This program enhances these restorations and complements protection and restoration efforts by many federal agencies. The Conservancy supports $85.0 million in fiscal year 2008 and pending passage of the Water Resources Development Act, supports using funding basin-wide, including $15 million for the Yellowstone River Intake project in Montana.

South Florida Everglades Ecosystem Restoration Program.—The Everglades are home to a profusion of birds and wildlife with at least 347 bird species recorded in Everglades National Park alone. For the last sixty years, the Corps has built projects that shunted water away from the Everglades. These flood control projects and agricultural and urban development have degraded the wetlands ecosystem. Restoration of this globally significant region is a priority for the Conservancy. The Conservancy requests $249.1 million in the South Florida Everglades Ecosystem Restoration Program in fiscal year 2008, an increase over the President's $162.4 million request. This request includes funds for five programs: Modified Water Deliveries to Everglades National Park ($35 million), Critical Projects Construction ($8.3 million), Kissimmee River Restoration Construction ($50 million), Comprehensive Everglades Restoration Plan (CERP) Project Construction ($35 million), Central & Southern Florida Project ($120.8 million).

Puget Sound and Adjacent Waters.—Assessments of Puget Sound's nearshore habitat indicate that the ecological health of the ecosystem is in steep decline. As urban areas continue to expand, an extraordinary heritage of native species and ecosystems is at risk. The Puget Sound and Adjacent Waters Program provides funding for early action projects to restore the Puget Sound and its watershed.. The Conservancy requests $5.0 million for Puget Sound and Adjacent Waters in fiscal year 2008. Identification of these early action projects is informed by the Puget Sound Nearshore Ecosystem Restoration General Investigation, for which the Conservancy requests $1.9 million in fiscal year 2008, an increase over the President's $400,000 request.

General Investigation Priorities

Penobscot River Restoration.—This project involves the purchase and decommissioning of three dams on the Penobscot River, New England's second largest river. Two dams will be removed and a state-of-the-art fish bypass will be constructed around the third. Restoration of massive runs of migratory fish in the Penobscot River will expand recreational fishing opportunities and tourism resources, will provide culturally significant fishing resources to the Penobscot Indian Nation, and will greatly enhance recovery of Atlantic salmon and other ESA-listed species. The Conservancy supports $450,000 in fiscal year 2008. This study is not included in the President's Budget.

Hamilton City Flood Damage Reduction and Ecosystem Restoration.—This project will increase flood protection for Hamilton City. CA and surrounding agricultural lands and restore over 1,500 acres of riparian habitat. Currently, the town is only marginally protected by a degraded private levee. The PED phase for this project is nearly complete. Pending fiscal year 2007 funding and passage of WRDA, the project will be ready to begin construction next year. The Conservancy supports $1.6 million in fiscal year 2008 to complete PED and $7.5 million to begin construction. This study is not included in the President's Budget.

Savannah Basin Comprehensive Water Resources Study—Phase II.—The Savanna River basin is experiencing tremendous growth, increasing demands on this limited water resource. Phase I of the study evaluated water management in the reservoirs based on current operations and indicated that future needs may not be met under current management practices. Phase II evaluates implementation of a new set of rules (e.g. hydropower contracts, recreation needs, ecological flows) that could meet future demands while protecting essential river habitat. Without Phase II, changes in dam operations are limited by outdated and unsustainable management rules. The Conservancy supports $250,000 in fiscal year 2008. This study is not included in the President's Budget.

Willamette River Floodplain Study.—This project contributes to long-term restoration of floodplain habitat, an important step toward the recovery of several ESA-listed threatened fish species. The restoration goals include increasing floodplain connectivity and replanting riparian forests, which will contribute to the Corps' ability to reduce river temperatures and meet their obligations under the Clean Water Act. The Conservancy supports $436,000 in fiscal year 2008. This study is not included in the President's Budget.

Lower Mississippi River Resource Assessment.—This study will assess management, habitat and public access issues in the Lower Mississippi River Valley (LMV). Restoring and actively managing the natural resources of the LMV will contribute to the recovery of nine ESA-listed species without impacting navigation or flood control. Restored functionality of wetlands will also help attenuate floods and capture river sediment, reducing stress on the flood control system and the amount of nutrients transported down river to the Gulf of Mexico. The Conservancy supports $500,000 in fiscal year 2008. This study is not included in the President's Budget.

Connecticut River Watershed Study.—This project will restore 410 miles of river flow and thousands of acres of associated riparian, aquatic and floodplain natural communities in the Connecticut River Basin. The basin is a priority landscape for the Conservancy due to the 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 such as water supply, flood control and hydropower generation. The Conservancy supports $450,000 in fiscal year 2008. This study is not included in the President's Budget.

Yellowstone River Corridor Comprehensive Study.—This study is assessing cumulative effects to the Yellowstone system and will develop conservation-based management practices for the river main stem. As the longest free-flowing river in the lower United States, the Yellowstone is a rare model of the structure and function of large western rivers. It supports a wide variety of fish, including the ESA-listed pallid sturgeon. The Conservancy supports $1 million in fiscal year 2008, an increase over the President's $200,000 request.

Thames River Basin.—The Thames River Basin is the second largest freshwater contributor to Long Island Sound and provides critical connective habitat between freshwater and marine systems. This study will evaluate options to restore more natural flows and improve watershed management to reduce nutrient inputs, as well as options for ecological restoration throughout the Basin. The Conservancy supports $450,000 in fiscal year 2008. This study is not included in the President's Budget.

Operations and Maintenance Priority

Bill Williams River—Alamo Dam.—Due to the historic loss of woodland habitat in the Southwest and limited restoration ability along other portions of the Colorado River, the Bill Williams River corridor provides critical opportunities for both conserving and restoring habitat. This plus-up request will provide additional baseline information about the geomorphology and sediment transport characteristics of the Bill Williams River and continue critical long-term hydrologic and biological monitoring in order to construct a programmatic plan to support adaptive management of the river system. The Conservancy supports $250,000 plus-up over the President's Operations and Maintenance request of $1,783,000, for a total of $2,033,000 in fiscal year 2008.

Thank you for the opportunity to present The Nature Conservancy's comments on the Energy and Water Appropriations bill. We recognize that you receive many worthy requests for funding each year and appreciate your consideration of these requests and the generous support you have shown for these and other conservation programs in the past. If you have any further questions, please do not hesitate to contact me or Jason Albritton, Policy Associate (703/841–4105).

PREPARED STATEMENTS OF THE SANTA CLARA VALLEY WATER DISTRICT

STATEMENT OF SUPPORT—COYOTE CREEK WATERSHED STUDY

Background.—Coyote Creek drains Santa Clara County's largest watershed, an area of more than 320 square miles encompassing most of the eastern foothills, the city of Milpitas, and portions of the cities of San Jose and Morgan Hill. It flows northward from Anderson Reservoir through more than 40 miles of rural and heavily urbanized areas and empties into south San Francisco Bay.

Prior to construction of Coyote and Anderson Reservoirs, flooding occurred in 1903, 1906, 1909, 1911, 1917, 1922, 1923, 1926, 1927, 1930 and 1931. Since 1950, the operation of the reservoirs has reduced the magnitude of flooding, although flooding is still a threat and did cause damages in 1982, 1983, 1986, 1995, and 1997. Significant areas of older homes in downtown San Jose and some major transportation corridors remain susceptible to extensive flooding. The federally-supported lower Coyote Creek Project (San Francisco Bay to Montague Expressway), which was completed in 1996, protected homes and businesses from storms which generated record runoff in the northern parts of San Jose and Milpitas.

The proposed Reconnaissance Study would evaluate the reaches upstream of the completed Federal flood protection works on lower Coyote Creek.

Objective of Study.—The objectives of the Reconnaissance Study are to investigate flood damages within the Coyote Creek Watershed; to identify potential alternatives for alleviating those damages which also minimize impacts on fishery and wildlife resources, provide opportunities for ecosystem restoration, provide for recreational opportunities; and to determine whether there is a Federal interest to proceed into the Feasibility Study Phase.

Study Authorization.—In May 2002, the House of Representatives Committee on Transportation and Infrastructure passed a resolution directing the Corps to ". . . review the report of the Chief of Engineers on Coyote and Berryessa Creeks . . . and other pertinent reports, to determine whether modifications of the recommendations contained therein are advisable in the interest of flood damage reduction, environmental restoration and protection, water conservation and supply, recreation, and other allied purposes . . ."

Fiscal Year 2006 Administration Budget Request and Funding.—The Coyote Watershed Study was one of only three "new start" studies proposed for funding nationwide in the administration's fiscal year 2006 budget request. Congress did not include funding for the study in the final fiscal year 2006 appropriations bill.

Fiscal Year 2007 Funding.—An appropriation add-on of $100,000 was requested in fiscal year 2007, and $100,000 was included in the Senate Appropriation bill. No funds were appropriated in the fiscal year 2007 Corps Work Plan.

Fiscal Year 2008 Funding Recommendation.—It is requested that the Congressional Committee support an appropriation add-on of $100,000 to initiate a multipurpose Reconnaissance Study within the Coyote Creek Watershed.

STATEMENT OF SUPPORT—COYOTE/BERRYESSA CREEK PROJECT, BERRYESSA CREEK PROJECT ELEMENT

Background.—The Berryessa Creek Watershed is located in northeast Santa Clara County, California, near the southern end of the San Francisco Bay. A major

tributary of Coyote Creek, Berryessa Creek drains 22 square miles in the city of Milpitas and a portion of San Jose.

On average, Berryessa Creek floods once every four years. The most recent flood in 1998 resulted in significant damage to homes and automobiles. The proposed project on Berryessa Creek, from Calaveras Boulevard to upstream of Old Piedmont Road, will protect portions of the cities of San Jose and Milpitas. The flood plain is largely urbanized with a mix of residential and commercial development. Based on the U.S. Army Corps of Engineers (Corps) 2005 report, a 1 percent or 100-year flood could potentially result in damages exceeding $179 million. Benefit-to-cost ratios for the 6 project alternatives being evaluated range from 2:1 to 7.3:1.

Study Synopsis.—In January 1981, the Santa Clara Valley Water District (District) applied for Federal assistance for flood protection projects under section 205 of the 1948 Flood Control Act. The Water Resources Development Act of 1990 authorized construction on the Berryessa Creek Flood Protection Project as part of a combined Coyote/Berryessa Creek Project to protect portions of the cities of Milpitas and San Jose.

The Coyote Creek element of the project was completed in 1996. The Berryessa Creek Project element proposed in the Corps' 1987 feasibility report consisted primarily of a trapezoidal concrete lining. This was not acceptable to the local community. The Corps and the District are currently preparing a General Reevaluation Report which involves reformulating a project which is more acceptable to the local community and more environmentally sensitive. Project features will include setback levees and floodwalls to preserve sensitive areas (minimizing the use of concrete), appropriate aquatic and riparian habitat restoration and fish passage, and sediment control structures to limit turbidity and protect water quality. The project will also accommodate the city of Milpitas' adopted trail master plan. Estimated total costs of the General Reevaluation Report work are $5 million, and should be completed in the spring of 2007.

Fiscal Year 2007 Funding.—$100,000 in the fiscal year 2007 Corps Work Plan for the Coyote/Berryessa Creek Flood Protection Project to continue the General Reevaluation Report and environmental documents update.

Fiscal Year 2008 Funding Recommendation.— Based on the continuing threat of significant flood damage from Berryessa Creek and the need to continue with the General Reevaluation Report, it is requested that the Congressional Committee support an appropriation add-on of $1.35 million, in addition to the $950,000 in the Administration's fiscal year 2008 budget request, for a total of $2.3 million for the Berryessa Creek Flood Protection Project element of the Coyote/Berryessa Creek Project.

STATEMENT OF SUPPORT—GUADALUPE RIVER PROJECT

Background.—The Guadalupe River is a major waterway flowing through a highly developed area of San Jose, in Santa Clara County, California. A major flood would damage homes and businesses in the heart of Silicon Valley. Historically, the river has flooded downtown San Jose and the community of Alviso. According to the U.S. Army Corps of Engineers (Corps) 2000 Final General Reevaluation & Environmental Report for Proposed Project Modifications, estimated damages from a 1 percent flood in the urban center of San Jose are over $576 million. The Guadalupe River overflowed in February 1986, January 1995, and March 1995, damaging homes and businesses in the St. John and Pleasant Street areas of downtown San Jose. In March 1995, heavy rains resulted in breakouts along the river that flooded approximately 300 homes and business.

Project Synopsis.—In 1971, the local community requested that the Corps reactivate its earlier study. Since 1972, substantial technical and financial assistance have been provided by the local community through the Santa Clara Valley Water District in an effort to accelerate the project's completion. To date, more than $85.8 million in local funds have been spent on planning, design, land purchases, and construction in the Corps' project reach.

The Guadalupe River Project received authorization for construction under the Water Resources Development Act of 1986; the General Design Memorandum was completed in 1992, the local cooperative agreement was executed in March 1992, the General Design Memorandum was revised in 1993, construction of the first phase of the project was completed in August 1994, construction of the second phase was completed in August 1996. Project construction was temporarily halted due to environmental concerns.

To achieve a successful, long-term resolution to the issues of flood protection, environmental mitigation, avoidance of environmental effects, and project monitoring and maintenance costs, a multi-agency "Guadalupe Flood Control Project Collabo-

rative" was created in 1997. A key outcome of the collaborative process was the signing of the Dispute Resolution Memorandum in 1998, which modified the project to resolve major mitigation issues and allowed the project to proceed. Energy and Water Development Appropriations Act of 2002 was signed into law on November 12, 2001. This authorized the modified Guadalupe River Project at a total cost of $226.8 million. Subsequent to the authorization, the project cost has been raised to $251 million. Construction of the last phase of flood protection was completed in December 2004 and a completion celebration held in January 2005. The remaining construction consists of railroad bridge replacements and mitigation plantings. The overall construction of the project including the river park and the recreation elements is scheduled for completion in 2006.

Fiscal Year 2007 Funding.—$5.6 million in the fiscal year 2007 Corps Work Plan to continue Guadalupe River Project construction.

Fiscal Year 2008 Funding Recommendation.—It is requested that the congressional committee support an appropriation add-on of $8 million to continue construction of the final phase of the Guadalupe River Flood Protection Project.

STATEMENT OF SUPPORT—LLAGAS CREEK PROJECT

Background.—The Llagas Creek Watershed is located in southern Santa Clara County, California, serving the communities of Gilroy, Morgan Hill and San Martin. Historically, Llagas Creek has flooded in 1937, 1955, 1958, 1962, 1963, 1969, 1982, 1986, 1996, 1997, 1998, and 2002. The 1997, 1998, and 2002 floods damaged many homes, businesses, and a recreational vehicle park located in areas of Morgan Hill and San Martin. These are areas where flood protection is proposed. Overall, the proposed project will protect the floodplain from a 1 percent flood affecting more than 1,100 residential buildings, 500 commercial buildings, and 1,300 acres of agricultural land.

Project Synopsis.—Under authority of the Watershed Protection and Flood Prevention Act (Public Law 566), the Natural Resources Conservation Service completed an economic feasibility study in 1982 for constructing flood damage reduction facilities on Llagas Creek. The Natural Resources Conservation Service completed construction of the last segment of the channel for Lower Llagas Creek in 1994, providing protection to the project area in Gilroy. The U.S. Army Corps of Engineers (Corps) is currently updating the 1982 environmental assessment work and the engineering design for the project areas in Morgan Hill and San Martin. The engineering design is being updated to protect and improve creek water quality and to preserve and enhance the creek's habitat, fish, and wildlife while satisfying current environmental and regulatory requirements. Significant issues include the presence of additional endangered species including the red-legged frog and steelhead, listing of the area as probable critical habitat for steelhead, and more extensive riparian habitat than were considered in 1982. Project economics are currently being updated as directed by Corps Headquarters to determine continued project economic viability.

Until 1996, the Llagas Creek Project was funded through the traditional Public Law 566 Federal project funding agreement with the Natural Resources Conservation Service paying for channel improvements and the District paying local costs including utility relocation, bridge construction, and right of way acquisition. Due to the steady decrease in annual appropriations for the Public Law 566 construction program since 1990, the Llagas Creek Project had not received adequate funding to complete the Public Law 566 project. To remedy this situation, the District worked with congressional representatives to transfer the construction authority from the Department of Agriculture to the Corps under the Water Resources Development Act of 1999 (section 501). Since the transfer of responsibility to the Corps, the District has been working with the Corps to complete the project. Efforts are underway to reauthorize the project at its current project cost in the recently introduced Water Resources Development Act of 2007.

Fiscal Year 2007 Funding.—$250,000 in the fiscal year 2007 Corps Work Plan.

Fiscal Year 2008 Funding Recommendation.—Based upon the high risk of flood damage from Llagas Creek, it is requested that the Congressional Committee support an appropriation add-on of $368,000 in fiscal year 2008 for planning, design, and environmental updates for the Llagas Creek Project.

STATEMENT OF SUPPORT—SAN FRANCISQUITO CREEK FLOOD DAMAGE REDUCTION AND ECOSYSTEM RESTORATION PROJECT

Background.—The San Francisquito Creek watershed comprises 45 square miles and 70 miles of creek system. The creek mainstem flows through five cities and two counties, from Searsville Lake, belonging to Stanford University, to the San Francisco Bay at the boundary of East Palo Alto and Palo Alto. Here it forms the bound-

ary between Santa Clara and San Mateo Counties, California and separates the cities of Palo Alto from East Palo Alto and Menlo Park. The upper watershed tributaries are within the boundaries of Portola Valley and Woodside townships. The creek flows through residential and commercial properties, a biological preserve, and Stanford University campus. It interfaces with regional and State transportation systems by flowing under two freeways and the regional commuter rail system. San Francisquito Creek is one of the last natural continuous riparian corridors on the San Francisco Peninsula and home to one of the last remaining viable steelhead trout runs. The riparian habitat and urban setting offer unique opportunities for a multi-objective flood protection and ecosystem restoration project.

Flooding History.—The creeks mainstem has a flooding frequency of approximately once in 11 years. It is estimated that over $155 million in damages could occur in Santa Clara and San Mateo counties from a 1 percent flood, affecting 4,850 homes and businesses. Significant areas of Palo Alto flooded in December 1955, inundating about 1,200 acres of commercial and residential property and about 70 acres of agricultural land. April 1958 storms caused a levee failure downstream of Highway 101, flooding Palo Alto Airport, the city landfill, and the golf course up to 4-feet deep. Overflow in 1982 caused extensive damage to private and public property. The flood of record occurred on February 3, 1998, when overflow from numerous locations caused severe, record consequences with more than $28 million in damages. More than 1,100 homes were flooded in Palo Alto, 500 people were evacuated in East Palo Alto, and the major commute and transportation artery, Highway 101, was closed.

Status.—Active citizenry are anxious to avoid a repeat of the February 1998 flood. Numerous watershed based studies have been conducted by the Corps, the Santa Clara Valley Water District, Stanford University, and the San Mateo County Flood Control District. Grassroots, consensus based organization, called the San Francisquito Watershed Council, has united stakeholders including local and State agencies, citizens, flood victims, developers, and environmental activists for over 10 years. The San Francisquito Creek Joint Powers Authority was formed in 1999 to coordinate creek activities with five member agencies and two associate members. The Authority Board has agreed to be the local sponsor for a Corps project and received Congressional authorization for a Corps reconnaissance study in May 2002. The Reconnaissance Study was completed in March 2005 and the Feasibility Study was initiated in November 2005.

Fiscal Year 2007 Funding.—$300,000 in the fiscal year 2007 Corps Work Plan.

Fiscal Year 2008 Funding Recommendation.—It is requested the congressional committee support an appropriation add-on of $700,000 to continue the Feasibility Study.

STATEMENT OF SUPPORT—SOUTH SAN FRANCISCO BAY SHORELINE STUDY

Background.—Congressional passage of the Water Resources Development Act of 1976, originally authorized the San Francisco Bay Shoreline Study, and Santa Clara Valley Water District (District) was one of the project sponsors. In 1990, the U.S. Army Corps of Engineers (Corps) concluded that levee failure potential was low because the existing non-Federal, non-engineered levees, which were routinely maintained by Leslie Salt Company (subsequently Cargill Salt) to protect their industrial interests, had historically withstood overtopping without failure. As a result, the project was suspended until adequate economic benefits could be demonstrated.

Since the project's suspension in 1990, many changes have occurred in the South Bay. The State and Federal acquisition of approximately 15,000 acres of South Bay salt ponds was completed in early March 2003. The proposed restoration of these ponds to tidal marsh will significantly alter the hydrologic regime and levee maintenance activities, which were assumed to be constant in the Corps' 1990 study. In addition to the proposed restoration project, considerable development has occurred in the project area. Many major corporations are now located within Silicon Valley's Golden Triangle, lying within and adjacent to the tidal flood zone. Damages from a 1 percent high tide are anticipated to far exceed the $34.5 million estimated in 1981, disrupting business operations, infrastructure, and residences. Also, historical land subsidence of up to 6 feet near Alviso, as well as the structural uncertainty of existing salt pond levees, increases the potential for tidal flooding in Santa Clara County.

In July 2002, Congress authorized a review of the Final 1992 Letter Report for the San Francisco Bay Shoreline Study. The final fiscal year 2004 appropriation for the Corps included funding for a new start Reconnaissance Study.

Project Synopsis.—At present, large areas of Santa Clara, Alameda and San Mateo Counties would be impacted by flooding during a 1 percent high tide. The

proposed restoration of the South San Francisco Bay salt ponds will result in the largest restored wetland on the West Coast of the United States, and also significantly alter the hydrologic regime adjacent to South Bay urban areas. The success of the proposed restoration is therefore dependent upon adequate tidal flood protection, and so this project provides an opportunity for multi-objective watershed planning in partnership with the California Coastal Conservancy, the lead agency on the restoration project. Project objectives include: restoration and enhancement of a diverse array of habitats, especially several special status species; tidal flood protection; and provision of wildlife-oriented public access. A Corps Reconnaissance Study was completed in September 2004 and the Feasibility Study was initiated in September 2005.

Fiscal Year 2007 Funding.—$1.3 million in the fiscal year 2007 Corps Work Plan to continue the Feasibility Study.

Fiscal Year 2008 Funding Request.—It is requested that the Congressional Committee support an appropriation add-on of $2.5 million to continue the Feasibility Study to evaluate integrated flood protection and environmental restoration.

STATEMENT OF SUPPORT—UPPER GUADALUPE RIVER PROJECT

Background.—The Guadalupe River is one of two major waterways flowing through a highly urbanized area of Santa Clara County, California, the heart of Silicon Valley. Historically, the river has flooded the central district and southern areas of San Jose. According to U.S. Army Corps of Engineers (Corps) 1998 feasibility study, severe flooding would result from a 100-year flooding event and potentially cause $280 million in damages.

The probability of a large flood occurring before implementation of flood prevention measures is high. The upper Guadalupe River overflowed in March 1982, January 1983, February 1986, January 1995, March 1995, and February 1998, causing damage to several residences and businesses in the Alma Avenue and Willow Street areas. The 1995 floods in January and March, as well as in February 1998, closed Highway 87 and the parallel light-rail line, a major commute artery.

Project Synopsis.—In 1971, the Santa Clara Valley Water District (District) requested the Corps reactivate an earlier study of Guadalupe River. From 1971 to 1980, the Corps established the economic feasibility and Federal interest in the Guadalupe River only between Interstate 880 and Interstate 280. Following the 1982 and 1983 floods, the District requested that the Corps reopen its study of the upper Guadalupe River upstream of Interstate 280. The Corps completed a reconnaissance study in November 1989, which established an economically justifiable solution for flood protection in this reach. The report recommended proceeding to the feasibility study phase, which began in 1990. In January 1997, the Corps determined that the National Economic Development (NED) Plan would be a 2 percent or 50 year level of flood protection rather than the 1 percent or 100 year level. The Corps feasibility study determined the cost of the locally preferred 100-year plan is $153 million and the Corps NED 50-year plan is $98 million. The District requested that the costs of providing 50-year and 100-year flood protection be analyzed during the preconstruction engineering design phase. The Corps is now proceeding with the preconstruction engineering design phase and has refined the NED Plan to address the District's comments and Endangered Species Act issues and has reevaluated the locally preferred plan for full Federal cost sharing. The findings were submitted to Corps Headquarters for approval in March 2004 in a Limited Reevaluation Report on the Proposed Project Modifications. This report contains an evaluation of the revised NED Plan project and the Locally Preferred Plan project, which costs $165 million with a benefit-to-cost ratio of 1:1.42 and $212 million with a benefit-to-cost ratio of 1:1.24, respectively. The Report was approved by the Corps in October 2005. The report recommended full cost-sharing on the Locally Preferred Plan project. Current efforts are underway to reauthorize the project at its current project cost in the recently introduced Water Resources Development Act of 2007.

Fiscal Year 2007 Funding.—No funds were appropriated in the fiscal year 2007 Corps Work Plan for the Upper Guadalupe River Project.

Fiscal Year 2008 Funding Recommendation.—It is requested that the congressional committee support an appropriation add-on of $10.5 million in fiscal year 2008 to complete final design and continue construction on the Upper Guadalupe River Flood Protection Project.

STATEMENT OF SUPPORT—UPPER PENITENCIA CREEK FLOOD PROTECTION PROJECT

Background.—The Upper Penitencia Creek Watershed is located in northeast Santa Clara County, California, near the southern end of the San Francisco Bay. In the last two decades, the creek has flooded in 1980, 1982, 1983, 1986, 1995, and

1998. The January 1995 flood damaged a commercial nursery, a condominium complex, and a business park. The February 1998 flood also damaged many homes, businesses, and surface streets.

The proposed project on Upper Penitencia Creek, from the Coyote Creek confluence to Dorel Drive, will protect portions of the cities of San Jose and Milpitas. The floodplain is completely urbanized; undeveloped land is limited to a few scattered agricultural parcels and a corridor along Upper Penitencia Creek. Based on an August 2004 U.S. Army Corps of Engineers' (Corps) Economics Analysis, over 5,000 homes and businesses in the cities of San Jose and Milpitas are located in the 1 percent or 100 year flood area. Flood damages were estimated at $455 million. Benefit to cost ratios for the 9 project alternatives range from 2:1 to 3.1:1.

Study Synopsis.—Under authority of the Watershed Protection and Flood Prevention Act (Public Law 83–566), the Natural Resources Conservation Service (formerly the Soil Conservation Service) completed an economic feasibility study (watershed plan) for constructing flood damage reduction facilities on Upper Penitencia Creek. Following the 1990 U.S. Department of Agriculture Farm bill, the Natural Resources Conservation Service watershed plan stalled due to the very high ratio of potential urban development flood damage compared to agricultural damage in the project area.

In January 1993, the Santa Clara Valley Water District (District) requested the Corps proceed with a reconnaissance study in the 1994 fiscal year while the Natural Resources Conservation Service plan was on hold. Funds were appropriated by Congress for fiscal year 1995 and the Corps started the reconnaissance study in October 1994. The reconnaissance report was completed in July 1995, with the recommendation to proceed with the feasibility study phase. The feasibility study, initiated in February 1998, is currently scheduled for completion in 2007.

Advance Construction.—To accelerate project implementation, the District submitted a section 104 application to the Corps for approval to construct a portion of the project. The application was approved in December 2000. The advance construction is for a 2,600-foot long section of bypass channel between Coyote Creek and King Road. However, due to funding constraints at the District and concerns raised by regulatory agencies, the design was stopped and turned over to the Corps to complete.

Fiscal Year 2007 Funding.—$319,000 in the fiscal year 2007 Corps Work Plan for continued project investigation.

Fiscal Year 2008 Funding Recommendation.—It is requested that the congressional committee support an appropriation add-on of $109,000, in addition to the $191,000 in the administration's fiscal year 2008 budget request, for a total of $300,000 for the Upper Penitencia Creek Flood Protection Project to continue the Feasibility Study.

PREPARED STATEMENT OF THE CALAVERAS COUNTY WATER DISTRICT

Calaveras County (County) is located in the central Sierra Nevada foothills about 25 miles east of the Sacramento-San Joaquin Delta (Delta). Ground elevations within the County increase from 200 feet above mean sea level near the northwest part of the County to 8,170 feet near Alpine County. It is a predominately rural county with a relatively sparse but rapidly developing population and limited agricultural and industrial development. Calaveras County is located within the watersheds of the Mokelumne, Calaveras, and Stanislaus Rivers.

All three of these rivers flow west, running through San Joaquin County into the Delta. Most of the County is underlain by the igneous and metamorphic rocks of the Sierra Nevada. Alluvial deposits of the Central Valley, which overlie the westward plunging Sierra Nevada, are present along an 80 square-mile area located along the western edge of the County and are part of the Eastern San Joaquin Groundwater Basin (ESJCGB).

In the fall of 1946, the Calaveras County Water District (CCWD) was organized under the laws of the State of California as a public agency for the purpose of developing and administering the water resources in Calaveras County. Therefore, CCWD is a California Special District and is governed by the California Constitution and the California Government and Water Codes. CCWD is not a part of, or under the control of, the County of Calaveras. CCWD was formed to preserve and develop water resources and to provide water and wastewater service to the citizens of Calaveras County

Under State law, CCWD, through its board of directors, has general powers over the use of water within its boundaries. These powers include, but are not limited to: the right of eminent domain, authority to acquire, control, distribute, store,

spread, sink, treat, purify, reclaim, process and salvage any water for beneficial use, to provide sewer service, to sell treated or untreated water, to acquire or construct hydroelectric facilities and sell the power and energy produced to public agencies or public utilities engaged in the distribution of power, to contract with the United States, other political subdivisions, public utilities, or other persons, and subject to the California State Constitution, levy taxes and improvements.

COSGROVE CREEK FLOOD CONTROL PROJECT

The Cosgrove Creek Flood Control Project will address flooding that occurs along the lower reaches of the creek, as well as flooding that occurs on Spring Creek. Flooding in these areas impacts over 400 people and 100 structures located in the 100-year floodplain. Within the context of the flood control effort, the project will also address options for the beneficial use of peak flows and address other local concerns such as the need for recreational opportunities in the area.

The Calaveras County Water District respectfully requests $100,000 for this project in fiscal year 2008 from the Corps of Engineers Construction General account.

NEW HOGAN RESERVOIR/CALAVERAS COUNTY REGIONAL WATER AND WASTEWATER FACILITY STUDY

This project will address regional water and wastewater facility needs for the region. New uses for recycled water, including wetlands creation, groundwater recharge and conjunctive use, are key elements of the project and will meet critical water use efficiency and environmental needs of the area. This project will also fund the New Hogan Lake Reoperation study to examine if operation of the project should be changed to more closely meet the contemporary needs of the area, including problems associated with downstream flooding and conjunctive use of water.

The Calaveras County Water District respectfully requests $1,000,000 from the Corps of Engineers under section 205 in fiscal year 2008, switching to section 219 depending on WRDA.

PREPARED STATEMENT OF THE CALIFORNIA STATE COASTAL CONSERVANCY

SUMMARY

The following testimony is in support of the California State Coastal Conservancy's fiscal year 2008 Energy and Water Appropriations requests. The Conservancy respectfully requests needed funding for the following critical projects: $7.65 million for the Hamilton Bel-Marin Keys Wetland Restoration Project, Army Corps of Engineers, Construction General; $2.5 million for the South San Francisco Bay Shoreline Study, Army Corps of Engineers, General Investigations; $750,000 for the Napa River Salt Marsh Restoration Project, Army Corps of Engineers, General Investigations; $13.59 million for the Upper Newport Bay Ecosystem Restoration Project, Army Corps of Engineers, Construction General; $3,000,000 for the Matilija Dam Ecosystem Restoration Project, Army Corps of Engineers, General Investigations and $300,000 for the San Pablo Bay Watershed Restoration Program.

CONSERVANCY BACKGROUND

The California Coastal Conservancy, established in 1976, is a State agency that uses entrepreneurial techniques to purchase, protect, restore, and enhance coastal resources, and to provide access to the shore. We work in partnership with local governments, other public agencies, nonprofit organizations, and private landowners.

To date, the Conservancy has undertaken more than 950 projects along the 1,100 mile California coastline and around San Francisco Bay. Through such projects, the Conservancy: protects and improves coastal wetlands, streams, and watersheds; works with local communities to revitalize urban waterfronts; assists local communities in solving complex land-use problems and protects agricultural lands and supports coastal agriculture to list a few of our activities.

Since its establishment in 1976, the Coastal Conservancy has: helped build more than 300 access ways and trails, thus opening more than 80 miles of coastal and bay lands for public use; assisted in the completion of over 100 urban waterfront projects; joined in partnership endeavors with more than 100 local land trusts and other nonprofit groups, making local community involvement an integral part of the Coastal Conservancy's work and completed projects in every coastal county and all 9 San Francisco Bay Area counties. In addition, we currently have over 300 active projects that are benefiting the citizens of California.

Hamilton Bel-Marin Keys Wetland Restoration Project

In fiscal year 2008 the California Coastal Conservancy is seeking $7.65 million, consistent with Corps of Engineers' capability, for the continued construction of this project.

This project is of critical importance as it will provide nearly 700 acres of restored tidal and seasonal wetlands at a former Army base, in Marin County, California and provide much needed habitat for several threatened and endangered species; as well as, shorebirds and waterfowl migrating along the Pacific Flyway. In addition, this project beneficially uses dredged material from the San Francisco Bay which provides for increased navigation and maritime commerce for the Bay Area, a much needed economic stimulus for the region.

The first phase of construction, which started last year, is taking place on the former Army Airfield. Miles of levees are currently under construction, after which the main runway and taxiways will be buried under millions of cubic yards of clean dredged sediment. Subsequently, the easterly levee will be breached allowing tidal waters to once again flood the site. Later in the project, the Corps will work on the adjacent Antenna field and Bel Marin Keys V property (subject to WRDA approval) resulting in a total project area of nearly 2,500 acres. This phased approach will be used to complete the design and construction tasks in conjunction with the availability of land and dredged material.

South San Francisco Bay Shoreline Study

The Conservancy is seeking $2.5 million in funding in order to continue the Feasibility Study for this project. The study was initiated in fiscal year 2005 and has been ongoing, receiving $600,000 in funds in fiscal year 2006.

This project is of national significance as it will create the largest restored wetland on the West Coast of the United States and will provide extensive habitat for federally endangered species and migratory waterfowl. In addition, the project is also critical to the region as it will provide tidal and fluvial flood protection for the South San Francisco Bay Area protecting approximately 42,800 acres, 7,400 homes and businesses, and significant urban infrastructure, to include major highways, hospitals and airport facilities.

In order to continue to advance this important study it is imperative that local interests and the Federal Government work together to ensure a reliable funding stream for the project. In accordance, substantial cost-sharing has already begun among the land management agencies. The U.S. Fish and Wildlife Service contributed $8 million toward the $100 million acquisition of the salt ponds. The State of California provided $72 million and the Hewlett Foundation, Packard Foundation, Moore Foundation, and Goldman Fund provided $20 million. The foundations are providing an additional $15 million for restoration planning and $9 million for land management. The State of California is providing $8 million for planning and $6 million for land management.

Napa River Salt Marsh

For fiscal year 2008, we are seeking $750,000 in Federal funds in order to complete preconstruction engineering and design (PED) for this project which will allow construction to commence as soon as the project is authorized by Congress. Last year, $125,000 was appropriated to the Corps of Engineers for PED activities.

The funds requested would allow the Corps of Engineers to complete design of the Napa River Salt Marsh Project. Upon authorization of the project in WRDA, the Corps will be able to construct the project. Construction of the project will provide extensive benefits to the region, to include: providing extensive wetland habitat in San Francisco Bay; the beneficial use for recycled water in the North Bay; improve open space and recreational opportunities; and resolve urgent issues associated with deterioration of the site's levee, water control structures, and water quality.

The 10,000 acre Napa River Salt Marsh was purchased by the State of California from Cargill in 1994 and is managed by the California Department of Fish and Game. The State Coastal Conservancy has been the non-Federal sponsor working with the Corps on the Feasibility Study. The Corps' Feasibility Study was completed and the Chief's Report was signed in December of 2004. Preconstruction engineering and design is currently taking place with construction commencing once the project is authorized in WRDA.

Upper Newport Bay Ecosystem Restoration

In fiscal year 2008, we are seeking $13.59 million in funding to complete construction and avoid cost increases and project delays.

Upper Newport Bay, one of the largest remaining tidal wetlands in Southern California, provides significant habitat for numerous federally endangered species, mi-

gratory waterfowl and shorebirds along the Pacific Flyway, and anadromous fish and other aquatic species. To ensure the long-term viability of this diverse salt marsh ecosystem as well as the stability of the region's ecosystem, the Army Corps of Engineers and the County of Orange developed the Upper Newport Bay Ecological Restoration Project, which was authorized in the Water Resources Development Act of 2000.

The project will address the habitat conversion resulting from sedimentation in the upper bay, increase the quantity and quality of wetlands habitat, improve water quality by reducing sediment inflows and algal blooms and preserve both Federal and local navigational channels, which if unaddressed will require costly maintenance dredging.

A construction contract was awarded in September 2005 and construction is underway. The available funds (Federal and non-Federal) will be expended by late summer 2006. The funding request of $18 million for fiscal year 2007 will complete construction of this project and avoid cost increases from re-mobilizing equipment and inflation.

Matilija Dam Ecosystem Restoration Project

In fiscal year 2008 we are seeking $3 million for the Army Corps of Engineers General Investigation account to complete the U.S. Army Corps of Engineers' engineering and Design work of the project.

The Matilija Dam Ecosystem Restoration Project is a project of vital importance as the project seeks to remove the 200-foot tall Matilija Dam on a tributary to the Ventura River. This critical project is designed to reestablish runs of the endangered southern steelhead trout and to allow sand to flow to coastal beaches. This project is one of the largest dam removal projects in the Country and enjoys broad support from many local, State and Federal agencies.

In order to remove the dam, 6 million cubic yards of sediments trapped behind the dam will be moved or recontoured. A high flow sediment bypass system will be constructed at a water diversion downstream. A silt removal system will be installed along the diversion canal. In addition, levees will be built in several places along the river channel to protect property from flooding due to the expected increases in stream channel elevation in the first years after removal of the dam. The project also involves removal of invasive plants and the installation of replacement water wells

San Pablo Bay Watershed Restoration Program

We are seeking $300,000 in fiscal year 2008 appropriations for the U.S. Army Corps of Engineers General Investigations account.

This critical program provides technical, planning and design assistance to local partners in one of the Nation's most treasured estuaries. Partnership collaboration and outreach guarantees that the program provides the services needed by local entities to improve habitat and flood protection throughout the watershed. By working with local entities, long-term water resources protection and restoration has increased.

The support of the program would facilitate technical and planning assistance that will expand wetland habitat for numerous endangered species, migratory waterfowl and shorebirds, andramodous fish and other aquatic species. The project will also improve open space and recreation opportunities as well as resolve the following; issues surrounding levees on the Sears Point project, channel restoration on Gallinas Creek, water quality issues on the Black Point Antenna Field site as well as conduct environmental restoration and flood protection surveys on Wildcat Creek.

We thank you for your consideration of these requests and look forward to working with you on these and other matters throughout the year.

PREPARED STATEMENT OF THE AMERICAN CHEMICAL SOCIETY

The American Chemical Society (ACS) would like to thank Chairman Byron Dorgan and Ranking Member Peter Domenici for the opportunity to submit testimony for the record on the Energy and Water Development Appropriations bill for fiscal year 2008. For fiscal year 2008, ACS requests the Department of Energy Office of Science be fully funded at the administration request of $4.398 billion.

ACS is a non-profit scientific and educational organization, chartered by Congress, representing more than 160,000 individual chemical scientists and engineers. The world's largest scientific society, ACS advances the chemical enterprise, increases public understanding of chemistry, and brings its expertise to bear on State and national matters.

As Congress and the administration seek to bolster the economy, economists agree that investments in basic research boost long-term economic growth more than other areas of Federal spending. Numerous recent reports cite the growing challenges American faces from global competitors, including the National Academies of Science report Rising Above the Gathering Storm.

Basic physical science investments foster the new technologies and train the scientific workforce which drive the Nation's public health, defense, energy security, and environmental progress. Although industry funds the bulk of national R&D, the Federal Government provides 60 percent of basic research funding and, remarkably, 40 percent of patents cite Federal research as their source. Yet Federal research in the physical sciences and engineering has been cut in half since 1970 as a percentage of GDP. Fortunately, the President, top congressional leaders, and members of science and industry have all recognized the need to boost investment in physical sciences and engineering research. This investment has never been more important given its central role in advancing the Nation's economic, energy, and homeland security.

ACS Budget Recommendations

Current Federal efforts to advance energy efficiency, production, and new energy sources while reducing air pollution and other environmental impacts will demand increased investment in long-term energy research. By supporting people, research, and world-class science and engineering facilities, the Department of Energy's Office of Science expands the frontiers of science in areas critical to DOE's energy, environment, and national security missions.

The President's budget request represents leadership to ensure American competitiveness and innovation by providing the largest investment in DOE Office of Science in over 2 decades. Many in Congress have joined with the President in calling for expanded investment in basic physical science research. The President's request for $4.398 billion is essential to ensuring the strength of our innovation economy.

Increases in the Office of Science will help reverse the declining Federal support for physical science and encourage more students to pursue degrees in these fields. The Office of Science is the largest Federal supporter of research in the physical sciences, funding almost 40 percent of research in these fields. The Office of Science fosters the new discoveries and technical talent that will continue to be essential to advances in coal, hydrogen, biomass, genomics, and many other technology areas. Additional funds should be directed to increase the number of grants, especially in core energy programs, and to improve research facilities. The Office is the primary source of Federal support in many research areas essential to our energy security and economy, such as catalysis, carbon cycle research, photovoltaics, combustion, and advanced computing. Increased investment is also important given the declining private support for long-term energy research.

Increase Grants in Core Programs

ACS recommends that increases for the Office of Science be directed to advancing core energy research across disciplines, which enables DOE to respond rapidly to new challenges. For example, DOE capitalized on long-term atmospheric chemistry research, particularly in aerosols, and quickly developed a single anthrax-bacterium detector. DOE must strengthen its ability to attract scientists and train the next generation of scientists and engineers by increasing the number of grants in its core programs without reducing their size and duration. Current appropriations allow the DOE Office of Science to fund one third the proposals as the National Institutes of Health and the National Science Foundation. This rate is considerably lower than those of other agencies and amounts to lost opportunities for both significant discoveries and the education of the next generation of scientists and engineers.

Within the Office of Science, ACS particularly supports the Basic Energy Sciences and Biological and Environmental Research programs. As the cornerstone of the Office, the Basic Energy Sciences (BES) program supports an array of long-term basic research to improve energy production and use and reduce the environmental impact of those activities. The BES program manages almost all of DOE's scientific user-facilities, and provides leading support for nanotechnology and advanced computing research—two priority research areas that will have important implications for energy efficiency and security. The Biological and Environmental Research (BER) program advances fundamental understanding in fields such as waste processing, bioremediation, and atmospheric chemistry to better understand potential long-term health and environmental effects of energy production and use and identify opportunities to prevent pollution. Progress in these fields is also needed to develop and advance new, effective, and efficient processes for the remediation and

restoration of DOE weapons production sites. ACS supports a strong role for DOE in Federal efforts to advance pollution prevention and climate change research.

DOE and the Scientific Workforce

As the largest supporter of research in the physical sciences, DOE can greatly affect the training and number of scientists in industry, government and academia. Inadequate investment in any research field constricts the supply of trained scientists and engineers who apply research and develop new technology. For instance, declining support for nuclear science and engineering will greatly affect the nuclear sector as a majority of today's nuclear scientists and engineers near retirement. Another example is the synergistic relationship between the need for radiochemists and NIH's ability to conduct clinical trials. Advances in diagnosis and treatment in nuclear medicine are dependent on the synthesis of highly specific radiopharmaceuticals that target biological processes in normal and diseased tissues. The Office of Science, through BER supported research, occupies a critical place in the field of radiopharmaceutical research. The NIH relies on the Office of Science's basic research to enable clinical trials.

Another way for DOE to help attract students and retain talented scientists and engineers is to renew investments in scientific infrastructure. The Office of Science operates one of the most extensive and remarkable collection of scientific user facilities in the world, providing tools for research for more than 25,000 scientists funded by DOE, other Federal agencies, and industry. Many facilities are in poor condition or have outmoded instrumentation. Additional funding would allow for increased operating time, upgrades, instrumentation, and technical support. The proposed cuts could result in established facilities lying idle, allowing taxpayer investments to go unused.

National laboratories also play an important role in providing research and training opportunities to enhance the university curriculum. ACS supports the initial plan by DOE to utilize its national laboratories to help mentor and train science teachers. Students at all levels clearly learn better when their teachers have a deep understanding of the subject, and the first-rate multidisciplinary research and scientific professionals at the national laboratories certainly could be a rich resource for science and math teachers. ACS urges stronger coordination among agencies with significant K–12 math and science programs in order to maximize the Federal investment in this area.

ACS praises the work of Department of Energy leadership, and particularly Office of Science Director Ray Orbach, to establish a vision of America's scientific future with the 20 year facilities plan and a forward thinking departmental strategic plan. ACS views these documents, along with the Secretary of Energy's Advisory Board report "Critical Choices: Science, Energy, and Security" as key elements of America's research and development portfolio. Growth in DOE Science funding is essential to realizing the goals in these documents, and ACS urges Congress to act to ensure this vision of a technologically advanced and safe America comes to fruition.

PREPARED STATEMENT OF THE NAPA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

On behalf of the Napa County Flood Control and Water Conservation District (District), I want to thank the subcommittee for this opportunity to present our priorities for fiscal year 2008 and, at the same time, express our appreciation for your support of the District's projects in the years past. The District is the local sponsor for the Corps of Engineers award-winning Napa River Flood Control project and we are requesting the subcommittee's full support of this project to ensure that it stays on schedule. Specifically, we request the subcommittee to support our request of $19 million from the Army Corps of Engineers Construction General account for the Napa River Flood Control Project. We are also seeking $3.615 million for the maintenance dredging of the Napa River from the Army Corps of Engineers (Operation and Maintenance, General account). The following text outlines these projects and the need for the requested funding.

NAPA RIVER FLOOD CONTROL PROJECT

Background

In the last 50 years, 19 floods have struck the Valley region, exacting a heavy toll in loss of life and property.

The most recent flooding event, the New Years flood of 2006, to hit our area is estimated to have caused some $70 million in damage within the city of Napa—with

the vast majority of that damage in areas that will be protected by the Project that is currently under construction.

The flood in 1986 killed three people and caused more than $100 million in damage in 1986 dollars. Damages throughout Napa County totaled about $85 million from the January and March 1995 floods. The floods resulted in 27 businesses and 843 residences damaged countywide. Almost all of the damages from the 1986, 1995, and 1997 floods were within the Project area.

Congress had authorized a flood control project in 1965, but due to expense, lack of public consensus on the design and concern about environment impacts, a project had never been realized. In mid-1995, Federal and State resource agencies reviewed the plan and gave notice to the Corps that this plan had significant regulatory hurdles to face.

The project is located in the city and county of Napa, California. The population in the city of Napa, approximately, 67,000 in 1994, is expected to exceed 77,000 this year. Excluding public facilities, the present value of damageable property within the project flood plain is well over $500 million. The Napa River Basin, comprising 426 square miles, ranging from tidal marshes to mountainous terrain, is subject to severe winter storms and frequent flooding. In the lower reaches of the river, flood conditions are aggravated by local runoff. Floods in the Napa area have occurred in 1955, 1958, 1963, 1965, 1986 (flood of record), 1995, 1997 and 2005. In 1998, the river rose just above flood stage on three occasions, but subsided before major property damage occurred. In December of 2002, flooding occurred from the Napa Creek at the transition to the Napa River, resulting in damage to numerous residents and several businesses.

Approved Plan—Project Overview

In an effort to identify a meaningful and successful plan, a new approach emerged that looked at flood control from a broader, more comprehensive perspective. Citizens for Napa River Flood Management was formed, bringing together a diverse group of local engineers, architects, aquatic ecologists, business and agricultural leaders, environmentalists, government officials, homeowners and renters and numerous community organizations.

Through a series of public meetings and intensive debate over every aspect of Napa's flooding problems, the Citizens for Napa River Flood Management crafted a flood management plan offering a range of benefits for the entire Napa region. The Corps of Engineers served as a partner and a resource for the group, helping to evaluate their approach to flood management. The final plan produced by the Citizens for Napa River Flood Management was successfully evaluated through the research, experience and state-of-the-art simulation tools developed by the Corps and numerous international experts in the field of hydrology and other related disciplines. The success of this collaboration serves as a model for the Nation.

Acknowledging the river's natural state, the project utilizes a set of living river strategies that minimize the disruption and alteration of the river habitat, and maximizes the opportunities for environmental restoration and enhancement throughout the watershed.

The Corps has developed the revised plan, which provides 100-year protection, with the assistance of the community and its consultants into the Supplemental General Design Memorandum (SGDM) and its accompanying draft Environmental Impact Statement/Environmental Impact Report (SEIS/EIR). Construction of the project began 2 years ago. The coalition plan now memorialized in the Corps final documents includes the following engineered components: lowering of old dikes, marsh plain and flood plain terraces, oxbow dry bypass, Napa Creek flood plain terrace, upstream and downstream dry culverts along Napa Creek, new dikes, levees and flood walls, bank stabilization, pump stations and detention facilities, and bridge replacements. The benefits of the plan include reducing or elimination of loss of life, property damage, cleanup costs, community disruption due to unemployment and lost business revenue, and the need for flood insurance. In fact, the project has created an economic renaissance in Napa with new investment, schools and housing coming into a livable community on a living river. As a key feature, the plan will improve water quality, create urban wetlands and enhance wildlife habitats.

The plan will protect over 7,000 people and over 3,000 residential/commercial units from the 100-year flood event on the Napa River and its main tributary, the Napa Creek, and the project has a positive benefit-to-cost ratio under the Corps calculation. One billion dollars in damages will be saved over the useful life of the project. The Napa County Flood Control District is meeting its local cost-sharing responsibilities for the project. A countywide sales tax, along with a number of other funding options, was approved 4 years ago by a two-thirds majority of the county's voters for the local share. Napa is California's highest repetitive loss community.

This plan is demonstrative of the disaster resistant community initiative, as well, as the sustainable development initiatives of FEMA and EPA.

NAPA RIVER DREDGING PROJECT

The Napa River navigation project was authorized by the Rivers and Harbors Acts of 1888, 1935, and 1946.

The Napa River is a shallow draft navigation channel which serves light commercial and recreational traffic. The project is normally dredged by the Corps of Engineers on a 6-year cycle, with the most recent dredging begin completed in 1998. This dredging is 2 years overdue and is causing not only impediment to commercial activity but posing major obstacles for construction of the project from the river. Maintenance dredging is required to restore depths required for existing traffic and in anticipation of the additional boat traffic resulting from replacement of Maxwell Bridge. The Napa County Flood Control and Water Conservation District is responsible for providing a suitable disposal site for the dredged material.

PREPARED STATEMENT OF THE CITY OF ST. HELENA, CALIFORNIA

City Of St. Helena

The city of St. Helena is located in the center of the wine growing Napa Valley, 65 miles north of San Francisco. The area was settled in 1834 as part of General Vallejo's land grant. The city of St. Helena was incorporated as a city on March 24, 1876 and reincorporated on May 14, 1889.

The city of St. Helena is a General Law City and operates under the Council-City Manager form of government. St. Helena is a full service city and encompasses an area of 4 square miles. The City Council is the governing body and has the power to make and enforce all laws and set policy related to municipal affairs. The official population of the city of St. Helena as of January 1, 2003, is 6,041. Because of its size and its rural nature, St. Helena has serious infrastructure, as well as, flood protection and environmental needs that far exceed its financial capabilities.

The city from its inception has served as a rural agricultural center. Over the years, with the growth and development of the wine industry, the city has become an important business and banking center for the wine industry. The city also receives many tourists as a result of the wine industry. While, the main goal of the city is to maintain a small-town atmosphere and to provide quality services to its citizens, this is becoming increasingly difficult. Regulatory, administrative and resource requirements placed on the city through the listing of threatened and endangered species under the Endangered Species Act on the Napa River, as well as significant Clean Water Act requirements require the city with a small population base to face significant financial costs.

The Napa River flows along the east boundary of the city of St. Helena in northern Napa County. The overall Napa River Watershed historically supported a dense riparian forest and significant wetland habitat. Over the last 200 years, approximately 6,500 acres of valley floor wetlands have been filled in and 45,700 acres of overall watershed have been converted to urban and agricultural uses. This degradation of natural habitats has had a significant effect on water quality, vegetation and wildlife, and aquatic resources within the Napa River Watershed.

Surface water quality of the Napa River is dependent upon time of year, runoff from York and Sulphur Creeks, and urban area discharges. During the winter months when stream flow is high, pollutants are diluted; however, sedimentation and turbidity is high as well. During the summer months when stream flow is low, pollutants are concentrated and oxygen levels are low, thereby decreasing water quality. Agricultural runoff adds pesticides, fertilizer residue, and sometimes sediment. Discharges from urban areas can include contaminated stormwater runoff and treated city wastewater. The Napa River has been placed on the Clean Water Act 303(d) list and TMDL Priority Schedule due to unacceptable levels of bacteria, sedimentation, and nutrients. It is against this backdrop that the city of St. Helena faces its biggest challenges.

St. Helena Comprehensive Flood Control Project

The project site is in the City of St. Helena in Napa County, California (County), along the Napa River and adjacent areas. Within and adjacent to this reach of the River, the city proposes various flood control components, ranging from widening the floodplain and constructing new floodwalls and levee, to relocating homes. An additional component includes flood protection at the Wastewater Treatment Plant (WWTP) south of the city.

With this project, the city of St. Helena seeks to develop and implement a plan that will reduce damage resulting from Napa River flooding in a manner that is economically feasible, acceptable from a public policy standpoint, and environmentally sensitive. In particular, the city wishes to reduce flooding in a manner that will result in overall improvement to the health of the ecosystem in the project reach.

The project will re-connect the Napa River to its historic floodplain, thereby reducing water surface elevations through the area by several feet, avoiding large flood control structures and canalization, and would provide 100-year flood protection to the area. It will also restore habitat of the natural floodplain terraces, including riparian and aquatic habitat. Within and adjacent to this reach of the river, the city proposes various flood control components, ranging from widening the floodplain and constructing new floodwalls and levee, to relocating homes. The St. Helena Comprehensive Project will also restore native plant and tree communities through re-vegetation efforts.

The city of St. Helena respectfully requests the committee's support for $450,000 under the Corps of Engineers General Investigations Account.

Upper York Creek Dam Removal And Restoration Project

The Upper York Creek Watershed originates at the western side of the Napa Valley watershed and the creek flows through a narrow canyon before joining the Napa River at a 225 foot elevation.

This project will improve fish passage and ecological stream function for the York Creek, a key Napa River Tributary. The project will open an additional 2 miles of steelhead habitat upstream from the current dam location by removing an earthen dam and accumulated sediment necessary to restore fish passage to provide unimpeded upstream adult and downstream juvenile fish passage.

Revegetation, as part of the project, will restore a self-sustaining native plant community that will help exclude non-native invasive species.

The city of St. Helena respectfully requests the committee's support for $1.371 million under the Corps of Engineers section 206 Aquatic Ecosystem Restoration Program to design and initiate construction under a design build contract in fiscal year 2008.

St. Helena Napa River Restoration Project

The Napa River and its riparian corridor are considered Critical Habitat for steelhead and salmon recovery. The steelhead is one of six federally-listed threatened and endangered species within the Napa River and its adjoining tributaries which requires attention. Current conditions are such that natural habitats and geomorphic processes of the Napa River are highly confined with sediment transport and geomorphic work occurring in a limited area of the streambed and channel banks. Napa River's habitat for the steelhead is limited in its ability to provide prime spawning habitat. Limitations include urbanization removing significant amounts of shading and cover vegetation within and adjacent to the river; and a detrimental lack of pool habitat.

In an effort to address these Federal environmental issues, the St. Helena Napa River Restoration Project, a section 06 Aquatic Ecosystem Restoration Project, was identified in the Napa Valley Watershed Management Feasibility Study of April 2001 as a specific opportunity for restoration.

This project will develop riparian planting regimes to maximize habitat values for species, in particular, steelhead, California freshwater shrimp and young salmon.

This project will address the lack of shading and cover vegetation along the river which has impaired the river's ability to serve as a critical habitat for many different species of fish and wildlife. It is necessary to ensure and improve the viability of Federal and State listed species by providing rearing, resident and migratory habitat in the project's three-mile stream corridor. The project will also work to improve area habitat to benefit the migration of steelhead to high value fisheries habitat in upper watershed channel reaches.

The city of St. Helena respectfully requests $300,000 in fiscal year 2008 funding from the Corps of Engineers section 206 Aquatic Ecosystem Restoration Program to complete the feasibility study. This study will recommend actions not only for maximizing habitat for species by removing obstacles and hard bank stabilization, but to implement improvements to in-stream habitat such as woody debris, boulders and establishment of pools.

PREPARED STATEMENT OF THE METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

On behalf of the Metropolitan Water Reclamation District of Greater Chicago (District), I want to thank the subcommittee for this opportunity to present our priority for fiscal year 2008 and, at the same time, express our appreciation for your support of the District's projects in the years past. The District is the local sponsor for the Corps of Engineers priority projects of the Chicagoland Underflow Plan: the O'Hare, McCook and Thornton Reservoirs. We are requesting the subcommittee's full support for McCook and Thornton Reservoirs, as the O'Hare Reservoir has been completed. Specifically, we request the subcommittee to support the President's fiscal year 2008 budget request of $33,500,000 from the Army Corps of Engineers Construction, General account in the fiscal year 2008 Energy and Water appropriations bill. The following text outlines these projects and the need for the requested funding.

The Chicagoland Underflow Plan

The Chicagoland Underflow Plan (CUP) consists of three reservoirs: the O'Hare, McCook and Thornton Reservoirs. These reservoirs are a part of the Tunnel and Reservoir Plan (TARP). The O' Hare Reservoir Project was fully authorized for construction in the Water Resources Development Act of 1986 (Public Law 99–662) and completed by the Corps in fiscal year 1999. This reservoir is connected to the existing O'Hare segment of the TARP. Adopted in 1972, TARP was the result of a multi-agency effort, which included officials of the State of Illinois, County of Cook, city of Chicago, and the District.

TARP was designed to address the overwhelming water pollution and flooding problems of the Chicagoland combined sewer areas. These problems stem from the fact that the capacity of the area's waterways has been overburdened over the years and has become woefully inadequate in both hydraulic and assimilative capacities. These waterways are no longer able to carry away the combined sewer overflow (CSO) discharges nor are they able to assimilate the pollution associated with these discharges. Severe basement flooding and polluted waterways (including Lake Michigan, which is the source of drinking water for millions of people) is the inevitable result. We point with pride to the fact that TARP was found to be the most cost-effective and socially and environmentally acceptable way for reducing these flooding and water pollution problems. Experience to date has reinforced such findings with respect to economics and efficiency.

The TARP plan calls for the construction of the new "underground rivers" beneath the area's waterways, connected to large CSO storage reservoirs. The "underground rivers" are tunnels up to 35 feet in diameter and 350 feet below the surface. All 109.4 miles of the tunnels have just recently been completed. The tunnels capture the majority of the pollution load by capturing all of the small storms and the first flush of the large storms.

The completed O'Hare CUP Reservoir provides 350 million gallons of storage. This Reservoir has a service area of 11.2 square miles and provides flood relief to 21,535 homes in Arlington Heights, Des Plaines and Mount Prospect. The Thornton and McCook Reservoirs are currently under construction, but until and unless they are completed, significant areas will remain unprotected. Without these reservoirs as outlets, the local drainage has nowhere to go when large storms hit the area.

Since its inception, TARP has not only abated flooding and pollution in the Chicagoland area, but has helped to preserve the integrity of Lake Michigan. In the years prior to TARP, a major storm in the area would cause local sewers and interceptors to surcharge resulting in CSO spills into the Chicagoland waterways and during major storms into Lake Michigan, the source of drinking water for the region. Since these waterways have a limited capacity, major storms have caused them to reach dangerously high levels resulting in massive sewer backups into basements and causing multi-million dollar damage to property.

Since implementation of TARP, 823 billion gallons of CSOs have been captured by TARP, that otherwise would have reached waterways. Area waterways are once again abundant with many species of aquatic life and the riverfront has been reclaimed as a natural resource for recreation and development. Closure of Lake Michigan beaches due to pollution has become a rarity. After the completion of both phases of TARP, 99 percent of the CSO pollution will be eliminated. The elimination of CSOs will reduce the quantity of discretionary dilution water needed to keep the area waterways fresh. This water can be used instead for increasing the drinking water allocation for communities in Cook, Lake, Will and DuPage counties that are now on a waiting list to receive such water. Already, these counties have received millions of gallons of additional Lake Michigan water per day, partially as a result

of the reduction in the District's discretionary diversion since 1980. Additional allotments of Lake Michigan water will be made to these communities, as more water becomes available from reduced discretionary diversion.

With new allocations of lake water, many communities that previously did not get lake water are in the process of building, or have already built, water mains to accommodate their new source of drinking water. The new source of drinking water will be a substitute for the poorer quality well water previously used by these communities. Partly due to TARP, it is estimated by IDOT that between 1981 and 2020, 283 million gallons per day of Lake Michigan water would be added to domestic consumption. This translates into approximately 2 million additional people that would be able to enjoy Lake Michigan water. This new source of water supply will not only benefit its immediate receivers but will also result in an economic stimulus to the entire Chicagoland area by providing a reliable source of good quality water supply.

The McCook and Thornton Reservoirs

The McCook and Thornton Reservoirs of the Chicagoland Underflow Plan (CUP) were fully authorized for construction in the Water Resources Development Act of 1988 (Public Law 100–676). These CUP reservoirs, as previously discussed, are a part of TARP, a flood protection plan that is designed to reduce basement flooding due to combined sewer back-ups and inadequate hydraulic capacity of the urban waterways.

These reservoirs will provide annual benefits of $115 million. The total expected annual benefits of these projects are approximately twice as much as their total annual costs. The District, as the local sponsor, has acquired the land necessary for these projects, and will meet its cost sharing obligations under Public Law 99–662.

These projects are a very sound investment with a high rate of return. The remaining benefit/cost ratio for these 2 reservoirs together is 3.0. They will enhance the quality of life, safety and the peace of mind of the residents of this region. The State of Illinois has endorsed these projects and has urged their implementation. In professional circles, these projects are hailed for their farsightedness, innovation, and benefits.

Based on two successive Presidentially-declared flood disasters in our area in 1986 and again in 1987, and severe flooding in the last several years, we believe the probability of this type of flood emergency occurring before implementation of the critical flood prevention measure is quite high. As the public agency for the greater Chicagoland area responsible for water pollution control, and as our past sponsorship for flood control projects, we have an obligation to protect the health and safety of our citizens. We are asking your support in helping us achieve this necessary and important goal of construction completion.

We have been very pleased that over the years the subcommittee has seen fit to include critical levels of funds for these important projects. It is important that we receive a total of $33,500,000 in construction funds in fiscal year 2008 to maintain the commitment and finish these projects. This funding is critical in order to construct the McCook Reservoir Stage 1 Grout Curtain, Stage 2 Slurry Wall, and Stage 1 Rock Wall Stabilization Contracts and to continue the engineering design of other McCook and Thornton Reservoir projects. The community has waited long enough for protection and we need these funds now to move the project in construction. We respectfully request your consideration of our request.

Summary

To emphasize the areas plight, I would like to relate a flooding event that occurred when just under 4 inches of rain fell on the greater Chicagoland area. Due to the frozen ground, almost all of the rainfall entered our combined sewers, causing sewerage back-ups throughout the area. When the existing TARP tunnels filled with approximately 1.2 billion gallons of sewage and runoff, the only remaining outlets for the sewers were our waterways. Between 9:00 p.m. and 3:00 a.m., the Chicago and Calumet Rivers rose 6 feet. For the first time since 1981 we had to open the locks at all three of the waterway control points; these include Wilmette, downtown Chicago, and Calumet. Approximately 4.2 billion gallons of combined sewage and stormwater had to be released directly into Lake Michigan.

Given our large regional jurisdiction and the severity and regularity of flooding in our area, the Corps was compelled to develop a plan that would complete the uniqueness of TARP and be large enough to accommodate the area we serve. With a combined sewer area of 375 square miles, consisting of the city of Chicago and 51 contiguous suburbs, there are 1,443,000 structures within our jurisdiction, which are subject to flooding at any given time. The annual damages sustained exceed $150 million. With the TARP CUP Reservoirs in place, these damages could be eliminated. We must consider the safety and peace of mind of the 2 million people

who are affected as well as the disaster relief funds that will be saved when these projects are in place. As the public agency in the greater Chicagoland area responsible for water pollution control, and as the regional sponsor for flood control, we have an obligation to protect the health and safety of our citizens. We are asking your support in helping us achieve this necessary and important goal. It is absolutely critical that the Corps' work, which has been proceeding for a number of years, now proceeds on schedule through construction.

Therefore, we urgently request that a total of $33,500,000 in construction funds be made available in the fiscal year 2008 Energy and Water Development Appropriations Act to continue construction of the McCook and Thornton Reservoir Projects.

Again, we thank the subcommittee for its support of this important project over the years, and we thank you in advance for your consideration of our request this year.

PREPARED STATEMENT OF THE WESTERN COALITION OF ARID STATES (WESTCAS)

My name is Larry Libeu, and I am President of the Western Coalition of Arid States. The Western Coalition of Arid States (WESTCAS) is submitting this testimony regarding the Presidents fiscal year 2008 budget request for the United States Army Corp of Engineers.

WESTCAS is a coalition of approximately 125 water and wastewater districts, cities and towns and professional organizations focused on water quality and water quantity issues in the States of Arizona, California, Colorado, Idaho, Nevada, New Mexico, Oregon and Texas. Our mission is to work with Federal, State and regional water quality and quantity agencies to promote scientifically-sound law, regulations, appropriations and policies that protect public health in the environment of the arid West.

Providing adequate budget for the Army Corps of Engineers is crucial for the immediate and long term delivery of adequate water supplies, hydropower, flood control, and flood and coastal restoration within the arid west. As such WESTCAS supports the performance criteria established which will ensure projects are funded and completed within a timely fashion. We also believe the issue of reprogramming of funds out of projects needs to be addressed in a more thorough manner and have welcomed your interest in this area of the Corps program.

We are greatly concerned that the Corps Construction budget is down 38 percent, the General Investigations are down 45 percent and the O&M budget is ever increasing. The Corps infrastructure is one of the foundations of our Nation's economy—and the infrastructure is aging. When we look at the number of projects funded by Congress last year, it appears the Corps is only submitting a budget that funds one-quarter of that work. This is not a solution for success but a path way to cataclysmic failure which could have devastating consequences to the economy.

The Army Corps of Engineers provides funding and oversight for many projects within the WESTCAS States including but not limited to the following:

Alamogordo, New Mexico	$4,200,000
National Dam Safety Program	10,000,000
Oakland Harbor, California	42,000,000
Sacramento River Bank Protection, CA	21,528,000
Success Dam, Tule River, California	18,000,000
Sims Bayou, Houston, Texas	24,154,000

As such, the Corps is a critical partner for WESTCAS organizations to provide quality water services both today and tomorrow. We look with interest in seeing the 5-year budget development plan that will be provided to Congress in the near future. This will provide a level of greater transparency and ability for the stakeholders of the Corps to better understand future budgetary trends.

To that end, we believe it is important for the committee to provide greater direction for the Corps to undertake an integrated water management and watershed approach that will assist in focusing on the needs of today and with projecting future needs. What we have witnessed over the years of looking at agencies budgets is the lack of intergovernmental cooperation and cooperative planning. The planning should be taking place with the States and the interested parties at the watershed level. We believe there is widespread support for such approaches throughout the West.

We note a slight increase in the Corps Regulatory program, a program to protect wetlands and other waters of the United States. Permits, and the ability to get

timely consideration of such is an important element for our agencies. We are interested in seeing greater detail with regard to the Corps request in this area since they indicate the funding is needed because of the Supreme Court's Carabell and Rapanos decisions. These cases hold the potential for greater resource allocations on our members' part and believe this request needs careful attention.

Though not in your jurisdiction, we look with interest on the current Water Resources Development Act authorization effort because of the consequences to future budgets of the agency. Reform is a good idea if it is not used as a tool for delay. With the Corps having over a $50 billion backlog of projects it is important to recognize the need to fund this budget at a level that meets the needs in a timely manner and keeps the economy strong and protects the public.

Thank you for considering our request.

DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

PREPARED STATEMENT OF THE NEW MEXICO INTERSTATE STREAM COMMISSION

COLORADO RIVER BASIN SALINITY CONTROL PROGRAM, TITLE II, BUREAU OF RECLAMATION

SUMMARY

This statement is submitted in support of fiscal year 2008 appropriations for the Colorado River Basin salinity control program of the Department of the Interior's Bureau of Reclamation. Congress designated the Bureau of 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 the Bureau of Reclamation's role by passage of Public Law 104–20. A total of $17.5 million is requested for fiscal year 2008 to implement the authorized Colorado River salinity control program of the Bureau of Reclamation. The President's appropriation request of $7.85 million, falling again below previous appropriations for the program, is inadequate because studies have shown that the implementation of the salinity control program has fallen behind the pace needed to control damages from salinity. An appropriation of $17.5 million for Reclamation's salinity control program is necessary to protect water quality standards for salinity and to prevent unnecessary levels of economic damage from increased salinity levels 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 EPA. While currently the standards have not been exceeded, salinity control projects must be brought on-line in a timely and cost-effective manner to prevent future effects that could cause the numeric criteria to be exceeded, and would result in unnecessary damages from higher levels of salinity in the water delivered to 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, 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 United States water users are about $330,000,000 per year. Unquantified damages are significantly greater. Damages are estimated at $75,000,000 per year for every additional increase of 30 milligrams per liter in salinity of the Colorado River. Control 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. An appropriation of only the amount specified in the President's budget request is inadequate to protect the quality of water in the Colorado River and prevent unnecessary salinity damages in the States of 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. Thus, 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 the Bureau of Reclamation's advertisement have far exceeded available funding. Basin States cost sharing funds are available for the $17.5 million appropriation request for fiscal year 2008. The Basin States cost sharing adds $0.43 for each Federal $1 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 parts, on-farm and off-farm, and EQIP funding appears to be adequate to accomplish needed on-farm work. Adequate funding for Reclamation off-farm work is needed to maintain timely implementation and effectiveness of salinity control measures.

Maintenance and operation of the Bureau 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 are critical while the Basin States continue to develop and use their compact-apportioned waters of the Colorado River. The water quality standards for salinity and the United States water quality requirements pursuant to treaty obligations with Mexico 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 has been lacking in the recent past, and 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 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, 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 federally chartered Colorado River Basin Salinity Control Advisory Council.

PREPARED STATEMENT OF THE JICARILLA APACHE NATION

INTRODUCTION

On behalf of the Jicarilla Apache Nation in New Mexico, I am pleased to submit this statement regarding the fiscal year 2008 proposed budget for the Bureau of

Reclamation, Department of the Interior. The Jicarilla Apache Nation ("nation") is a federally recognized Indian Tribe, and our Reservation is located in Northern New Mexico. We have over 3,500 members and 85 percent of the population lives on our Reservation in the town of Dulce, which serves as our tribal headquarters. For the last 8 years we have been working with the Federal Government to deal with a severe problem that has been plaguing us—the failing public drinking water and wastewater systems on our Reservation.

As more described below, the Nation has worked tirelessly to take corrective action to address this public health crisis by committing significant funds and resources, and by successfully working with Congress to authorize a project to replace this dilapidated infrastructure. The nation has done everything possible to implement the statutory directive placed on the Secretary of the Interior to comply with the law and construct our project. Unfortunately, since Congress authorized the project which President Bush signed into law in December 2002, the Bush administration has repeatedly failed to include funding in its annual budget to Congress to develop and construct our project. Notably, ours is the only project Congress has authorized which is fully encompassed in an Indian reservation and which has 100 percent Indian project beneficiaries. We also understand our project is the only one that acknowledges and mandates corrective action for the Federal Government's liability in establishing and creating a deficient and unsafe public drinking water system serving an Indian reservation population.

The nation respectfully calls upon this committee to provide funding in fiscal year 2008 for our project and see that the administration is accountable for constructing it, as set forth in our project's authorizing statute.

BACKGROUND

The problem with the condition of the current public water system and waste water infrastructure on the Jicarilla Apache Reservation stems from generations of neglect by the Bureau of Indian Affairs (BIA), which, as creator, owner and operator of the system, did not properly design, plan for, manage, repair and upgrade portions of the system over the last 90 years. The system diverts water from the Navajo River—a pristine water source, and its initial structures served the original BIA facilities on the Reservation. As the community of Dulce became the center of activity, members began moving there from other areas of the Reservation. In response to the growth, the BIA expanded the water line to allow members to access the water from common areas. As the area grew with housing and other facilities, water lines were extended, on an ad hoc basis, with no planning or recording. By the 1990's the community's system had every type of water piping, including clay, asbestos lined, other metals, as even some wood piping has been unearthed.

In October 1998, the system collapsed at the river and left the nation without water for 6 days. The home of one of our elders burned down, with no water to put out the fire. The National Guard brought in bottled water and portable restrooms. The nation funded emergency efforts to restore water delivery, and received no funding from the BIA.

The BIA's neglect and failure to manage and maintain its public water system serving our people has caused many dire health threats and circumstances including degraded water quality in the lines, obsolete and non-compliant sewage lagoon ponds which were operating without properly permits because the ponds did not meet the Federal standards, pollution from unlined sewage ponds spilling into the community and into nearby arroyo which fed back into the Navajo River towards downstream users. The most disturbing circumstance, however, is that a large number of tribal members are experiencing serious intestinal and other internal diseases, more community members have been diagnosed and are dying from stomach and other forms of cancer. We suspect this can be attributed to unsafe drinking water.

STATUTORY PROJECT AUTHORIZATION

A combination of the water outage and the dire health related circumstances led the nation's leaders to go to Washington, DC to request assistance to repair the Federal Government's broken system. Our first step was to approach the BIA in Washington. They told us they had no funds to address the problem. The nation sought help from other Federal agencies, who were sympathetic but generally unable to assist because the BIA owned and operated the system. They also informed us that the enormity of the problems with the system required a significant investment of resources that they would not be able to accommodate.

We then turned to our delegation from New Mexico for help. Working with them, the nation pursued the legislative route to authorize a project specifically to repair

the system. The idea was not to turn to the BIA, which was not equipped to deal with a major water system infrastructure improvement project, either as a technical or funding matter. Based on our location in the Southwest and the work of the Bureau of Reclamation (BOR) working on significant projects in the region, we decided to work toward authorizing a project through the BOR. In 2000, Congress passed a bill which directed the Department of the Interior, through the BOR, to do a feasibility study on upgrading the system. See Public Law 106–243. The nation worked directly with the agency on the study which was completed in September of 2002.

The study determined that $45 million would be needed to replace the existing water delivery and wastewater infrastructure. The report acknowledged the nation's efforts in taking on $15 million of debt to improve portions of the system including: replacement of the diversion structures and pipeline at the river and up to the water treatment plant; building a new water treatment plant and expanding its capacity; repairing and replacing old water towers; replacement of infrastructure on the expansion Mundo Ranch property.

Based on this completed report, in 2001, our delegation introduced legislation to direct the Secretary of the Interior to repair and replace the infrastructure based on the recommendations in the feasibility report; the legislation also authorized the Department to expend funding to undertake this project. During this timeframe, with Senator Domenici's leadership, Congress appropriated $2.5 million in the fiscal year 2002 Energy and Water Development bill for the project's planning, design and other work needed to prepare for initiation of the project's construction.

On December 13, 2002, President Bush signed into law Public Law 107–331, which includes as Title VIII our legislation, the Jicarilla Apache Reservation Rural Water System Act, which directs the Secretary of the Interior to proceed with a project to replace the defunct infrastructure, as outlined and recommended in the feasibility report, and which authorizes the appropriations of funds ($45 million) for our project.

INADEQUATE FEDERAL FUNDING AND FAILURE TO IMPLEMENT THE LAW

Since the law's enactment, the nation has made repeated efforts to secure funding for the development of our project through the Bureau of Reclamation's account in the Energy and Water Development Appropriations bill and through the Executive budget process. In spite of our efforts, we were unable to secure funding in the fiscal year 2003 through fiscal year 2005 appropriations cycles. Finally, in fiscal year 2006, Congress provided $250,000 for our project in the Energy and Water Development Appropriations bill. Last year, the House bill provided $500,000 for our project, but since Congress did not complete this and other appropriations bills, it remains unclear whether we will receive any funding this year.

Our efforts have been further stymied by the Bush administration's failure to include any funds for our project in its annual budget submission to Congress. We have visited with the Office of Management and Budget, the Assistant Secretary for Water and Science and the BOR Commissioner urging them to implement the law and take action to help us address this serious pubic health crisis. Unfortunately, we have been told that the Bush administration is not willing to provide funding in its budget for "new starts" for water construction projects, and we were further informed by OMB that under their philosophy, local governments should bear the burden for public water system. Contrary to these "views", the law requires the Secretary to act, and the system at issue was federally owned and operated and its defunct condition was caused exclusively by Federal neglect so the nation should not be left with the burden of the Federal Government's liability. On top of these considerations, the United States has a trust responsibility to the nation, our citizens and our trust resources. These are all compelling reasons to include funding for this project in the budget process, and the administration must act to meet its obligations.

With respect to section 104 of Public Law 109–451, we believe the committee should provide the Department with additional direction to make sure our project is funded on an expeditious and emergency basis. We have waited far too long and our people have suffered enormously while the administration refuses to address this on-going and shameful situation on our Reservation, which was created by the Federal Government itself.

In fact, this new law explicitly recognizes that such factors as the "urgent and compelling need" for a rural water supply projects that are necessary to "improve the health" and/or "meet applicable requirements established by law" are factors for assessing the priority of such projects. Both of these factors apply to this project.

On a regional level, the nation has been a good neighbor and steward of our resources. We have helped water users in both the Rio Grande and San Juan basins

to resolve delicate water issues. We have a proven record of managing our lands and water. All we are asking is for support to ensure that, pursuant to statutory directives, the Department meets its obligations and provides the people on the Jicarilla Apache Reservation a safe and reliable source of drinking water for the betterment of our citizens.

CONCLUSION

Since the legislation's enactment in December 2002, the nation has been forced to borrow millions of additional dollars on the project because of the urgency and crisis facing our people. The nation used tax exempt bonds to pay for the repairs and has reached its debt capacity. It is time for the Federal Government to step up to the plate and meet its statutory and moral obligations owed to the nation. We are asking for your help today! Please hold the Department of the Interior accountable for constructing our project, as directed in the 2002 statute, and for requesting the necessary funding from Congress to do so. We also respectfully ask that the committee grant the nation's fiscal year 2008 $3 million funding request for our project.

Thank you for your time and consideration of our views, concerns and requests.

PREPARED STATEMENT OF THE COLORADO RIVER BOARD OF CALIFORNIA

This testimony is in support of fiscal year 2008 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 President's requests have dropped to below $10 million. 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 Compact apportioned waters from the Colorado River. Concentrations of salts in the River cause about $330 million in quantified damage in the United States. However significant unquantified 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 requested by the administration.

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 Forum, at its meeting in October 2006, in Scottsdale, Arizona recommended a funding level of $17,500,000 for Reclamation's Basin-wide Salinity Control Program to continue implementation of needed projects and begin to reduce the "backlog" of 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 2008, 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 COLORADO RIVER BASIN SALINITY CONTROL FORUM

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 2008 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. In the judgment of the Colorado River Basin Salinity Control Forum (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 $330 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,

—increased use of imported water for leaching and the cost of desalination and brine disposal for recycled water.

For every 30 mg/l increase in salinity concentrations, there is $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 requested by the President.

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 the point of reuse.

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 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 salinity 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 2005 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 $17,500,000 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 of 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 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 SAN DIEGO COUNTY WATER AUTHORITY

Dear Chairman Dorgan: your support is needed to secure adequate funding for the Department of Interior for the Colorado River Basin Salinity Control Program (Program). To continue the essential work of the Program, the Water Authority urges funding of $17.5 million for fiscal year 2008. By statute, Congress designated the Department of Interior, Bureau of Reclamation (Reclamation) to be the lead agency for salinity control in the Colorado River Basin. The Program is carried out through the Colorado River Basin Salinity Control Act (1974) (Public Law 93–320) and the Clean Water Act.

The salinity control projects through the Program benefit water users from seven States through more efficient water management and reduced salinity concentrations in Colorado River water. The Colorado River is the primary and single most important source of drinking 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.

Notably, concentrations of salts in the Colorado River annually cause about $330 million in quantified damages in the United States. For every 30 milligrams per liter increase in salinity concentrations there are $75 million in additional damages in the United States. Locally, impacts of excess salinity in the San Diego region include, but are not limited to, the following:

—Reduced crop yields, impacting more than $1 billion of agricultural products in the San Diego region.
—Decreased 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 and a decrease in the life of the treatment facilities.
—Increased treatment to meet Federal and California wastewater discharge requirements.
—Fewer opportunities for water recycling due to excess salt in the product water, which limits usefulness for commercial and agricultural irrigation.

To date, Reclamation has been successful in implementing projects for preventing salt from entering the River system; however, many potential projects for salt reduction have been identified that could be implemented through the Program. The rate of implementation of the Program beyond that which has been funded in the past is essential, and the Water Authority urges Congress to fully fund Reclamation's continuing implementation of this critical program.

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 Environmental Quality Incentive Program through working with landowners (irrigators) to improve on-farm irrigation systems. Adequate funds from Reclamation are needed to maximize this coordinated effort and effectiveness in addressing water delivery system improvements.

The Program has proven to be a very cost-effective approach to mitigate the impacts of increased salinity in the Colorado River, which is an investment that avoids millions of dollars in economic damages caused by excess salinity. In addition, the Program assists the delivery of quality water to Mexico in accordance with Minute 242 of the 1944 Water Treaty.

The Colorado River Basin Salinity Control Forum (California and the other six Basin States) has recommended that a funding level of $17.5 million for Reclamation's Basin-wide Salinity Control Program is necessary and appropriate to continue implementation of needed projects.

The Water Authority supports the recommendation for funding and urges this subcommittee to support this level of funding for fiscal year 2008. The Water Authority appreciates your assistance in securing adequate funding for this vital water resource.

PREPARED STATEMENT OF THE MNI WICONI PROJECT

Fiscal Year 2008 Request

The Mni Wiconi Project beneficiaries respectfully request appropriations totaling $41.113 million for fiscal year 2008. The request consists of $30.909 million for construction and $10.204 million for operation and maintenance (OMR) activities) in fiscal year 2008:

[In millions of dollars]

	Fiscal Year—		
	2007 House	2008 Budget	2008 Request
Construction	22.914		30.909
OMR	9.256		10.204
Total			41.113

Construction Funds

Construction funds would be utilized as follows:

Project area	Millions
Oglala Sioux Rural Water Supply System:	
Core	$5.400
Distribution	11.085
West River/Lyman-Jones RWS	6.842
Rosebud RWS	6.482
Lower Brule RWS	

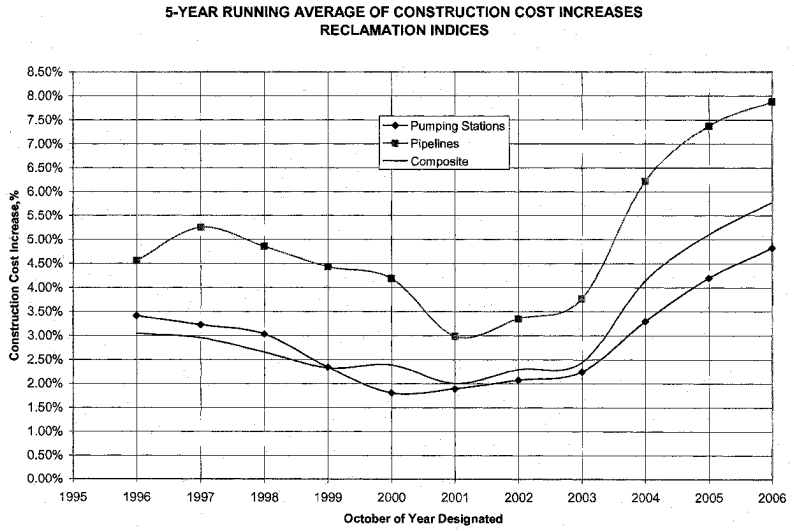
Project area	Millions
Reclamation Oversight	1.100
Total	30.909

As shown on the table below, the Project will be 73 percent complete at the end of fiscal year 2007. Construction funds remaining to be spent after fiscal year 2007 will total $119.184 million.

Amendment of the Project authorization is proposed for the first session of the 110th Congress to extend the construction completion date from fiscal year 2008 through fiscal year 2012. Additional administrative, overhead and other costs of the extension are projected at $14.635 million, bringing total remaining costs at the end of fiscal year 2007 to $133.820 million (in October 2006 dollars).

Cost indexing over the last 5 years has averaged from 4.83 percent for pumping plants to 7.88 percent for pipelines, which are the notable Project components yet to be completed (see chart below). Assuming an average 5 percent inflation in construction costs during the remaining 5 years necessary to complete the Project, average funding of $30.909 million is required to complete the Project by fiscal year 2012. Costs of extending the Project and cost indexing from fiscal year 2008 through fiscal year 2012 increase the remaining costs to $154.545 million. Therefore, the funding request for fiscal year 2008 is based on the annual average of $30.909 million necessary to complete the Project by the end of fiscal year 2012.

	Amount
Total Federal Construction Funding (Oct 2006)	$445,718,000
Estimated Federal Spent Through Fiscal Year 2007	$326,533,882
Percent Spent Through Fiscal Year 2007	73.26
Amount Remaining after 2007:	
Total Authorized (Oct 2006)	$119,184,118
Overhead Adjustment for Extension to Fiscal Year 2012	$133,819,527
Adjustment for 5 percent Annual Inflation	$154,544,690
Completion Fiscal Year (Statutory Fiscal Year 2008; Public Law 107–367)	2012
Years to Complete	5
Average Annual Required for Finish	$30,908,938



Oglala Sioux Rural Water Supply System

All of the Pine Ridge Indian Reservation, parts of the Rosebud Indian Reservation and parts of West River/Lyman-Jones remain without delivery of Missouri River

water from the Oglala Sioux Rural Water Supply System (OSRWSS) core pipeline, the central element of the Mni Wiconi Project. The OSRWSS core pipeline will supply four rural water systems, including three Indian Reservations.

The fiscal year 2008 funding level will connect Missouri River water to the central portion of the Pine Ridge Indian Reservation at Kyle where it can deliver water to OSRWSS distribution systems built previously. This will be the first opportunity to serve a significant portion of the population on the Pine Ridge Indian Reservation with Missouri River water and discontinue use of inadequate and unsafe groundwater supplies. Only 31 percent of the distribution system on the Pine Ridge Indian Reservation is complete and 69 percent remains to be completed.

OSRWSS will use $5,600,000 in fiscal year 2007 funds to begin construction of the pipeline link between the OSRWSS North core and South core. When completed, this essential pipeline will permit the delivery of water to the Pine Ridge Indian Reservation and parts of West River/Lyman-Jones by alternative pipeline routes, according to the original strategy in the Final Engineering Report.

The Oglala Sioux Tribe supports the funding request of West River/Lyman-Jones for fiscal year 2008 which focuses on building the OSRWSS North Core westerly from Hayes toward Phillip in the West River/Lyman-Jones service area. The intent is to complete the OSRWSS North Core and all other OSRWSS core facilities in fiscal year 2008. West River/Lyman-Jones is acting as the Tribe's contractor on the OSRWSS North Core.

The fiscal year 2008 funding request will complete the OSRWSS core. Earlier stages of the OSRWSS core facilities served the Lower Brule Indian Reservation, Rosebud Indian Reservation and eastern regions of West River/Lyman-Jones beginning in year 2000. Missouri River water was delivered to the northeastern corner of the Pine Ridge Indian Reservation for the first time in fiscal year 2007 but only the far northeastern corner of the Reservation was reachable. fiscal year 2008 funding of $11.085 million will permit construction of the main or "backbone" pipeline within the Reservation to Kyle and delivery of Missouri River water to distribution systems built in advance.

West River/Lyman-Jones Rural Water System

Proposed fiscal year 2008 construction for WR/LJ includes Phase 2 of the North Core and distribution pipelines from existing core pipeline to WR/LJ members between Ft. Pierre and the city of Philip. Phase 1 of the North Core was constructed in fiscal year 2006 and distribution pipelines are being extended to 200 WR/LJ members with fiscal year 2006 & fiscal year 2007 funding. Funding provided in fiscal year 2008 will complete construction of distribution pipelines that can be served by Phase 1 of the North Core and initiate construction of Phase 2.

The North Core pipeline is the permanent water source for half of the WR/LJ membership. That membership includes the cities of Wall and Philip which are presently served from wells. Construction of Phase 2 of the North Core remains a high priority because extended drought conditions in Western South Dakota threaten production from these groundwater sources. Upon completion the North Core will also provide an alternate source of water to the South Core pipeline serving the Oglala Sioux Tribe.

WR/LJ members proposed to be served in fiscal year 2008 are in desperate need of water. Recent surveys indicate that most of those members haul water for domestic use and half of them haul water for livestock. Completion of a reliable supply of water meeting Safe Drinking Water Act (SDWA) standards offers immediate relief and economic assistance to this drought affected area.

Rosebud Rural Water System (Sicangu Mni Wiconi)

The Rosebud Sioux Tribe and the Sicangu Mni Wiconi have made great strides in improving the quality of life for people connected to the Mni Wiconi Project. The progress made has not been without sacrifice and many people remain to be served. Our plans for fiscal year 2008 address both these situations.

The major initiative for the Sicangu Mni Wiconi is the completion of the Surface Water Improvements. The history of the Surface Water Improvements goes back to 1998 when the Tribe agreed to export groundwater from the Rosebud Well Field, in Southern Todd County to drought stricken Mellette County as an interim source of supply. A 12-inch pipeline was constructed from near the Well Field to the town of White River with the understanding that a second pipeline and pump stations would follow and the facilities would bring high quality surface water to Todd County.

Providing high quality groundwater to WR/LJ and their customers in Mellette County was not part of the original plan for the Sicangu Mni Wiconi. In addition, the city of Mission has come to rely on water from the Rosebud Well Field to meet

their demands during periods of peak use in the summer months. The combination of these two factors has resulted in an immense burden on the Well Field. In summer months during periods of peak demands the wells pump constantly and do not have adequate time to recover.

The easements for the parallel pipeline were obtained in 1998 and construction of the new pipeline will soon begin. However, available funds in fiscal year 2007 are not sufficient for completion and the majority of the Tribe's fiscal year 2008 request will go towards completion of the pipeline and the two pump stations required to bring the water to Todd County. These improvements will eliminate the stress to the Rosebud Well Field and provide high quality surface water from Mni Wiconi to Eastern Mellette and Todd County.

The remainder of the funding request is for service lines and connections. The availability of high quality water has allowed people to inhabit lands that were allotted to their grandparent or great grandparent. People are anxious to live on their land and new homes are "sprouting up" around the Sicangu Mni Wiconi pipelines after they are completed.

These smaller pipelines are also used to provide water to livestock. The livestock business on range lands is an economic pillar for the Rosebud Reservation. By providing water, the Mni Wiconi Project helps improve the utilization of these lands, thereby improving the situation for the livestock operator, the landowner and the reservation economy.

Mni Wiconi means "Water is Life" and we see that this is true on the Rosebud Reservation. Help us improve the quality of life for the people that are still waiting.

Lower Brule Rural Water System—Distribution

The Lower Brule Rural Water System (LBRWS) has gained the support of the other sponsors to complete its portion of the Project prior to the completion of the other portions of the Project. This agreement to complete the LBRWS first is due to the relatively small portion of the Project that the LBRWS represents as well as the ability to save $1.5 million to the Project as a whole by doing so. As a result, LBRWS will be completing its portion of the Project during 2007.

The LBRWS continues to be grateful to the other sponsors and Congress for their cooperation and support in completing the funding of the LBRWS in this manner, and especially the South Dakota delegation past and present, for their continued support of this truly needed project. It should be noted, however, that this will not end LBRWS's involvement in the Project. LBRWS will continue to work with and support the other sponsors in seeing the entire Project come to fruition.

Operation, Maintenance and Replacement Budget

The sponsors will continue to work with the Bureau of Reclamation to ensure that budgets are adequate to properly operate, maintain and replace (OMR) the core and distribution systems. The sponsors will also continue to manage OMR expenses to achieve a balance between construction and OMR. The Project has been treating and delivering more water each year from the OSRWSS Water Treatment Plant near Fort Pierre. 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 73 percent completion. The OMR budget must be adequate to keep pace with the system that is placed in operation.

The Mni Wiconi Project tribal beneficiaries (as listed below) respectfully request appropriations for OMR in fiscal year 2008 in the amount of $10,204,000:

System	Fiscal year 2008
OSRWSS Off-Reservation Core	$2,300,000
OSRWSS Distribution	2,500,000
RRWS	2,350,000
LBRWS	1,450,000
Reclamation	1,604,000
Total, Mni Wiconi	10,204,000

PREPARED STATEMENT OF THE MNI WICONI PROJECT

Senator Dorgan: We, the Mni Wiconi Project sponsors submit this letter to you in order to supplement our fiscal year 2008 Mni Wiconi Project Formal Testimony. Hopefully, this Supplemental Testimony will assist all members of the sub-

committee on Energy and Water Development to further understand the truly unique needs of the Mni Wiconi Project.

This Project covers much of the area of western South Dakota that is the Great Sioux Reservation established by the Treaty of 1868. Since the separation of the Reservation in 1889 into smaller more isolated reservations, including Pine Ridge, Rosebud and Lower Brule, relations between the Lakota population and the non-Lakota settlers on Great Sioux Reservation lands have been improving in successive generations. The Mni Wiconi Project is perhaps the most significant opportunity in more than a century to bring the diverse cultures of the two societies together for a common good. After all, "Mni Wiconi" is a Lakota phrase meaning "water is life." Much progress has been made due to the good faith and genuine efforts of both the Lakota and non-Lakota sponsors. The Project is an historic basis for renewed hope and dignity among the Lakota people. It is a basis for substantive improvement in relationships.

Each year the Mni Wiconi Project sponsor testimony addresses the fact that the project beneficiaries, particularly the three Indian Reservations, have the lowest income levels in the Nation. The health risks to our people from drinking unsafe water are compounded by reductions in health programs. We respectfully submit that our Project is unique and that no other project in the Nation has greater human needs. Poverty in our service areas is consistently deeper than elsewhere in the Nation. Health effects of water home diseases are consistently more prevalent than elsewhere in the Nation, due in part to (1) lack of adequate water in the home and (2) poor water quality where water is available. Higher incidences of impetigo, gastroenteritis, shigellosis, scabies and hepatitis-A are well documented on the Indian Reservations of the Mni Wiconi Project area. Progress has been made in reducing the occurrence of these diseases.

At the beginning of the third millennium one cannot find a region in our Nation in which social and economic conditions are as deplorable. These circumstances are summarized in Table 1.[1] Mni Wiconi builds the dignity of many, not only through improvement of drinking water, but also through direct employment and increased earnings during planning, construction, operation and maintenance and from economic enterprises supplied with Project water. We urge the subcommittee to address the need for creating jobs and improving the quality of life on the Pine Ridge, Lower Brule and Rosebud Indian Reservations of the project area.

TABLE 1.—PROFILE OF SELECTED ECONOMIC CHARACTERISTICS—2000

Indian Reservation/State	2000 population	Change from 1990 (percent)	Income		Families below poverty (percent)	Umemployment (percent)
			Per capita (dollars)	Median household (dollars)		
Pine Ridge Indian Reservation	15,521	27.07	6,143	20,569	46.3	16.9
Rosebud Indian Reservation	10,469	7.97	7,279	19,046	45.9	20.1
Lower Brule Indian Reservation	1,353	20.48	7,020	21,146	45.3	28.1
State of South Dakota	754,844	8.45	17,562	35,282	9.3	3.0
Nation	281,421,906	13.15	21,587	41,994	9.2	3.7

Employment and earnings among the Lakota people of the Project area are expected to positively impact the high costs of health-care borne by the United States and the Tribes. Our data suggest clear relationships between income levels and Federal costs for heart disease, cancer and diabetes. During the life of the Mni Wiconi Project, mortality rates among the Lakota people in the Project area for the three diseases mentioned will cost the United States and the Tribes more than $1 billion beyond the level incurred for these diseases among comparable populations in the non-Lakota community within the Project area.

While this Project alone will not raise income levels to a point where the excessive rates of heart disease, cancer and diabetes are significantly diminished, the employment and earnings stemming from the Project will, nevertheless, reduce mortality rates and costs of these diseases. Please note that between 1990 and 2000 per capita income on Pine Ridge increased from $3,591 to $6,143, and median household income increased from $11,260 to $20,569, due in large part to this Project, albeit not sufficient to bring a larger percentage of families out of poverty (Table 1).

[1] Table 1 was based on census data that understates population and poverty on the reservations and overstates income when compared with Interior sources. The purpose of Table 1 is to compare statistics from a single source between decades, namely the United States Census, but use of the data does not imply acceptance of census statistics by the Tribes.

Financial support for the Lakota membership has already been subjected to drastic cuts in funding programs through the Indian Health Service and the Bureau of Indian Affairs. This Project is a source of strong hope that helps off-set the loss of employment and income in other programs and provide for an improvement in health and welfare. Tribal leaders have seen that Welfare Reform legislation and other budget cuts nation-wide have created a crisis for tribal government because tribal members have moved back to the reservations in order to survive.

The Mni Wiconi Project Act (Public Law 100–516, as amended) provides that the United States will work with us:

—the 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 Pine Ridge, Rosebud and Lower Brule Indian Reservations . . .

Lakota support for this project from the Oglala, Rosebud and Lower Brule Sioux Tribes has not come easily because the historical experience of broken commitments to the Lakota people by the Federal Government is difficult to overcome. The argument was that there is no reason to trust the Federal Government and that the respective Sioux Tribal Governments are being used to build the non-Lakota segments of the project and the Lakota segments would linger to completion. These arguments have been overcome by better planning, an amended authorization and hard fought agreements among the parties. The subcommittee is respectfully requested to take the steps necessary to complete the critical elements of the Project proposed for fiscal year 2008.

PREPARED STATEMENT OF THE COLORADO RIVER COMMISSION OF NEVADA

As a Nevada representative of the Colorado River Basin Salinity Control Forum, the Colorado River Commission of Nevada (CRC) supports funding the fiscal year 2008 budget request for $17,500,000 for the Bureau of Reclamation's Colorado River Basin Salinity Control Program. The CRC 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 CRC 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 WESTERN COALITION OF ARID STATES (WESTCAS)

The Western Coalition of Arid States (WESTCAS) would like to submit the following statement concerning the fiscal year 2008 Budget Request for the Department of the Interior's Bureau of Reclamation. My name is Larry Libeu and I am the President of the organization.

WESTCAS is a coalition of approximately 125 water and wastewater agencies, cities and towns, and professional associated focused on water quality and quantity issues in the States of Arizona, California, Colorado, Idaho, Nevada, New Mexico, Oregon and Texas.

The Bureau's overall Budget for fiscal year 2008 is $958.4 million. The portion of the Budget that WESTCAS has interest in, the Water and Related Resources Account has $816.1 million dollars, which represents a decrease of $17,227,000 from fiscal year 2007. It is within this account that Water Reclamation/Reuse Title XVI is funded. The proposed funding level for fiscal year 2008 is $10.1 million. The Title XVI program was authorized by Public Law 102–575. This program provides a central focus for Reclamation's efforts and expertise in planning, environmental review and construction of new projects.

The Title XVI water recycling program within the BOR provides a excellent cost-share mechanism for helping to drought proof the West. Projects developed by this program allow agencies to reduce their dependence on the scarce imported supplies

from the Colorado River and other western watersheds. WESTCAS believes that increased funding for the program is needed to begin reducing the ever increasing backlog of authorized, but unfunded projects as well as assist in addressing the serious drought conditions throughout Reclamation states. We believe that funding this at least at the level of $50 million a year is necessary to clear the approximate backlog of $350 million for this program.

We have two caveats in this regard. We believe the Committee should provide directive language to the Bureau of Reclamation to convene a meeting of all of the project sponsors for authorized projects in this program, ask them to bring their construction schedules and financing information so a 5 year schedule for completion can be worked out consistent with increased levels of funding for the program. We would be pleased to lend our expertise and experience to such a meeting. We further believe, and we are just as disappointed as the Committee, that the Bureau should have already produced an overall 5 year funding program consistent with the directive in last years Committee report.

Our second caveat is for the Appropriations Committee to have a dialogue with the authorizing Committees regarding this program indicating that any new project for the Title 16 program will not be funded until after the backlog of all ready authorized projects is complete. Further, in order to receive funding, the priority should be set by those projects that are consistent with the individual State's Water Plan, and recommended and supported by that State's Governor and shall not have elements funded by other Federal agency programs. Priority shall be placed on cost effectiveness of the water and technology being developed and how the project fits into the comprehensive water plan for the area.

Another program that WESTCAS would recommend increased funding is the Colorado River Salinity Control Program, Title II. Increased agricultural use and drainage as well as continued degradation caused by natural elements such as shale and return flows from urban centers are creating an increased salinity content to the waters of the Colorado River. WESTCAS firmly believes that this element of the Bureau's budget should be funded at the $26 million level. This would represent an increase of $13 million over the proposed fiscal year 2008 budget amount.

WESTCAS supports increased funding for the CAL–FED program. The fiscal year 2008 budget indicates a decrease from prior years. WESTCAS strongly recommends that this item in the Bureau's budget be increased to $40.52 million. The current proposed budget has funding set at $31.75 million. WESTCAS would recommend the following adjustments in the BOR CAL–FED funding proposal: Los Vaqueros Storage Study, +$3.27 million, Lower San Joaquin River Fish Screen Projects, +$3.50 million, Refuge Water Supply Diversification, +$.50 million, Environmental Water Account +$3.0 million, and Administration −$1.50 million. With these adjustments the new budget amount would be $40.52 million.

WESTCAS also would recommend increased funding for the Middle Rio Grande Project to $24 million and the Lower Colorado River Operations Program to $17 million.

We would like to be able to support funding for the Bureau's Water 2025 program, but absent authorization we withhold our support at this time. We do believe greater integrated resource planning and water resource planning is need for the West. We would hope the Committee would consider using the information that is being developed by the Western States Water Council report in this area as a tool for evaluation future budget requests.

We also believe the Bureau of Reclamation should be doing more with regard to drought preparedness. The title XVI program is important in this regard, but it is not intended to be used throughout the West. Relying on an "emergency" approach to drought is not an effective way to address this issue. There are emergencies associated with drought, but better planning and an ongoing well funded program in each of the states is needed. We recommend at least $1 million per state to address this ongoing issue.

We believe that overall a $150 million increase for the Bureau's Water and Related Resources Account would be helpful in addressing the water resource needs of the West before water quality and quantity issues become a greater crisis as the infrastructure ages, the population grows and environmental needs continue to be addressed.

PREPARED STATEMENT OF THE GARRISON DIVERSION CONSERVANCY DISTRICT

Mr. Chairman, members of the committee: My name is Dave Koland; I serve as the general manager of the Garrison Diversion Conservancy District. The mission of Garrison Diversion is to provide a reliable, high quality and affordable water sup-

ply to the areas of need in North Dakota. Over 77 percent of our state residents live within the boundaries of the District. I would like to comment on the impact the President's fiscal year 2008 budget request for the Garrison Diversion Unit (GDU) has on the effort to provide reliable, high quality and affordable water supplies to the citizens of North Dakota.

The President's fiscal year 2008 budget request was pitifully inadequate in meeting the commitments the Federal Government has made to North Dakota. In return for accepting a permanent flood on 500,000 acres of prime North Dakota river valley the Federal Government promised the State and tribes that they would be compensated as the dams were built. The dams were completed over 50 years ago and still we wait for the promised compensation. At the rate of payment the President's budget proposes the Federal Government will not even be able to stay current with the indexing applied by law on their commitment to North Dakota.

The Municipal Rural & Industrial (MR&I) program was started in 1986 after the Garrison Diversion Unit (GDU) was reformulated from a million-acre irrigation project into a multipurpose project with emphasis on the development and delivery of municipal and rural water supplies. The statewide MR&I program has focused on providing grant funds for water systems that provide water service to previously unserved areas of the State. The State has followed a policy of developing a network of regional water systems throughout the State. Every rural water system that has been built in North Dakota is still operating. They are providing safe, clean water to their members, paying 100 percent of the operation and maintenance costs, reducing their debt, putting money in reserve, complying with every State and Federal regulation, and doing so with a stable, affordable rate structure.

North Dakota's Success Story

Rural water systems are being constructed using a unique blend of local expertise, state financing, rural development loans, MR&I grant funds to provide an affordable rate structure, and the expertise of the Bureau of Reclamation (BOR) to deal with design and environmental issues. The projects are successful because they are driven by a local need to solve a water quantity or quality problem. The solution to the local problem is devised by the community being affected by the problem. The early, local buy-in helps propel the project through the tortuous pre-construction stages.

The MR&I program has been so successful and so important to North Dakota that the North Dakota Legislature loaned the program $18 million to help deal with the severe lag time that has developed in the Federal appropriations process.

The desperate need for clean, safe water is evidenced by the willingness of North Dakota's rural residents to pay water rates well above the rates EPA considers affordable. The EPA Economic Guidance Workbook states that rates greater than 1.5 percent of the median household income (MHI) are not only unaffordable, but also "may be unreasonable."

The average monthly cost on a rural water system for 6,000 gallons of water is currently $48.97. The water rates in rural North Dakota would soar to astronomical levels without the 75 percent grant dollars provided by the MR&I program. For instance, current rates would have to average a truly unaffordable $134.19/month or a whopping 3.8 percent of the MHI. Rates would have ranged as high as $190.80/month or a prohibitive 5.3 percent of MHI without the assistance of the MR&I program.

The people waiting for water in our rural communities are willing to pay far more than what many consider an affordable, or even reasonable, price for clean, safe water. But there is a limit to how much they should be expected to pay.

Budget Impacts On Garrison Diversion Unit

Let me begin by reviewing the various elements within the current budget request and then discuss the impacts that the current level of funding will have on the program.

The President's budget request for fiscal year 2008 is $20.22 million. This year, Garrison Diversion Conservancy District is asking the Congress to appropriate a total of $65 million for the GDU. Attachment 1 is a breakdown of the elements in Garrison Diversion's request. To discuss this in more detail, I must first explain that the GDU budget consists of several different program items. For ease of discussion, I would like to simplify the breakdown into three major categories. The first I would call the base operations portion of the budget request. This amount is nominally $23 million annually when you include underfinancing. However, as more Indian MR&I projects are completed, the operation and maintenance costs for these projects will increase and create a need that will need to be addressed.

The second element of the budget is the MR&I program. This consists of both Indian and non-Indian funding. The Dakota Water Resources Act contains an addi-

tional $200 million authorization for each of these programs. It is our intent that each program reaches the conclusion of the funding authorization at the same time. We believe this is only fair.

The MR&I program consists of a number of projects that are independent of one another. They are generally in the $20 million category. Some are, of course, smaller and others somewhat larger, but one that is considerably larger is the Northwest Area Water Supply Project (NAWS). The first phase of that project is under construction. The optimum construction schedule for completion of the first phase has been determined to be 5 years. The total cost of the first phase is $125 million. At a 65 percent cost share, the Federal funding needed to support that project is $81 million. On the average, the annual funding needed for that project alone is over $16 million. Several other projects have been approved for future funding and numerous projects on the reservations are ready to begin construction. These requests will all compete with one another for funding. It will be a delicate challenge to balance these projects. Nevertheless, we believe that once a project is started, it needs to be pursued vigorously to completion. If it is not, we simply run the cost up and increase the risk of incompatibility among the working parts.

An example of the former would be the certain impact of the increased cost of construction over time through inflation but also by protracting the engineering and administration costs.

The third element of the budget is the Red River Valley Water Supply Project (RRVWSP) construction phase. The Dakota Water Resources Act authorized $200 million for the construction of facilities to meet the water quality and quantity needs of the Red River Valley communities. Over 42 percent of North Dakota's citizens rely on the drought-prone Red River of the North as their primary or sole source of water. It is my belief that the final plans and authorizations, if necessary, should be expected in approximately 3 years. This will create an immediate need for greater construction funding.

This major project, once started, should also be pursued vigorously to completion. The reasons are the same as for the NAWS project and relate to good engineering and construction management. Although difficult to predict at this time, it is reasonable to plan that the RRVWSP features, once started, should be completed in approximately 3 years. This creates the need for additional funding of $30 million/year starting in fiscal year 2009.

Using these two projects as examples frames the argument for a steadily increasing budget. There is a need to accelerate the MR&I program now to assure the timely completion of the NAWS project and then to accommodate the need for additional construction funds when the RRVWSP construction is underway.

It is simply good management to blend these needs to avoid drastic hills and valleys in the budget requests. By accelerating the construction of NAWS and other projects which are ready for construction during the next few years, some of the pressure will be off when the RRVWSP construction funding is needed. A smoother, more efficient construction funding program over time will be the result.

Attachment 2 shows such a program. It begins with a $65 million budget this year and gradually builds over time to over $140 million when the RRVWSP construction could be in full swing (fiscal year 2010). Mr. Chairman, this is why we believe it is important that the budget resolution recognize that a robust increase in the budget allocation is needed for the Bureau of Reclamation. We hope this testimony will serve as at least one example of why we fully support the efforts to increase the overall allocation in the Bureau of Reclamation Water and Related Resources Account in fiscal year 2008 to a total of $1 billion.

The Bureau of Reclamation, Rural Development, Garrison Diversion Conservancy District, North Dakota State Water Commission and local rural water districts have formed a formidable alliance to deal with the lack of a high quality, reliable water source throughout much of North Dakota. This cost-effective partnership of local control, state-wide guidance and Federal support has provided safe, clean, potable water to hundreds of communities and thousands of homes across North Dakota.

ATTACHMENT 1—GARRISON DIVERSION UNIT (GDU) JUSTIFICATION FOR $65 MILLION APPROPRIATION FISCAL YEAR 2008

North Dakota's Municipal, Rural and Industrial (MR&I) water supply program funds construction projects state-wide under the joint administration of the Garrison Diversion Conservancy District (GDCD) and the State Water Commission (SWC).

Northwest Area Water Supply Project (NAWS) is under construction after 16 years of study and diplomatic delay. Construction costs (Federal) are estimated to be $81 million. Designs are based on a 5-year construction period; thus, over $16 million is needed for NAWS alone.

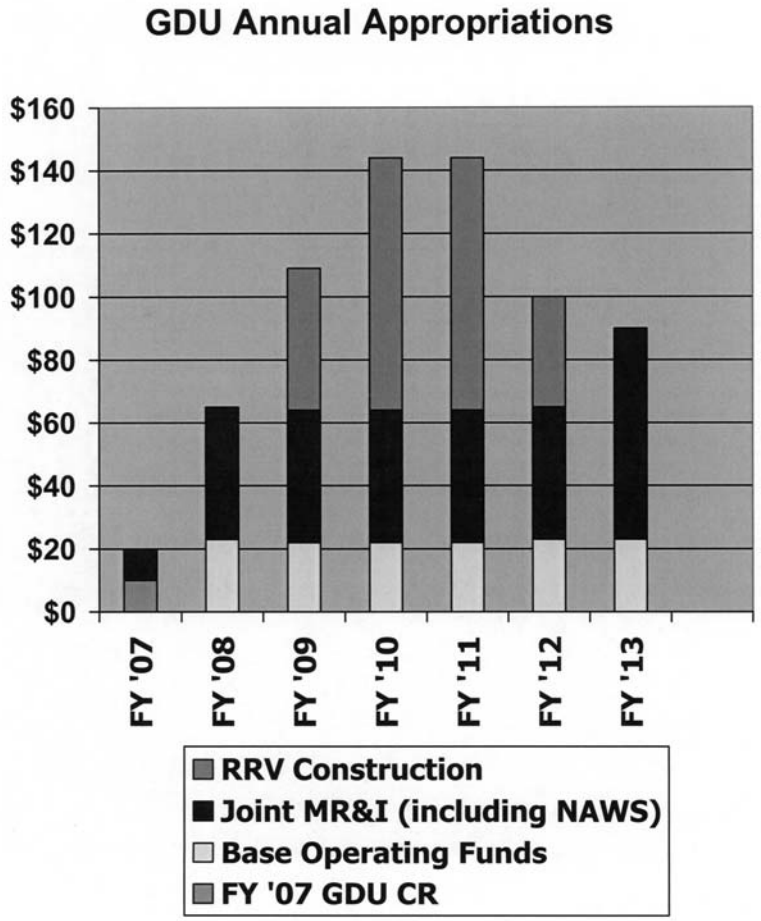
Indian MR&I programs on four reservations are also under construction. Tribal and State leaders have agreed to split the Indian and non-Indian MR&I allocation on a 50/50 basis.

The SWC has advanced the MR&I program $18 million to allow construction to continue on several critical projects. One project is the $22 million Williston Water Treatment Plant upgrade.

[In millions of dollars]

	Amount
OPERATION AND MAINTENANCE OF INDIAN MR&I SYSTEMS AND JAMESTOWN DAM	4.76
BREAKDOWN OF $51.29 MILLION CONSTRUCTION REQUEST:	
Operation and Maintenance of existing GDU system	5.16
Wildlife Mitigation & Natural Resources Trust	3.49
Red River Valley Special Studies and EIS	5.51
Indian and non-Indian MR&I	42.00
Oakes Test Area and Miscellaneous	1.28
Under financing 5 percent	2.80
Total for Construction	60.24
Grand Total	65.0

ATTACHMENT 2



PREPARED STATEMENTS OF THE SANTA CLARA VALLEY WATER DISTRICT

STATEMENT OF SUPPORT—SAN JOSE AREA WATER RECLAMATION AND REUSE PROGRAM (SOUTH BAY WATER RECYCLING PROGRAM)

Background.—The San Jose Area Water Reclamation and Reuse Program, also known as the South Bay Water Recycling Program, will allow the city of San Jose and its tributary agencies of the San Jose/Santa Clara Water Pollution Control Plant to protect endangered species habitat, meet receiving water quality standards, supplement Santa Clara County water supplies, and comply with a mandate from the U.S. Environmental Protection Agency and the California Water Resources Control Board to reduce wastewater discharges into San Francisco Bay.

The Santa Clara Valley Water District (District) collaborated with the city of San Jose to build the first phase of the recycled water system by providing financial support and technical assistance, as well as coordination with local water retailers. The

design, construction, construction administration, and inspection of the program's transmission pipeline and Milpitas 1A Pipeline was performed by the District under contract to the city of San Jose.

Status.—The city of San Jose is the program sponsor for Phase 1, consisting of almost 60 miles of transmission and distribution pipelines, pump stations, and reservoirs. Completed at a cost of $140 million, Phase 1 began partial operation in October 1997. Summertime 2004 deliveries averaged 10.6 million gallons per day of recycled water. The system now serves over 517 active customers and delivers approximately 7,200 acre-feet of recycled water per year.

Phase 2 is now underway. In June 2001, San Jose approved an $82.5 million expansion of the program. The expansion includes additional pipeline extensions into the cities of Santa Clara and Milpitas, a major pipeline extension into Coyote Valley in south San Jose, and reliability improvements of added reservoirs and pump stations. The District and the city of San Jose executed an agreement in February 2002 to cost share on the pipeline into Coyote Valley and discuss a long-term partnership agreement on the entire system. Phase 2's near-term objective is to increase deliveries by the year 2010 to 15,000 acre-feet per year.

Funding.—In 1992, Public Law 102–575 authorized the Bureau of Reclamation to work with the city of San Jose and the District to plan, design, and build demonstration and permanent facilities for reclaiming and reusing water in the San Jose metropolitan service area. The city of San Jose reached an agreement with the Bureau of Reclamation to cover 25 percent of Phase 1's costs, or approximately $35 million; however, Federal appropriations have not reached the authorized amount. To date, the program has received $26.62 million of the $35 million authorization.

Fiscal Year 2007 Funding.—No funds were appropriated in fiscal year 2007.

Fiscal Year 2008 Funding Recommendation.—It is requested that the congressional committee support an appropriation add-on of $8.8 million, in addition to the $200,000 in the administration's fiscal year 2008 budget request, for a total of $9 million to fund the Program's work.

STATEMENT OF SUPPORT—SAN LUIS RESERVOIR LOW POINT IMPROVEMENT PROJECT

Background.—San Luis Reservoir is one of the largest reservoirs in California, and is the largest "off-stream" water storage facility in the world. The Reservoir has a water storage capacity of more than 2 million acre-feet and is a key component of the water supply system serving the Federal Central Valley Project (CVP) and California's State Water Project. San Luis is used for seasonal storage of Sacramento-San Joaquin delta water that is delivered to the reservoir via the California Aqueduct and Delta-Mendota Canal. The San Luis Reservoir is jointly owned and operated by the U.S. Bureau of Reclamation and the California Department of Water Resources.

The San Luis Reservoir provides the sole source of CVP water supply for the San Felipe Division contractors—Santa Clara Valley Water District (District), San Benito County Water District and, in the future, Pajaro Valley Water Management Agency. When water levels in San Luis Reservoir are drawn down in the spring and summer, high water temperatures result in algae blooms at the reservoir's water surface. This condition degrades water quality, making the water difficult or impractical to treat and can preclude deliveries of water from San Luis Reservoir to San Felipe Division contractors. In order to avoid the "low point" problem, the reservoir has been operated to maintain water levels above the critical low elevation—the "low point"—resulting in approximately 200,000 acre-feet of undelivered water to south of the Delta State and Federal water users

Project Goals and Status.—The goal of the project is to increase the operational flexibility of storage in San Luis Reservoir and ensure a high quality, reliable water supply for San Felipe Division contractors. The specific project objectives are to: (1) Avoid supply interruptions when water is needed by increasing the certainty of meeting the requested delivery schedule throughout the year to south of Delta contractors dependent on San Luis Reservoir; (2) Increase the reliability and quantity of yearly allocations to south of Delta contactors dependent on San Luis Reservoir; (3) Announce higher allocations earlier in the season to south of Delta contractors dependent on San Luis Reservoir without sacrificing accuracy of the allocation forecasts. In addition to the above objectives, identify opportunities to provide for ecosystem restoration.

Preliminary studies by the District have identified six potential alternatives to solve the problem. More funding is needed to fully explore these alternatives.

The passage of H.R. 2828 in 2004 reauthorized Federal participation in the CALFED Bay-Delta Program. The San Luis Reservoir Low Point Improvement Project was one of six new projects, studies or water management actions authorized

in the bill to receive a share of up to $184 million authorized under the conveyance section of the bill.

Fiscal Year 2007 Funding.—$1.485 million was appropriated in the fiscal year 2007 under the CALFED appropriation.

Fiscal Year 2008 Funding Recommendation.—It is requested that the congressional committee support the administration's fiscal year 2008 budget request of $1.4 million for the San Luis Reservoir Low Point Improvement Project. The San Luis request is included in the $50 million CALFED Bay-Delta appropriation request.

STATEMENT OF SUPPORT—CALFED BAY-DELTA PROGRAM

Background.—In an average year, half of Santa Clara County's water supply is imported from the San Francisco Bay/Sacramento-San Joaquin Delta estuary (Bay Delta) watersheds through three water projects: The State Water Project, the Federal Central Valley Project, and San Francisco's Hetch Hetchy Project. In conjunction with locally developed water, this water supply supports more than 1.7 million residents in Santa Clara County and the most important high-tech center in the world. In average to wet years, there is enough water to meet the county's long term needs. In dry years, however, the county could face a water supply shortage of as much as 100,000 acre feet per year, or roughly 20 percent of the expected demand. In addition to shortages due to hydrologic variations, the county's imported supplies have been reduced due to regulatory restrictions placed on the operation of the State and Federal water projects.

There are also water quality problems associated with using Bay Delta water as a drinking water supply. Organic materials and pollutants discharged into the Delta, together with salt water mixing in from San Francisco Bay, have the potential to create disinfection by products that are carcinogenic and pose reproductive health concerns.

Santa Clara County's imported supplies are also vulnerable to extended outages due to catastrophic failures such as major earthquakes and flooding.

Project Synopsis.—The CALFED Bay Delta Program is an unprecedented, cooperative effort among Federal, State, and local agencies to restore the Bay Delta. With input from urban, agricultural, environmental, fishing, and business interests, and the general public, CALFED has developed a comprehensive, long term plan to address ecosystem and water management issues in the Bay Delta.

Restoring the Bay Delta ecosystem is important not only because of its significance as an environmental resource, but also because failing to do so will stall efforts to improve water supply reliability and water quality for millions of Californians and the State's trillion dollar economy and job base.

The passage of HR 2828 (Public Law 108–361) in 2004 reauthorized Federal participation in the CALFED Bay-Delta Program and provided $389 million in new and expanded funding authority for selected projects, including the San Luis Reservoir Low Point Improvement Project. The San Luis Project is one of six new projects, studies or water management actions authorized to receive a share of up to $184 million under the conveyance section of the bill. It is critical that Federal funding be provided to implement the actions authorized in the bill in the coming years.

Fiscal Year 2007 Funding.—$33.6 million was appropriated for CALFED activities in fiscal year 2007.

Fiscal Year 2008 Funding Recommendation.—It is requested that the committee support an appropriation add-on of $18.2 million, in addition to the $31.8 million in the administration's fiscal year 2008 budget request, for a total of $50 million for California Bay-Delta Restoration.

PREPARED STATEMENT OF THE CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION

Honorable Chairman Byron Dorgan and members of the committee: We respectfully request fiscal year 2008 appropriation of funds for two priority watershed restoration and agricultural water supply protection projects in Oregon and Washington, the Umatilla Basin Water Supply Project (previously funded under the Umatilla Basin Project Phase III, OR) and the Walla Walla General Investigation Stream Flow Restoration Feasibility Study (previously funded under the Walla Walla River Watershed, OR & WA).

—For the Umatilla Basin Water Supply Project, Oregon, we request an appropriation of $1 million in the Bureau of Reclamation, Pacific Northwest Region, Water and Related Resources budget. This request will build upon the $450,000 committed by the Bureau of Reclamation to the Project in fiscal year 2007.

—For the Walla Walla River Watershed, Oregon and Washington, we request an appropriation of $100,000 in the U.S. Army Corps of Engineers, Portland Division, Walla Walla District, General Investigations budget—to initiate Pre-engineering and Design (PED) phase after fiscal year 2008 completion of Feasibility Study. This project is also known as Walla Walla River Basin Feasibility Report/Environmental Impact Statement.

Both the Umatilla Basin Water Supply Project and the Walla Walla General Investigation Stream Flow Restoration Feasibility Study are ongoing projects and have had administration and/or congressional line item funding in past fiscal years.

Umatilla River Basin, Oregon Water Supply Project

By letter dated March 19, 2007, the Office of the Secretary of Interior responded favorably to the formal requests of the Washington and Oregon delegations and of the Confederated Umatilla Tribes, Westland Irrigation District and Governor Theodore Kulongoski to initiate Umatilla Basin water development projects and concurrent settlement of the Tribe's reserved water rights. Counselor to the Secretary, L. Michael Bogert, wrote "I will ask the Secretary's Indian Water Rights Office to appoint an Assessment Team . . ." and "I will also ask the Bureau of Reclamation to move forward with a concurrent appraisal level study of water supply options, including a full Phase III exchange . . . to help resolve the Tribe's water rights claims."

The Bureau of Reclamation, subsequent to issuance of the March 19 letter from Counselor Bogert, has committed $450,000 to fiscal year 2007 work on the Umatilla Basin water supply appraisal study.

The Umatilla Basin Water Supply Project is authorized by the Reclamation Feasibility Studies Act of 1966, 80 Stat. 707, Public Law 89–561, (Sept. 7, 1966).

The fiscal year 2008 request of $1 million to the U.S. Bureau of Reclamation will follow-up the $450,000 fiscal year 2007 work and should complete the majority of the estimated 2 year appraisal level study. It is anticipated that the full appraisal study project will be completed in 2009 in order to inform the concurrent Interior Department Indian Water Rights Assessment Team's work products. In 2009, Interior should have a clear project or suite of projects necessary to satisfy water rights of the Confederated Umatilla Tribes on the Umatilla Indian Reservation and in the Umatilla River.

This fiscal year 2008 request follows on the work of the Bureau of Reclamation, authorized by the Umatilla Basin Project Act of 1988 (100 Public Law 557; 102 Stat. 2782 Title II), to construct and operate the Phase I Exchange with West Extension Irrigation District and the Phase II Exchange with Hermiston and Stanfield Irrigation Districts. Heralded as one of the most successful stream flow restoration and salmon recovery projects in the Columbia River Basin, the Umatilla Basin Project resulted in partially restored stream flows in the Umatilla River and successful reintroduction of spring Chinook, fall Chinook and Coho salmon. After nearly a century of dry river bed in summer months and extinction of all salmon stocks, there has been an Indian and non-Indian salmon fishery nearly every year in the Umatilla River since the project was completed in the mid-1990s.

Completion of the Water Supply Study and the concurrent Tribal Water Rights Assessment is supported and endorsed by the Honorable Governor Ted Kulongoski and by local irrigation districts including specifically Westland Irrigation District, the Umatilla County Commission, and local municipalities including specifically the City of Irrigon.

Walla Walla Basin, Oregon and Washington, GI Feasibility Study

In its sixth and final full year prior to completion, the U.S. Army Corps of Engineers' feasibility study will select the project necessary to restore stream flows in the Walla Walla River. Drained nearly dry during summer months by irrigation in Oregon and Washington, the Walla Walla River is within the aboriginal lands of the Confederated Umatilla Tribes and the complete loss of salmon violates the agreement by the United States in the Treaty of 1855 to protect these fish.

Approximately $3 million of Federal funds have either been budgeted or appropriated through fiscal year 2007 (this includes a estimate of $797,000 for fiscal year 2007 based upon recent communication with Corps of Engineers). As a result of the allocation of $797,000 in fiscal year 2007, the Corps will finish the Feasibility Study in 2008 without additional appropriations and CTUIR's request for $100,000 will enable the initiation of the next PED phase.

The Feasibility Study Project is authorized by the Senate Committee on Public Works July 27, 1962 (Columbia River and Tributaries), 87th Congress, House Document #403 and initiated as a result of a positive Reconnaissance Report for the Walla Walla River Watershed (1997) under a General Investigation study.

The Confederated Tribes of the Umatilla Indian Reservation is the formal sponsor of the Corps of Engineers Feasibility Study and has provided over $3.1 million in in-kind contributions. Additionally, the State of Washington Department of Ecology has provided $400,000 to the Feasibility Study.

Support for the completion of the Feasibility Study and moving to construction of the project is strong and diverse and includes the Honorable Governor of Washington Christine Gregoire, the Honorable Governor of Oregon Ted Kulongoski, the Walla Walla Watershed Alliance, the Walla Walla Basin Watershed Council, basin irrigation districts, local State legislators and many local and regional advocacy groups.

In closing, the CTUIR appreciates the opportunity to provide this testimony in support of adding funds for the ongoing projects Umatilla River Basin Water Supply Project, Bureau of Reclamation, and for the Army Corps of Engineers Walla Walla River Basin Watershed Restoration Feasibility Study. Both projects are critically important to protecting existing agricultural economies, completing future water supply development and concurrently restoring stream flows and recovering threatened salmon and other Columbia River Basin fish stocks.

PREPARED STATEMENT OF THE OREGON WATER RESOURCES CONGRESS

I am Anita Winkler, Executive Director, Oregon Water Resources Congress. This testimony is submitted to the United States Senate Appropriations Committee, Energy and Water Development Subcommittee, regarding the fiscal year 2008 Budget for the Bureau of Reclamation and Oregon Projects. The Oregon Water Resources Congress (OWRC) was established in 1912 as a trade association to support member needs to protect water rights and encourage conservation and water management statewide. OWRC represents non-potable agriculture water suppliers in Oregon, primarily irrigation districts, as well as member ports, other special districts and local governments. The association represents the entities that operate water management systems, including water supply reservoirs, canals, pipeline and hydropower production.

BUREAU OF RECLAMATION

OWRC continues to support an increase in funding for the Bureau of Reclamation's Water and Related Resources program above the administration's proposed fiscal year 2008 budget request for the Bureau of Reclamation's programs westwide. The administration's current budget proposal is approximately $150 million less than what we in the water community feel is necessary to carryout an effective 21st Century water program for the West.

Water 2025

As our membership works to meet water-related challenges, we have found the Water 2025 program of the Bureau beneficial in providing the extra financial assistance necessary for the proper planning and actions to help prevent future crisis.

OWRC supports the $11 million fiscal year 2008 budget request for the Water 2025 program. Funding this program will support our member districts' efforts to improve water delivery systems, conserve water, and implement innovative projects to meet the water needs in our State.

With many Western States confronting significant budget deficits, increased emphasis is being placed on targeted Federal aid. In addition, we continue to be confronted by looming shortages associated with the on going drought in the West. While we appreciate the administration's request for $11 million for the Water 2025 program, we believe this seriously under represents the need for this program and the financial assistance in provides Western States to address water supply needs. We support a larger appropriation for the program once it is reauthorized and will provide a recommended dollar amount at that time.

OREGON NEEDS

We are concerned with the overall reduction in the fiscal year 2008 request for Oregon projects in the Bureau of Reclamation's fiscal year 2008 budget compared to the fiscal year 2007 request. With the exception of the Crooked River Project and the Savage Rapids Dam Removal, every project is down in requested dollars. Given the aging infrastructure, the surging population and environmental requirements we feel this is shortsighted given the needs in the State. We recognize that the Rural Water Supply Act passed in the last Congress instituting a new loan guarantee program for the Bureau of Reclamation. We believe this may prove to be an

important new tool in the Reclamation Tool Box. However, it should not be viewed as a substitute for a robust Water And Related Resources Budget.

We are disappointed that Reclamation has not come forward with their 5-year budgeting plan as requested by the committee, This absence, coupled with not having the spending plan for the fiscal year 2007 funding provided make it difficult to provide more thorough judgments and recommendations on the fiscal year 2008 budget request

Conservation Implementation

The largest need for funding for OWRC's members is to implement water conservation projects. Irrigation districts in Oregon continue to line and pipe open waterways to enhance both water supply and water quality. But the ability to continue this work depends on some public investment in return for the public benefits. Districts have conserved water and provided some of the saved or conserved water to benefit the fishery in-stream while also building reservoir supplies.

While some of these districts will continue to benefit from the funding requested in the fiscal year 2008 Bureau budget request, others are going through a reauthorization process or new authorizations for projects in their districts that will continue this conservation ethic.

Rogue River Basin

Medford Irrigation District
Rogue River Valley Irrigation District
Talent Irrigation District
Grants Pass Irrigation District

Three contiguous districts in the Rogue Project (Medford, Rogue River and Talent irrigation districts) are members of OWRC. We support their ongoing program request in this area.

The Grants Pass Irrigation District (GPID) continues to address the eventual removal of the Savage Rapids Dam. The $15 million in the fiscal year 2008 budget is an important continuation of the effort to address the agreements made in this area. OWRC supports the GPID request.

Deschutes Basin

Tumalo Irrigation District
Deschutes Resource Conservancy
Ochoco Irrigation District

The Tumalo Irrigation District and the Deschutes Resource Conservancy are currently working on new program and project authorizations. We appreciated the committee efforts to add $1 million in last years appropriation bill for the DRC.

The Ochoco Irrigation District (Prineville, Oregon) has worked with the Bureau of Reclamation, along with the North Unit Irrigation District (Madras, Oregon) for the better part of a decade to determine the use of unallocated water in the district's reservoir. It is important that this type of approach continues to address the needs in these areas.

Umatilla/Columbia Basins

Stanfield Irrigation District
Westland Irrigation District
Hermiston Irrigation District
West Extension Irrigation District
East Valley Water District
East Fork Irrigation District

The Umatilla districts draw their water supply from the Umatilla and Columbia Rivers. The districts have been in the process of completing boundary changes and seeking supplemental contracts as part of the conclusion of the boundary process. This process has taken nearly a decade. The districts recognize the need to move forward with Phase III of the project and support the $374,000 in the fiscal year 2008 Budget for project conservation assistance and water quality improvements.

Eastern Basins

Burnt, Malheur, Owyhee and Powder River Basins Water Optimization Study.

The irrigation districts in these basins continue to seek support for this optimization study to seek alternatives for more effective water management through conservation projects and enhancement of water supply. This project has been identified by the Bureau of Reclamation as a regional need.

OWRC supports the fiscal year 2008 Oregon Investigations program request that contains $810,000 to continue studies for these basins as well as several other basins in the State.

In addition, we support ongoing State of Oregon efforts on Water Supply Investigations in the State. As districts and the State continue their efforts at better planning, there is a fundamental need for better information. This would help with assessing existing and future water needs in Oregon, completing a comprehensive inventory of above and below ground storage and quantify surplus winter water.

Klamath Basin

The Klamath Project districts continue to require support for the work in their area. We appreciate the $25 million request for the collaborative efforts of all involved and recommend continued scrutiny by the committee to make sure the needs and issues of the water community are met in this area. We continue to encourage the administration and in particular, the various Department of the Interior agencies, to work closely with the districts in the project area on the overall funding and planning necessary for ongoing solutions.

CONCLUSION

Thank you for the opportunity to provide testimony regarding the fiscal year 2008 Federal Bureau of Reclamation budget. While we support existing proposals, we feel that given the record-setting droughts we have suffered in the past few years and in anticipation of another drought this year, we need to support an increased budget to stabilize the Nation's water supply for the many needs it must meet. Providing a stable water supply feeds the economy locally and at the national level. The needs in this area should not have to rely on emergency approaches and funding to be addressed in a timely manner. There is a storing need for integrated water management and systems and watershed approaches. An emphasis on improved intergovernmental cooperation, working with State, regional and local organizations can make for better collaborative planning models for everyone to benefit. We would encourage the subcommittee to request a briefing from the Western States Water Council on the study they have underway in this policy area.

PREPARED STATEMENT OF THE FORT PECK ASSINIBOINE AND SIOUX TRIBES AND DRY PRAIRIE RURAL WATER

BUREAU OF RECLAMATION

Fiscal Year 2008 Budget Request

The Fort Peck Assiniboine and Sioux Tribes and Dry Prairie Rural Water respectfully request fiscal year 2008 appropriations in the amount of $36,851,000 for the Bureau of Reclamation from the Subcommittee on Energy and Water Development. Funds will be used to construct critical elements of the Fort Peck Reservation Rural Water System, Montana, (Public Law 106–382, October 27, 2000). The amount requested is based on need to build critical project elements and is well within capability to spend the requested funds as set out below:

FISCAL YEAR 2008 WORK PLAN—FORT PECK RESERVATION RURAL WATER SYSTEM (PUBLIC LAW 106–382)

	Aount
Fort Peck Tribes:	
Water Treatment Plant:	
Phase I, Clear Well Wash Water Recover	$3,504,000
Phase II, Main Treatment	22,475,000
FP OM Buildings	765,000
Total	26,744,000
Dry Prairie:	
Branch Pipelines:	
St. Marie to Nashua and St. Marie to Opheim:	
Federal	10,107,000
State and Local	3,192,000
Total	13,299,000
Total:	
Federal	36,851,000

FISCAL YEAR 2008 WORK PLAN—FORT PECK RESERVATION RURAL WATER SYSTEM (PUBLIC LAW 106–382)—Continued

	Aount
State and Local	3,192,000

The sponsor Tribes and Dry Prairie greatly appreciate the previous appropriations from the subcommittee that have permitted building the Missouri River intake, the critical water source, elements of the water treatment plant, the Culbertson to Medicine Lake Pipeline Project and branches serving rural users outside the Fort Peck Indian Reservation. Without funds to complete the water treatment plant, service to tribal users and communities has not been possible within the Fort Peck Indian Reservation.

The request is comparable to the average annual appropriations needed to complete the project in fiscal year 2012 ($35,110,000), as provided by the authorizing legislation, but is within our capability to use:

	Fiscal Year 2008
Total Federal Funds authorized (October 2005 $)	$258,977,000
Federal Funds Expended Through fiscal year 2006	$48,318,000
Percent Complete	18.66
Amount Remaining	$210,659,000
Average Annual Required for fiscal year 2012 Finish (Public Law 106–382)	$35,110,000
Fiscal year 2008 Amount Requested	$36,851,000
Years to Complete	5

Note that cost indexing from last year due to inflation increased the cost of the project from $247 million to $259 million, an increase of $12 million. Increases in the level of appropriations are needed to outpace inflation.

Proposed Activities

Public Law 106–382 (October 27, 2000) authorized this project, which includes all of the Fort Peck Indian Reservation in Montana and the Dry Prairie portion of the project outside the Reservation.

FORT PECK INDIAN RESERVATION

On the Fort Peck Indian Reservation the Tribes have used appropriations from previous years to construct the Missouri River raw water intake, a critical feature of the regional water project. The raw water pump station has also been constructed, and the raw water pipeline between the Missouri River and the water treatment plant has been constructed to within 2 miles of the water treatment plant. The sludge lagoons at the water treatment plant are completed.

The critical Missouri River water treatment plant will begin construction in spring 2007 and will use $15.3 million of funds on hand to build the first two phases of the facility. An additional $3.5 million in fiscal year 2008 funds is needed to Complete Phase I and an additional $22.475 million is needed to complete the main water treatment plant process building in Phase II.

This project was delayed a year due to the reduction in level of appropriations in fiscal year 2007 (from $16 million in fiscal year 2006 to $6 million in fiscal year 2007) and the uncertainty of adequate funding to complete the project. The project was bid in fiscal year 2006 as a complete unit, combining Phase I and Phase II, but bidders increased prices significantly to reflect the uncertainty of funding to complete the project. The project has now been separated into the two phases to accommodate the funding setback, but the separation into two phases has increased the total cost of the facility.

The request for fiscal year 2008 does not provide for construction of essential pipelines from the water treatment plant to the communities of Poplar and Wolf Point. These are the principal core pipelines that extend east and west of the water treatment plant to serve the Fort Peck Indian Reservation and to eventually connect to Dry Prairie facilities on the east and west boundaries of the Reservation. The funds needed for the pipeline projects to Poplar and Wolf Point are $11.0 and $4.0 million, respectively, in addition to the fiscal year 2008 funding request. These care critical elements of the work plan for fiscal year 2009.

The pipeline project from the water treatment plant to Poplar will provide a replacement water supply for the community of Poplar and a rural section of the Fort Peck Indian Reservation contaminated by brine from oil drilling operations, which

is the subject of EPA orders against the responsible oil company. There is urgency in completing the pipeline to Poplar before the advancing plume of contamination reaches existing community wells in Poplar. Projections of the date that contamination will reach the Poplar community wells are variable, but the anxiety of the Tribes' leadership and membership can be overcome by completing the water treatment plant and connecting the pipeline to Poplar in fiscal year 2009. This is a critical time frame for the Tribes. The staff and members of the subcommittee are urged to review this matter with the Tribes and Bureau of Reclamation to clarify the urgency of the completing necessary project facilities and alleviating the threat of contamination of the public water supply for the Tribes' headquarters community of Poplar.

The Tribes will also use $765,000 for an administration, operation and maintenance building. The Bureau of Reclamation can confirm that the use of funds proposed for fiscal year 2008 is well within the project's capability to spend.

DRY PRAIRIE

Dry Prairie has used previous appropriations to construct core pipelines and a booster pump station from the community of Culbertson to serve the communities of Froid and Medicine Lake. This project represents a significant portion of the main core pipeline for the eastern half of the Dry Prairie Project. Pipelines were sized to serve the area north of the Missouri River, south of the Canadian border and between the Fort Peck Indian Reservation and the North Dakota border.

The project relies on interim water supplies. The regional water treatment plant will provide finished water when pipelines are constructed to the interconnection point for Dry Prairie between Poplar and Culbertson, scheduled for completion in fiscal year 2012. The project between Culbertson, Froid and Medicine Lake is in full operation and serves the last two mentioned communities.

In fiscal year 2006 in first quarter fiscal year 2007, Dry Prairie built branch pipelines and connected nearly 200 rural services to the Culbertson to Medicine Lake pipeline in the eastern half of the Dry Prairie Project. Bainville, McCabe and Dane Valley residents can be served with the existing system capacity that is now constructed and in operation.

The request for fiscal year 2008 funds of $10,107,000, supplemented by a non-Federal cost share of $3,192,000, will be used to begin construction of pipelines to rural services on the west side of the Dry Prairie project between the communities of St. Marie and Nashua. An existing water treatment plant owned by the Boeing Co., at the former Glasgow Air Force Base will provide an interim water supply to serve the west side project until the regional water treatment plant of the Tribes is completed and pipelines from Wolf Point to Nashua can be completed as scheduled in fiscal year 2012. The facilities constructed on the west side of the project are the same facilities required after connection of the regional water treatment plant. Therefore, no duplication of facilities or increases in costs are associated with the interim project.

Master Plan

The project master plan is provided for review as an attachment. The request for fiscal year 2008 is shown in relation to the project components that remain to be completed by 2012.

Administration's Support

The Tribes and Dry Prairie worked extremely well and closely with the Bureau of Reclamation prior to and following the authorization of this project in fiscal year 2000. The Bureau of Reclamation has heavily reviewed and commented on the Final Engineering Report, and all comments were incorporated into the report and agreement was reached on final presentation. OMB reviewed the Final Engineering Report prior to its submission to Congress in the final step of the approval process. The Commissioner, Regional and Area Offices of the Bureau of Reclamation have been consistently in full agreement with the need, scope, total costs, and the ability to pay analysis that supported the Federal and non-Federal cost shares. There have been no areas of disagreement or controversy in the formulation of the project.

The Bureau of Reclamation collaborated with the Tribes and Dry Prairie to conduct and complete value engineering investigations of the Final Engineering Report (planning), the Culbertson to Medicine Lake pipeline (design), the Poplar to Big Muddy River pipeline (design), the Missouri River intake (design) and on the regional water treatment plant (design). Each of these considerable efforts has been directed at ways to save construction and future operation, maintenance and replacement costs as planning and design proceeded. Agreement with Reclamation has

been reached in all value engineering sessions on steps to take to save Federal and non-Federal costs in the project.

The Bureau of Reclamation conducted independent review of the final plans and specifications for the Missouri River raw water intake, the regional water treatment plant and the Culbertson to Medicine Lake Project. The agency participated heavily during the construction phases of those projects and concurred in all aspects of construction from bidding through the completion of construction. (The regional water treatment plant has not yet been constructed).

Cooperative agreements have been developed and executed from the beginning phases to date between the Bureau of Reclamation and the Tribes and between Bureau of Reclamation and Dry Prairie. Those cooperative agreements carefully set out goals, standards and responsibilities of the parties for planning, design and construction. All plans and specifications are subject to levels of review by the Bureau of Reclamation pursuant to the cooperative agreements. The sponsors do not have the power to undertake activities that are not subject to oversight and approval by the Bureau of Reclamation. Each year the Tribes and Dry Prairie, in accordance with the cooperative agreements, develop a work plan setting out the planning, design and construction activities and the allocation of funding to be utilized on each project feature.

Clearly, the Fort Peck Reservation Rural Water System is well supported by the Bureau of Reclamation. Congress authorized the project with a plan formulated in full cooperation and collaboration with the Bureau of Reclamation, and major project features are under construction with considerable oversight by the agency.

DEPARTMENT OF ENERGY

PREPARED STATEMENT OF THE STATE TEACHERS' RETIREMENT SYSTEM

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 2008, 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 otherwise 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.

The Money Is There to Pay the State

The funds necessary to compensate the State have been collected from the sales proceeds remitted by the private purchaser of Elk Hills and are now being held in the Elk Hills School Lands Fund for the express purpose of compensating the State. Taking into account the 1 percent government-wide rescission in the fiscal year 2006 Defense Appropriations Act, the Elk Hills School Lands Fund should have a positive balance of at least $18.18 million.

Congress Should Appropriate $9.7 Million for the Fiscal Year 2008 Installment of Elk Hills Compensation

As noted above, 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.

We understand that Department of Energy personnel have proffered 3 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 President's fiscal year 2008 budget request says 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 2008 Budget Appendix, at p. 373). 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, which is in its final stages after nearly a decade. 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. 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: 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. (See Memorandum of the California State Attorney General, dated May 16, 2006). Indeed, under the gov-

erning agreement between DOE and Chevron, Chevron had waived any right to contest the final equity determination in court. Hence this litigation provides no basis for withholding the rest of the State's compensation.

Red Herring No. 3: 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 nearly 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 "nine 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 seven [nine 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 agrees that the $27.13 million incurred for appraisals, accounting expenses, reserves report, and brokers' commission are appropriate sales expenses. (See Letter of the California Attorney General to DOE, dated February 10, 2005). 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 its fiscal year 2006 budget request.

Conclusion

Therefore, 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 2008 installment of compensation, in order to meet the Federal Government's obligations to the State under the Settlement Agreement.

PREPARED STATEMENT OF THE CONSORTIUM FOR FOSSIL FUEL SCIENCE (CFFS)

PRODUCTION OF TRANSPORTATION FUELS FROM COAL AND BIOMASS WITH REDUCED CARBON DIOXIDE EMISSIONS

Chairman Dorgan and members of the subcommittee: We request $3 million in funding for a congressionally directed project in the Fuels Program of the Office of Fossil Energy budget to initiate a program of research to produce transportation fuels from coal and biomass. The focus of this program will be to minimize the amount of carbon dioxide emitted by both the fuel conversion process and by fuel utilization to achieve overall emissions comparable to or less than emissions resulting from the production and utilization of similar transportation fuels from petroleum.

OVERVIEW

Traditional petroleum fuels and vehicles will remain our dominant transportation mode for at least the next 20 years. The United States imports over 10 million barrels of oil per day at a cost exceeding $220 billion/year, most of it from unstable

regions of the world. Expert testimony has been presented to the Congress showing that the true cost of imported petroleum goes far beyond the price of a barrel of crude oil, with some estimates reaching to $825 billion for 2006. Increasing global demand, coupled with an expected peaking in the world oil supply, will cause shortages and markedly increased prices in the future, which could lead to economic recessions due to "oil shock."

It is essential that we produce transportation fuels from our own national resources, especially focusing on our most abundant energy resource, coal. It is equally essential, however, that we do so without harming the environment. The National Research Center for Coal and Energy (NRCCE, West Virginia University) and the Consortium for Fossil Fuel Science (CFFS, University of Kentucky) have formed an integrated team of fuels experts from five universities (West Virginia University, University of Kentucky, University of Pittsburgh, University of Utah, and Auburn University) to conduct a basic research program focused on producing Fischer-Tropsch fuels using mixtures of coal and biomass as the feedstock. We believe that costs can be reduced, a superior transportation fuel can be produced, and carbon emissions can be minimized through such research.

The NRCCE and the CFFS have extensive experience and broad expertise in research on the conversion of coal into clean liquid transportation fuels and the conversion of coal into hydrogen. We have made significant breakthroughs in such areas as: (1) catalysis of coal conversion reactions; (2) C1 chemistry processes (including Fischer-Tropsch (F–T) synthesis) to produce transportation fuels from coal-derived syngas; (3) co-processing of coal with waste materials, including plastic, rubber, and cellulose (biomass); (4) development of novel processes to produce hydrogen from fossil fuels; and, (5) environmental research.

We are now proposing a research program focused on development of processes that use biomass as a co-feed with coal for the production of clean transportation fuels with reduced carbon emissions.

The motivations for this approach include: First, co-feeding coal with biomass will extend the lifetime of the Nation's coal resources; second, we can make use of biomass wastes that are not currently utilized; and, third, combined coal and biomass processes have the potential to yield a significant net reduction in carbon dioxide emissions compared to coal-only processes.

Recent studies indicate that the total carbon dioxide emissions from a liquid fuel produced by F–T synthesis of syngas derived from mixtures of coal and biomass may be reduced by as much as 60–80 percent relative to those from the same fuel produced from coal alone.

GOALS OF THE PROGRAM

The primary goal of the NRCCE–CFFS research program is to develop technology that will enable the United States to produce clean liquid transportation fuel from its largest domestic energy resource, coal, in a manner that is both sustainable and environmentally friendly. Incorporating biomass into the feedstock can help to achieve these objectives. A short summary of more specific goals is given below.

—Investigate the pyrolysis and gasification of coal-biomass mixtures to determine the role that hydrogen from biomass can play in the production of syngas with the optimum composition for the production of liquid fuels (gasoline, diesel fuel, and jet fuel). Improvements in the gasification step will have a great impact on the ultimate cost of the liquid fuels produced from syngas derived from coal-biomass mixtures, since gasification costs are 60–70 percent of the total cost.

—Develop catalysts and thermochemical processes that will yield transportation fuel products from coal-biomass mixtures with properties better than those produced from petroleum, while reducing the total carbon dioxide emissions from both production and use of the fuels.

—Develop computational models to simulate catalytic chemical reactions by quantum mechanics, thereby reducing the need for experimental testing and decreasing the cost of the on-going research program.

—Utilize systems analysis modeling to simulate plant performance and cost factors in order to determine whether or not processes developed in the laboratory are commercially viable.

—Produce hydrogen and synthetic natural gas from coal-biomass mixtures while reducing the carbon dioxide footprint.

—Establish a more active collaboration with scientists at the National Energy Technology Laboratory (NETL) who are focused on this and related areas of research. Develop an exchange program in which professors and graduate students from the five participating universities conduct research at NETL and

NETL scientists have access to facilities and expertise available at the universities.

Legislation introduced in both houses of the 110th Congress includes tax credits and loan guarantees to hasten the deployment of plants which produce alternative fuels from coal. Widespread deployment of such plants will require a large number of fuel scientists and engineers. An ancillary benefit of our program will include educating the U.S.-based human resource pool needed to meet personnel demands for a coal-to-liquids industry.

SUMMARY

We request your support for $3 million in funding for this program to the National Research Center for Coal and Energy (West Virginia University) from the Fossil Energy budget for fiscal year 2008. The funding will be shared with the other four CFFS universities (Kentucky, Pittsburgh, Auburn, and Utah) to support the first year of a proposed three-year research program for producing liquid transportation fuels from coal and biomass. The NRCCE–CFFS consortium will provide $750,000 in cost-sharing.

Achievement of our program goals will accelerate the development of a domestic industry for the production of clean liquid transportation fuels using our own natural resources, thereby strengthening the energy and economic security of our Nation. An alternative fuels industry will also provide many new jobs in the mining industry, fuel synthesis plants, and biomass processing.

Thank you for the opportunity to offer testimony to the subcommittee.

PREPARED STATEMENT OF THE COALITION OF NORTHEASTERN GOVERNORS

The Coalition of Northeastern Governors (CONEG) is pleased to provide this testimony to the Senate Subcommittee on Energy and Water Development regarding fiscal year 2008 appropriations for the Energy Conservation and Renewable Energy programs of the U.S. Department of Energy (DOE). The Governors recognize the difficult funding decisions which confront the subcommittee this year. We appreciate the subcommittee's continued support for energy efficiency, energy conservation, and renewable energy programs—all of which promote sound energy management and improve the Nation's energy security. Consistent with this thinking, the CONEG Governors request that funding for the State Energy Program be increased to $74 million, and funding for the Weatherization Assistance Program be provided at a level of $300 million in fiscal year 2008. The Governors support the President's request to fund the Northeast Home Heating Oil Reserve at $7 million and the Energy Information Administration at $105 million in fiscal year 2008. At this time of heightened interest in expanded use of indigenous renewable energy resources, we request that the subcommittee require the Department of Energy to again provide modest funding of $7.5 million to continue the critical networks and market development work of the National Biomass Partnership (previously known as the Regional Biomass Energy Program).

These very successful energy programs take on new significance as the Nation strives to strengthen the security and reliability of domestic energy supplies and to reduce dependence on foreign sources of energy. Energy efficiency, conservation and renewable energy, which offer near-term opportunities and results, are important complements to longer-term Federal investments in domestic production and emerging technologies. Federal resources for research and program implementation must also emphasize programs that can bring alternative energy and energy saving technologies quickly to the marketplace. The State Energy Program, the Weatherization Assistance Program, and the Regional Biomass Partnership provide established networks and Federal-State-local government and private sector partnerships which can achieve timely energy savings and encourage renewable energy development. Modest Federal investment in these programs provides substantial energy, economic and environmental returns to the Nation, leveraging additional State and private sector investment, and contributing to sound energy management. These resources are undisputed clear winners when compared to conventional energy technologies.

State Energy Program (SEP).—The State Energy Program (SEP) is the major State-Federal partnership program addressing energy efficiency and conservation in all sectors of the economy. It assists States' work in support of the national goals of greater energy efficiency, reduced energy costs, and development of alternative and renewable energy resources. The State Energy Program also helps States improve the security of the energy infrastructure and prepare for natural disasters. SEP programs increase the awareness of the opportunities available in States to improve energy efficiency, reduce energy costs, create jobs, and diversify energy use.

Their transformative effects in the market have been repeatedly demonstrated and proven.

Working with DOE, States tailor their renewable energy and energy efficiency programs in a way that makes the most sense for their market opportunities, thus maximizing the effectiveness of the program's resources. For example, the Northeast States have used SEP supported projects to provide technical assistance and financial incentives that have spurred building designers and owners to adopt energy-efficient design features in the commercial, institutional, multifamily, and industrial sectors. Our States have also used SEP resources in programs that monitor and enhance the reliability of the energy supply and delivery infrastructures, support the timely updating of energy emergency preparedness plans, and promote the use of alternative fuels in the transportation sector and other initiatives that will lead to a lowering of fuel consumption and cleaner air.

The modest Federal funds provided to the SEP are an efficient Federal investment, as they are leveraged by non-federal public and private sources. According to the most recent data from the Department of Energy, for every $1 of Federal investment, $3.58 is leveraged by State and local governments, and private companies and results in $7.23 in reduced energy bills. In its evaluation of the program, Oak Ridge National Laboratory estimated that the program results in annual cost savings of $256 million while providing environmental and public health benefits through reduced energy use and emission reductions.

Weatherization Assistance Program (WAP).—Weatherization is taking on an increased importance as an immediate, effective tool to manage energy use, particularly at a time of high energy prices. Through a network of more than 900 local weatherization service providers, the Weatherization Assistance Program (WAP) improves the energy efficiency of more than 100,000 low-income dwellings a year, thereby reducing the home energy bills of the Nation's most vulnerable citizens. Increased and consistent funding is key to the effectiveness of this program that invests in training weatherization personnel.

While an average household pays roughly 2.7 percent of annual income on home energy, low income households pay more than four times that amount. Some elderly recipients who live on fixed incomes pay as much as 35 percent of their annual incomes for energy bills. WAP provides immediate and lasting benefits and reduces the energy burden of low-income families by improving energy efficiency and permanently reducing home energy bills.

Weatherization can reduce, on average, heating bills by 31 percent and overall energy bills by $358 per year at current prices through energy efficiency measures that address a home's heating and cooling systems, its electrical system, and electricity consuming appliances. In terms of energy savings, weatherization clients save $1.83 for every $1 of DOE investment, according to recent DOE information. Weatherization services can also improve the safety of a home by identifying carbon monoxide hazards from old boilers, furnaces and water heaters, and fire hazards from outdated electrical equipment and wiring.

The WAP also provides numerous non-energy benefits. Oak Ridge National Laboratory has concluded that for every $1 of DOE investment, there are non-energy benefits worth $1.88, and the WAP contributes to more than 8,000 jobs nationwide. In addition, the decreased energy use resulting from weatherization measures also provides environmental benefits through decreased carbon dioxide emissions.

Renewable Energy and the National Biomass Partnership.—Renewable energy plays a vital role in meeting the Nation's goal of reduced reliance on imported fossil fuels, a more balanced, diverse energy resource mix, and reduction of greenhouse gases. Modest but timely support for research and commercialization opportunities for near-term bioenergy technologies is a vital component in meeting that goal. Using government funding to support private market development and technology commercialization for biofuels offers one of the most promising hopes for reducing the Nation's energy vulnerabilities. States contribute significant resources to support the development of biomass fuels, technology, and infrastructure. However, State funds are not available for coordination of these activities across the Nation.

The National Biomass Partnership (formerly known as the Regional Biomass Energy Program) brings together varied networks of State, private, and Federal bioenergy activities, and is a critical link in the chain of research, resource production and technology commercialization. The Partnership has successfully contributed to the adoption of State policies supportive of bioenergy resource and technology development, public awareness of the benefits and uses of bioenergy, greater leveraging of Federal funding and State resources, and increased intensity of biomass use. For example, according to a DOE-directed program review, the Northeast Regional Biomass Partnership (NRBP) directly influenced $24 million in biomass investments—69 percent of the overall biomass investment made in the region in 2003. It helped

create biomass working groups in nine northeast States, which along with the NRBP personnel, provided bioenergy education and training to nearly 3,000 people in the region—and greater participation in State-developed bioenergy policies and programs.

Northeast Home Heating Oil Reserve.—The Nation's heightened emphasis on energy security places renewed importance on the Northeast Home Heating Oil Reserve. The Northeast, with its reliance upon imported fuels for both residential and commercial heating, is particularly vulnerable to the effects of supply disruptions and price volatility. The Northeast region of the country is literally at the end of the energy product pipeline. Any disruption along the delivery infrastructure anywhere in the country negatively affects the Northeast. The Reserve provides an important buffer to ensure that the States will have prompt access to immediate supplies in the event of a supply emergency.

Energy Information Administration (EIA).—EIA provides timely, reliable and credible information and analysis on the energy produced, imported and consumed in the United States. At this time of volatile global energy markets and renewed focus on the safety and security of the Nation's energy supply, the information provided by the Energy Information Administration (EIA) is a vital tool in keeping energy markets functioning efficiently. In addition, States rely on EIA data as the core of their information for energy emergency planning. Increased funding in fiscal year 2008 will help ensure that EIA can continue to collect, analyze and make available this vital data.

In conclusion, the Coalition of Northeastern Governors request that you provide $74 million for the State Energy Program, $300 million for the Weatherization Assistance Program and $7.5 million for the National Biomass Partnership in fiscal year 2008. These programs promote sound energy management by encourage development of alternative energy resources and helping manage the Nation's energy use. The Governors also request $7 million for the Northeast Home Heating Oil Reserve and $105 million for the Energy Information Administration in fiscal year 2008. CONEG welcomes the opportunity to continue a dialogue on these important matters as Congress and the administration consider budget and energy project and policy initiatives.

PREPARED STATEMENT OF CUMMINS, INC.

Cummins Inc. is pleased to provide the following statement for the record regarding fiscal year 2008 funding for programs in the Department of Energy's Offices of Energy Efficiency and Renewable Energy; Electricity Delivery and Energy Reliability; and Fossil Energy. Cummins Inc., headquartered in Columbus, Indiana, is a corporation of complementary business units that design, manufacture, distribute and service engines and related technologies, including fuel systems, controls, air handling, filtration, emission solutions and electrical power generation systems. The funding requests outlined below are critically important to Cummins' research and development efforts and represent a sound Federal investment towards a cleaner environment and improved energy efficiency for our Nation. We request that the committee fund the programs as identified below.

OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY

Office of FreedomCAR and Vehicle Technologies/Vehicle Technologies

Advanced Combustion Engine R&D.—Cummins recommends an increase in the administration's request of $34.55 million by $15.20 million to bring the program total to $49.75 million in fiscal year 2008. This program includes two important research areas—the Heavy Truck Engine and the Waste Heat Recovery programs. Both of these relate to heavy duty diesel engines and are significantly under-funded in the administration's fiscal year 2008 request. Formerly separate programs, these research areas were folded into the umbrella Advanced Combustion Engine R&D program in this year's request. The Heavy Truck Engine portion of the administration's request was reduced to $3.2 million for fiscal year 2008, down from $12.2 million in fiscal year 2007 and fiscal year 2006. The requested increase would allow for funding for heavy truck engine research of $15.4 million in fiscal year 2008. The Waste Heat Recovery program of the administration's request was reduced to zero, down from $4 million in fiscal year 2007 and fiscal year 2006. The requested increase would allow $3 million for waste heat recovery research in fiscal year 2008. These programs are critically important to the heavy duty diesel engine industry efforts to meet stringent emissions requirements through better understanding of combustion technologies. Heavy truck engines consume nearly 25 percent of all surface transportation fuels used in the United States, and the Heavy Truck Engine

program is critical to engine manufacturers' efforts to increase on-highway fuel efficiency while meeting EPA's near zero 2010 emissions regulations. Significant technology hurdles remain in the areas of engine efficiency improvements, co-fuels development, aftertreatment requirements and subsystem durability, on-board diagnostics and fuel penalty minimization due to the use of aftertreatment. Hybrid technologies are also becoming attractive for heavy duty engine applications, warranting additional research effort. The Waste Heat Recovery program is critical because over 50 percent of fuel energy is lost in diesel engines through wasted heat in exhaust, lubricants and coolants. This program is focused on identifying and developing innovative energy recovery technologies, such as thermoelectric, turbocompounding and Rankine cycle technologies. It seeks to improve truck energy efficiency by 10 percent through better waste heat recovery technologies.

Office of FreedomCAR and Vehicle Technologies/Fuel Technologies

Non-Petroleum Based Fuels and Lubricants.—Cummins recommends an increase in the administration's request of $6.9 million by $3.0 million to bring the program total to $9.9 million in fiscal year 2008. This program funds research to better understand renewable (such as biodiesel and ethanol) and synthetic fuel properties and their effect on engine system performance when blended with petroleum fuels. While biodiesel fuel blends are becoming acceptable in the marketplace, their effect on various engine components, including fuel systems, lubricants and aftertreatment systems, is unknown. Current fuel filters are less effective for separating emulsified water in biodiesel blends and are likely to cause problems in the field. The increase in funding will help develop efficient techniques to remove water from biodiesel fuel blends, better understand biodiesel fuel effects on particulate filters, and evaluate biodiesel and lubricant interactions.

Advanced Petroleum Based Fuels (APBF).—Cummins recommends an increase in the Administration's request of $6.5 million by $1.0 million for a program total of $7.5 million for fiscal year 2008. This requested increase would allow additional study of fuel properties to enable heavy duty diesel engines to operate in the most efficient mode while meeting future emissions standards. Engine companies are required to prove emissions compliance for over 435,000 miles of useful engine life. The goal of this program is to study the impacts of fuel and lube oil sulfur content on durability and reliability of particulate aftertreatment systems.

Office of FreedomCAR and Vehicle Technologies/Materials Technologies

Propulsion Materials Technology—Heavy Vehicle Propulsion Materials Program.—Cummins recommends an increase in the administration's request of $4.8 million by $1.0 million to bring the program total to $5.8 million in fiscal year 2008. This program supports research and development of next generation materials to enable diesel engine efficiency improvements, improved reliability and reduced aftertreatment system costs. Traditional engine materials may not be adequate for the next generation of advanced combustion concepts, such as low temperature combustion (LTC). High pressure injection fuel systems are needed to support these combustion technologies. Smaller hole size and clearance in emerging fuel systems requires new material capabilities to remove submicron particles from the fuel. Further research is also needed on advanced materials to mitigate cost issues relating to the use of precious metals required for advanced nitrogen oxides (NO_X) reduction technologies. Increased funding for the program will support studies on a range of advanced materials technologies, including lightweight high strength materials for engine components, composites, catalysts and soot oxidation, filtration media modeling and nano-fiber filter technologies.

Office of Hydrogen, Fuel Cells and Infrastructure Program/Hydrogen Technology

Transportation Fuel Cell Systems.—Cummins requests that the committee support the administration's requested amount of $8.0 million for fiscal year 2008. As designed, the program provides support for R&D and system integration of energy efficient auxiliary power unit (APU) technologies for mobile or off-road applications. The goal of this effort is the demonstration of a solid oxide fuel cell (SOFC) based APU for Class 7/8 on-highway diesel trucks. Reduction of diesel fuel consumed in the idling of large diesel trucks is widely recognized as an important element in reducing exhaust emissions from heavy trucks. It would also reduce our Nation's overall dependence on foreign sources of oil. It is estimated that a potential reduction of up to 800 million gallons of diesel fuel is possible annually if SOFC systems can be used to provide the heating, cooling and electrical needs of truck fleets in lieu of idling. In 2005, Cummins Power Generation and our partner, International Truck and Engine Company, conducted analysis and design work to accurately define the requirements for such an APU, and we believe the goal is achievable. Increased

funding in fiscal year 2008 would allow the demonstration of a practical SOFC prototype that is integrated on a typical truck platform.

OFFICE OF ELECTRICITY DELIVERY AND ENERGY RELIABILITY

Research and Development/Distributed Energy Resources

Distributed Generation Technology Development—Advanced Reciprocating Engine Systems (ARES).—Cummins recommends an increase in the administration's request of $0 million by $1.5 million to bring the program total to $1.5 million in fiscal year 2008. The objective of this program is to develop high efficiency, low emissions and cost effective technologies for stationary natural gas systems between 500–6,500 kw by the year 2010. Natural gas-fueled reciprocating engine power plants are preferred for reliability, low operating costs and point of use power generation. Technologies sponsored by the ARES program have demonstrated 44 percent engine efficiency (an increase from the 32–37 percent baseline) and higher power densities than current products, with an expected reduction in life cycle costs and carbon dioxide (CO_2) emissions. Improved combustion, air handling and controls developments have been successfully implemented in a field test engine and genset. Further technical challenges include combustion development for system efficiency, nitrogen oxides (NO_X) reductions, advanced sensors and controls, hardware durability and lower life cycle costs. The development of distributed power generation supports national energy security needs, improves protection of critical infrastructure to address homeland security concerns, and decreases dependence on the national electrical grid system through point of use energy production.

OFFICE OF FOSSIL ENERGY

Office of Clean Coal and Natural Gas Power Systems/Fuel Cell Research and Development

Innovative Concepts—Solid State Energy Conversion Alliance (SECA).—Cummins requests that the committee support the administration's request of $62.0 million for fiscal year 2008. The goal of the SECA project is the development of a commercially viable 3–10 kw solid oxide fuel cell (SOFC) module that can be mass-produced in modular form for RV, commercial mobile and telecommunications markets. The modular nature of SOFCs makes them adaptable to a wide variety of stationary and mobile applications. SOFCs can play a key role in securing the Nation's energy future by providing efficient, environmentally sound electrical energy from fossil fuels or hydrogen. A Cummins prototype successfully completed Phase 1 of the SECA program, operating for approximately 2,000 hours at Cummins Power Generation in Minneapolis, and meeting (pending DOE confirmation) SECA targets for durability and cost. Phase 2 of the program will bring a critical transition from current fuels used with SOFC (LPG or natural gas) to diesel fuel for mobile applications including RV, marine and truck auxiliary power units (APUs). The program is moving forward toward development, leading to possible commercial production in 2013. This program combines the efforts of the DOE national laboratories, private industry and universities. Federal funding is critical to support the research needed to keep this technology moving from the laboratory to commercial viability.

Thank you for this opportunity to present our views on these programs which we believe are of great importance to our Nation's energy and economic security as well as continued environmental progress. These programs are critical to needed advancements in the transportation and power generation sectors.

PREPARED STATEMENT OF THE UNIVERSITY OF TULSA

Dear Respected Members, Senate Appropriations Subcommittee on Energy and Water: I respectfully ask for the continuation of the funding of the project titled "Development of Next Generation Multiphase Flow Prediction Tools" for the fiscal year of 2008. This project was selected in response to DOE's Oil Exploration and Production solicitation DE–PS26–02NT15375–02, Public Resources Invested in Management and Extraction (PRIME), July 15, 2002. The project started on June 1, 2003 and scheduled to be completed by August 31, 2008. The anticipated DOE contribution for 2008 is $107,940. This funding is significantly leveraged by The University of Tulsa ($151,355 (58 percent of total cost)). In the rest of my testimony I would like to emphasize the importance and results of the project.

The "easy" oil and natural gas finds are becoming a rarity as we depleted them posing a significant problem of energy shortage. Oil and gas industry, academia and government are working to improve enabling technology to facilitate more produc-

tion from existing resources and exploitation of "difficult to produce resources including ultra deep water resources, heavy oils, and unconventional natural gases."

The developments of fields in deep and ultra-deep waters (5,000 ft and more) are becoming more common. It is inevitable that production systems will operate under multiphase flow conditions (simultaneous flow of gas-oil-and water possibly along with sand, hydrates (ice-like structures, and waxes)). Recovery of resources from deep waters poses special challenges and requires accurate multi-phase-flow predictive tools for several applications, including the design and diagnostics of the production systems, separation of phases in horizontal wells, and multiphase separation. The available tools cannot properly account for the three-phase flow. At best, they lump oil and water phases as a single liquid phase, assuming homogeneous liquid flow. Therefore, the development of revolutionary next-generation multiphase flow predictive tools is needed.

Multiphase flow prediction is essential for every phase of hydrocarbon recovery, from design to operation. Recovery from deep waters poses special challenges and requires accurate multiphase-flow predictive tools for several applications, including the design and diagnostics of production systems, separation of phases in horizontal wells, and multiphase separation. The overall objective of the proposed work is to develop new technologies that will enable future exploitation of hydrocarbons from deep waters through the development of revolutionary next-generation predictive tools for the simultaneous flow of gas-oil-water in pipes.

The novel software tool developed in this project help design proper production and transportation systems. There are many impacts of the new tool being developed. For the industry, it is imperative to have accurate predictive tools for the production and transportation of hydrocarbons and associated water. The lost production from a single offshore pipeline due to inadequate design can cost $500,000 or more per day. More importantly, the lack of technology can result in overly conservative designs that can render some projects cost-prohibitive. Any technological improvement towards increases in producible reserves and efficient production practices, such as the novel software developed in this project, will realize more hydrocarbon production and increase U.S. employment. Moreover, the new technologies may give U.S. companies a technological advantage to exploit similar fields or technical services in other countries, creating possibly more job opportunities for U.S. residents. For the public at large, the availability of additional domestic hydrocarbon reserves will reduce the dependency of the United States on hydrocarbon imports, bringing more stability to U.S. energy markets and the U.S. economy as a whole.

Significant progress has been made in this project. The model, engine of the software, has already been developed for the prediction of flow behavior during production and transportation of gas, oil, and water through wellbores and pipelines. Closure relationships describing the distribution between the liquid phases—namely mixing and inversion are proposed. Significant improvements are observed over the predictions by the two-phase unified models that assume a fully mixed liquid phase. The three-phase unified model is currently being enhanced by improving the closure relationships. The model is being incorporated in various software packages by the software companies.

In conclusion, DOE's contribution to this project has already been invaluable. The results and deliverables of the project are being incorporated in available design software for design engineers to use. Moreover, two graduate students funded through the project are employed in oil and gas by companies operating in the United States serving the public through working on oil and gas development projects in the United States. One more year of support is needed to fully complete the project. We ask that the funding for this project to be continued in fiscal year 2008.

PREPARED STATEMENT OF THE GAS TECHNOLOGY INSTITUTE

This submittal is intended for the Senate Subcommittee on Energy and Water. Comments are for consideration for establishing the fiscal year 2008 Fossil Energy Oil and Natural Gas Program budgets. Thank you for the opportunity to provide the subcommittee with information for use during deliberations.

Recently, a new record was established! The technically recoverable gas resource base in North America hit a 30-year high based on the latest estimate by the National Petroleum Council in their comprehensive Year 2003 study. Our understanding of the gas resource base has resulted in a five-fold increase over the last 30 years (See Figure No. 1).

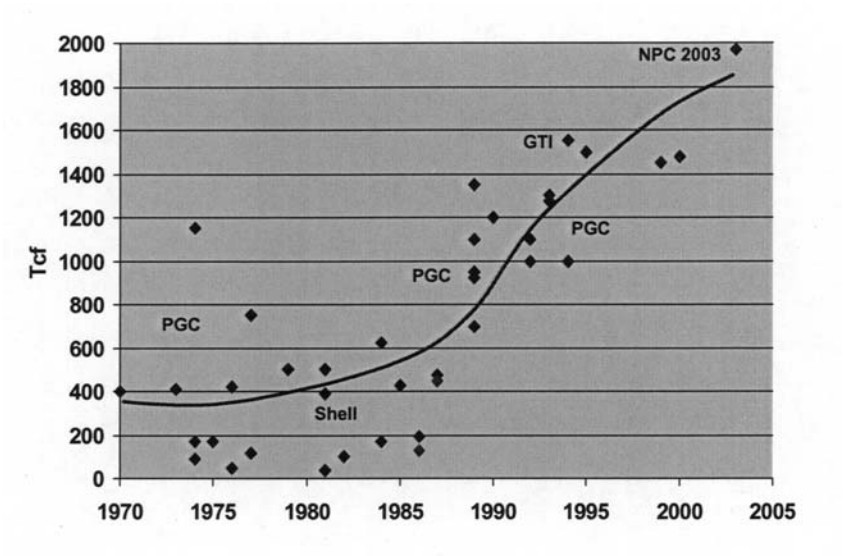


FIGURE 1.—*Technically Recoverable Gas Resource Base Estimates (Tcf) Modified from William Fisher, et. al. University of Texas*

With the resource base at record highs—expectations might be for gas prices to be at record lows. Having just paid our winter heating bills everyone is aware of current natural gas prices. Understanding this dichotomy requires and understanding of both our remaining oil and gas resource base.

Our resource base while large and diverse is also heavily explored and difficult to access. Oil and gas is found in rocks that are deeper in depth onshore greater than 15,000 ft. Oil and gas is found in lower permeability formations, in deeper waters offshore, in environmentally sensitive areas (Rocky Mountains) and is at greater distances from markets (Alaska). All of these factors combine to the point where our large technically recoverable resource is also technically challenging.

The resource is there however . . . and located within North America. Our remaining oil and gas endowment is a considerable asset and is being overlooked.

We continue to drill an increasing number of oil and gas wells but they produce less resource for many of the reasons just discussed.

Demand exceeds supply and we all know the consequence of that situation whether the commodity be a gallon of gasoline or a gallon of milk. We are experiencing record high oil and gas prices that will lead to significant economic hardship if action is not taken.

The action to be taken is a renewed emphasis on technology. New technology must be developed and applied. Ten years ago, Coalbed Methane was part of the technical resource base with little production. A focused research program initiated by the Department of Energy resulted in gas production that now satisfies 7 percent of our gas demand (Figure No. 2 Coalbed Methane Production).

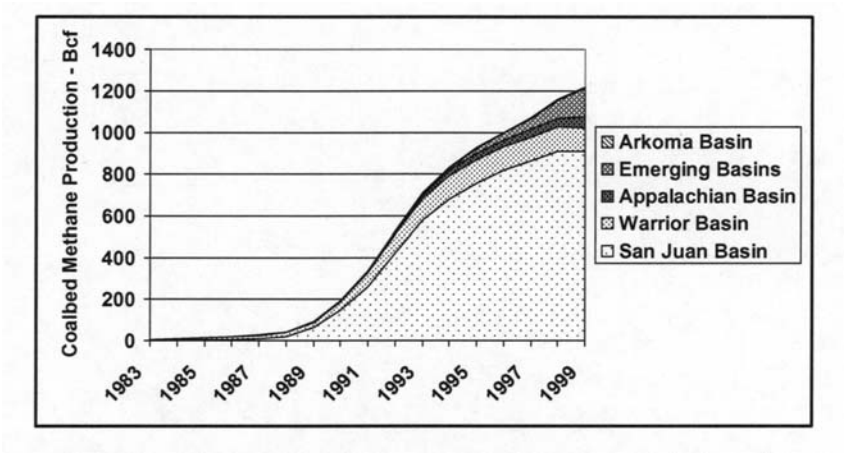


FIGURE 2.—*Coalbed Methane Production in the United States*

Funding for Oil and Gas R&D was almost cut in half during the 1990's. Adequate gas supplies and $2.00 wellhead prices put pressure on the bottom line. The industry, for sound business reasons, was not investing in supply R&D sufficient to meet mid-term demand. The super-majors, while they may have significant research budgets, have other more profitable options overseas. The service companies, which meet many of the research needs of large producers, do so at the direction of their clients. The smaller independents, which develop most of our onshore oil and gas resources, do not have the resources to invest in the R&D. Now, with gas prices at $6.00 and oil at $60 abandoned R&D capabilities are sorely missed.

We require a renewed focus on our domestic resource base to fully utilize our significant and valuable natural gas and remaining oil endowment. New technology is the key to converting "Resource to Production."

The National Petroleum Council as part of their 2003 study on natural gas estimated the impact of various actions on natural gas supplies and prices. Figure No. 3 illustrates the fact that new technology can have as high or greater impact than most other options. With this level of impact new technology programs should be receiving top priority during budget deliberations.

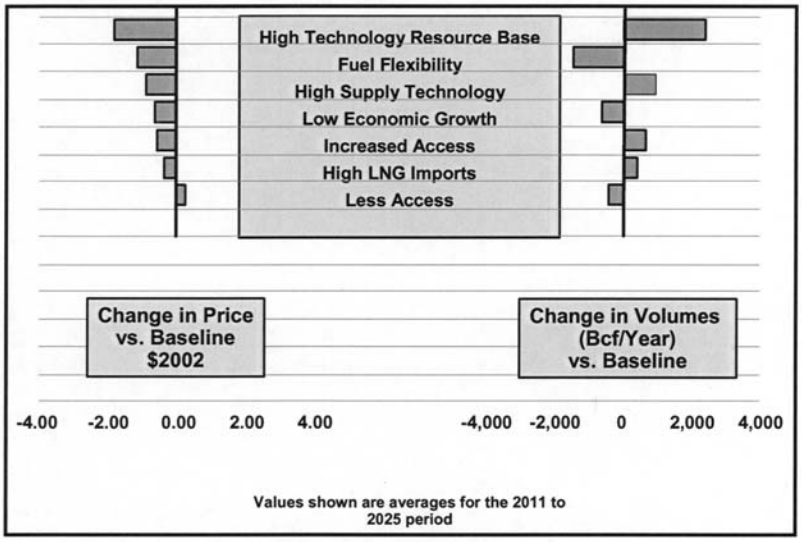


FIGURE 3.—*NPC Sensitivity Studies on Gas Price and Supply*

The Department of Energy Oil and Gas program is the last remaining organized R&D effort with a focus on our remaining domestic oil and gas resource base. Important projects have been developed in several strategic areas including:

—Unconventional gas resources such as tight gas sands, coalbed methane and gas from shales.
—Microhole drilling for remote exploration and minimum land impact.
—Stripper or low production oil wells.
—Environmental issues including water produced from oil and gas operations.
—Access to Federal lands with minimum impact.
—Technology transfer for Independent producers.

Just when the need is greatest and at a time when research efforts of this type should be significantly increased in size, the administration has recommended that the programs be eliminated.

I strongly believe that meeting domestic oil and gas supply has value to the Nation on par with all other federally supported programs, and that congressional and administration program and funding priorities should reflect that importance.

PREPARED STATEMENT OF THE INTERSTATE OIL AND GAS COMPACT COMMISSION

Mr. Chairman and members of the Subcommittee, on behalf of the Interstate Oil and Gas Compact Commission (IOGCC), I am submitting this testimony in support of fiscal year 2008 funding for a new U.S. Department of Energy program that would address a serious public safety and environmental problem that affects all the states that historically drilled for oil and gas. Specifically, IOGCC is supporting a $10 million appropriation to permanently plug abandoned and "orphaned" oil and gas wells.

The member states of the Interstate Oil and Gas Compact Commission account for more than 99 percent of the oil and natural gas produced onshore in the United States. Formed by Governors in 1935, the IOGCC is a congressionally-ratified interstate compact of 30 member states. The mission of the IOGCC is two-fold: to conserve our nation's oil and gas resources and to protect human health and the environment.

The orphan oil and gas well plugging program for states was authorized in Section 349(g) and (h) of the Energy Policy Act of 2005. For lack of congressional appropriation, the U.S. Department of Energy has yet to establish the program, however, the section authorizes up to $20 million annually in federal matching funds to states for the purpose of plugging abandoned wells—some of which are over a century old.

The program matches existing state funds to speed the plugging and clean-up of old wells for which there is no responsible party.

No new orphan wells can be created, since today's state regulatory structures, which require adequate bonding or insurance coverage, ensure that the costs of plugging will be covered if the responsible party becomes unwilling or unable to perform the task. Plugging the remaining orphan wells by supplementing state programs will create no new bureaucracy and will provide a lasting solution to the problem.

States have taken the lead in addressing the orphan well issue, and thousands of sites have been reclaimed and wells permanently plugged by the states. All oil and gas producing states have established plugging funds, but they are insufficient to address a timely cleanup and plugging of the remaining orphan wells. It is estimated that approximately 60,000 orphan wells remain that have the potential to cause public safety or environmental harm. The requested $10 million appropriation to match state oil and gas plugging funds will permanently plug the nation's remaining orphan wells over the next 5 years.

The potential for groundwater contamination is the primary environmental concern associated with orphan wells. Unplugged wells can potentially serve as a conduit for the migration of fluids into a ground water aquifer. In some cases, fluids could flow all the way to the surface, potentially contaminating surface soils surrounding the well.

Public safety is also in jeopardy from unplugged wells. Escaping methane gas from undiscovered pre-Civil War era wells can migrate to the surface where unsuspecting homeowners and businesses may be required to evacuate until the danger can be ameliorated. Similarly, farm equipment and equipment operators can be seriously injured by the unearthing of unknown oil or gas wells buried under decades of soil on agricultural land. States have excellent programs to find and identify such public safety hazards, but plugging and cleaning up the sites is dependent on adequate funding.

This program is not an earmark, but rather an authorized U.S. DOE program. Funding of the orphan well plugging program would set in place an efficient and simple program to direct funding to state plugging efforts. The appropriation would be directed to the U.S. Department of Energy, which in turn would utilize the IOGCC as the fund administrator, as directed by the authorizing statute. IOGCC would help ensure that federal dollars would be dedicated to dealing with the wells that pose the greatest danger to public safety and the environment. An IOGCC Task Force has developed a prioritization schedule to guide the well selection process. States would match the federal funding, and submit a completed plugging report to the IOGCC for reimbursement. The long-range goal is to plug every orphan well in the nation that poses a threat to the environment or public safety.

Thank you for this opportunity to submit our testimony. We urge the Subcommittee's favorable consideration of this request. For questions or further information, please feel free to contact Diane S. Shea, IOGCC Washington Representative, at dsshea60@verizon.net, or 301–913–5243.

PREPARED STATEMENT OF THE NUCLEAR WASTE STRATEGY COALITION

Mr. Chairman and distinguished members of the Committee, the Nuclear Waste Strategy Coalition (NWSC or Coalition) appreciates this opportunity to present a Statement for the Record regarding the status of the fiscal year 2008 Department of Energy (DOE) Budget Request.

ABOUT THE NWSC

The NWSC is an ad hoc group of state utility regulators, state attorneys general, electric utilities and associate members representing 46 member organizations in 26 states. The Coalition was formed in 1993 out of frustration at the lack of progress DOE had made in developing a permanent repository for spent nuclear fuel (SNF) and high-level radioactive waste (HLRW), as well as Congress's failure to sufficiently fund the nuclear waste disposal program (Program) since 1982. The mission and purpose of the NWSC is to achieve:

—Removal of commercial spent nuclear fuel and high-level radioactive waste from temporary civilian and decommissioned storage sites located in 33 states.
—Authorization of a temporary, centralized commercial spent nuclear fuel storage facility.
—Appropriations from the Nuclear Waste Fund (NWF) sufficient to enable the DOE to fulfill its statutory and contractual obligations.

—Augmentation of transportation planning and regulations to facilitate transportation systems plan.
—Capping of the NWF fee at the present one-tenth of a cent per kilowatt-hour.
—Operation of a permanent repository at Yucca Mountain that is capable of receiving waste as soon as possible upon authorization by the Nuclear Regulatory Commission (NRC).

FISCAL YEAR 2008 APPROPRIATIONS

Fiscal year 2008 is a pivotal year for the Program, and the NWSC strongly supports the DOE's fiscal year 2008 budget request. Congress has the opportunity to determine the direction of the Program by appropriating the full $494.5 million as requested by the DOE in its fiscal year 2008 budget. As stated by Mr. Ward Sproat, Director, DOE/Office of Civilian Radioactive Waste Management (OCRWM), during his March 7, 2007 testimony, it is absolutely vital for Congress to fully fund the Program in order for the DOE to carry out the latest projected Best-Achievable Schedule opening date of March 2017 for the permanent repository that includes the filing of the license application to the NRC in June 2008.

Other DOE objectives in the fiscal year 2008 request include certifying the licensing support network, completing the supplemental Yucca Mountain Environmental Impact Statement, designing the standard canisters to be used by the industry, performing critical personnel safety upgrades at the Yucca Mountain site, analyzing and reporting to Congress on the need for a second repository, resolving comments and issuing the final EIS for the Nevada rail line that is required to transport SNF and HLRW to the permanent repository, and funding independent scientific studies by the State of Nevada, Nye County, Inyo County, the University of Nevada and affected units of local government.

NUCLEAR WASTE FUND

There are adequate funds available in the NWF to implement the federal policy for permanent disposal of SNF and HLRW, provided Congress appropriates them. Since 1983, ratepayers from 41 states have paid more than $28 billion, including interest, into the NWF. The NWF was established by the U.S. Congress for safe, timely, and cost-effective centralized storage and the development of a permanent repository. The nation's ratepayers who receive electricity from nuclear generating utilities pay over $750 million per year into the NWF, and with interest credits, this amount exceeds $1.2 billion annually. To date, approximately $10 billion has been spent to assure the national repository is developed in the most responsible manner to protect the health, safety, and security of every American, including those in Nevada, as well as each of the States with a nuclear power plant. The Fund now holds more than $18 billion, including interest.

Regrettably, the NWF account balance has been used to support other programs and camouflage the federal deficit rather than to develop the permanent repository. Consequently, more than 55,000 metric tons of SNF and HLRW are presently stranded at more than 100 sites (commercial and defense) in 39 states. The NWSC asks that Congress codify the NWF annual receipts as offsetting collections to ensure that every cent collected from the ratepayers will be delivered to the Program, as intended by the 1982 Nuclear Waste Policy Act, as amended (NWPA).

NUCLEAR WASTE FUND REFORM

NWSC members believe it is vitally important that Congress ensure the Program is funded in a manner that will allow the DOE to implement the federal Program in accordance with the NWPA. The Program is already in default of the NWPA requirement to begin waste acceptance by 1998, and continues to slip further behind schedule.

For instance, the DOE's fiscal year 2007 budget request for the Program was $544.5 million. However, Congress appropriated $444.5 million, a $100 million reduction. Consequently, three dozen workers at the Yucca Mountain project have already lost their jobs and several hundred others may face layoffs in the months ahead. Such cuts will likely result in further setbacks to the Program schedule.

Additionally, in March 2007 the DOE submitted to Congress the "OCRWM Budget Projection fiscal year 2009-fiscal year 2023 Executive Summary," that projected annual budget expenditures of integrated Program needs through completion of the repository surface facilities. The projected budget is based on funding requirements for construction of the repository and the transportation infrastructure needed to meet the Best-Achievable Schedule opening date of March 2017, assuming enactment of the Administration's legislative proposal the Nuclear Fuel Management and Disposal Act.

To help keep the Program on track and the Best-Achievable Schedule, the NWSC strongly supports the Administration's proposal for reforming the mechanism for funding the Program. In March 2007, the Administration submitted to Congress a legislative proposal that, among other things, would provide a stable source of funding for this Program by reclassifying mandatory NWF receipts as discretionary, in the amount equal to appropriations from the NWF for the disposal program. Funding for the Program would still have to be requested annually by the President and appropriated by the Congress from the NWF.

While not calling for carte blanche funds for the DOE without Program oversight, the NWSC has been very supportive of the OCRWM program over the years and has worked to ensure that Congress appropriate sufficient funds for the nuclear waste transportation and disposal program. We continue those efforts today as we encourage Congress to introduce comprehensive legislation that reforms the NWPA, such as the "Nuclear Fuel Management and Disposal Act," proposed by the Administration on March 6, 2007. Congress has an opportunity to enhance the management and disposal of SNF and HLRW, ensure protection of public health and safety and the territorial integrity and security of the permanent repository through legislative reform. Moreover, reforming the annual funding for the Program, assures the 41 states' ratepayers that their payments into the NWF are being used for their intended purpose—the removal of SNF and HLRW from commercial and decommissioned nuclear power plants.

Continued under-funding will have dire consequences on the completion of the nation's permanent repository, the transportation infrastructure system plans and the transportation and disposal of canisters. As several members of Congress have commented in the past, "This Program has been starved for funding"—the 2010 deadlines for waste fuel acceptance at Yucca Mountain was, "a pipe dream at existing funding levels." We hope that the 2017 deadline is not another "pipe dream."

LAWSUITS

It has been more than ten years since the DOE defaulted on its obligations, as stated in the Nuclear Waste Policy Act of 1982, as amended, to remove SNF and HLRW from the nation's nuclear power plants. In its 1996 Indiana-Michigan decision, the U.S. Court of Appeals affirmed that the DOE was obligated to start moving waste on January 31, 1998, "without qualifications or condition."

More than 60 utilities have sued the federal government for damages associated with DOE's default to meet its 1998 obligations. The 11th Circuit Court of the U.S. Court of Appeals has ruled that these damage payments will not come from the Nuclear Waste Fund. Meanwhile, the U.S. Court of Claims has awarded more than $220 million to plaintiffs so far. As stated in Mr. Sproat's testimony, DOE has estimated that each year the repository's opening is delayed beyond 2017, the U.S. taxpayers' potential liability to contract holders will increase by approximately $500 million per year. The longer Congress withholds adequate annual funding from DOE and declines to reform the NWPA, the greater the potential liability will be to the nation's taxpayers.

If the DOE fails to meet vital Program milestones such as submitting the license application to the NRC, the financial liability the DOE faces through lawsuits will continue to mount. As the DOE continues to delay honoring its contracts with utilities to remove spent fuel from plant sites, both the amount of SNF and HLRW stored, and the costs associated with storing it increase. NWSC members are concerned about the increased costs that ratepayers must bear as a result of these delays.

TRANSPORTATION—RIGOROUS SAFETY STANDARDS

The DOE has proven that it can safely transport SNF and HLRW from plant sites across the nation. Since the 1960s, more than 3,000 shipments of spent nuclear fuel from nuclear power plants, government research facilities, universities and industrial facilities traveling over 1.6 million miles, "without a single death or injury due to the radioactive nature of the cargo."[1] This equates to more than 70,000 metric tons of SNF, an amount equal to what the NWPA authorizes for Yucca Mountain. Shipments include 719 containers from the Naval Nuclear Propulsion program between 1957 and 1999, and 2,426 highway shipments and 301 railway shipments from the U.S. nuclear industry from 1964 to 1997. In addition, since 1996, shipments of spent nuclear fuel have been safely transported to the United States from 41 countries to the DOE facilities;[2] again, without a single death or injury—not one.

[1] National Conference of State Legislatures' Report, January 2000.
[2] U.S. Department of Energy Report to the Committees on Appropriations, January 2001.

If a repository is licensed at Yucca Mountain, the DOE projects approximately 4,300 shipments over a 24-year period, averaging 175 shipments of spent nuclear fuel per year, a relatively small amount compared with the approximately 300 million annual shipments of hazardous materials (explosives, chemicals, flammable liquids, corrosive materials, and other types of radioactive materials) that are currently transported around the country every day.

Furthermore, the DOE has safely and successfully made more than 5,542 transuranic waste shipments at the Waste Isolation Pilot Plant (WIPP) in New Mexico as of March 12, 2007.[3] The Western Governors' Association (WGA) signed an agreement with the DOE in April 1996 that affirmed regional planning processes for safe transportation of radioactive material. All regional high-level radioactive waste transportation committees also endorsed the WGA approach. The WIPP transportation planning system is setting the standard for safety and proving to be a critical step toward solving the nation's spent nuclear waste disposal transportation program.

To ensure safety at on-site spent fuel storage facilities and during transportation, the material is stored in containers that meet the NRC's rigorous engineering and safety standards testing. To satisfy the NRC's rigorous standards for subsequent transportation approval, these containers have been dropped 30-feet onto an unyielding surface, dropped 40 inches onto a 6-inch vertical steel rod, exposed for 30 minutes to a 1,475 °F fire, submerged under 3 feet of water for eight hours, immersed in 50 feet of water for at least eight hours (performed in a separate cask), and immersed in 656 feet of water for at least one hour.[4]

CONCLUSION

The federal government's failure to deliver extends back several decades and the U.S. Congress must immediately address the growing need of disposal of SNF and HLRW. Therefore, it is vitally important that the leadership in Congress fully fund the nuclear waste disposal program for fiscal year 2008 and pass legislation that reforms Program funding for the continued progress of the permanent repository. While the Program continues to face complex challenges, passage of legislation will allow the Program to remain viable and afford the opportunity for ultimate success.

In contrast, the NWSC does not support competing legislation that would have the DOE take title of SNF at plant sites. This previously introduced bill proposes stranding fuel indefinitely throughout the nation while the nation's ratepayers continue to pay in perpetuity into the NWF, which is not an acceptable option.

Based on DOE reports, the NWSC understands the Global Nuclear Energy Partnership (GNEP) program would reduce the volume, heat and toxicity of byproducts placed in the permanent repository. However, this program does not diminish in any way the need for, or the urgency of, a geologic permanent repository at Yucca Mountain, particularly because the Navy, research and legacy fuel are not candidates for the recycling program.

The DOE fiscal year 2008 budget contains $2 million for a study ordered by Congress to determine whether a second repository should be built, and where, as required under Section 161(b) of the NWPA. The DOE has already stated that it would start its review with the two-dozen candidate sites that were under consideration prior to selection of the Yucca Mountain site. Therefore, it is clear that all states have a stake in following through with the nuclear waste disposal policy that Congress selected when it passed the NWPA and reinforced when it voted in 2002 to support the President's selection of Yucca Mountain as a site suitable for development of the national repository.

The members of the NWSC urge Congress to take a long-term view of our nation's energy needs, national security interests, and fairness to both ratepayers and electric utilities by appropriating full funding for the Program for fiscal year 2008. The Coalition members believe receipt of requested annual funding will make it possible for DOE to meet its projected schedule and eventually bring the nuclear waste disposal program to fruition as promised and mandated by the 1982 Nuclear Waste Policy Act, as amended.

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[3] U.S.DOE/Waste Isolation Pilot Plant Shipment Figures, March 2007.

[4] Nuclear Regulatory Commission Testing Requirements, 10 CFR Sections, 71.61, 71.71, and 71.73.

PREPARED STATEMENT OF THE UNIVERSITY CORPORATION FOR ATMOSPHERIC RESEARCH (UCAR)

On behalf of the University Corporation for Atmospheric Research (UCAR) and the university community involved in weather and climate research and related education, training and support activities, I submit this written testimony for the record of the Senate Committee on Appropriations, Subcommittee on Energy and Water Development.

UCAR is a 70-university member consortium that manages and operates the National Center for Atmospheric Research (NCAR) and additional programs that support and extend the country's scientific research and education capabilities. In addition to its member research universities, UCAR has formal relationships with approximately 100 additional undergraduate and graduate schools including several historically black and minority-serving institutions, and 40 international universities and laboratories. UCAR's principal support is from the National Science Foundation with additional support from other federal agencies including the Department of Energy (DOE).

DOE Office of Science

The atmospheric and related sciences community appreciates Congress' continued support for the Administration's American Competitiveness Initiative, and its goal to double the DOE Office of Science budget by fiscal year 2016. We are pleased that the fiscal year 2008 request again makes the Office of Science a high priority. The needs of the country demand that DOE continue to produce a world-class program in science and energy security research. The Office of Science manages fundamental research programs in basic energy sciences, biological and environmental sciences, and computational science, and supports unique and vital parts of U.S. research in climate change, geophysics, genomics, life sciences, and science education. Continuing to implement the doubling of basic research funding within DOE will result in educating, training and sustaining thousands in the nation's workforce (28,000 in fiscal year 2008) in our laboratories and universities.

I urge the Subcommittee to fund the DOE Office of Science at the level of the President's fiscal year 2008 budget request of $4.4 billion, and to enable the agency to apply that entire amount toward planned agency research priorities. As Director of the Office of Science Raymond Orbach recently stated, "These are extraordinary times for science." This investment in our country's scientific leadership will enable many researchers to make extraordinary progress in numerous areas of discovery.

Biological and Environmental Research (BER)

Within the Office of Science, the Biological and Environmental Research (BER) program develops the knowledge necessary to identify, understand, and anticipate the potential health and environmental consequences of energy production and use. These are issues that are absolutely critical to our country's well being and security, and now more than ever, they are being scrutinized by Members of Congress and the media in light of the recent Intergovernmental Panel on Climate Change (IPCC) report that states that warming of the climate is "unequivocal." Peer-reviewed research programs at universities, national laboratories, and private institutions play a critical role in the BER program by involving the best researchers the nation has to offer, and by developing the next generation of researchers. Approximately 27 percent of BER basic research funding supports university-based activities directly and 40 percent supports basic research at national laboratories. All BER research projects, other than those that have been in the "extra projects" category, undergo regular peer review and evaluation.

The President's BER Request for fiscal year 2008 is $531.9 million, a 15 percent increase over the fiscal year 2007 Joint Resolution. While this is a substantial increase, it should be seen in the context of past appropriations, the President's higher fiscal year 2007 request for BER, and the decline of BER funding that has taken place in the recent past. With the elimination of congressionally directed projects, BER received a three percent increase in the final fiscal year 2007 Joint Resolution. The fiscal year 2008 request, therefore, makes up much lost ground. I urge the Subcommittee to fund Biological and Environmental Research at the level of the fiscal year 2008 Budget Request, $531.93 million, a 4.5 percent increase over the fiscal year 2007 Request, and to enable BER to apply that entire amount toward planned agency research priorities that are peer-reviewed and that involve the best researchers to be found within the nation's university research community as well as the DOE labs.

BER's Climate Change Research Program

The International Polar Year (IPY) 2007–2008 officially began March 1, with over 200 scientific projects planned, involving thousands of scientists from over 60 nations examining a wide range of physical, biological and social research topics. The scientific need to focus on the remote areas of the Earth will provide better understanding of the current global climate.

DOE's IPY activities are supported by the DOE Office of Science's Climate Change Research Program in which research is focused on understanding the basic chemical, physical, and biological processes of the Earth's atmosphere, land, and oceans and how these processes may be affected by energy production and use, primarily the emission of carbon dioxide from fossil fuel combustion. DOE's Climate Change Prediction Program's contribution to the IPY includes improving climate change projections using state-of-the-science coupled climate models in time scales of decades to centuries and space scales of regional to global.

BER's Climate Change Research also contributes substantially to the nation's Climate Change Research Initiative (CCRI) goals of understanding and predicting climate change, including its causes, consequences, and potential for abrupt change. The long-term DOE goal is to deliver improved climate data and models for policy makers and to substantially reduce differences between observed temperature and model simulations at regional scales. This work is critical to the ability of policy makers and stakeholders to provide stewardship resulting in a healthy planet—and it is particularly important as signs of increasingly dramatic change in our climate and environment appear.

The Climate Change Research Request of $138.1 million for fiscal year 2008 is a 2.4 percent increase over the fiscal year 2007 Request. I urge the Subcommittee to fund Climate Change Research at an fiscal year 2008 level that is consistent with the requested increase for BER stated above, a 4.5 percent increase over the fiscal year 2007 Request, for a total of $144.3 million, and to enable DOE to apply the entire amount toward planned national research priorities.

Advanced Scientific Computing Research (ASCR)

Within 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 that are necessary to research the major scientific questions being addressed by the Office of Science. Development of this capacity is a key component of DOE's strategy to succeed in its science, energy, environmental quality, and national security missions.

ASCR's continued progress is of particular importance to atmospheric scientists involved with complex climate model development, research that takes enormous amounts of computing power. By their very nature, problems dealing with the interaction of the earth's systems and global climate change cannot be solved by traditional laboratory approaches.

Within ASCR, several programs are of particular importance to climate change computer modeling work. The Leadership Computing Facility (LCF) at Oak Ridge National Laboratory (ORNL) provides a high performance computing resource for the Climate Science End Station and, in 2008, will continue its development into a world class facility with over 80 percent of its resources being made available to unclassified scientific research. In addition, the National Energy Research Scientific Computing Center (NERSC) operated by Lawrence Berkeley National Laboratory, and the Energy Sciences Network (ESnet) are also important enablers for climate research. These computational and networking resources play a vital role in the progress of U.S. climate research.

The high performance computing facilities for the Office of Science serve thousands of scientists throughout the country at laboratories, universities, and other Federal agencies. Computing time is awarded to research groups based on peer review of submitted proposals. Basic research accomplished at these facilities covers a wide range of disciplines including climate modeling. ESnet enables researchers at laboratories, universities and other institutions to communicate with each other using collaborative capabilities that are unparalleled. This high-speed network enables geographically distributed research teams to collaborate effectively on some of the world's most complex problems. Researchers from industry, academia and national labs, through this program, share access to unique DOE research facilities, support the frequent interactions needed to address complex problems, and speed up discovery and innovation.

LCF, NERSC, and ESnet play complementary roles in advancing the complex and challenging science of climate change and other scientific areas of extreme importance to the security and quality of life of our citizens. I urge the Committee to sup-

port the President's fiscal year 2008 request of $340.2 million for DOE Advanced Scientific Computing Research, a 6.8 percent increase over the fiscal year 2007 request, and to enable DOE to apply the entire amount toward planned national priorities.

Scientific Discovery Through Advance Computing (SciDAC)

BER and ASCR partner to support SciDAC, a progressive, breakthrough program that includes the creation of a first-generation Earth System model based on the extremely successful Community Climate System Model. A major SciDAC goal is to understand basic chemical, physical, and biological processes of the Earth's atmosphere, land, and oceans and how these processes may be affected by energy production and use. Much of the research is designed to provide the data that will enable an objective assessment of the potential for, and consequences of, global warming. This work is becoming increasingly critical as evidence mounts that regions of Earth are warming at an alarming rate. SciDAC research activities are competed via a merit review process and carried out at universities, national laboratories, and private institutions.

Fiscal year 2008 funding will provide support for SciDAC activities including Centers for Enabling Technologies (CETs) that provide the innovations in computational research and development for petascale computational and data management endeavors, including climate research.

BER funding for SciDAC is requested at $7.7 million for fiscal year 2008 with ACSR supporting SciDAC Computational Partnerships at $50.2 million, $21 million of which will fund the CETs. I urge the Committee to support the President's fiscal year 2008 requests within BER and ASCR for overall SciDAC funding.

DOE plays a vital role in sustaining U.S. scientific leadership and generating U.S. competitiveness in a time when other countries are investing heavily in scientific research and technology. On behalf of UCAR and the atmospheric sciences research community, I want to thank the Subcommittee in advance for your attention to the recommendations of our community concerning the fiscal year 2008 budget of the Department of Energy. We understand and appreciate that the nation is undergoing significant budget pressures at this time, and support absolutely the effort to enhance U.S. security and quality of life through the American Competitiveness Initiative, of which the DOE Office of Science is a critical component.

PREPARED STATEMENT OF FUELCELL ENERGY, INC.

FuelCell Energy, Inc. appreciates the opportunity to submit this statement in support of the Department of Energy's Fossil Energy, Fuels and Power Systems, Fuel Cell Program. We urge the Subcommittee to continue to support this breakthrough program by appropriating $80 million for development of this highly efficient, clean, and secure energy technology.

DOE's Fossil Energy Fuel Cell Program, through the Solid State Energy Conversion Alliance (SECA) fuel cell activity, is developing technology to allow the generation of highly efficient, cost-effective, carbon-free electricity from domestic coal resources with near-zero atmospheric emissions in central station applications. The program directly supports the president's FutureGen project through the development of cost-effective, highly efficient, power blocks that facilitate sequestration in coal-based systems. The technology will also permit grid independent distributed generation applications by 2010.

SECA fuel cell systems operating on coal gas are building blocks for zero emissions power, the ultimate goal of the President's FutureGen Program. These systems are projected to be available at a cost of $400/kw. In addition, the technology developed in this program will produce electricity at up to 60 percent efficiency in coal-based systems, produce near-zero emissions, and be compatible with carbon sequestration.

In all applications SECA fuel cells will be both low-cost, with the above-stated goals of $400/kw, as well as highly efficient. Integrated with coal gasification, such systems will approach 60 percent efficiency compared to the existing coal-based power generation fleet average of about 33 percent efficiency. In distributed generation applications even higher efficiencies may be reached, and cogeneration opportunities can further increase efficiency.

Along with these attributes fuel cells are one of the cleanest technologies available in terms of atmospheric emissions, which enhances their attractiveness for urban applications or applications in areas of non-attainment for Clean Air Act emissions. They also provide 24 hour, silent operation.

Finally, coal-based fuel cell systems will increase energy security by using domestic resources. In distributed generation applications fuel cells can eliminate transmission and distribution system infrastructure concerns and issues by providing generation near the point of use and by being able to operate in a grid-independent mode.

The SECA Program consists of six integrated industrial manufacturing teams designing fuel cell systems, developing the necessary materials, and ultimately responsible for deploying the technology. These teams are complemented by two to three dozen core technology performers providing generic problem-solving research needed to overcome barriers to low-cost, high performance technology as identified by DOE and the manufacturing teams. The core technology teams are universities, national laboratories, and other research oriented organizations. This unique structure assures that a variety of approaches to solving the problems associated with fuel cells will be undertaken in a manner that will increase the chances of success for this highly complex technology.

Several of the manufacturing teams are developing systems for application to large central generation systems characterized by FutureGen. The remaining manufacturing teams are developing fuel cells for possible use in both these large systems as well as in distributed generation applications such as auxiliary power units, military power applications and remote or on-site power generation.

The DOE budget request for this program for fiscal year 2008 is $62.0 million, approximately the same level anticipated for fiscal year 2007 funding. This level of funding will continue to support the current program, which involves larger-scale Phase II development work on the part of manufacturing teams in the program and continued effort by the core technology performers. However, in order to deliver full scale fuel cell system hardware for the FutureGen project additional support is necessary to assist and accelerate the creation of manufacturing capability by the formation of teams between existing fuel cell stack developers and industry with the goal of delivering hardware by the scheduled date of 2011 and also to keep the base program on schedule.

We believe that the SECA fuel cell program has achieved the progress to date as anticipated by the program managers, and will continue to display such progress given sufficient funding support by DOE and the Congress. Hybrid technology has been successfully integrated into the program and an emphasis on use with coal-based systems has been established. Industry partners in the program have continued and increased cost-sharing support. All major stack developers have met the initial goals of the program allowing continuance to more advanced stages of development. This technology is essential to meeting the efficiency and emissions goals of the President's FutureGen program and will also provide low-cost, low-emissions alternatives for distributed generation applications. Therefore, we urge you to support our request for $80 million to execute the DOE Fossil Energy, Fuels and Power Systems, Fuel Cell Program in fiscal year 2008.

PREPARED STATEMENT OF THE GROUND WATER PROTECTION COUNCIL

The following request by the Ground Water Protection Council (GWPC) is to restore Congressional appropriations of $64 million for the Department of Energy's (DOE) Office of Fossil Energy (FE) Research and Development (R&D) program. This appropriation will continue to fund the RBDMS system and electronic commerce applications at $1,500,000. These programs developed by the Ground Water Protection Council (GWPC) streamline data management for oil and gas permitting, enhance oil and gas production, and protect the environment. Restoring the funding for these programs is an urgent priority for the continued development of domestic oil and gas and sustained environmental protection.

The GWPC is a respected national organization of state ground water, UIC, and oil and gas regulatory agencies with a successful track record of providing solutions to ground water protection related issues that are environmentally protective, scientifically based, cost effective and publicly accepted. Through the GWPC, states work together to strengthen their ability to protect ground water resources in more effective and cost efficient ways. We are the proud recipient of the Secretary of Energy's "Energy 100 Award"—given to the top 100 most successful and publicly beneficial projects (RBDMS) in the last 30 years of the USDOE.

RBDMS/CERA Accomplishments.—Data utilities from the Risk Based Data Management System are used in 25 states and one Indian Nation. RBDMS streamlines state oil and gas permit and response times, enhances ground water protection, and provides improved public and industry joint access to data, saving money for state and federal agencies, increasing production for small independent domestic opera-

tors, and creating real time efficiencies in state and federal domestic oil and gas programs. Over the life of these successful programs, the states have matched federal funding with their own funds at a 3:1 ratio. RBDMS/CERA projects have resulted in:

—*Improved Environmental Protection*.—State agencies have achieved higher levels of environmental protection through information management tools developed with DOE FE R&D funding. For example, current RBDMS application development efforts are making it possible to overlay oil and gas well and coal mining location information on source water protection area maps to assess areas of review and protect underground sources of drinking water. These same technologies are allowing regulatory agencies to track the quality and quantity of fresh and produced waters and to make important policy decisions about how these resources should be managed.

—*Increased Domestic Oil and Gas Production and Increased State Revenues*.—Regulatory agencies have documented that the information access and technology research afforded by the DOE FE R&D program has helped industry maximize the recovery of oil and gas from marginal wells. Nationwide, many marginal wells are being reworked and brought back online at a significant cost savings. For example, in North Dakota, more than 250 wells over the last 5 years have been re-entered and drilled horizontally at a cost savings of at least $300,000. By keeping these wells available, industry has saved in excess of $75,000,000 in North Dakota alone. If such technology was not made readily available through the DOE FE R&D program, many wells with recoverable product would have been plugged or shut in.

—*Increased Data Sharing*.—Improved access to oil and gas agency data gives exploration geologists the ability to develop prospects remotely and to drill and operate their leases more efficiently. The DOE FE R&D funding has given regulatory agencies the opportunity to share data with small, independent operators that would not otherwise have the ability to access such accurate information, thus aiding exploration and development efforts.

Fiscal Year 2008 Funding for RBDMS/CERA.—DOE Fossil Energy Research and Development program funding is a sound investment in domestic energy production and environmental protection. The DOE FE R&D program funds research projects that are encouraging small- and medium-sized industry operators to expand into previously cost-prohibitive areas increasing the industry's ability to make more knowledgeable decisions about resource deployment, exploration, and well management and is reducing overhead costs associated with regulatory compliance. Fiscal year 2008 funding would provide:

— *E-Commerce*.—The development of new RBDMS e-commerce applications in fiscal year 2008 will increase environmental monitoring and compliance and at the same time decrease both cost and time allocation for small oil and gas producers. The result is money saved by state governments and federal agencies and increased domestic oil and gas production.

—*Cost Effective Regulatory Approaches*.—Cost Effective Regulatory Approach (CERA) projects are designed to facilitate the development of petroleum resources in an efficient and environmentally friendly manner. For example, we are currently working on minimizing ground water impacts from oil shale production. Projects such as these are critical to the continued enhancement of oil shale production capacity in the United States.

—*Energy-Water Nexus*.—The USDOE has a goal of minimizing water consumption by energy-producing industries. The GWPC will develop software applications that will aid state agencies in tracking water quality and quantity data related to oil and gas production. Automated data will assist states in the analysis of related water consumption.

— *CO_2 Geosequestration*.—Capture and geologic storage (geosequestration) of CO_2 from power plants is one important tool for decreasing the release of this greenhouse gas to the atmosphere. However, geosequestration of CO_2 in underground formations presents a potential threat to underground sources of drinking water. The GWPC will facilitate the development of regulations to manage CO_2 geologic sequestration by:

—Creating a stakeholders workgroup made up of state agencies, environmental groups, energy resource companies and other affected parties focused on regulatory needs.

—Evaluating the legal basis for regulations development including federal and state authorities and rules.

—Working with the scientific and technical communities to incorporate the best available information to assure the process is environmentally sound.

—Expanding the successful RBDMS system to track and monitor CO_2 Geosequestration wells.

Many domestic oil and gas fields are no longer economical for the major oil and gas companies to operate but still hold vast resources. Without small independent operators, these resources would not be recoverable. By increasing its recoverable resources by only 5 percent, the United States would produce billions of barrels of additional domestic oil. Conversely, failure to use new technologies to fully recover these resources would result in the loss of billions of dollars of revenues that would instead be sent overseas for oil imports.

About 5,000 domestic independent companies drill 90 percent of the nation's wells and produce 68 percent of our domestic oil and 82 percent of the natural gas. While efficient in their operations, these companies lack the necessary research programs to fully develop our domestic resources. The partnerships created between these independent producers and universities through the DOE FE R&D program are the focus of 85 percent of the program's resources. The DOE FE R&D program increases environmental protection, access to adequate supplies of oil and gas, and tax revenues generated through oil and natural gas production. This funding allows states to help expand oil production while at the same time better protect the environment through increased data access and more efficient data sharing between state agencies and producers. RBDMS and CERA projects help further these benefits.

The Ground Water Protection Council requests continued funding in the amount of $1,500,000 for RBDMS and CERA programs and encourages restoration of Congressional appropriations of $65 million for the Department of Energy's (DOE) Office of Fossil Energy (FE) Research and Development (R&D) program.

PREPARED STATEMENT OF SOUTHERN COMPANY GENERATION

Mr. Chairman and Members of the Committee: Southern Company operates the Power Systems Development Facility (PSDF) (http://psdf.southernco.com) in Wilsonville, AL for the U.S. Department of Energy's (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. It has fulfilled this expectation. I would like to thank the Senate for its past support of the PSDF and request the committee's continued support. This statement supports the Administration's budget request for DOE coal R&D which includes $25 million for work at the PSDF. These funds are necessary to conduct the future test program agreed to with DOE which includes wide-ranging support of the DOE Clean Coal Technology Roadmap. A major highlight of the PSDF test program is carbon capture technology development for coal-based power generation (see details below). Also included is support for FutureGen—the integrated hydrogen and electric power production and carbon sequestration research initiative proposed by President Bush. DOE has identified the PSDF as one of the primary test centers to support FutureGen through sub-scale component testing of technologies under consideration for inclusion in the FutureGen full-scale project.

A key feature of the PSDF is its ability to test new coal-based power generation systems at an integrated, semi-commercial scale. Integrated operation allows the effects of system interactions, typically missed in un-integrated 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 PSDF is large enough to produce industrial scale data, yet small enough to be cost-effective and adaptable to a variety of technology research needs.

In addition to semi-commercial scale testing, the PSDF has slip-stream testing capability for cost effective technology screening. Future test work at PSDF will include the scale-up and continued development of several CO_2 capture technologies

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[1] Current PSDF participants include Southern Company, the Electric Power Research Institute (EPRI), KBR, Siemens Power Generation, Inc. (Siemens), Peabody Energy, the Burlington Northern Santa Fe Railway Company, and the Lignite Energy Council. The Lignite Energy Council includes major producers of lignite (who together produce approximately 30 million tons of lignite annually); the nation's largest commercial coal gasification project; and investor-owned utilities and rural electric cooperatives from a multi-state area that generate electricity from lignite, serving two million people in the Upper Midwest region. The Council also has over 250 contractor/supplier members who provide products and services to the plants and mines. In addition to the Wilsonville plant site major work is planned for the PSDF, or components are being developed at the following locations: Grand Forks, ND (sub-scale gasifier testing), Houston, TX (gasifier development); Orlando, FL (gas turbine low-NO_X burner), Pittsburgh, PA (filter fabrication), Deland, FL (filter fabrication), and Holly Springs, MS (gasifier fabrication).

being developed either at DOE's NETL facility, at private R&D laboratories or at PSDF. These CO_2 capture technologies are envisioned for integration with existing or future Integrated Gasification Combined Cycle (IGCC) plants to reduce the cost penalties associated with the removal of CO_2 from syngas prior to combustion for power generation. As a part of the effort to capture CO_2, substantial new technologies, such as improved catalysts for water gas shift technology are needed and will be tested at PSDF. Also included in the PSDF research plans are efforts to enhance the coal feeding systems to enable wider ranges of coal as well as biomass to be economically and reliably introduced into many different versions of IGCC technology under consideration commercially today. PSDF has already demonstrated proof-of-concept of this new DOE-funded fuel feed system and will continue technology development to commercial ready scale.

A part of DOE's goals are to encourage the commercial deployment of technologies for which DOE has contributed R&D funding. Consistent with these goals, the PSDF will also provide process technology support to efforts to commercialize transport gasifier technology. DOE has partnered with Southern Company and the Orlando Utilities Commission (OUC) as part of a competitive solicitation under the Clean Coal Power Initiative (CCPI) to build an advanced 285-megawatt transport gasifier-based coal gasification facility at OUC's Stanton Energy Center in central Florida. The facility will use sub-bituminous coal and include state-of-the-art emission controls to demonstrate the cleanest, most efficient coal-fired power plant technology in the world. In addition, the PSDF will also provide process support to a recently announced commercial deployment of the transport gasifier to be constructed in Mississippi. This project will showcase the first ever application of modern IGCC technology on Gulf Coast lignites. The PSDF will also support the deployment of other emerging commercial technologies for use on other IGCC systems, including coal feed and particulate control technologies.

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 carbon dioxide (CO_2) management. EPRI estimated the value of advanced coal R&D using the modern financial technique called "Real Options". The major conclusion of this study[2] is that the value to U.S. consumers of further coal R&D for the period 2007–2050 is at least $360 billion and could reach $1.38 trillion. But, for these benefits to be realized the critically important R&D program outlined in the Clean Coal Technology Roadmap must be conducted.

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 and hydrogen production 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 United States. 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.

One of the key national assets for achieving these benefits is the PSDF. The fiscal year 2008 funding for the PSDF needs to be $25 million to support construction of new technologies that are critical to the goals of the Clean Coal Technology Roadmap and to the success of the development of cost-effective climate change technologies, of the type that will be demonstrated in the FutureGen project. The major accomplishments at the PSDF to date and the future test program planned by DOE and the PSDF's industrial participants are summarized below.

[2] EPRI Report No. 1006954, "Market-Based Valuation of Coal Generation and Coal R&D in the U.S. Electric Sector", May 2002.

PSDF Accomplishments

The PSDF has developed testing and technology transfer relationships with over 50 vendors to ensure that test results and improvements developed at the PSDF are incorporated into future plants. Major subsystems tested and some highlights of the test program at the PSDF include:

Transport Reactor.—The transport reactor has been operated successfully on subbituminous, 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. It 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 Fine Ash Removal Subsystems.—The key to successful pressurized gasifier operation is reliable operation of the coal feed system and the filter vessel's fine ash removal system. Modifications developed at the PSDF 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 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.

Syngas Cleanup.—A syngas cleanup train was constructed and has proven capable of meeting stringent syngas decontamination requirements. This module that provides an ultra clean slip stream is now available for testing a wide variety of technologies.

Sensors and Automation.—More than 20 instrumentation vendors have worked with the PSDF to develop and test their instruments under realistic conditions. 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 has been operated on coal-derived syngas.

PSDF Future Test Program

Future testing at the PSDF is focused on supporting CO_2 capture technologies (of the type to be used by FutureGen) and the Technology Roadmaps. These programs aim to eliminate environmental issues that present barriers to the continued use of coal including major reductions in emissions of SO_2, CO_2, NO_X, particulates, and trace elements (including mercury), as well as reductions in solid waste and water consumption. Since FutureGen will require testing evaluations and scale-up of emerging technologies, DOE has identified the PSDF as a key location for support testing of the new technologies prior to consideration for inclusion in FutureGen.

With adequate funding, work at the PSDF will include:

H_2/CO_2 Separation Technologies.—Integrate and test advanced and potentially lower cost H_2/CO_2 separation technologies to assess their performance on coal-derived syngas.

Water Gas Shift Enhancements.—A variety of water gas shift reactor configurations and sizes can be tested at the PSDF. Optimizing the operation of shift catalysts when exposed to syngas at the PSDF and evaluating their economics will provide valuable input for the FutureGen project.

Advanced Syngas Cleanup.—Test new advanced syngas cleanup systems for reducing hydrogen sulfide, hydrochloric acid, ammonia, and mercury to near-zero levels.

New Particulate Control Device Programs.—Evaluate alternative filter system internal designs, on-line detector of particle breakthrough, and improved resistance probes.

Improved Fuel Feed Systems.—Evaluate alternatives that have been identified to conventional lock hopper feed systems and coal preparation methods.

Biomass Co-Feed.—Evaluate co-feed options with biomass and coal. Design and run a test to gasify up to a 20 percent mixture of biomass with coal in the Transport Gasifier.

Transport Gasifier.—Continue transport gasifier testing to expand useable feedstocks, including low- and high-sodium lignites and bituminous coals as well as biomass mixtures with these coals and provide syngas for testing of syngas clean-up and downstream systems.

Syngas Cooler.—Test alternative designs that are less complex, have lower capital cost, and offer better control of the syngas exit temperature.

High-Temperature Heat Exchangers.—Test high-temperature heat exchangers as they become available for use in both advanced combustion and gasification technologies.

Fuel Cell.—Support NETL fuel cell development with slip-stream testing. Install and test a 5 to 10 MW hybrid fuel cell/gas turbine module.

Sensors and Automation.—Evaluate automation enhancements that simulate commercial control strategies. Further development at gasification operating conditions is planned for measuring coal feed rate, temperature, gas analysis, dust at low levels, and hazardous air pollutants.

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 one of every seven electric consumers (approximately 44 million people). We appreciate the opportunity to submit this statement outlining our fiscal year 2008 funding priorities within the Energy and Water Development Subcommittee's jurisdiction.

Federal Power Marketing Administrations (PMAs)

Power Marketing Administration Interest Rate Proposal.—The Administration's fiscal year 2008 budget includes a recommendation that would raise electricity rates by changing the interest rate charged by the Southeastern Power Administration (SEPA), the Southwestern Power Administration (SWPA), and the Western Area Power Administration (WAPA) on all new investments in projects whose interest rates are not set by law. Specifically, the Department of Energy's (DOE) budget calls for the these three Power Marketing Administrations (PMAs) to set their interest rates at the level that government corporations pay to borrow funds from the federal government. To implement this proposal, DOE will amend the regulation that governs how the PMAs establish their rates and will do so administratively, without any consultation with or action from Congress.

The Administration's budget proposes to increase the interest rate charged on all new investments in these hydroelectric facilities to a level that is charged to government corporations—the rate that reflects the interest cost for the federal government to provide loans to government corporations. SEPA, SWPA and WAPA are neither government corporations nor do they borrow funds from the U.S. Treasury. All rates are set to recover the dollars appropriated by Congress for the investment in the hydroelectric facilities and to cover the cost to operate these projects. If implemented, this proposal could increase rates considerably for customers served by most of the Power Marketing Administrations.

This proposal creates a serious precedent and should be rejected, because: (1) the process for implementing the proposal can be done without congressional involvement or approval; (2) the proposal would arbitrarily raise revenue from electric customers for deficit reduction; and (3) the proposal reverses decades of rate making precedent and accepted cost recovery practices by administrative fiat. We urge the Subcommittee to block the implementation of this proposal.

Bonneville Power Administration "Net Secondary Revenue" Proposal.—Also included in DOE's fiscal year 2008 budget is a proposed administrative action that would direct the Bonneville Power Administration (BPA) to use any net "secondary market revenues" in excess of $500 million per year towards accelerated federal debt repayment. Because the change would be made through the rulemaking process, congressional approval is not needed for the policy to go into effect. This proposal was strongly opposed by Congress in fiscal year 2007, and was ultimately blocked by Congress for that year. The Office of Management and Budget (OMB) calculates that this plan would provide a total of $924 million from fiscal year 2007–2016 from these "higher-than-historical net secondary revenues." OMB believes that this measure is needed to free up BPA borrowing authority. However, experts in the

Northwest have calculated that the proposal would result in a 10 percent wholesale rate increase that BPA would be forced to pass on to ratepayers. The Congressional Budget Office has calculated that the effect of the Administration's proposal on the U.S. Treasury would be $300 million over 10 years beginning in 2008. We urge the Subcommittee to block the implementation of this proposal.

"Emergency" Purchase Power and Wheeling.—This new Administration proposal for fiscal year 2008 would require that any funds used from the "Continuing or Emergency Funds" be paid back within a year of being used. Like the Agency rate and net secondary revenue proposals, this one can be implemented administratively. Currently, in most cases, the PMAs have 3–5 years to recoup those funds from the customers—paid back with interest. Emergency funds are available to the PMAs when an unforeseen emergency situation (such as a drought) causes them to go beyond their allotted ceiling for purchase power and wheeling expenditures in a given fiscal year. Similar to the Agency rate proposal, this change is unjustified from a practical standpoint and is also problematic from a precedent-setting perspective. We urge the Subcommittee to block implementation of this proposal.

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 agree with the Administration's budget requests for PP&W for fiscal year 2008, which are as follows: $425.2 million for Western Area Power Administration (WAPA); $62.2 million for Southeastern Power Administration (SEPA); and $45 million for Southwestern Power Administration (SWPA).

Costs of Increased Security at Federal Multi-Purpose Projects.—Following the attacks of September 11, 2001, the Bureau of Reclamation (Bureau) embarked upon an aggressive program to enhance the security of federal dams to protect the facilities against terrorist attacks. Based on historical precedent, the Bureau initially determined that the costs of increased security measures should remain a non-reimbursable obligation of the federal government. In fiscal year 2005, however, the Bureau reversed its position and asked for some of these costs to be reimbursed from power customers. That year, Congress disagreed with the Bureau's request that these expenses be reimbursable, but the following year, Congress directed that $10 million of the estimated $18 million for guards and patrols be provided by reimbursable funding. The bill also directed the Bureau to provide a report to Congress within 60 days that would delineate the planned reimbursable security costs by project. The report (issued in March 2006) was similar to the previous (May 2005) report, except that it also included "facility fortification upgrades" as a reimbursable cost. Previously, the Bureau had assured its stakeholders that only the costs of guards and patrols would be reimbursable. There has been some clarification on that position, but it is not entirely clear how replacement/upgrades would be treated. The Administration's fiscal year 2008 request for the Bureau's site security is $35.5 million, of which $18.9 million (for guards and patrols) would be designated reimbursable from water and power customers. This additional obligation in essence makes everything reimbursable at some point. Regardless of the details of the Bureau's report, APPA continues to believe in the validity of the historic rationale established in the 1942 and 1943 Interior Department Appropriation Acts for treating costs of increased security at multi-purpose federal projects as non-reimbursable obligations of the federal government. We therefore urge Congress to add language to the Energy and Water Development Appropriations Act of 2008 to clarify that all costs of increased security at dams owned and operated by the Bureau be non-reimbursable.

Renewable Energy Production Incentive (REPI) and Renewable Energy Programs.—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 recently 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. According to DOE sources, in order to fully fund all past and current REPI applicants, over $80 million would be needed for fiscal year 2008. Despite the demonstrated need, however, DOE has asked for only $4.96 million for fiscal year 2008, citing budgetary constraints. We greatly appreciate the Subcommittee's interest in this small but important program as evi-

denced by its support of funding for the program either at or above the Administration's budget requests in the last few years despite the tight budgetary environment. We urge the Subcommittee to continue its support with an even greater increase.

Storage for High-level Nuclear Waste.—We support the Administration's efforts to finalize the location of a permanent storage site at Yucca Mountain, Nevada. The Administration requested $494.5 million for fiscal year 2008, a decrease of $50 million from its fiscal year 2007 request, for the nuclear waste repository at Yucca Mountain. We encourage the Subcommittee to provide funding for the project at or above the Administration's request.

Advanced Hydropower Turbine Program.—APPA is disappointed with the Administration's decision to phase out this important program to develop a hydroelectric turbine that will protect fish and other aquatic habitats while continuing to allow for the production of emissions-free hydroelectric power. We urge the Subcommittee to consider providing funding for this important initiative.

Energy Conservation.—APPA appreciates the Subcommittee's interest in energy conservation and efficiency programs at DOE and we hope that the Subcommittee will once again allocate a funding level over and above the Administration's request for fiscal year 2008.

Weatherization and Intergovernmental Activities.—APPA is disappointed with the Administration's request of $204.9 million for fiscal year 2008, a decrease of $20.1 million from its fiscal year 2007 request, for helping to increase the efficiency of commercial and residential buildings, including weatherization assistance, and to support the state and community energy conservation programs.

Clean Coal Power Initiative and FutureGen.—APPA supports the Administration's request of $73 million for fiscal year 2008 for the Clean Coal Power Initiative. This is consistent with the President's commitment to fund this program at $2 billion over 10 years. We also urge the Subcommittee to provide the $108 million in newly requested funding for fiscal year 2008 for the FutureGen program.

Distributed Generation Fuel Cells.—APPA is disappointed with the Administration's request of $62.03 million for fiscal year 2007 for distributed generation fuel cell research and development, and urges the Subcommittee to allocate additional funding for this program.

Hydrogen Fuel Initiative and Vehicle Technologies.—APPA supports the Administration's efforts to improve the feasibility of making available low-cost hydrogen fuel cells, and supports its request of $309 million for hydrogen research and development in fiscal year 2008. APPA also supports the Administration's fiscal year 2008 request for $176 million for vehicle technologies that would apply hydrogen fuel cell technology to vehicles as well as provide for research for hybrid and electric vehicle technologies to facilitate widespread deployment of these technologies.

Navajo Electrification Demonstration Program.—APPA supports full funding for the Navajo Electrification Demonstration Program at its full authorized funding level. 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.

National Climate Change Technology Initiative (NCCTI).—APPA supports the Administration's efforts to promote greenhouse gas reductions through voluntary programs and investments in new technologies. We encourage the Subcommittee to consider allocating additional funds for the policy office of the NCCTI.

Federal Energy Regulatory Commission (FERC).—DOE has requested $255.4 million for the overall operations of the Federal Energy Regulatory Commission (FERC) for fiscal year 2008. APPA supports this request, which is an appropriate increase of $24.6 million over the fiscal year 2007 request given FERC's additional responsibilities under EPAct05.

PREPARED STATEMENT OF THE UNIVERSITY OF TULSA

Background and Issues

September 11, 2001, confirmed that both Middle East oil dependence and fragile infrastructure threaten national security. Domestic energy systems aren't secure unless they're designed to make large-scale failures impossible and local failures benign. Today the opposite is true in the oil and gas sector: The United States' extraordinarily concentrated energy flows could allow a devastating attack. Production of oil and gas, especially in the United States are also dwindling with each passing year. So has the ability to process the oil into valuable products such as gasoline to drive our vehicles. The United States depends on oil to move people and goods. Ninety five percent of the energy for transportation in the United States comes from oil. Transportation's demand for oil drives the market. Transportation accounts for

two-thirds of total U.S. petroleum use, and nearly all of the high value petroleum products, like gasoline and distillate fuel.

In the past, dependence on oil has cost our economy dearly. Oil price shocks and price manipulation by the OPEC cartel from 1979 to 2000 cost the U.S. economy about $7 trillion, almost as much as we spent on national defense over the same time period and more than the interest payments on the national debt. Each major price shock of the past three decades was followed by an economic recession in the United States. With growing U.S. imports and increasing world dependence on foreign oil, future price shocks are possible and would be costly to the U.S. economy.

On the government side, money has dried up, or is drying up, for oil and gas research as well. The Gas Research Institute (GRI) at one time funded close to $200 million per year in gas-related research. GRI's support came from a Federal Energy Regulatory Commission-mandated surcharge on interstate gas sales. The surcharge was phased out; however, producing an estimated $70 million in 2001, $60 million in 2002–2004. In July 2005, Subtitle J Ultra-Deepwater and Unconventional Natural Gas and Other Petroleum Resources were passed into law. The program under this subtitle addresses three areas: (1) Ultra-deepwater architecture and technology in the Outer Continental Shelf to depths greater than 15,000 feet, (2) unconventional natural gas and other petroleum resources, and (3) the technology challenges of small producers. The program guarantees to provide $50,000,000 per year with the potential of an additional $100,000,000 per year over the next 10 years. These funds should provide some long term solutions, but it should be noted that only a small portion of these funds (7.5 percent) will be used on conventional oil and gas studies that benefit the small producers. Furthermore, with this passage, additional pressure will be applied to close the National Energy Technology Office in Tulsa (formerly the National Petroleum Technology Office which was consolidated into the NETL in December 2000). Ironically, the Energy Bill provides almost no support for domestic oil production which desperately needs new technologies for mature fields to continue to support the Nation's energy future.

Research and Development (R&D) funding for major oil companies and service companies hit bottom around 2003 and increased significantly each year until at least 2005. The major oil companies during this period were increasing funding at around 20 percent year-over-year and the service companies were increasing funding at 10–15 percent. The real issue is what are the major companies researching. In general it is not things that benefit independent operations in the United States. Major integrated oil and gas producers have largely moved offshore or overseas. This has left onshore production increasingly in the hands of small independent producers who lack the resources to conduct R&D.

TU has been one of the leaders in providing new technologies for the oil and gas industry for almost a half century. DOE funding of our programs over the past 10 years has been integral to our growth. This growth is now being threatened. So, where will the funds come from to support conventional oil and gas research?

SOLUTION

Ultimately, the solution to the oil dependence problem lies in technological progress: developing technologies to find, process, and use energy more efficiently, and by creating new energy sources that can replace petroleum cleanly and inexpensively. However, if the science is not done now, the technology will not be available in the future when it is critically needed.

Energy security requires a program that focuses on infrastructure security, energy diversification and energy efficiency while facing energies challenges. This must be accomplished with environmentally friendly technologies using global partnerships and collaboration efforts. The University of Tulsa has many components of such a system in place and is now working on a plan to include others. In the meantime, our federal government must focus more of its funds on conventional oil and gas upstream and downstream research while other alternatives are developed, such as those through Subtitle J. These technologies can't be abandoned because potential replacement technologies are years away. It is critical that congress increase its commitment to oil and gas research. According to House Rpt. 108–542 Department of Interior and Related Agencies Appropriation Bill, 2005: "Oil and natural gas research is critical to improving current technology and ensuring the best use of our domestic oil and gas reserves. Despite the Committee's urging to the contrary, these research areas continue to be seriously under funded in annual budget requests." Unfortunately, trends in industry are working against this need of additional funds as well.

The DOE allocates less than 0.3 percent of its budget to actual oil and gas research yet ninety five percent of the energy for transportation in the United States

comes from oil. We urge you to reverse the trend and insure that funding is in proportion to the problems faced for the sake of our national security.

Complicating this year's funding issues is the Administration's support for major hydrogen energy research at the expense of a 20 percent reduction in energy efficiency and renewable energy efforts at DOE. The hydrogen fuel concept is not generating new energy, but merely using hydrogen as a carrier for natural gas or other energy sources without any infrastructure to support its wide deployment, whereas energy efficiency is the cheapest and quickest way to create more available energy for the Nation's future growth. Renewable energy is critically important for Oklahoma which possesses abundant wind and solar energy potential as well as a fledgling, but rapidly growing, biofuel industry. Biodiesel and cellulosic ethanol R&D are very important for the Nation while the corn ethanol boom actually diverts much needed fossil fuels to its production at very little gain in overall energy. Corn ethanol competes directly with beef and other livestock production which will adversely impact Oklahoma and other states. Further expanding its use at taxpayers' expense will not achieve desired energy goals and will create problems in other commodities.

We urge you to reduce hydrogen fuel research and continue robust energy efficiency and renewable energy R&D at DOE as well as to reinstate a federally managed oil and gas program which complements the Energy Policy Act of 2005's consortium approach to natural gas R&D. This will have the additional benefit of supporting academic programs in petroleum, geosciences, and engineering which are shortchanged in the Administration's new approach.

We thank you for the opportunity to submit this testimony and look forward to working with you to ensure that funding for conventional oil and gas research continues.

PREPARED STATEMENT OF THE AMERICAN MUSEUM OF NATURAL HISTORY

About the American Museum of Natural History

The American Museum of Natural History [AMNH] is one of the nation's preeminent institutions for scientific research and public education. Since its founding in 1869, the Museum has pursued its mission to "discover, interpret, and disseminate—through scientific research and education—knowledge about human cultures, the natural world, and the universe." It is renowned for its exhibitions and collections of more than 32 million specimens and cultural artifacts. With nearly four million annual visitors, its audience is one of the largest and most diverse of any museum in the country. Museum scientists conduct groundbreaking research in fields ranging from all branches of zoology, comparative genomics, and bioinformatics to earth, space, and environmental sciences and biodiversity conservation. Their work forms the basis for all the Museum's activities that seek to explain complex issues and help people to understand the events and processes that created and continue to shape the Earth, life and civilization on this planet, and the universe beyond.

Support for Department of Energy Science Mission and Goals

The Department of Energy (DOE) is a leading science agency, committed to enhancing U.S. competitiveness by providing world-class scientific research capacity and by advancing scientific knowledge in physical sciences and areas of biological, medical, environmental, and computational sciences-including genomic science. The American Museum of Natural History, in turn, is home to one of the world's largest natural history collections and to a preeminent molecular research program, which aligns with key areas of DOE's mission areas and research priorities.

Building on its strengths in genomic science, in 2001 the Museum launched the Institute for Comparative Genomics. The importance of comparative genomics cannot be overstated, as investigating genomics with a natural history perspective enlarges our understanding of the evolutionary relationships among organisms, including threat agents, and offers important applications for human health. The Institute's research programs leverage the Museum's unique expertise in evolutionary biology and draw on its unparalleled facilities, including a 700 CPU parallel computing cluster (the fastest, we believe, installed in an evolutionary biology laboratory and one of the fastest in a non-defense environment), high throughput sequencing capacity, and an ultra-cold tissue collection that stores specimens with preserved DNA, as well as expertise in using remote sensing and Geographical Information System (GIS) technologies to applied research questions.

The Institute has already enjoyed significant research achievements, which include advancing understanding of bacterial genomics and the evolution of pathogenicity, developing computational techniques to analyze chromosomal sequence data, and winning grants to lead international teams in assembling the "Tree of Life" and

for large-scale collaborative projects in the frontiers of integrative biology and in plant genomics. Other current projects include sequencing pathogens and, with NIH support, tracing the evolution of pathogenicity and transfer of disease-causing genes over time and between species-contributing to the advancement of national security research by increasing the knowledge base of current pathogen distribution and motility in the landscape. With this distinguished record, the Institute now seeks to advance its microbial genomics and computation research and training programs, including upgrading high throughput instrumentation, expanding the supercomputing cluster for biocomputation, supporting postdoctoral trainees to build the scientific workforce to sustain America's competitiveness, and expanding related public education and outreach in a teaching laboratory located in the new Hall of Human Origins.

Recognizing its potential to support the Department of Energy in its goals to strengthen U.S. scientific discovery and economic competitiveness, advance the frontiers of knowledge in areas of biological and computational sciences, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy, the Museum seeks in fiscal year 2008 to draw on the unparalleled resources of its Institute of Comparative Genomics in a partnership with DOE to advance these shared goals.

PREPARED STATEMENT OF THE AMERICAN WIND ENERGY ASSOCIATION

INCREASED R&D INVESTMENTS ARE CRUCIAL FOR WIND ENERGY TO BECOME A MAINSTREAM POWER SOURCE AND HELP SIGNIFICANTLY REDUCE GLOBAL WARMING POLLUTION

The American Wind Energy Association[1] (AWEA) appreciates this opportunity to provide testimony for the record on the Department of Energy's fiscal year 2008 wind energy program budget before the Senate Appropriations Subcommittee on Energy and Water Development.

For fiscal year 2008, the Bush Administration requested wind energy research and development (R&D) investments of only $40.1 million—a $4 million cut below current spending. This funding request does not recognize the strong contribution that wind energy is making—and can make—to produce clean energy, new jobs, and significant reductions in global warming pollution.

Request for the Department of Energy Wind Program: $110 million

AWEA requests a funding level of at least $110 million for the wind energy program at the Department of Energy (DOE) to support wind energy development at the national, state, and local levels. Working in conjunction with the U.S. wind industry, power producers, suppliers, industrial consumers and residential users, DOE provides important technical support, guidance, information, and limited cost-shared funding for efforts to explore and develop wind energy resources.

AWEA would like to commend the DOE wind program for its efforts to involve the industry in its program planning process. As a whole, the department has solicited input from AWEA on the direction of its program and has been responsive to comments received from the industry.

Overview

Wind energy could "supply up to 20 percent of our nation's electricity."—President George W. Bush, February 20, 2006.

Wind energy development in the United States is coming off a record year, with nearly 2,500 megawatts (MW) of new wind energy installed across 22 states. The industry expects to break that record in 2007. At the beginning of 2007, over 11,000 MW of wind energy facilities are operating in the United States, producing the equivalent amount of electricity needed to power about 3 million average American households.

Wind energy works for the environment and the economy because it generates energy without fuel, while providing a reliable hedge against rising energy costs. In addition, wind lowers consumer energy prices by offsetting increased costs in fossil fuels, offers significant rural economic development opportunities for communities, strengthens the nation's security by lessening our reliance on foreign sources of energy, and provides clean, emission-free electricity.

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[1] The American Wind Energy Association or AWEA, was formed in 1974. The organization represents virtually every facet of the wind industry, including turbine and component manufacturers, project developers, utilities, academicians, and interested individuals.

The industry believes that with smart investments today, wind can grow to supply fully 20 percent of America's electric power. During his 2006 State of the Union speech, President Bush stated that wind could eventually supply 20 percent of our electric supply and proposed spending more on R&D. With these factors in mind, wind energy is on the verge of becoming a major player in energy supply for the nation. However, a number of obstacles must be eliminated in order for wind to reach its full potential and become fully cost competitive with traditional energy technologies.

The work that takes place at DOE's wind program is a vital component in helping to eliminate those obstacles. AWEA appreciates the support the subcommittee has provided to the DOE wind program in recent years.

For fiscal year 2008, the Administration requested only $40.1 million, which is a $4 million cut below current spending of $44 million. This funding request is not consistent with the President's call for more R&D in this area and does not recognize the strong contribution that wind energy is making—and can make—to produce clean energy, new jobs, and significant reductions in global warming pollution.

We strongly believe that the funding provided by the subcommittee should reflect the important work conducted by the wind program and respectfully request that funding be significantly increased above the request level.

The wind energy program at the Department of Energy has a strong history of success. Over the last twenty years, the cost of wind energy has dropped by more than 80 percent, to a level that is close to competitive with traditional energy technologies. The cost of wind energy is currently between 5.5 to 9.5 cents per kilowatt hour (kWh), not including the Production Tax Credit (PTC). Over the last 2 years, however, the cost of wind energy—and all other sources of producing electric power—has actually been going up due to increases in commodity prices and short-term extensions of the renewable energy PTC.

Cost shared industry/government research and development activities at DOE and the National Renewable Energy Laboratory (NREL) have played an important role in this achievement. Programs such as Wind Powering America have been extremely effective in educating interested parties across the country on the benefits of wind power. We strongly support the continuation of the project.

Utility-Scale, Land-Based Turbine Technology: $50 million

The requested funding for further development of utility-scale, land-based turbine technology is very important to the wind industry. The wind industry requests $50 million for this program in order to reduce capital cost, improve capacity, and provide a foundation for wind energy technologies.

The primary focus of this program is to reduce costs and increase reliability of the technology. Federal investments are needed because there are fundamental technical issues that are not yet understood that are decreasing reliability and increasing costs. In addition, dramatic cost reductions will almost certainly require application of unproven, high risk concepts, such as those below:

Component Development

Rotor blades.—There are multiple opportunities for advanced materials and blade configurations to reduce the cost of energy from wind turbines. Promising areas for additional support are in developing turbine blades that can be easily assembled on-site and developing aeroelastically tailored blades, or blades that are able to change shape in response to the wind as a means of limiting stress.

Controls Sensors.—Advanced sensors to monitor the loading and position of wind turbine blades and other components that can be cost-effectively combined with modern control theories.

Other Components.—Towers and drive train systems are other major components where innovation is needed to reduce the cost of energy. In particular, developing a tower system that addresses transportation and installation constraints currently preventing further cost savings in these areas is of crucial importance.

Advanced Controls and Models Research

The application of innovative turbine control strategies shows considerable promise in helping to reduce loads and thus reduce the cost of energy. Substantial work is needed to fully understand the complex relationship between atmospheric conditions and wind turbine dynamics and how to utilize controls to optimize performance and minimize costs.

Resource Characterization

For advanced control theory to optimally reduce loads, the characteristics of the atmosphere within which the turbines are operating must be better understood. Research dollars focused on achieving the best means of characterizing the variations

in wind across the rotors depending on wind speeds and height of the turbines, tools to measure these characteristics, and models to represent the inflow for analytical purposes are all important efforts.

Market Acceptance/Transformation: $34 million

We request $34 million for market acceptance/transformation activities at DOE. Increased funding in this area would be targeted toward better understanding the impact of wind turbines on wildlife as well as developing tools and educational materials for policy makers and regulators to assist them in better understanding the environmental impact of wind energy projects. Funds are used for cost-shared research programs with industry and wildlife organizations to address targeted issues with avian and bat species.

States and permitting officials also seek technical assistance on project siting issues. DOE could serve as a clearinghouse for information and resources in these areas. Outreach to these audiences is also required so permitting authorities feel they are making informed choices. In addition, resources in this area would also be used to develop updated resource maps at an elevation of 100 meters above ground level. These maps have identified previously unknown wind resources in several states, spurring interest in the resource from state policy makers and regulators.

Reliability and Testing: $10 million

We would like to see $10 million provided for reliability and testing. Increased funding in this area would be used for three primary purposes:

—Support for a public/private partnership to build blade and dynamometer test facilities;
—Initiation of research that will increase the reliability of wind project energy projections, and;
—Expansion of research into the causes of premature failure of major wind turbine components such as gearboxes and generators.

Advanced Applications: $10 million

The Advanced Applications research will be targeted toward the integration of wind energy into generation of hydrogen, deep-water offshore technology research, resource characterization, loads and environment characterization and the environmental impacts of offshore applications. The wind industry requests $10 million to fund research in these areas. Such research is needed to identify the potential for wind energy in these areas as well as position the United States to play a leading role in the development of environmentally compatible wind energy applications.

AWEA believes that offshore wind energy facilities can play an important role in meeting the long-term energy needs of the country. However, we also believe that the focus of the DOE program in the near future should be placed on R&D efforts for land-based turbines.

Distributed Wind Systems (100 kW and below): $6 million

AWEA is encouraged by DOE's proposed increase for small wind R&D, but believes an even greater emphasis is needed for this technology (used to power an individual home, farm or small business). Distributed generation with small customer-sited power plants has great potential for reducing energy costs, promoting competition in the marketplace, and strengthening the nation's electrical supply network.

This program has provided invaluable support for the development and testing of more reliable small turbines for homes and businesses. The development of computer simulation tools allows designers to understand the furling behavior (when a turbine turns itself out of the wind during periods of very high wind speeds) of the turbines. AWEA believes that a $6 million DOE small wind budget would ensure that additional support is provided for certification testing of small wind generators. $6 million would also adequately fund research into manufacturing techniques to produce high-volume, low-cost components, with aerospace material properties and performance. These are all areas where support is needed to reduce the cost of energy and increase the reliability of small turbines.

The high up-front costs of small wind systems make it very difficult for this technology to gain wide acceptance in the domestic market. This would change if DOE had the resources to work with America's small wind manufacturers to achieve cost reductions similar to those achieved by the large, utility-scale wind industry. In some states that provide a rebate for purchasers, small wind turbine manufacturers have experienced a surge in sales, demonstrating the public support for cost-effective small wind turbines.

ADDITIONAL WIND INDUSTRY PRIORITY

Wind Energy Integration Efforts within DOE's Electricity Delivery and Energy Reliability Office (This funding is not located in the DOE Wind Account.)

DOE has requested only $115 million—an 8 percent cut—for its Electric Delivery and Energy Reliability Office responsible for assisting in modernization of the electric grid, including transmission corridor designation and federal line permitting under the Energy Policy Act of 2005. This work is crucial to growing the wind industry because it holds the key to moving wind energy from generally rural areas where it is produced to population centers where it is needed.

Resources would be focused on continuing the educational activities that allow utilities and policy makers to make informed decisions regarding the impact of wind on the electric transmission system. As the industry grows and the size of wind projects increases, additional case studies showing the impact of these large projects on the grid are needed. The industry has experienced considerable success in completing integration studies of major portions of the Midwestern grid. These studies have been well received by regulators and transmission providers and have helped to quantify the impact of wind on the transmission system. Similar studies of the western portion of the country and studies of higher wind penetration levels are needed. Additionally, educational materials for utility control room operators to help them understand the impact of wind power plants and how they can manage operational impacts with new forecasting tools would be helpful.

CONCLUSION

The President and the Congress have called for an increased commitment to the development of domestic renewable energy resources, particularly wind energy, to meet our nation's growing demand for electricity. Continued investments in wind energy R&D are delivering value for taxpayers by developing a domestic energy source that strengthens our national security, fosters rural economic development, creates new high-tech jobs, and helps protect the environment.

While the wind industry continues adding new generation capacity, a number of challenges still exist. Continued support for the Department of Energy's wind program is vital to helping wind become a mainstream energy source that helps significantly reduce global warming pollution. We believe that the funds appropriated to the wind program need to be commensurate with the President's call for more renewable energy, and urge the subcommittee to approve a significant increase in funding for the wind program.

AWEA appreciates the opportunity to provide this testimony to the Subcommittee. Thank you.

PREPARED STATEMENT OF THE NATIONAL RESEARCH CENTER FOR COAL AND ENERGY

PROGRAMS IN FOSSIL ENERGY, ENERGY EFFICIENCY, AND ENERGY RELIABILITY

Thank you for considering testimony from the National Research Center for Coal and Energy (NRCCE) on programs in Fossil Energy, Energy Efficiency, and Electricity Delivery. Comments and recommendations are provided in the following sections of our testimony.

Office of Fossil Energy

Our focus is on the core Fossil Energy R&D program, for which the Administration has recommended insufficient funding for fiscal year 2008.

Innovations for Existing Plants Program

The United States currently has more than 300 GW of coal-fired capacity that supplies over 50 percent of the Nation's electricity. Twenty years from now, most of these plants will still be providing base-load power. The Innovations for Existing Plants Program addresses the continuing critical role these plants will play in the future. However, the Administration has chosen not to fund this program in fiscal year 2008. It is prudent to invest in improving the operation of our existing workhorse power generation fleet. Our nation will benefit from advanced technology's ability to reduce the environmental impact of energy generation. This program should be restored to its previous level of $25 million for fiscal year 2008.

—*Mercury Research*.—Recent field tests on mercury control technology have shown that more research is required to obtain sufficient understanding of the chemistry of mercury for different coal types and the effectiveness of capture processes. Of the funding recommended, $10 million should be directed to the control of mercury emissions.

—*Optimal Water use in Power Generation*.—Power generation accounts for 40 percent of all water withdrawals in the United States, second only to agriculture, and competes with other industrial, agricultural, and consumer needs. Water scarcity exists not only in the arid Western States but also in the East where even large rivers like the Potomac and Susquehanna are unable to support additional power plants. Of the funding recommended, $10 million should be directed toward optimizing the use of water in power generation.

—*Use of Combustion By-Products*.—The By-Products sub-element of the Existing Plants Program keeps combustion by-products such as coal ash and scrubber sludge out of waste streams from power plants by developing environmentally friendly and economically attractive alternative uses. Before this sub-program was implemented, only 25 percent of combustion byproducts were beneficially used. That number is now over 40 percent. Without continued support, we expect increasing amounts of byproduct to enter the Nation's landfills. Of the funding recommended, $3 million should be directed toward the combustion by-products program.

Fuels Program

NRCCE recommends adding $9 million to the Fuels Program to reinstate a national liquid fuels program as a major thrust area and $3 million for the advanced separations research program.

—*Coal-to-Liquids*.—The promise of coal-to-liquids (CTL) technology for producing transportation fuels and chemicals has stimulated expressions of interest from at least 10 governors, the U.S. Department of Defense, and over 15 companies for constructing plants to promote energy independence. Developers cite the need for R&D to reduce plant costs, to improve conversion efficiency, to reduce the environmental footprint of CTL technologies, and to qualify CTL fuels for use in legacy and future transportation vehicles.

We need a national advanced core research program to ensure success of these new CTL plants, which in most cases will be first-of-a-kind commercial deployments in the United States. Funds should be directed toward computational research on process development and economic modeling, co-production with biomass and other technology advances to minimize CO_2 emissions, and advanced research in catalysis, wax separation, and reactor design engineering. Ancillary benefits include educating the U.S.-based human resource pool needed to meet personnel demands created by deployment of CTL industries on a large scale. Of the amount recommended, $1 million should be directed to continue the work initiated under Annex II of the U.S.-China Protocol for Energy Research to obtain information about China's CTL technology and the environmental /economic impacts of CTL plants in Shanxi Province. This valuable information will be obtained at a small fraction of the cost of financing a similar program in the United States.

—*Advanced Separations Research*.—The current emphasis on obtaining clean gas streams in gasification plants and on reducing mercury and other pollutant emissions from pulverized coal plants warrants continued research in advanced separations. This research will yield cleaner coals that combust more efficiently, thereby reducing carbon emissions as well.

Carbon Sequestration

The Zero Emissions Research and Technology (ZERT) Center is a consortium of five national labs and two universities that conducts coordinated research on geologic sequestration of carbon dioxide. The Center's fundamental research complements the Regional Carbon Sequestration Partnership and FutureGen programs and should be continued at $8 million in fiscal year 2008.

Oil and Natural Gas Programs

The Fossil Energy program in oil and natural gas supports small and independent producers—companies which do not have the money and may not have the expertise to undertake advanced research to extract the harder-to-get resources from mature fields. The oil and natural gas programs are largely responsible for training our next generation of petroleum engineers and geologists. Projects funded by the oil and gas programs support more graduate student degrees in these areas than any other single source. The natural gas program is laying the groundwork for substantial future resource recovery, including production from methane hydrates (which represent a potential 100 years supply for the United States) and from deep reserves such as the three mile well recently completed in Texas. The enhanced oil recovery program has the potential to provide the United States with more than 89 billion barrels of domestic oil that is currently not recoverable while sequestering large quantities of CO_2. Curtailment of these programs will severely restrict our ability to produce our

oil and gas reserves. We recommend restoration of these programs to their previous historic levels.

—*Petroleum Technology Transfer Council*.—We recommend continued funding at a level of $2.8 million for the programs administered by the Petroleum Technology Transfer Council (PTTC). The PTTC, working regionally through 10 universities, operates resource centers for oil and natural gas information, training, and conferences, all directed to the needs of small producers. PTTC programs play a critical role in providing independent producers throughout the country access to the best technology to explore for and to develop new and innovative domestic energy opportunities while remaining competitive in a global energy market. Federal support will be equally matched with state and private dollars.

Advanced Research

NRCCE recommends the addition of $5 million to the Advanced Research Program to support computational energy sciences and materials research.

—*Supercomputing Science Consortium*.—One of the major components of the Computational Energy Sciences program is support for advanced computational research at universities and national labs through time allocations at facilities such as the Pittsburgh Supercomputing Center (PSC). This activity is coordinated by the SuperComputing Science Consortium (SC_2), an organization consisting of the National Energy Technology Laboratory (NETL), the PSC, and higher education and advanced research organizations in the region near NETL. The SC_2 also conducts activities at the K–12 educational level that stimulate students to undertake science and engineering careers. Of the funds recommended, $2 million should be directed to the Computational Energy Sciences budget to support the SC_2 program.

—*Materials Research*.—An expanded suite of advanced materials is needed to improve the energy efficiency and environmental performance of coal-based power systems. NRCCE recommends that the Administration request for this program sub-element be increased by $3 million to a level of $10.1 million for fiscal year 2008. The additional funding should be directed toward the development of specialty metals, new alloys, and surface coatings that can function at substantially higher temperatures and/or withstand highly corrosive environments in applications such as sensors and controls, fuel cells, and harsh environments in multiphase flow energy systems. Of the added funding, $2 million should support initiatives at NETL-Albany and universities, for which cost sharing from industry should be required.

OFFICE OF FREEDOM CAR AND VEHICLE TECHNOLOGIES/EERE

NRCCE recommends $3 million for two programs in vehicle technologies that promote reduced emissions and energy savings in the transportation sector.

—*Transportable Emissions Testing Laboratory*.—U.S. DOE established a specialized Transportable Emissions Testing Laboratory in 1989 for research on improving fuel economy, advancing alternative fuels technology, and reducing exhaust emissions of heavy duty vehicles. The Laboratory provides valuable data to government agencies to establish reasonable emission level standards and to assess the effectiveness of new technologies. Heavy-duty engine emission standards established in 2007, and increasing interest in biodiesel, ethanol, hydrogen, natural gas and coal-to-liquids fuel necessitate further advanced fleet performance measurements. Of the funds recommended, the Transportable Emissions Testing Laboratory program should be continued at $2 million in fiscal year 2008.

—*Lightweight Composite Materials*.—Advanced composite materials improve energy efficiency by reducing structural weight to allow a higher fraction of payload for vehicles limited to the 80,000 pound maximum weight restrictions on national highways. Results from this program enable the design and fabrication of lighter-weight trailers, trucks, and buses. Significant fuel savings and reduced emissions are obtained through improved fuel efficiency associated with lighter vehicles and/or a reduced number of trips to deliver multiple payloads. Of the funds recommended, the Lightweight Composite Materials for Heavy-Duty Vehicles Program should be continued at $1 million for fiscal year 2008.

OFFICE OF INDUSTRIAL TECHNOLOGIES/EERE

Wasted energy is the single largest source of currently available energy in the United States. The Industrial Technologies Program (ITP) in EERE is the DOE's lead agency for improving industrial energy efficiency through high-value research, plant assessments, software tools, and training. Enhanced industrial energy effi-

ciency is the most cost-effective strategy for improving U.S. industrial competitiveness while reducing greenhouse gas emissions from energy-intensive manufacturing plants. In addition, the U.S. trade deficit can be reduced through export of industrial energy efficiency technologies and equipment to developing countries such as China and India. The ITP budget should be restored to its 2005 level of $73 million.

OFFICE OF ELECTRICITY DELIVERY AND ENERGY RELIABILITY

In fiscal year 2006, the Subcommittee appropriated funds for the Integrated Control of Next Generation Power Systems. This program enhances the reliability and security of the power grid through technology which is based on advanced communication, computer control, and electronics that enable real-time detection of system problems. The electrical circuits are then automatically reconfigured to minimize the potential impact of a natural disaster, human error, or a terrorist attack. This project will enable DOE to design system architectures to effectively control the intelligent, interoperable electric grids of the future. This program should be continued in fiscal year 2008 at $2 million.

PREPARED STATEMENT OF THE AMERICAN IRON & STEEL INSTITUTE

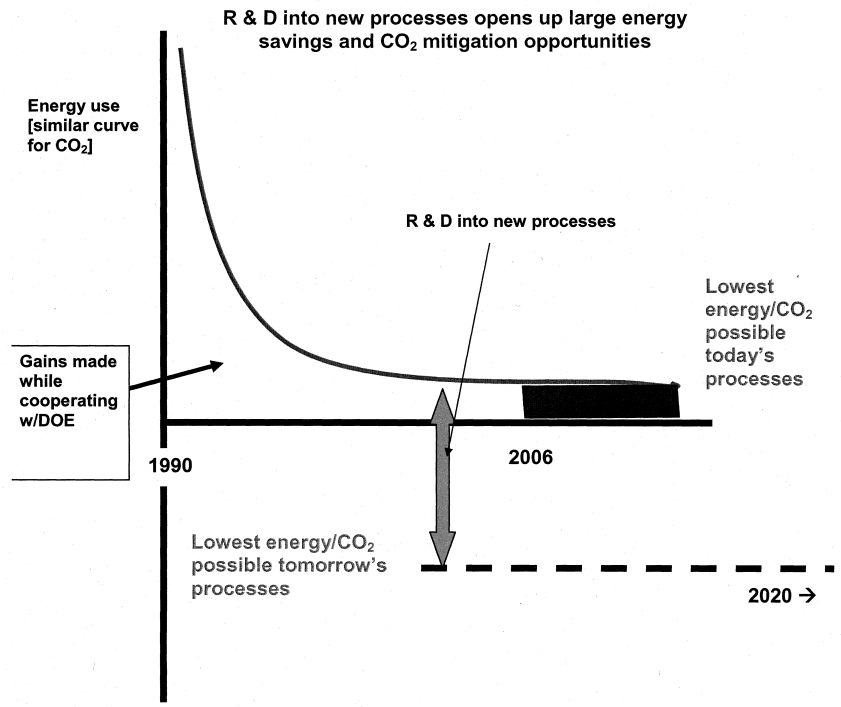
The basis for this testimony is to urge Congress to restore funding of the Industrial Technologies Program (ITP) line item for Steel within the Energy Efficiency and Renewable Energy section at the Department of Energy [DOE] to the original level of $10 million.

The stated goal of the ITP is to reduce the energy intensity of the U.S. industrial sector through coordinated research and development, validation, and dissemination of energy-efficiency technologies and operating practices. The Department of Energy and domestic steelmakers co-fund cutting-edge research that addresses the needs of the nation and our industry. The goal of these projects is to reduce energy consumption [thereby diminishing the nation's dependence on foreign sources of oil], lessen environmental impact [through emissions reductions] and increase the competitiveness of domestic manufacturers. Furthermore, what makes the ITP program so unique and appropriate is that only those projects with "dual benefits" [i.e., a public benefit such as reduced emissions or petroleum use, which justifies the DOE investment; and an industry benefit such as a more efficient steelmaking process, which justifies the industry investment] are initiated. It is important to note that federal funding does not go to steel companies, it is pooled with steel industry funds and awarded to qualified universities, national labs, and private research organizations through a competitive process.

In 2003, Congress appropriated $10 million to fund the Steel component of ITP. Unfortunately, in recent years the program [and the projects it supported] suffered deep budget cuts. This is the case once again, as for fiscal year 2008, the administration requested approximately $1.6 million.

It must be noted, that without restoring funding to fiscal year 2003 levels, true breakthrough programs cannot be fully developed. Universities, research labs and steelmakers have reached the threshold of what can be accomplished [in energy-efficiency improvements and emissions reductions] under the current funding structure.

The chart below is representative of the gains in energy efficiency made by materials manufacturers since 1990, i.e., during the time they have partnered with DOE.



This chart clearly shows that steelmakers have become very efficient for the processes they operate today. It is not coincidental these gains have occurred during the time the DOE ITP program for Steel was funded at $10 million annually. To make the type of gains in the future that have been seen since 1990, new process development is required and new process development requires funding be restored to historical levels. Some of the most promising new process development projects with the potential to reduce steelmaking CO_2 emissions by more than 70 percent are Ironmaking by Molten Oxide Electrolysis [now underway at the Massachusetts Institute of Technology] and Ironmaking by Flash Smelting using Hydrogen [University of Utah]. Both of these technologies show great promise and need fiscal year 2008 funding to proceed.

Summary

The Industrial Technology Program-Steel selects projects that have both public and private benefits, justifying the investment of both DOE and industry. In addition, the research is conducted at the most qualified facilities in North America, with over 80 percent of funding supporting tasks at universities, national labs and technology developers, many of which are small businesses. ITP-Steel is a unique and successful program that is not only beneficial to the domestic steel industry; it is beneficial to the nation as we attempt to become more energy-efficient while significantly improving the environment.

Please consider restoring ITP-Steel funding to the original level of $10 million so that its public and private benefits can reach even further into our economy. Thank you for your consideration.

PREPARED STATEMENT OF THE NUCLEAR ENGINEERING DEPARTMENT HEADS ORGANIZATION (NEDHO) AND THE NATIONAL ORGANIZATION OF TEST, RESEARCH, AND TRAINING REACTORS (TRTR)

Chairman Dorgan, Ranking Member Domenici, members of the Subcommittee, we appreciate the opportunity to provide testimony to the Subcommittee regarding fiscal year 2008 Energy and Water Development Appropriations legislation. Together,

NEDHO and TRTR provide representation for the entire U.S. academic nuclear engineering community on issues related to federal policy and funding.

NEDHO and TRTR urge the Congress to provide funding for University-based nuclear engineering programs and research reactor programs commensurate with the authorized levels of the Energy Policy Act of 2005, which is $50.1 million for fiscal year 2008.

The chart below provides a recommended breakdown of funding.

[Dollars in millions]

Item	Fiscal Year 2008 Funding	Justification/Benchmark
Research	$30.1	Basic and mission-specific (applied) research.
Facilities	10	University-based research reactor fuel, instrumentation, safety, and security upgrades.
People Support and infrastructure	10	Nuclear Engineering/Health Physics fellowships, scholarships, matching grants and minority outreach.
TOTAL REQUEST	50.1	Fiscal year 2008 funding level authorized in the Energy Policy Act of 2005 (Public Law 109–58).

As you well know, Nuclear Science and Engineering (NSE) plays a critical role in ensuring the U.S. energy supply, reduction of the global warming gases, and the national security. With regard to energy independence, nuclear reactors are currently generating about 20 percent of the nation's electricity needs, and have contributed to the reduction of nearly 700 million tons of carbon dioxide and over one million tons of nitrogen oxide. These are equivalent to 96 percent of carbon dioxide and 41 percent of nitrogen oxide emissions from automobiles in the United States.

In order to meet the anticipated increase in electricity demand, utilities are planning to build new nuclear reactors. There will be a corresponding increase in demand for scientists and engineers to design, license, operate, and maintain these new reactors. Nuclear utilities, nuclear vendors, and the Nuclear Regulatory Commission (NRC) need hundreds of well-trained nuclear engineers and scientists. Moreover, a large number of nuclear scientists and engineers are needed to work within the DOE complex in such programs as the NP2010, Generation IV, Nuclear Hydrogen Initiative, and the Global Nuclear Energy Partnership (GNEP).

In its early years, nuclear science and engineering received significant federal funding that led to major developments such as nuclear submarines, research reactors, and commercial power reactors. However, the TMI accident, cheap fossil fuels, significant delays in construction of nuclear plants due to changing regulations, public interventions, and a surplus of electricity led to a perception that nuclear engineering was a field without a future and as a result, undergraduate enrollments decreased. Graduate enrollments also decreased but at a somewhat slower rate since they are not linked as strongly to the nuclear power industry. This situation was exacerbated by the reduction of federal support for NSE, including research support, fellowships, and scholarships.

The downturn in enrollments and reduction in federal funding led to the demise of over half of the NSE programs and university nuclear reactors from 1980 to 2000, leading to a seven-fold reduction in the number of BSE graduates over this period of time. Efforts to reduce and reverse these alarming trends in enrollments, departments, and reactors led to the revitalization of the University Programs within the Nuclear Energy office of DOE including funding for fellowships/scholarships, Nuclear Engineering Education and Research (NEER), Nuclear Energy Research Initiative (NERI), University Reactor Sharing and University Reactor Instrumentation programs, revitalization of radiochemistry, DOE-Industry Matching grant, Innovations in Nuclear Infrastructure and Education (INIE), and more recently, the Young Faculty awards. These programs contributed mainly to the graduate education and training of engineers and scientists needed for national laboratories, but they also helped to improve departmental and reactor facility infrastructure.

Historically, Congress has provided funding for the nuclear engineering discipline through a separate line item in the U.S. Department of Energy, Office of Nuclear Energy entitled "University Reactor Infrastructure and Education Assistance." This program has received modest increases in funding since the end of the 1990s when it was nearly zeroed out. In the fiscal year 2007, both the U.S. House and Senate Energy and Water bills recommended funding of $27 million.

The existing funds are not stable and flexible enough to meet the current and the anticipated demand for NSE graduates (BS, MS, and PhD) over the next decade.

Therefore, we believe that the nation's policies on energy and national security require the significant expansion of the U.S. nuclear engineering education enterprise. Driving factors for this expansion include the anticipated Nuclear Power Renaissance, increased focus and interest in developing advanced fuel cycle technologies and reactor designs, and the expanding need for development and deployment of nuclear materials detection technologies for homeland security and monitoring and prevention of nuclear proliferation.

The U.S. nuclear engineering education community stands ready to meet these approaching challenges. However, it will require increased resources from the federal government—beyond the levels enacted in previous fiscal years—and include funding for scholarships and fellowships, support of university-based reactor facilities, and basic and applied research.

As such, NEDHO and TRTR believe the federal government should provide funding for University-based nuclear engineering programs commensurate with the authorized levels of the Energy Policy Act of 2005, which is $50.1 million for fiscal year 2008.

Also, as we are sure the committee is aware; the Administration has proposed the termination of funding for the University Reactor Infrastructure and Education Assistance account line in its fiscal year 2007 and fiscal year 2008 budget requests. DOE NE has indicated that its preference is to fund academic nuclear engineering research efforts through its existing program lines. This means the funds for infrastructure and fellowships/scholarships are significantly reduced or completely eliminated! It is quite unfortunate and unusual that in this time of great need for new nuclear engineers and scientists, the federal government is not providing funding for nuclear engineering and education.

NEDHO and TRTR are not in a position to make recommendations as to the specific budgetary mechanics of providing funding to university programs. However, our two organizations believe strongly that university funding must be increased, stabilized, and flexible to allow for the current and expected growth to support expanded research, as well as reinvestment in human, reactor infrastructure, and major research equipment.

Finally, we recommend that the Subcommittee consider the recent report by the American Nuclear Society, entitled "Nuclear's Human Element." NEDHO and TRTR endorse the principal findings and conclusions of this report, which lays out a framework for improving federal investments in nuclear science and engineering education in the longer term. We believe to maintain the nation's competitiveness, it is essential that Congress and the Executive Branch take the necessary steps in establishing a strong and effective platform for meeting the technological and human resources need in nuclear science and engineering.

We look forward to working with you in formation and implementation of a progressive program for nuclear engineering research and education.

Thank you.

PREPARED STATEMENT OF THE NORTH AMERICAN DIE CASTING ASSOCIATION

As President of the North American Die Casting Association (NADCA), I respectfully submit this testimony in support of the HyperCAST funding request for $1.5 million in the U.S. Department of Energy, Energy Efficiency and Renewable Energy, Vehicle Technologies Program filed with the Subcommittee by Senators Edward Kennedy and Ken Salazar.

NADCA is the nation's leading not-for-profit technical organization representing all facets of the U.S. die casting industry. NADCA exists to support our domestic industry and to maintain our global competitive lead through the continued development of cutting edge technology.

NADCA has decades of successful experience coordinating research and development activities between various U.S. funding agencies (DOE and DOD), government laboratories, universities, and metalcasting companies. The technology and processes developed through these programs is rapidly transferred by NADCA to small, medium and large casting companies nationwide. Past programs have earned strong bi-partisan support from Congress.

OVERVIEW

Congress has long recognized the overwhelming need to dramatically curtail wasteful automotive and vehicle energy consumption in our nation. Maximizing energy efficiency in our domestic transportation system is a matter of economic security and environmental necessity.

The North American Die Casting Association is collaborating with the U.S. Department of Energy, Vehicle Technologies Office in an effort to rapidly and dramatically advance these goals. This innovative and dynamic program is HyperCAST.

The HyperCAST program goal is to support our nation's transportation energy efficiency goals by developing technology for high performance, light weight, cast metal components for energy savings in commercial and military vehicles and trucks.

The HyperCAST program will deliver a variety of important benefits including:

—Providing significant new energy savings in transportation technology, commercial and military vehicles and trucks;

—Developing new alloy and process development to maintain our domestic casting industry as a technology leader in the world market;

—Conducting university based research at Ohio State University, Case Western Reserve, the Colorado School of Mines, and Worchester Polytechnic Institute;

—Transfering new technology broadly to small and medium casting shops across the United States . . . 80 percent of metalcasting companies have fewer then 100 employees; and

—Matching every federal dollar with contributions from industry.

There is no doubt that enhanced fuel efficiency and alternative fuel vehicles contribute to our nation's energy security. High performance light weight components are necessary in making petroleum fueled cars and trucks more energy efficient. In addition, advanced high strength light weight materials and processes for the design of components offer the greatest opportunities for the development of new vehicles that do not require petroleum fuels.

The HyperCAST research is targeted at the development of high performance light weight aluminum and magnesium castings for energy efficient components for transportation. More specifically, this project entails the development of materials and processes for cast light weight frame, body, chassis and powertrain components for fuel efficient passenger cars and both commercial and military trucks. Therefore, the project is cross-cutting as it serves to meet goals of the FreedomCAR and 21st Century Truck programs. The advanced materials and processes developed will have a focus on fuel efficiency and cost effectiveness.

These important technological advancements will also enhance the U.S. metalcasting industry's ability to maintain a lead role in the world market. It is technology that enables this vital industry to compete globally and to keep jobs in the United States.

The objective of HyperCAST is to develop materials and processes for high strength light weight cast components for vehicles that are affordable and offer the potential for 60 percent weight reduction and related improvement in energy efficiency. NADCA and university researchers are confident that these goals can be met without compromising vehicle performance, cost, safety or recyclability.

The following examples are offered to describe the energy saving opportunities offered by the HyperCAST Program.

Example 1: A cast aluminum engine block with cast iron sleeves currently weighs 85 pounds. Moving to a magnesium composite material would result in about the same productivity improvement but would yield a casting weight of 49 pounds—a savings of 36 pounds or 42 percent.

Example 2: An aluminum transmission case casting currently weighs 31 pounds. Casting this component with a new aluminum composite material and considering a 20 percent strength increase would yield a casting weight of 27 pounds. Produced as a magnesium composite material, the casting would weigh 22 pounds—a savings of 9 pounds or 29 percent.

The HyperCAST numbers show a dramatic potential for improvement in our nation's fuel efficiency and environmental impact. There is an average of 280 pounds of aluminum in a car. It is estimated that the HyperCAST technology can reduce that weight by 100 to 120 pounds without compromising strength, safety or performance. In addition, for every pound reduced automakers can cut two more pounds or 200 to 240 more pounds, from the drive train. Finally, for every pound reduced in the car's weight, estimated at almost 360 pounds, an environmental benefit will be realized through an annual reduction in carbon monoxide of 2 pounds for every one reduced. That would be 720 pounds of carbon monoxide reduced annually for every car manufactured with the HyperCAST technology.

This project will utilize researchers from the premier universities (Ohio State University, Case Western Reserve University, Colorado School of Mines, and Purdue University) and government laboratories with experience in cast materials and processes for the research activities, premier casting companies for demonstration of the research results, and the industry associations for coordination of efforts and technology transfer. The request is supported by the following:

—Dr. Diran Apelian, Director of Metals Processing Institute at Worcester Polytechnic Institute;
—Dr. John Moore, Head of the Metallurgy Department at the Colorado School of Mines;
—Dr. David Schwam, Director of the Metal Casting Laboratory at Case Western Reserve University;
—Dr. Allen Miller, Professor in College of Engineering at Ohio State University;
—Tim Stewart, President and CEO of Yoder Industries in Dayton, OH;
—Richard Rogel, President and CEO of Empire Die Casting., Inc in Macedonia, OH;
—Paul Head, Vice President of Operations at Empire Die Casting., Inc.;
—Robert Hopkins, Vice President of Administration at Empire Die Casting., Inc.;
—Robert Stuhldreher, Director of Casting Operations at Metaldyne in Twinsburg, OH;
—Scott A. Frens, Senior Sales & Tool Engineer at Fort Recovery Industries in Fort Recovery, OH; and
—Barry S. Houndshell, Director of Manufacturing at Fort Recovery Industries.

Finally, the technology developed will be distributed by NADCA solely to North American metalcasters in order to provide the North American industry with a globally competitive advantage and assist in maintaining the viability of metalcasting in North America.

We hope we can depend on your support to fund this valuable and important program.

PREPARED STATEMENT OF THE FUEL CELL POWER ASSOCIATION

The Fuel Cell Power Association appreciates the opportunity to submit this statement in support of the Department of Energy's Fossil Energy, Fuels and Power Systems, Fuel Cell Program. We urge the Subcommittee to continue to support this breakthrough program by appropriating $80 million for development of this highly efficient, clean, and secure energy technology.

DOE's Fossil Energy Fuel Cell Program, through the Solid State Energy Conversion Alliance (SECA) fuel cell activity, is developing technology to allow the generation of highly efficient, cost-effective, carbon-free electricity from domestic coal resources with near-zero atmospheric emissions in central station applications. The program directly supports the president's FutureGen project through the development of cost-effective, highly efficient, power blocks that facilitate sequestration in coal-based systems. The technology will also permit grid independent distributed generation applications by 2010.

SECA fuel cell systems operating on coal gas are building blocks for zero emissions power, the ultimate goal of the President's FutureGen Program. These systems are projected to be available at a target cost of $400/kw. In addition the technology developed in this program will produce electricity at up to 60 percent efficiency in coal-based systems, produce near-zero emissions, and easily enables carbon sequestration.

In all applications SECA fuel cells will be both low-cost, with the above-stated goals of $400/kw, as well as highly efficient. Integrated with coal gasification, the system's 60 percent efficiency compares very favorably to the existing coal-based power generation fleet average of about 33 percent efficiency. In distributed generation applications even higher efficiencies may be reached, and cogeneration opportunities can further increase efficiency.

Along with these attributes fuel cells are one of the cleanest technologies available in terms of atmospheric emissions, which enhances their attractiveness for urban applications or applications in areas of non-attainment for Clean Air Act emissions. They have already achieved NO_X and SO_X emission levels of less than 0.05 ppm compared to orders of magnitude higher for conventional technologies. They also provide 24 hour, silent operation.

Finally, coal-based fuel cell systems will increase energy security by using domestic resources. In distributed generation applications fuel cells can eliminate transmission and distribution system infrastructure concerns and issues by providing generation near the point of use and by being able to operate in a grid-independent mode.

The SECA Program consists of six integrated industrial manufacturing teams designing fuel cell systems, developing the necessary materials, and ultimately responsible for deploying the technology. These teams are complemented by up to three dozen core technology performers providing generic problem-solving research needed to overcome barriers to low-cost, high performance technology as identified by DOE

and the manufacturing teams. The core technology teams are universities, national laboratories, and other research oriented organizations. This unique structure assures that a variety of approaches to solving the problems associated with fuel cells will be undertaken in a manner that will increase the chances of success for this highly complex technology.

Several of the manufacturing teams are developing systems for application to large central generation systems characterized by FutureGen. The remaining manufacturing teams are developing fuel cells for possible use in both these large systems as well as in distributed generation applications such as auxiliary power units, military power applications and remote or on-site power generation.

The DOE budget request for this program for fiscal year 2008 is $62.0 million, slightly below the fiscal year 2007 funding level of $63.4 million. Funding of $65 million will continue to support the current program, which involves larger-scale Phase II development work on the part of manufacturing teams in the program and continued effort by the core technology performers. However, in order to deliver full scale fuel cell system hardware for the FutureGen project additional support of $15 million is necessary to assist and accelerate the creation of manufacturing capability by the formation of teams between existing fuel cell stack developers and industry, with the goal of delivering hardware by the scheduled date of 2011, and also to keep the base program on schedule. A rapid advancement to large-scale manufacturing is critical to the successful use of fuel cells in the FutureGen project and subsequent use in Integrated Gasification Combined Cycle (IGCC) facilities on a commercial basis. Significant funding over the next several years will allow development of such capacity by 2010 so that fuel cell modules can be manufactured and delivered to the FutureGen project by 2011. These large-scale modules will lead to the higher efficiencies and cleaner performance necessary to assure the use of clean coal technologies in the long run.

We believe that the SECA fuel cell program has achieved the progress to date as reported by the program managers, and has excellent prospects for achieving program objectives given sufficient funding support by DOE and the Congress. Hybrid technology has been successfully integrated into the program and an emphasis on use with coal-based systems has been established. Industry partners in the program have continued and increased cost-sharing support. All major stack developers have met the initial goals of the program allowing continuance to more advanced stages of development. This technology is essential to meeting the efficiency and emissions goals of the President's FutureGen program and will also provide low-cost, low-emissions alternatives for distributed generation applications. Therefore, we urge you to support our request for $80 million to execute the DOE Fossil Energy, Fuels and Power Systems, Fuel Cell Program in fiscal year 2008.

PREPARED STATEMENT OF THE CENTER FOR PLASMA SCIENCE AND TECHNOLOGY, FLORIDA A&M UNIVERSITY, AND THE DEPARTMENT OF PHYSICS, WEST VIRGINIA UNIVERSITY

Chairman Dorgan and Members of the Subcommittee: We request an appropriation of $5 million to the Fusion Energy Science Program, U.S. DOE Office of Science, for basic research on the control of turbulent hot plasma in fusion power reactors. This program contributes to the work of the International Thermonuclear Experimental Reactor (ITER) program, an international fusion effort to which the United States is committed as a full partner.

Introduction

As global population increases and the standard of living of third world countries rises, the demand for energy will increase substantially over current levels. The report, Future of Coal, released March 14, 2007 by researchers at MIT, projects that fossil energy will be the dominant fuel source well into the future. Generating electric energy and powering our transportation sector with fossil fuels will substantially increase CO_2 emissions, thereby exacerbating concerns about greenhouse gas emissions which can alter the global climate.

Near term, we accept the reality that fossil fuels will power the global economy. Carbon sequestration offers the prospect of reducing the environmental impact of fossil fuel use. Even with such advances, however, we must recognize that fossil fuel resources are limited. Beginning in 2020, the total world demand for energy will exceed substantially all available energy from fossil, hydro and non-breeding nuclear fission reactors, exceeding by 10 percent the total energy available. The shortfall will grow to nearly 50 percent of the total energy available by 2060. Longer term,

science and technology must find alternative sources of energy if we are to meet the needs of our global population.

Since construction of a new power plant based on existing technology can take as much as ten years from concept to operation, we must act now to plan the orderly implementation of alternative sources of electricity. Experience has shown that the odyssey of a new technology from conception to commercial deployment can exceed 20 years.

Potential of Fusion Energy

Fusion energy is one of our global options for providing energy in the future. Fusion processes create energy from super-hot plasmas using magnetic confinement to avoid the problems of developing materials to withstand temperatures exceeding 50,000 degrees K. Fusion energy technology has emerged as a safe and reliable option with a large fuel reserve—we can generate energy from sea water.

Among the many confinement options for fusion, a spheromak configuration enables the attainment of the necessary high temperatures without requiring massive magnets, extraordinary infrastructure complexity and the associated costs for fusion conditions to be achieved. The spheromak configuration, if successful, can provide electricity from fusion on a scale which can be built by traditional energy companies in the United States. However, much of the physics of this option is still uncertain.

Spheromak Turbulent Plasma Experiment (STPX)

We request support from the Energy & Water Development Subcommittee for a program of research called the Spheromak Turbulent Plasma Experiment (STPX). This joint Florida A&M University (FAMU)-West Virginia University (WVU) project is focused on developing basic fusion science with tangible benefits to the nation.

At FAMU Center for Plasma Science and Technology, a spheromak will be built by a team of faculty and students already significantly involved in fusion funded research. A full spectrum of traditional and innovative diagnostic techniques for the STPX will be developed at WVU and a host of other collaborating Universities and National Laboratories along with those developed at FAMU. Although similar in size and generic features to an existing spheromak, the STPX detailed design will be driven by the need to obtain the desired physics outcomes. Our design will be dramatically different in several important features from any existing fusion facility in the world.

STPX will make important and unique contributions to the Department of Energy Fusion Science Mission through the development of a more compact containment technology. In addition, 20 Ph.D. plasma physicists from currently underrepresented groups will be produced in time to support the U.S. contributions to ITER. These new scientists will thereby be the next generation of the fusion scientific workforce, the first group to benefit from the advances obtained through the ITER project. More importantly, they will find employment in basic scientific research.

The other benefits from our programs consist of contributions to technologies for materials fabrication and processing (e.g., computer chips), advanced lighting, and in transportation fuels synthesis.

Outcomes from Program

This project will use the three approaches of theory, experiment, and simulation to quickly obtain information and develop the tools for full kinetic modeling of the spheromak plasma's makeup. This project will enable us to understand better how turbulent plasmas are heated, a key step towards progress in controlled thermonuclear fusion as well as towards understanding astrophysical systems. The relationships between ion heating in fusion plasmas, reconnection events, and microparticle transport will also be determined through this project in a manner enabling the manipulation and enhancement of core plasma heating.

Period of Support

We seek a three-year commitment of support from the Subcommittee totaling $15 million for construction and the development of diagnostic tools and processes. FAMU will share the costs by providing renovated housing for the STPX, (estimated cost share of $3.7 million), and the infrastructure support normally associated with research projects. Construction and diagnostics research will be finished in three years with the expectation that we will generate our first plasma in May of 2011. We expect annual operations (at roughly $500K/yr) to be funded after attaining first plasma through normal research funds from DOE, NSF, and other public and private entities to FAMU, WVU, and other participating institutions.

Summary of Request

We request support of $5 million for fiscal year 2008 from the USDOE Office of Science, Fusion Energy Sciences Program, for the Spheromak Turbulent Plasma Experiment.

Thank you for the opportunity to offer testimony to the Subcommittee.

PREPARED STATEMENT OF THE NUCLEAR ENERGY INSTITUTE

On behalf of the nuclear energy industry, the Nuclear Energy Institute (NEI)[1] appreciates the opportunity to provide the subcommittee with its perspective on the nuclear-related programs under the subcommittee's jurisdiction, and on the President's proposed budget for those programs in fiscal year 2008.

NEI supports fiscal year 2008 funding for the following programs: Office for the Energy Loan Guarantee Program ($8.4 million), Nuclear Power 2010 ($183 million), Generation IV reactor programs ($100 million), Nuclear Hydrogen Initiative ($35 million), University programs ($50.1 million), Office of Radioactive Waste Management ($494.5 million), Advanced Fuel Cycle Initiative (increased funding over fiscal year 2007), and the Nuclear Regulatory Commission ($913 million).

The nuclear energy industry produces one-fifth of America's electricity, and is preparing to build advanced-design nuclear power plants to meet growing electricity demand. Nuclear energy is an essential component of a diverse energy portfolio, and NEI appreciates the leadership on nuclear energy's issues by members of this committee.

NEI's statement for the record addresses the industry's highest priorities. In several cases, NEI believes America's energy security justifies increases in fiscal year 2008 funding above the President's request.

Establishing an Effective Energy Loan Guarantee Program.—The energy loan guarantee program was created by the 2005 Energy Policy Act to support private sector investment in advanced energy technologies, including new nuclear power plants. The loan guarantee program is designed to be self-financing, with project sponsors responsible for underwriting the cost to the federal government of providing the credit support. Properly implemented, there will be no cost to the taxpayer.

This program is essential for companies planning to invest billions of dollars in licensing and construction of new nuclear power plants in the United States. The electric industry faces major capital investment requirements ($750 billion-$1 trillion) over the next 15–20 years (in distribution, transmission, generation, and environmental control technology). The capital investment required will strain the electric sector's financing capability. The size of the capital investments (at least $3–4 billion for new nuclear plants in today's dollars) is very large relative to the size of the companies making the investments, and the loan guarantee program provides the credit support necessary to finance these new plants.

The nuclear industry believes that the loan guarantee program requires disciplined management and rigorous project evaluation, with the cost of loan guarantees covering the government's potential exposure. NEI appreciates the subcommittee's leadership (in the fiscal year 2007 continuing resolution) in providing the funding and statutory language necessary to establish the Loan Guarantee Office at DOE. We endorse the Department of Energy's request for $8.4 million to cover the program's administrative costs in fiscal year 2008. The nuclear industry notes, however, that the President's fiscal year 2008 budget proposes a $9 billion loan volume limitation, with only $4 billion of the $9 billion allocated to large power projects like nuclear power plants. Given the cost of new energy infrastructure projects (including new nuclear plants, coal gasification plants and coal-to-liquids projects), a robust and viable loan guarantee program will require larger annual loan volumes in future fiscal years.

Maintaining the Momentum in the Nuclear Power 2010 Program.—The Nuclear Power 2010 Program supports the design and engineering work necessary to bring two advanced reactor designs (the Westinghouse AP1000 and the General Electric ESBWR) to the level of design completion necessary for companies to develop firm cost estimates, and to file applications for licenses to build and operate these plants.

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[1] The Nuclear Energy Institute is responsible for developing policy for the U.S. nuclear energy industry. NEI's 297 corporate and other members represent a broad spectrum of interests, including every U.S. utility that operates a nuclear power plant. NEI's membership also includes nuclear fuel cycle companies, suppliers of equipment and services, engineering and consulting firms, national research laboratories, manufacturers of radiopharmaceuticals, universities, labor unions and law firms.

Approximately two-thirds of the 33 new nuclear reactors announced publicly depend on successful, timely completion of the first-of-a-kind engineering on the two advanced reactor designs supported by the Nuclear Power 2010 program. Through its investment in the Nuclear Power 2010 program, the federal government achieves enormous leverage on behalf of the American taxpayer: The $727 million total expected government investment in Nuclear Power 2010, matched by equal industry funding, will stimulate tens of billions of dollars of investment in new nuclear projects by 2015.

The Department of Energy's proposed fiscal year 2008 budget proposes $114 million for Nuclear Power 2010. This level of funding will not maintain the program's momentum, and NEI recommends fiscal year 2008 funding of $183 million, to be matched equally by private sector funding.

Ensuring Adequate Funding for the Nuclear Regulatory Commission and Oversight.—The industry supports NRC's fiscal year 2008 budget request of $913 million to provide effective oversight of operating nuclear plants, timely processing of applications for license renewal and requests for power uprates, and efficient review of applications for combined construction/operating licenses, early site permits and design certification. We believe this level of funding should also ensure NRC readiness to begin review of DOE's Yucca Mountain license application next year. The industry also encourages the subcommittee to support NRC's need for additional office space to fulfill its regulatory responsibilities.

Given the increase in the NRC's budget—$200 million in the last two years and $425 million in seven years—NEI urges the subcommittee to require regular progress reports from the agency on the status of its licensing and other regulatory activities. Such reporting will allow the subcommittee to determine whether the agency is achieving the desired operational efficiency—by reducing the time required to process new plant license applications as it gains experience, for example. The industry also urges the subcommittee to require greater transparency in where NRC funds are being spent, by requiring full disclosure of planned staffing and resource needs in individual NRC divisions. This would demonstrate to Congress and the industry, which pays up to 90 percent of NRC's budget, that more of the requested budget is being allocated toward licensee-specific charges rather than general license fees.

Developing An Integrated Used Fuel Management Program.—The nuclear industry appreciates the subcommittee's leadership in the area of used fuel management. In 2008, the federal government will be nine years behind on its commitment to start moving used nuclear fuel from nuclear power plants across the nation to a federal repository. The nuclear industry supports the Administration's proposed budget of $494.5 million for fiscal year 2008 to enable the Office of Civilian Radioactive Waste Management to submit a license application for the Yucca Mountain project by June 2008.

The Yucca Mountain project is a key component of a three-part integrated used fuel management strategy that includes: (1) interim storage until recycling or permanent disposal—or both—are available; (2) research, development and demonstration to close the nuclear fuel cycle and reduce the volume, heat and toxicity of byproducts placed in the repository; and (3) developing a permanent disposal facility. Continued, demonstrable progress on all three elements of this integrated used fuel management system is important to preserve confidence in nuclear energy, and to support licensing and construction of new nuclear plants.

The nuclear industry has consistently supported research and development of the advanced fuel cycle technologies incorporated in the Advanced Fuel Cycle Initiative (AFCI). The industry recognizes that the Congress has important questions about the Administration's Global Nuclear Energy Partnership (GNEP). Nonetheless, the industry supports increased funding for the Advanced Fuel Cycle Initiative in fiscal year 2008 to continue this technology research and development program, and to achieve better definition of the program, which is critical to a long-term integrated strategy for used fuel management.

Preparing for the Next Generation of Nuclear Power Plants.—The large light water reactors operating today are well-suited for baseload electricity production, and the nuclear industry will continue to build and operate these reactor types well into the 21st century. It is clear, however, that the promise of nuclear energy technology extends beyond electricity production to include production of hydrogen and process heat. Next-generation high-temperature reactors, using advanced hydrogen production technologies, can produce hydrogen for transportation or for upgrading coal and heavy crude oils into usable products, thereby relieving pressure on natural gas supply (the source of most hydrogen produced today). High-temperature reactors can also generate process heat for desalination, to extract oil from tar sands, and for scores of other industrial applications.

This enormous potential justifies continued federal investment. NEI urges the subcommittee's support for the next-generation nuclear plant at the Idaho National Laboratory, funded through the Generation IV Nuclear Energy Systems Initiative program. NEI recommends funding for this program of $100 million in fiscal year 2008, higher than the $36.1 million proposed by DOE. NEI also recommends higher funding for the Nuclear Hydrogen Initiative—$35 million in fiscal year 2008, rather than the $22.6 million proposed by DOE.

Investment in people is as important as investment in technology, and the nuclear industry urges the subcommittee to restore funding of $50.1 million in fiscal year 2008 for university programs managed by the Office of Nuclear Energy to support vital research and educational programs in nuclear science and health physics at the nation's colleges and universities. NEI also encourages the subcommittee to consider supporting a new program within the Office of Science for undergraduate and graduate programs in radiochemistry and other disciplines important to medical, energy and other applications of commercial nuclear technology.

Conclusion: Closing the Energy R&D Gap.—NEI has recommended modest funding increases, above the Administration's request, in several strategic nuclear energy programs, including Nuclear Power 2010, the Next Generation Nuclear Plant, the Nuclear Hydrogen Initiative, support for university programs and others.

NEI sees a growing body of evidence that increases in energy R&D will be necessary in the years ahead to create a sustainable energy supply infrastructure that meets national needs. In an analysis provided to the Congress in February, the Government Accountability Office found that DOE's budget authority for renewable, fossil and nuclear energy R&D declined by over 85 percent (in inflation-adjusted terms) from 1978 through 2005. The need for new technologies to address critical energy needs has not diminished over the same time period, however, nor have the energy and environmental imperatives facing the United States become any less urgent.

Similarly, the Electric Power Research Institute is conducting a broad-based assessment of the electricity supply and demand-side technologies necessary to achieve meaningful reductions in electric sector greenhouse gas emissions in the United States. Although still in progress, EPRI's analysis demonstrates that a broad-based portfolio of technologies and techniques—including substantial improvements in efficiency, aggressive deployment of new nuclear and renewable generating capacity, improvements in coal-fired power plant efficiency, carbon capture and storage—will be required. EPRI's initial estimate suggests that successful development and deployment of this portfolio between now and 2030 will require additional R&D investment of approximately $2 billion per year. Although the federal government cannot be expected to finance all of that, there is clearly a need and a rationale for increased federal support for energy research, development, demonstration and deployment, in the nuclear energy area and across the portfolio.

PREPARED STATEMENT OF GE ENERGY

The following testimony is submitted on behalf of GE Energy (GE) for the consideration of the Committee during its deliberations regarding the fiscal year 2008 budget requests for the Department of Energy (DOE). Among GE's key recommendations are: (1) an additional $73 million for the Nuclear Power 2010 program to develop new U.S. nuclear generation; (2) $40 million in added funding for the GNEP program to start the necessary activities for technology demonstration and to help industry provide DOE with the information necessary to support the 2008 Secretarial Record of Decision; and (3) $18 million additional for the Advanced Turbines program, DOE's major research effort focusing on gas turbines for electricity production which also addresses key needs for hydrogen turbines. Investments in these and the other important programs discussed below will help to meet the challenges of assuring a diverse portfolio of domestic power generation resources for the future.

NUCLEAR ENERGY PROGRAMS

Nuclear Power 2010.—The NP2010 Program provides vital funding in three areas that are essential to the development of new nuclear generation capacity in this country. The program provides support for the (1) certification of new reactor designs, such as GE's advanced light water reactor technology (ESBWR); (2) advancement of detailed design and deployment planning to support new nuclear plant construction in fiscal year 2010; and (3) preparation, submittal and NRC approval of two Combined Construction and Operating Licenses (COL). These activities are currently advancing with co-funding support from GE and Toshiba Westinghouse. Adequate DOE funding in fiscal year 2008 is necessary to maintain the schedules sup-

porting certification, COL license approval and construction initiation in fiscal year 2010.

The Administration has requested $110 million for fiscal year 2008 to support the NP2010 Program. This request is insufficient to keep the program on schedule. This amount is below the amount that was determined to be necessary for fiscal year 2008 at the time the initial estimate of the total program development cost was provided by GE, Toshiba Westinghouse, NuStart and Dominion in 2005. Since that time, as new information has been developed, the Reactor Vendors and Industry have recognized the need to accelerate detailed design and the construction planning process to achieve enhanced certainty of cost and schedule risks. At the same time, regulatory costs have increased. As a result, the Reactor Vendors and Industry have determined that funding of $183 million in fiscal year 2008 is required, an increase of $73 million above the Administration's budget request.

The Advanced Fuel Cycle Initiative and the Global Nuclear Energy Partnership (GNEP).—The Global Nuclear Energy Partnership (GNEP), initiated in early 2006, benefits from the research and development work conducted under the Advanced Fuel Cycle Initiative (AFCI). GNEP seeks to expand the use of nuclear power in a proliferation-resistant manner, and to solve the nuclear waste issue by reducing the long-term radiotoxicity of spent nuclear fuel. The key emphases are on solutions for proliferation resistant fuel separations and long-term nuclear waste reduction.

In January 2007, DOE released the updated GNEP Strategic Plan, which outlines an implementation strategy to "enable a world-wide increase in the use of nuclear energy safely, without contributing to the spread of nuclear weapons capabilities, and in a manner that responsibly disposes of the waste products of nuclear power generation." The GNEP Strategic Plan outlines government's and industry's roles in the development of the technologies and facilities required to implement the U.S. commitment to GNEP. To achieve a commercial solution for GNEP, DOE recognized in the Strategic Plan the need for industry involvement and active participation.

In support of the broad GNEP goals, and to help the DOE prepare for the 2008 Secretarial Record of Decision to proceed with a government-industry partnership to build a nuclear fuel recycling center and a prototype advanced recycling reactor, DOE in January issued awards to 11 commercial and public consortia. GE has expressed interest in designing, licensing, building and operating a demonstration nuclear fuel recycling facility and advanced recycling reactor, and was among those selected to conduct detailed siting studies for integrated spent fuel recycling facilities as part of GENP. Pursuant to this DOE award, GE is preparing a site characterization report for a site in Morris, IL. GE's technology solution, called the Advanced Recycling Center, is based on pyroprocessing and PRISM reactor technology developed during the Advanced Liquid Metal Reactor program. This technology is ready for commercial-scale development and could provide an economically viable technical solution to solving the nuclear waste issue. GE believes that the GNEP program would be advanced if the Office of Nuclear Energy updates the AFCI Comparison Report to Congress with qualitative and quantitative information on the proven PRISM reactor and pyroprocessing technologies.

For fiscal year 2008, an additional $40 million above the Administration's budget request, for total GNEP funding of $435 million, is needed. Such additional funding should be used to help industry conduct technology demonstration projects, such as the demonstration of: (1) key reactor components (e.g., reactor vessel), (2) electrorefiner based fuel separation, and (3) a reactor and fuel separation simulator, and to provide the technical, economic and business information to DOE necessary to support the 2008 Secretarial Record of Decision. GE further recommends that adequate funding be provided for pyroprocessing and the PRISM reactor in support of DOE's GNEP policy goals.

FOSSIL ENERGY PROGRAMS

Cleaner coal technology is the key to maintaining coal as a significant part of the U.S. energy mix into the future. DOE's Clean Coal Power Initiative, Integrated Gasification Combined Cycle, and Carbon Sequestration Programs all have important roles to play in advancing the solutions that allow coal to be used in the most economical and environmentally acceptable manner.

Clean Coal Power Initiative.—GE supports the Administration's request to increase the funding level for the Clean Coal Power Initiative (CCPI) in fiscal year 2008. We encourage Congress to recognize that a commercial demonstration program for advanced coal power technologies provides a critical pathway for the technologies that will preserve coal's place in the U.S. energy portfolio. There is a continuing need for the CCPI to serve as the vehicle for the scale-up, plant integration, and initial deployment of advanced IGCC technologies, which will help IGCC tech-

nology move down the experience/cost curve. Another critically important role of the CCPI going forward will be in providing a means for the demonstration of carbon sequestration technologies.

GE welcomes DOE's commitment to move forward with a third round of the CCPI in fiscal year 2008. Further multi-project solicitations for later rounds of projects targeting advanced technology systems for CO_2 capture and sequestration also will be required as part of the overall response to the climate change challenges facing coal-based generation.

IGCC.—IGCC, with its capability for pre-combustion carbon capture, presents a significant advantage over combustion technology. Even with its current 20 percent to 25 percent cost premium over pulverized coal combustion, IGCC can provide a lower cost of electricity with carbon capture. Based on the incremental cost that carbon capture will add to all coal-based power generation, cost reduction must be pursued vigorously for IGCC to realize its potential in maintaining coal competitiveness in a carbon-constrained environment.

While widespread deployment is key to bringing IGCC costs down, technology advancements also are needed to minimize the impact of carbon capture. This requires a pipeline of new technologies that are moving toward demonstration and deployment. While the development of several large-scale commercial IGCC plants is underway, candidate technology advancements have already been identified for the next generation of IGCC. These technologies can significantly lower cost and improve performance in key areas of carbon shift, CO_2 capture, overall process efficiency plus advancing IGCC's economics for application on subituminous coals. However, it will not be possible to even begin moving these technologies forward without increasing the fiscal year 2008 funding request for IGCC.

DOE's goal of a 10 percent premium for carbon capture with IGCC is aggressive but appropriate to the magnitude of the economic benefit that would be gained. Achieving this goal will require increased funding for technology development. The Administration's proposal to reduce funding for the IGCC program to $50 million in fiscal year 2008 is not sufficient to provide the resources that are needed. We therefore urge that fiscal year 2008 funding for IGCC be increased by $16 million.

Carbon Sequestration.—GE endorses the requested increase in funding for carbon sequestration technologies. Carbon sequestration and storage is a critical and necessary component of a total solution for low carbon coal. A focus of the program activity needs to be on the development of requirements for CO_2 quality necessary for long-term, secure and environmentally acceptable storage. These requirements are needed for carbon capture system design that is suitable for a wide variety of geological environments. The planning for large-scale field tests needs to identify candidate sources of large and reliable quantities of CO_2.

Advanced Turbines.—GE recommends that funding be increased by $18 million to a total of $40 million for the Advanced Turbines program. This program represents the Department's primary research effort focusing on the development of enabling technologies for high efficiency hydrogen turbines for advanced gasification systems. Gas turbine R&D is focused on advanced combustion and high temperature turbine technology for syngas/hydrogen fuels that will result from IGCC and FutureGen type power plants. The program addresses those gas turbine elements where the technology required for the use of syngas/hydrogen fuels differs from the requirements for natural gas fueled gas turbines. Unless the fiscal year 2008 budget for the Advanced Turbines program is increased, funding will be inadequate for this promising high priority work, and the progress and benefits of this research will be delayed accordingly.

GE has experience with gas turbines operating on fuel blends containing hydrogen, and has performed laboratory demonstration tests on high hydrogen content fuel. This experience highlighted the need for development of advanced combustion technology in order to drive down NO_X emissions and enable advanced hydrogen generation processes. In addition, current strategies for effective integration of all major subsystems need to be reviewed and redefined for use with hydrogen fuel.

Continued funding of DOE's program is essential for FutureGen to meet its goal of substantial improvement in the cost of carbon capture. FutureGen is being structured to serve as a test bed for advanced technology that is needed to reduce the performance penalty and improve the economics of carbon capture. If it is to meet its goals, the FutureGen program will need to draw on advancements resulting from the Advanced Turbines program.

GE recommends the Committee's attention to the testimony submitted by the Gas Turbine Association relative to the allocation of additional funding above the budget submission within the Advanced Turbines program budget. In particular, GE encourages the Committee to provide adequate funding to sustain the University Turbine Systems Research Program.

Advanced Research.—To enable future technological advances, within the funds provided for Advanced Research, the emphasis should be placed on investments to foster better understanding of gasification fundamentals. An improved physics-based understanding of gasification processes will facilitate improved gasifier and systems designs that may achieve 45–50 percent efficiency with integrated CO_2 separation, capture, and sequestration with near-zero emissions with less than 10 percent increase in cost-of-electricity.

RENEWABLE ENERGY PROGRAMS

Solar.—GE Energy fully supports the DOE budget request for the development of Solar technology. GE Energy is pleased to be able to work with the DOE on the recently awarded Solar America Initiative. This program involves a diverse team of industry, universities, and national labs working together to develop the technologies needed to drive down the cost of electricity to make solar competitive with other power generation technologies, leading to widespread application in the U.S.

PREPARED STATEMENT OF THE HEALTH PHYSICS SOCIETY (HPS) AND THE HEALTH PHYSICS PROGRAM DIRECTORS ORGANIZATION (HPPDO)

This written testimony for the record for fiscal year 2008 requests $500,000 for the Health Physics Fellowships and Scholarships program through the Department of Energy's Office of Nuclear Energy (DOE–NE) to help address the shortage of health physicists, which is an issue of extreme importance to the safety of our nation's workers, members of the public, and our environment.

Health Physics is the profession that specializes in radiation safety, which is necessary for the safe and successful operation of the nation's energy, healthcare, homeland security, defense, and environmental protection programs. Although radiation safety is fundamental to each of these vital national programs, there is no single federal agency in the Executive Branch that serves as a home and champion for the health physics profession. This is due to the fact that health physics is a profession that cuts across all these sectors and is necessary for all these sectors to exist. However, it is a support profession for the principle disciplines in these programs, such as engineers, medical professionals, law enforcement professionals, military personnel, and environmental scientists, which are championed by corresponding federal agencies.

As the nation's development and use of radioactive materials grew following the end of World War II, the nation's energy, defense, public health, and environmental protection needs for health physicists were supported through student fellowships and scholarships largely from the Atomic Energy Agency (energy and defense) and Public Health Service (public health and environmental protection). However, over the years agencies and their missions changed, the nuclear power industry faltered and the DOE nuclear weapons complex downsized following the end of the cold war. This resulted in the academic program support from federal agencies dwindling until the last remaining support from DOE was terminated in fiscal year 1999. This lack of academic support was despite the continued need for health physicists in the energy, defense, public health, and environmental protection programs and an exponential growth for need in the medical and academic community.

As the health physics human capital crisis grew and loomed in the early years of the 21st century, a sector receiving increasing attention in the human capital shortage area was the nuclear energy industry, particularly with its ability to provide energy without producing "greenhouse gases." Congress and the Department of Energy (DOE) took action to add support to the nuclear engineering academic programs through DOE programs in the Office of Nuclear Energy (NE) (previously the Office of Nuclear Energy, Science and Technology) and eventually agreed that this was an appropriate support mechanism for the health physics academic program. In fiscal year 2005, just 3 years ago, Congress appropriated money to DOE–NE for a health physics fellowship and scholarship program as part of the University Reactor Fuel Assistance and Support budget item. At that time, then Director of DOE–NE, William Magwood, agreed this support was needed as he testified to this Committee that the DOE recognized ". . . a small but important element [of the University Support budget item was] to provide scholarships and graduate fellowships to students studying the vital and too-often overlooked discipline of health physics." Shortly thereafter, Congress reinforced its position that DOE needed to support the health physics academic programs in provisions of Section 954 of the Energy Policy Act of 2005. However, even though the need for increased numbers of health physics professionals continued to exist, after only two fiscal years of funding the NE Health

Physics Fellowship and Scholarship programs at minimal levels, the DOE has requested to cease funding this Congressionally authorized program.

In their fiscal year 2008 Budget Request, DOE states "Enrollment target levels of the University Reactor Infrastructure and Education Assistance program have been met and the program is no longer considered essential to encourage students to enter into nuclear related disciplines" (emphasis added). Similarly, in the Office of Management and Budget's (OMB) performance assessment of the University Nuclear Education Programs, they conclude "Enrollments have tripled since the late 1990's, reaching upwards of 1,500 students. In addition, more universities are offering nuclear-related programs and there is a growing interest in nuclear energy" and "While enrollments have reached the program's target level of 1,500 students ten years ahead of schedule, the program is unable to demonstrate that it caused these results."

This DOE statement and the OMB assessment are patently wrong with regards to health physics programs. Since DOE has only funded health physics programs for 2 years, we do not believe they have ever established "target levels" for health physics program enrollments nor has there been time to assess the effect of those 2 years of funding on health physics program enrollments. The DOE–NE HP fellowship and scholarship program thus far has provided 3 graduate fellowships in fiscal year 2006 and 0 undergraduate scholarships. In 2004, the HPPDO developed a plan for revitalizing the academic programs to a level that could meet the projected shortfall of health physicists. The HPPDO plan calls for an initial target of 20 graduate fellowships and 20 undergraduate scholarships, i.e., target levels well above the actual performance of the Nuclear Education Programs. In addition, the number of health physics programs graduating at least 5 students annually decreased from 20 programs in 1995 to less than half that number in 2005.

Although we consider it would take approximately $1,000,000 to get to the HPPDO plan of 20 fellowships and 20 scholarships, we consider it important to address immediately the HP Graduate Fellowship program so we have between 15 and 20 fellows in a two-year Masters Degree program and up to 10 undergraduate scholarships to start meeting our nation's workforce needs for radiation safety personnel. Funding of $500,000 should allow for up to approximately 12 to 15 fellows and up to 10 scholarships with allowance for overhead administration costs. Considering the DOE budgets for the HP Fellowship and Scholarship programs for fiscal year 2005 and fiscal year 2006 combined have totaled $500,000 and only produced 3 fellowships, we feel this request is very modest and we recognize it will not begin to provide the long term support that will eventually be required if we are to have enough safety professionals for our energy, healthcare, homeland security, defense, and environmental protection programs.

The Committee's favorable consideration of this request will help meet our nation's radiation safety needs of the future.

PREPARED STATEMENT OF THE UNIVERSITY OF TEXAS AT AUSTIN

I draw the Subcommittee's attention to the importance of the National Methane Hydrates R&D Program in the National Energy Technology Laboratory of the Department of Energy. This is the premier federal program that deals with a unique geologic phenomenon. Though this program is housed in the Office of Fossil Energy, methane hydrates are more than a large potential resource—they are fundamental to the carbon cycle on our planet.

Methane hydrates present a basic science challenge of the first order. The scientific community is only beginning to figure out where hydrates are, how they got there, what quantities really exist, and what would happen if the prevailing conditions of temperature, pressure, salinity, and microbial symbiosis were to change. But even from the little we know about hydrates so far, one important conclusion emerges. The amount of carbon currently locked up in hydrates easily exceeds the total carbon in all the oil, natural gas and coal on the planet. So trying to make sense of how the carbon cycle works without studying hydrates is like learning how to drive a car when you only have a key to the glove box.

Methane is also a potent greenhouse gas, even more so than the widely discussed carbon dioxide. The behavior of methane hydrate deposits—when they form, when they dissociate, and how fast these processes take place—very likely holds some of the keys to understanding how Earth's climate has changed in the past. Fully understanding the past would have enormous impact on predictions of how our climate might change in the future. Considering the political, social and economic ramifications of climate predictions, investment in understanding the scientific basis for change is wise.

Energy supply and climate change both fall within DOE's core mission. The National Methane Hydrates R&D Program in NETL is therefore ideally situated to drive our nation's effort to understand the science as well as the economics of these deposits. This is not news to this Subcommittee, for the previous session of Congress recommended steadily increasing support for the program over the next five years. I urge the Subcommittee to maintain its commitment to this uniquely important program.

PREPARED STATEMENT OF NGVAMERICA

Introduction

NGVAmerica appreciates the opportunity to provide the subcommittee the following statement concerning the fiscal year 2008 appropriations for the U.S. Department of Energy (DOE). NGVAmerica is a national organization of over 100 member companies, including: vehicle manufacturers; natural gas vehicle (NGV) component manufacturers; natural gas distribution, transmission, and production companies; natural gas development organizations; environmental and non-profit advocacy organizations; state and local government agencies; and fleet operators. NGVAmerica is dedicated to developing markets for NGVs and building an NGV infrastructure, including the installation of fueling stations, the manufacture of NGVs, the development of industry standards, and the provision of training.

Summary of Appropriations Requests

Fund the NGV RDD&D Program at $20 Million for fiscal year 2008

Fund the Clean Cities Program at $20 million for fiscal year 2008

Clarify that Biogas-to-Biomethane Production Projects Qualify Under Existing DOE-funded Programs

Statement in Support of Appropriations Request

Increasing the use of natural gas vehicles (NGVs) can: (1) reduce America's dependence on foreign oil, (2) improve air quality in urban areas, (3) reduce the production of greenhouse gases, and (4) pave the way for the more rapid introduction of hydrogen transportation technologies. However, to achieve all these benefits, more NGV RDD&D is urgently needed.

DOE funding has been instrumental in supporting the development and introduction of alternative fueled technologies. Over the years, DOE funding has supported the development and refinement of natural gas engines, fueling infrastructure, codes and standards, and fleet demonstration projects. DOE emission testing programs and fleet case studies also have been critical to demonstrating the real-world air quality and economic benefits of using natural gas vehicles. DOE has also been a key player in integrating new natural gas engines into new vehicle platforms. As such, DOE has been an instrumental partner with industry in developing new and better products. As a result of these efforts, natural gas use for transportation displaced over 200 million gallons of petroleum in 2006. Most of this fuel is consumed by high fuel-use fleets (e.g., transit, refuse, and short-haul trucking) located in major urban areas. NGVAmerica members have focused their marketing efforts mostly on heavy-duty truck and bus applications. Fleets operating these vehicles provide the best opportunity for increased petroleum displacement as well as reduced emissions of harmful pollutants.

Some of the major successes to date for our industry include full-commercialization of several of the cleanest internal combustion engines in the world, a growing share of the U.S. transit bus fleet, the use of hydrogen-blended fuels, installation of stations that simultaneously dispense CNG, LNG, hydrogen blends, and hydrogen, and the production and use of biomethane fuel produced from landfills. Many of our member companies also are experiencing a robust and growing export market for NGV products as a result of increasing interest in overseas markets. However, the U.S. market continues to represent a challenge, particularly due to the lack of long-term governmental support and a lack of vehicle product offerings.

DOE's efforts have led to some impressive developments over the years. Many of the products developed or supported by DOE funding will continue to provide benefits for many years. The heavy-duty vehicles that DOE help demonstrate and deploy often continue in service for 10–15, or more years. And because these applications mostly involve high fuel use fleets, the continued use of these vehicles will displace a large amount of petroleum. A single heavy-duty natural gas urban transit bus, for instance, over its lifetime will displace between 175,000–200,000 gallons of petroleum. That is a far greater amount of petroleum than even the most fuel-efficient light duty vehicle will ever replace. The point is not to stop encouraging light duty

fuel efficiency but rather to highlight the potential petroleum displacement of continuing to develop more heavy-duty natural gas applications.

The tax incentives enacted as part of the Energy Policy Act of 2005 and SAFETEA–LU are helping to support the market for NGVs and other alternative fuels. These incentives significantly improve the economics for users of alternative fuels. Unfortunately, a compelling economic case alone is not sufficient to commercialize new technologies, particularly not when developing new products costs millions of dollars and is fraught with risks. In transportation, this problem is particularly acute because of the economic problems facing U.S. manufacturers and the cost these manufacturers already must incur to ensure their petroleum fueled products meet increasingly stringent emission standards.

The NGV industry's RDD&D efforts are directed at bringing to market advanced NGV technology that will extend NGV use into more applications and lower the cost of purchasing and operating NGVs in all markets. Significant NGV RDD&D is needed to (1) improve engine efficiency, (2) further reduce engine emissions, (3) reduce the cost and improve the reliability of fueling infrastructure and (4) demonstrate alternative fuel systems in new applications—including natural gas/hybrid electric applications. In order to achieve these objectives and deliver the benefits provided by NGVs, our industry needs DOE to be a ready and willing partner. Given the importance of this continued effort, we request funding for the following specific activities:

Fund the NGV RDD&D Program at $20 Million for fiscal year 2008

At one time, the Department of Energy had a robust on-road NGV RDD&D program based on a joint public/private sector plan. Several years ago, DOE's Energy Efficiency and Renewable Energy programs shifted emphasis to long-term, high-risk R&D (e.g., hydrogen vehicles). Since then, the Administration has requested no funding for NGV RDD&D. That is unfortunate since such a program is even more necessary today. For NGVs to achieve their market potential, federally funded RDD&D is needed to expand product offerings of engines to meet a wider range of applications. In addition, the process of integrating those natural gas engines into additional medium- and heavy-duty vehicle platforms must be accelerated. Those platforms include school buses, transit buses, trash trucks, delivery trucks and over-the-road trucks. Natural gas hybrid-electric platforms must be expedited, too. In addition, the cost and weight of compressed and liquefied natural gas on-board storage systems must be reduced. Finally, work must continue on improving NGV and NGV fueling safety codes and standards. Given the current priority to move America away from reliance on foreign oil and the potential of NGVs to play a significant role, Congress should restore funding for an NGV RDD&D program.

Fund the Clean Cities Program at $20 million for fiscal year 2008

The Clean Cities program, which includes 89 public-private partnerships operating in 39 states, is one of the most effective means available for (1) educating the public about non-petroleum alternative fuels, (2) accelerating the market penetration of those fuels and vehicles and (3) laying the groundwork for public acceptance of hydrogen-based transportation. Given the need to move America away from dependence on petroleum-based fuels, increased funding for the Clean Cities program is a prudent and necessary investment. The Administration's request of $9.593 million for Clean Cities in fiscal year 2008 is inadequate given the role that Clean Cities can play in reducing U.S. oil dependence, which is an Administration and Congressional priority. We recommend and support increasing the funding level to $20 million.

Clarify that Biogas-to-Biomethane Production Projects Qualify Under Existing DOE-funded Programs

Biomethane is a biofuel with huge potential to offset petroleum reliance and reduce greenhouse gas emissions. Analysis previously conducted for DOE estimated that a feasible annual production capacity in the United States is about 1.25 quadrillion Btu or 10 billion gasoline-gallon-equivalent from landfills, animal waste and sewage alone. However, biomethane use has been overshadowed by efforts to produce renewable electricity and the promotion of ethanol. These efforts should be viewed as complementary. Federal programs for the production of all biofuels should be fuel neutral. As noted above, a huge potential exists in the United States to produce biomethane from landfill gas, animal and crop waste and sewage—an even cellulosic energy crops. In Europe, biomethane from cellulosic crops is being pursued as a viable alternative transportation fuel. There are a number of new funding programs (demonstrations, production grants, loan guarantees) enacted as part of the Energy Policy Act of 2005. These programs in some cases have been narrowly tailored to exclude applications that do not involve the production of electricity or, in the case of transportation fuels, fuels that are not ethanol or biodiesel. Congress

should continue to fund these programs but clarify that biomethane projects also qualify.

Conclusion

Mr. Chairman, natural gas vehicles help reduce America's use of foreign oil, improve the air quality in our urban areas, reduce the production of greenhouse gases, and pave the way for the more rapid introduction of hydrogen transportation technologies. We greatly appreciate your past support and consideration of these proposals.

PREPARED STATEMENT OF THE INDEPENDENT PETROLEUM ASSOCIATION OF AMERICA

On behalf of the Independent Petroleum Association of America (IPAA), representing over 7,000 producers of domestic oil and natural gas, I would like to bring to your attention a matter of significant importance to America's independent oil and natural gas producers.

For the third consecutive year, the Administration's Budget request for the Department of Energy (DOE) for fiscal year 2008 proposed to eliminate the existing oil and gas technologies (core) programs, and in addition, proposed to repeal the Sec. 999 or non-conventional onshore/ultra-deep/small producer program authorized in the Energy Policy Act of 2005 (EPACT). In the "guidance" document provided to DOE by the Office of Management and Budget (OMB) for fiscal year 2007, and in accordance with the recent Continuing Resolution or "CR," the core program is assumed to be transitioning toward a "close-out" or shutting down of most of it's current activities, allotting $2.7 million to be applied for close-out purposes. Similarly, the OMB guidance document assumes that repeal of the Sec. 999 program is imminent. IPAA would urge the subcommittee to consider rectifying this "yo yo" funding effect that serves to undermine the deliverability of these two programs. Both the "core" program and the Sec. 999 program are of vital importance to independent producers, who develop 90 percent of all U.S. wells, producing 82 percent of American natural gas and 68 percent of all American oil. In fact, historically 85 percent of the focus of the existing or "core" program has been devoted to the exploration and production activities associated with the independent producer.

Although the Sec. 999 program received $50 million in mandatory funding annually in EPACT, it is not structured to assume all of the functions of the core program, especially as they pertain to inherently governmental functions or providing grants to university researchers. The core program continues to house programmatic functions of equal importance to independent producers, such as gas hydrates, the Stripper Well Consortium, regulatory analysis, tech transfer and on-going university research and development projects. These efforts collectively represent important efforts related to development and deployment of technologies that assist in maintaining and increasing American oil and gas production. Therefore, IPAA requests that the core program be appropriated $29.9 million to continue ongoing research and development activities for fiscal year 2008. Regarding the Sec. 999 program, IPAA requests that the program receive an additional $25 million appropriation to apply to areas that are expected to be assumed by Sec. 999, such as enhanced oil recovery for small producers and the University Internship Program.

IPAA believes that during these times of elevated concerns over our increasing reliance on foreign sources of oil, now is not the time to diminish our efforts in the area of American produced oil and natural gas. We thank you for your prompt attention to this matter.

PREPARED STATEMENT OF AUSTIN ENERGY

This testimony supports funding for development and deployment of plug-in hybrid vehicles (PHEVs) within the Department of Energy's fiscal year 2008 budget request. Specifically, Austin Energy supports the $80.6 million for Hybrid Electric Systems within the Vehicle Technologies account of the Advanced Energy Initiative of the Energy Efficiency and Renewable Energy budget. Within the Hybrid Electric Systems sub-accounts, Austin Energy supports funding of: (1) $21 million for Vehicle and System simulation and testing; (2) $41.8 million for Energy Storage Research and Development; (3) $15.6 million for Advanced Power Electronics and Electric Motors Research and Development; and (4) $2.1 million for the SBIR/STTR program. Austin would request that the Committee consider these funding requests within the fiscal year 2008 budget request: (1) $10 million for Section 706 of the Energy Policy Act of 2005 ("EPACT")—Joint Flexible Fuel/Hybrid Commercialization Initiative; (2) $15 million for Sections 711/911 of EPACT—Hybrid Vehicles for

system and component development for plug-in hybrid vehicles; and (3) $2.5 million for Title 8 of EPACT—Advanced Vehicles for a fuel cell vehicle developed with a plug-in hybrid drive platform. Funding of $27.5 million within these three areas should be included within the Hybrid Electric Systems sub-accounts section of the Vehicle Technologies account of the Energy Efficiency and Renewable Energy budget.

Austin Energy, the Nation's 10th largest community-owned electric utility, serves 360,000 customers within the City of Austin and Travis and Williamson Counties, Texas. Austin provides electricity to the capital city of Texas through a diverse generation mix of nuclear, coal, natural gas and renewable resources. Austin Energy has been nationally recognized for its Green Choice renewable electricity program. For the last four years Austin Energy has sold more renewable electricity, primarily wind, than any other utility in the country.

Austin Energy has also been a national leader in energy efficiency. Austin's Green Building program for both commercial and residential buildings has been a national model in the use of sustainable building technologies.

As the President has stated frequently in the last two years, the United States needs to break its addiction to imported supplies of petroleum. One of the principle uses of imported petroleum is to produce gasoline to power the transportation sector, particularly automobiles. Already popular hybrid vehicles demonstrate that there is now a technologically feasible way to power automobiles with both an internal combustion and an electric engine. The plug-in hybrid vehicle is a modification of current hybrids. Plug-in hybrids can be charged from the existing electrical grid by plugging the car into an ordinary wall socket while the internal combustion engine can be a flexible fuel engine that will run on domestically produced biofuels.

PHEVs will run on a dedicated electric charge for a number of miles (20–60, depending on the size of the battery pack), then shift to liquid fuel. The General Motors concept car, the Volt, unveiled at the recent Detroit Auto Show in January of this year, is an example of this type of vehicle. It has an all electric range of 40 miles.

PHEVs have the ability to significantly increase efficiency of fuel use over both conventional cars and existing hybrids. Instead of the constant switching between gasoline and electric power as is done in a hybrid today, the PHEV runs on electric power until the batteries are drained; only then does the fuel engine engage to power the car. If the driver's daily commute is within the electric range (20–60 miles), or if driving is within a small geographical area (city delivery trucks), then gasoline consumption is minimized, thus starting us down the road to reduced imports.

Austin Energy is convinced that PHEVs will be a significant contributor to reducing our nation's reliance on imported oil. Unlike other transportation alternatives, PHEVs require neither new fueling infrastructure nor driver behavioral changes. The infrastructure for PHEVs, standard electric sockets, already exists and Americans have already become accustomed to plugging-in Blackberries, cell-phones and lap-top computers. In the event that one forgets or is unable to plug-in the car, it will run as usual on gasoline or flexible fuel.

The funding initiatives recommended by the President in the DOE fiscal year 2008 budget submission will speed the day when PHEVs are widely available to American citizens. DOE's research will help achieve the battery technology needed to move the PHEV from a concept car to automobile dealer showrooms. Other DOE programs support plug-in hybrid technology developed as part of flexible fueling operations for cars as well as integrated within the advanced fuel cell vehicle. PHEV technology will complement any existing automobile fueling system or one envisioned for the future. The DOE budget submission will provide for deployment of PHEVs in demonstration activities to allow for different commercial applications of the vehicles. PHEV technology is adaptable to all vehicle platforms—from large trucks to commuter cars.

Austin Energy supports Congressional appropriations to increase the availability of PHEVs and demonstrate its capacity as a solution to our "oil addiction." Austin Energy is also willing to support the federal effort by overseeing a national grassroots campaign to demonstrate the consumer market for PHEVs, a project underway for more than a year now.

Austin Energy's "Plug-In Partners" is an initiative to demonstrate to the automobile manufacturers that a consumer market already exists for PHEVs. Utility rebates and incentives, state, county and municipal government endorsements, and citizen petitions are evidence of an expanding interest in PHEVs. A key aspect of the Plug-In Partners campaign is the "soft" fleet orders. Fleet owners, both private and governmental, sign a pledge to strongly consider purchasing a certain number of PHEVs when available from an original equipment manufacturer. While the fleet

owner understands that the cars are not presently on line, the belief in the concept of a PHEV is sufficient for them to make the soft fleet order. This helps demonstrate a market to automakers. After one year of the Plug-In Partners campaign, over 8,400 vehicles have been pledged by soft fleet orders.

Austin Energy's Plug-In Partners campaign was founded nationally on January 24, 2006 at the National Press Club in Washington, DC. This past January, in the Russell Senate Office Building, Plug-In Partners celebrated its one year anniversary. Senator Orrin Hatch of Utah spoke at both events of the importance of PHEVs to ending our reliance on foreign oil. The Plug-In Partners campaign has been joined by more than 500 partners in 41 states, including the cities of Austin, Albuquerque, Aspen, Baltimore, Boston, Boulder, Chicago, Cleveland, Colorado Springs, Dallas, Fort Worth, Denver, Des Moines, Honolulu, Las Vegas, Los Angeles, Kansas City, MO, Milwaukee, Minneapolis, Philadelphia, Phoenix, Portland, OR, Sacramento, Salt Lake City, San Antonio, San Francisco and Seattle. The New York State Energy & Research Development Authority (NYSERDA), American Corn Growers Association, Soybean Producers of America, Alliance To Save Energy, American Council on Renewable Energy, American Wind Energy Association, Consumer Federation of America, Energy Future Coalition, Environmental and Energy Study Institute and the South Shore Clean Cities of Northeast Indiana support the Plug-In Partners campaign. The Center for American Progress and Set America Free are among the many public interest groups that are members of the coalition. Finally, Plug-In Partners has been endorsed by the American Public Power Association and almost 200 of its members around the country as well as the Edison Electric Institute, National Rural Electric Cooperative Association and the Washington Public Utility District Association.

Austin Energy has also committed $1 million for rebates to Austin Energy customers who purchase plug-in hybrids when they become available.

The Congress, by funding DOE initiatives to develop and deploy PHEVs, will help speed the commercialization by auto manufacturers and will be a significant step in lessening American dependence on imported oil.

PREPARED STATEMENT OF THE NATIONAL ASSOCIATION OF STATE ENERGY OFFICIALS

Mr. Chairman and members of the Subcommittee, I am Peter Smith of New York 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 $80 million for the State Energy Program (SEP). We wanted to take this opportunity to thank the Subcommittee for its support for an increase for this program in fiscal year 2007. We were also pleased that the Subcommittee added $300 million to the final fiscal year 2007 Continuing Resolution for energy efficiency and renewable energy programs. Recently, 30 members of the Senate wrote to you to fund SEP at least at $74 million and Weatherization at a $275 million level in fiscal year 2008. SEP is the most successful program operated by DOE in this area. Within an $80 million funding level for SEP we would support the Administration's proposed $10.5 million competitive program, but we do not support such an effort at the proposed funding level of $35 million for the core SEP activities. 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 the increase proposed in the President's budget for the Energy Information Administration (EIA) to $105 million, including an increase of $600,000 for EIA's State Heating Oil and Propane Program, in order to cover the added costs of increasing the frequency of information collection (to weekly), the addition of natural gas, and increasing the number of state participants. EIA's new state-by-state data is very helpful. EIA funding is a critical piece of energy emergency preparedness and response. This funding will permit EIA to maintain key Forms 182, 856 and 767 (involving crude oil and emissions). NASEO continues to support funding for a variety of critical deployment programs, including Building Codes Training and Assistance ($7.5 million), Rebuild America ($3.8 million), Energy Star ($6.8 million) and Clean Cities ($9.6 million). NASEO supports funding for the Office of Electricity Delivery and Energy Reliability, at least at the fiscal year 2006 request of $161.9 million, with specific funding for the Division of Infrastructure Security and Energy Restoration of $18 million, which funds critical energy assurance activities. We strongly support the R&D function, Operations and Analysis and Distributed En-

ergy activities within this office. The industries program should be funded at a $74.8 million level, equal to the fiscal year 2005 levels, 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. Proposed cuts in these programs are counter-productive and are detrimental to a balanced national energy policy. We remain concerned that a number of programs authorized in the Energy Policy Act of 2005 (EPACT 2005) have received no funding. Of special interest are sections 124, 125, 126, and 128 of EPACT 2005. We were pleased that funding has been provided for the pilot program under Section 140 of EPACT 2005.

Over the past five years, both oil and natural gas prices have been rising in response to international events, increased domestic use and the result of the 2005 hurricanes. We expect $60 oil to continue for an extended period of time, with an expanded problem as summer approaches. Gasoline prices have been spiking recently. In addition, we now have quantifiable evidence of the success of the SEP program, which demonstrates the unparalleled savings and return on investment to the federal taxpayer of SEP. Every state gets an SEP grant and all states, the District of Columbia and territories support the program.

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 (PM_{10})—160 metric tons; (5) SO_2—8,491 metric tons; and (6) CO—1,000 metric tons. The report done by DOE's Inspector General in April 2006 criticized DOE monitoring of SEP but affirmed that state actions were consistent with the applicable law and regulation. State monitoring and verification has confirmed SEP's effectiveness.

State Energy Program Special Projects and Other Deployment Programs.—Through fiscal year 2005, SEP Special Projects provided matching grants to states to conduct innovative project development. It had been operated for ten years and has produced enormous results in every state in the United States. We could support funding of DOE's new, proposed SEP competitive program, but only within an $80 million SEP appropriation. The other deployment programs, including Rebuild America, Building Codes Training and Assistance, Clean Cities and Energy Star, should receive funding of $27.7 million in fiscal year 2008.

Industrial Energy Program.—A funding increase to a level of $74.8 million for the Industrial Technologies Program (ITP) is warranted. This is a public-private partnership in which industry and the states work with the Department of Energy 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.

Examples of Successful State Energy Program Activities.—The states have implemented thousands of projects. Here are a few representative examples.

California.—The California Energy Commission has operated energy programs in virtually every sector of the economy. The state has upgraded residential and nonresidential building codes, developed a school energy efficiency financing program, industrial partnerships in the food and waste industry, instituted a new replacement program for school buses utilizing the newest natural gas, advanced diesel and hybrid technologies. The buildings program has reduced consumption by enormous amounts over the past few years, through alternative financing programs and outreach. The state has worked closely with the western governors to implement a variety of new programs. California's greenhouse gas mitigation plans and a new solar initiative are moving forward.

Colorado.—The state has initiated new energy legislation this year and is greatly expanding both renewable energy and ethanol/biofuels development. In addition, the state is working to assist new and existing building energy efficiency projects. Fifty new building projects have received assistance and the state has arranged $170 million of investments in 80 performance contracting projects.

Hawaii.—Three major pieces of energy legislation were passed in 2006. The state energy office is working with state agencies to satisfy LEED Silver requirements

and utilize Energy Star products. The state has been promoting ethanol and bio-diesel development, developing a new Hawaii Energy Strategy in 2007, developing a major hydrogen energy program and implementing a large Renewable Portfolio Standard. The energy efficient buildings program has saved $10 million annually and the "Green Business Program" has saved $175 in water, energy and waste minimization for every $1 in SEP funds invested.

Idaho.—In Idaho the state has rated homes utilizing the Energy Star tools and signed-up 93 new builders to participate in the program. An aggressive energy efficiency financing program has produced more than 2,500 loans, totaling over $16 million, resulting in significant energy savings. The agricultural energy program has focused on reducing irrigation costs and usage to improve agricultural productivity and costs. The state has initiated a new industrial program.

Kentucky.—The programs supported by SEP have assisted in construction of high energy performance K–12 schools, developed $45 million in energy savings performance contracts and funded energy efficiency and renewable energy projects at universities and local governments. The state is a leader in promoting Energy Star and they have an R&D grant program for energy efficiency and renewable energy.

Louisiana.—The state energy office within the Department of Natural Resources is still heavily involved in post-Katrina relief. In addition, the state operates a cash rebate program of up to $2,000 for homeowner energy efficiency improvements. Thus far, almost 16,000 rebates and loans have been issued totaling $21 million, and leveraging $199 million more in private funds. The state has also been expanding renewable energy development, working to enact stronger energy codes and promoting alternative transportation fuels.

Mississippi.—The state operates an energy investment loan program targeted to schools, hospitals and manufacturers. They are focused on reducing energy consumption in state and school facilities and they have developed 50 energy management plans. Mississippi has been very active in the Energy Star program and has been attempting to conduct post-Katrina reconstruction in an energy efficient manner. They have also developed a rural business opportunity program.

Missouri.—The energy office in Missouri has been operating a low-interest energy efficiency loan program for school districts, colleges, universities and local governments. Thus far, public entities have saved more than $75 million each year, with more than 400 projects. The state energy office has also worked with the Public Utility Commission and the utilities within the State to get $20 million invested in residential and commercial energy efficiency programs. A new revolving loan for bio-diesel has also been initiated.

New Jersey.—The state's Clean Energy Program has invested over $124 million thus far with resulting bill reductions to consumers projected to be almost $2 billion. 36 MW of solar has already been installed, and the state is implementing rebates, net metering, standardized interconnections and a Solar Renewable Energy Certificate trading program. The state also has an alternative fuel, bio-heat and bio-diesel rebate program.

New Mexico.—With new state legislation, the state energy office is supporting and expanding renewable energy usage, tax incentives for hybrid vehicles, school energy efficiency programs, technical assistance to the wind and solar industries, and expansion of geothermal resources. The state has arranged approximately 40 energy performance contracts with annual energy savings in the millions. There has also been an expansion in the use of ethanol and bio-fuels.

North Dakota.—As Kim Christianson testified before Chairman Dorgan's Subcommittee on Energy on February 12, 2007, the state energy office is supporting programs for wind, ethanol and bio-diesel promotion. 578 MW of wind projects have been developed, with nine ethanol and bio-diesel plants in various stages of development. Projects in 412 buildings has led to $24 million in energy efficiency improvements. The state has also funded energy efficiency programs for local builders, schools and for lower income households.

Rhode Island.—The state has reorganized and elevated the energy agency, instituted new renewable energy and energy efficiency programs, joined with the neighboring states in expanded cooperative efforts and also focused on energy emergency preparedness.

South Dakota.—The state has focused on supporting wind, ethanol and bio-diesel development. In addition, a matching energy efficiency grant program has been established for heating controls, lighting, etc. The state also operates an energy loan program for state-run facilities and a technical energy analysis program for those facilities.

Texas.—The Texas Energy Office's Loan Star program has long produced great success by reducing building energy consumption and taxpayers' energy costs through efficient operation of public buildings. This saved taxpayers more than $200

million through energy efficiency projects. Over the next 20 years, Texas estimates that the program will save taxpayers over $500 million. In another example, the state promoted the use of "sleep" software for computers, which is now used on 136,000 school computers, saving 42 million kWh and reducing energy costs by $3 million annually. The state has initiated the Texas Emissions Reduction Plan/Texas Energy Partnership in 41 urban counties to reduce emissions through cost-effective energy efficiency projects.

Utah.—SEP funds have been utilized to support solar and wind programs, as well as implementation of a stronger energy building code through training programs. The state has also supported local government energy efficiency and has developed a public building energy efficiency pilot.

Washington.—The state energy agency works with the Northwest Energy Efficiency Alliance to target over $20 million in funding for energy efficiency and renewable energy projects. The state is also closely involved in energy emergency preparedness and response. The Resource Efficiency Managers Program, supported by SEP, conducts on-site training for energy savings. For example, working with Ft. Lewis and Puget Sound naval facilities, the program has saved over $2.5 million. A major focus on energy efficiency programs in buildings has been successful.

West Virginia.—The energy office has focused on industrial energy programs savings, including identified savings of $3.7 million in 2006 alone. Energy projects in the industrial sector have totaled $33 million during the past 10 years. The state has also supported dramatic expansion of renewable energy programs and is projecting $3 million in school energy cost savings each year through energy efficiency programs. Other project areas include lighting demonstrations and energy audits, poultry house bio-filters, building energy use in conjunction with West Virginia University and innovative energy technology opportunities in conjunction with Marshall University.

PREPARED STATEMENT OF BP EXPLORATION (ALASKA), INC.

GAS HYDRATE RESOURCE ASSESSMENT ON THE NORTH SLOPE OF ALASKA, APRIL 2007

The 2002 through present cooperative research between BP Exploration (Alaska), Inc. (BPXA) and the U.S. Department of Energy (DOE) in collaboration with the U.S. Geological Survey is helping to assess Alaska North Slope (ANS) methane hydrate resource potential. Since gas hydrate resource potential is unconventional and unproven, industry would not be able to perform this research without external support. Industry provides shallow 3D seismic and well data and access to infrastructure and DOE provides major research funding. This region is unique in that it combines known gas hydrate presence and existing production infrastructure. Continued full funding of the DOE Methane Hydrate program authorized by the Methane Hydrate Acts of 2000 and 2005 is essential to the success of this research. Reservoir characterization, reservoir modeling, and associated studies culminated in the drilling of an approximately $4.3MM Stratigraphic Test well, MtElbert-01, in early 2007. This well successfully acquired critical gas hydrate-bearing formation and fluid data, which will help mitigate potential recoverable resource uncertainty. Future production testing is a key goal of the Federal Research and Development program and may follow, but this remains to be decided following Stratigraphic Test data analyses. Future studies, if approved, would acquire additional static data and would include production testing, likely from a gravel pad within production infrastructure.

Methane hydrate may contain a significant portion of world gas resources within offshore and onshore arctic regions petroleum systems. In the United States, accumulations of gas hydrate occur within pressure-temperature stability regions in both offshore and also onshore near-permafrost regions. USGS probabilistic estimates indicate that clathrate hydrate may contain a mean of 590 TCF in-place ANS gas resources (Figure 1). Over 33 TCF in-place potential gas hydrate resources are interpreted within shallow sand reservoirs beneath ANS production infrastructure within the Eileen trend (Figure 2). Regional reservoir modeling studies indicate that from 0 to 12 TCF of this 33 TCF in-place might potentially be recoverable, but future exploitation of gas hydrate would require developing feasible, safe, and environmentally-benign production technology, initially within areas of industry infrastructure. In the United States, the ANS onshore and Gulf of Mexico (GOM) offshore are currently known to favorably combine these factors. In addition to the clear benefits that would accrue to the State of Alaska through realization of gas hydrate as an energy resource, the information and technology being developed in this onshore ANS program will be an important component to assessing the possible productivity

of the potentially much larger marine hydrate resource. The resource potential of gas hydrate remains unproven, but if proven, could lead to greater U.S. energy independence.

Although up to 100 TCF in-place gas may be trapped within the gas hydrate-bearing formations beneath existing ANS infrastructure, it has been primarily known as a shallow gas drilling hazard to the hundreds of well penetrations targeting deeper oil-bearing formations and has drawn little resource attention due to no ANS gas export infrastructure and unknown potential productivity. There remain significant challenges in quantifying the fraction of these in-place resources that might eventually become a technically-feasible or possibly a commercial natural gas reserve.

If gas can be technically produced from gas hydrate and if future studies help prove production capability at economically viable rates, then methane dissociated from ANS gas hydrate could help supplement fuel-gas, provide additional lean-gas for reservoir energy pressure support, sustain long-term production of portions of the geographically-coincident 20–25 billion barrels viscous oil resource, and/or potentially supplement conventional export-gas in the longer term. Continued government-industry collaborative support of this research is needed to help determine this future resource potential.

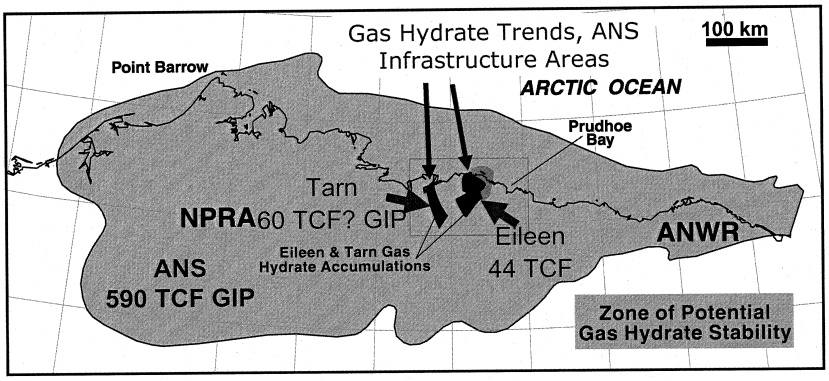

FIGURE 1.—*ANS Gas Hydrate Stability Zone Extent. The USGS has estimated 590 TCF methane in place in hydrate form in this region (Courtesy USGS).*

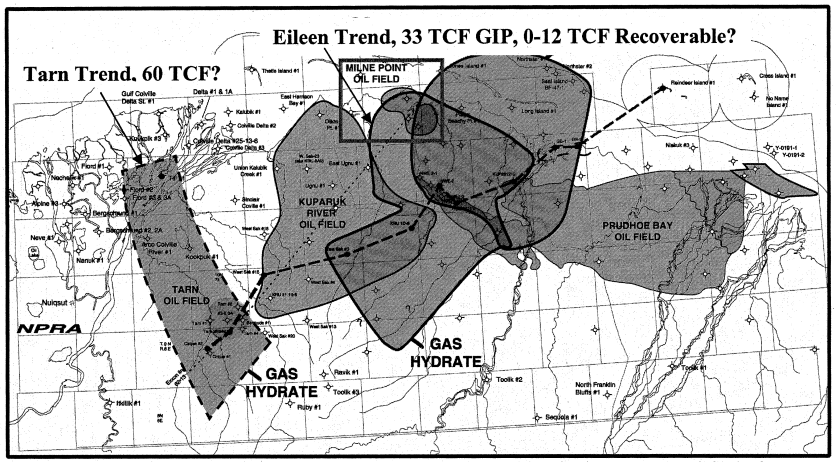

FIGURE 2.—*Eileen and Tarn Gas Hydrate Trends and ANS Field Infrastructure (modified after Collett, 1998).*

PREPARED STATEMENT OF THE ALLIANCE FOR MATERIALS MANUFACTURING EXCELLENCE

AMMEX organizations include the basic materials manufacturing sector (aluminum, chemicals, forest products, glass, metal casting, steel) in the U.S. economy along with several stakeholders in materials manufacturing, such as the Northeast Midwest Institute, the National Association of State Energy Officials and the American Council for an Energy-Efficient Economy. We are writing to urge Congress to restore funding to the Industrial Technologies Program (ITP) at the Department of Energy at a level of $125 million dollars and to restore the structure of the program to one that emphasizes new process development is all six materials industries as opposed to cross-cutting research.

ITP is a true public-private partnership. DOE and materials manufacturers jointly fund cutting-edge research that addresses the needs of the Nation and materials manufacturers. All projects have the shared goals of reducing energy consumption, reducing environmental impact and increasing competitive advantage of U.S. materials manufacturers. The program is unique because we select only projects with "dual benefits"—a public benefit such as reduced emissions or petroleum use, and an industry benefit such as a more efficient process.

The Department of Energy's Industrial Technology Program (ITP) and U.S. materials manufacturers have a long history of joining forces to develop and deploy new technologies which save energy, improve our environment and enable U.S. materials manufacturers to have the world's most advanced technology on the plant floor.

The chart below is representative of the gains in energy efficiency made by materials manufacturers since 1990, i.e., during the time they have partnered with DOE.

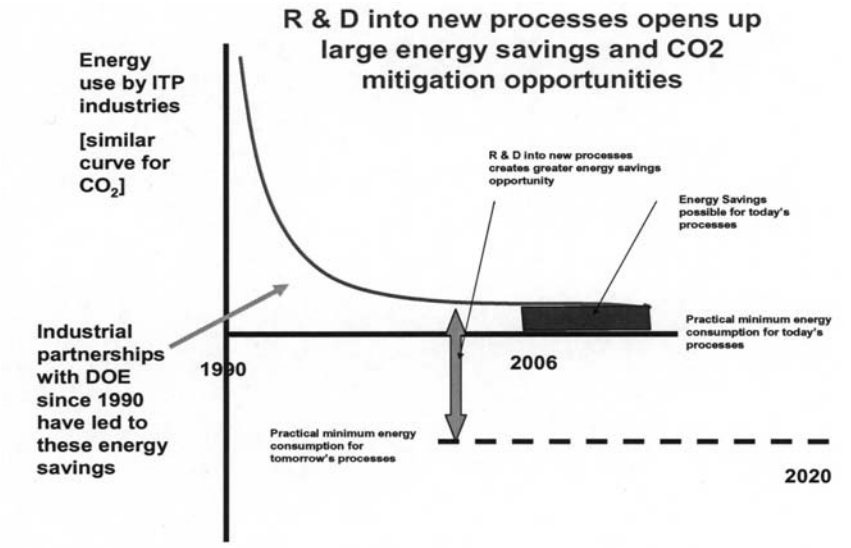

Figure 1: Materials Manufacturers have greatly reduced energy use since 1990 because of their co-investment with DOE

This chart also shows that materials manufacturers have become very efficient for the processes they operate today and that to make the type of gains in the future that have been seen since 1990, new process development is required.

The chart below shows the funding history of the DOE ITP program since 1990.

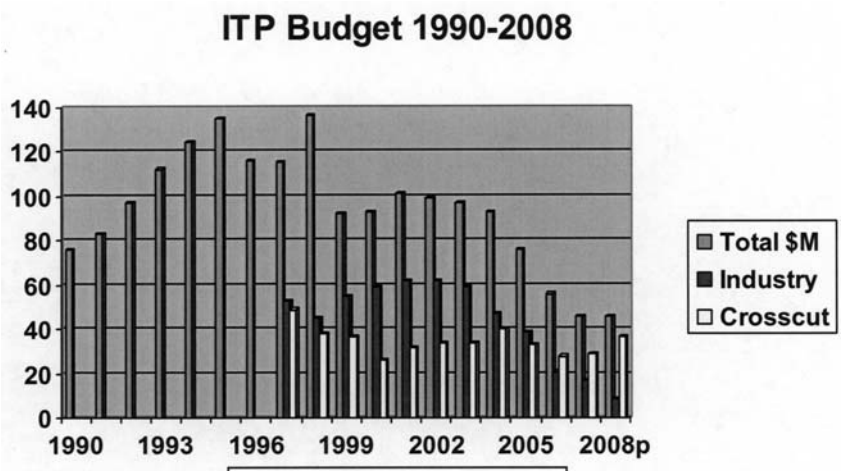

Figure 2: ITP Budget History

In the years 1990–1996 the program consisted largely of "industry funding" and averaged $100 million annually. There were some "cross-cutting" projects in this time, but they were a small percentage of the total. Even in the years 1999–2003, spending on industry projects [black] vs. crosscutting [white] was approximately 2:1.

Beyond 2003, the ITP program was not only the target of drastic cuts but remaining funds were rebalanced to favor crosscutting vs. industry specific projects. As shown in Figure 1, the level of energy efficiency of materials industries dictates that new process development ("industry specific" projects) are required vs. the crosscutting (incremental) projects.

Our request entails two parts:

—A return to a total program level of $125 million.

—A re-structuring of the program so as to return to the structure that was so successful from 1990–2003—a focus on new process development via industry specific research with at least a ratio of 2:1 of new process research to crosscutting (incremental) investments.

AMMEX members have identified their top new process development concepts (not in priority order) which would be pursued at the funding levels and structure defined above;

Aluminum

Improved, energy-efficient burners and furnaces for aluminum melting.

Improved energy efficiency and recovery rates for recycling technologies.

Chemicals

Development of alternative feedstocks for the chemical industry to reduce dependence on petroleum and natural gas derived feedstocks.

Nano-manufacturing scale-up methodologies for key unit operations: synthesis, separation, purification, stabilization, and assembly.

Development of low-energy, low-capital membrane or hybrid separations technology.

Glass

Submerged Combustion Melter.

Waste Heat Recovery and Use as Electrical or Chemical Energy.

Low Residence Time Glass Refining Technologies.

Forest Products

Advanced water removal and high efficiency pulping.

Gasification of Spent Pulping Liquors and Biomass Residuals.

Metal Casting

Simulation of Dimensional Changes and Hot Tears.

Engineered Coatings for Aluminum Pressure Dies.

Developing a lightweight production cast aluminum metal matrix composite alloy.

Steel

Ironmaking by Molten Oxide Electrolysis.
Ironmaking by Flash Smelting using Hydrogen.
Demonstration of the Paired Straight Hearth Furnace Process.

AMMEX MEMBER ORGANIZATIONS

Kurtz Bros.
American Iron and Steel Institute
Glass Manufacturing Industry Council
Aluminum Association
Waupaca
American Foundry Society
Chemical Industry VISION 2020 Technology Partnership
American Forest and Paper Association
Hyatt Die Cast
North American Die Casting Association
National Association of State Energy Officials
Northeast Midwest Institute
Gibbs Die Casting
Intermet Corning Glass
Smith Foundry Co.
Anheuser Busch—Longhorn Glass
Glass Service, Inc.
Carteret Die Casting Corp
Leone Industries Glass Packaging
North Carolina Industries of the Future
Armstrong
North Carolina Industries of the Future
Diagnostic Instrumentation & Analysis Laboratory (Mississippi State Univ.)
Society for Glass Science and Practices
Praxair, Inc.
Siemens Energy and Automation, Inc.
Gas Technology Institute
Nucast
Varicast
Clinkenbeard
AVALON Precision Casting Company
Industries of the Future West Virginia
Visteon
Bremen Castings Incorporated
Savannah River Technology Center
Indiana Industries of the future
Bridesburg Foundry
Oshkosh
Federal Bronze, A Division of the One Source Casting Corporation
West Virginia Development Office
Weyerhaeuser
Columbia Steel Casting Co., Inc.
Cunningham Pattern & Engineering, Inc.
GSC Investment Castings, Machining & Assembly
Delvest, Inc.
Fan Steel
Weatherly Casting & Machine Co.
Citation Innovative Metal Components
Magma
Atchison Casting
Yankee Casting
Saint Clair Die Casting, LLC
Ahresty
The BOC Group
Saint Paul Metalcraft Inc.
Thakar Aluminum Corporation
Eclipse Inc./Combustion Tec
Briggs & Stratton
Johns Manville a Berkshire Hathaway Company
University Center for Glass Research
Owens Corning
CPI Cast Products Inc.
Pennsylvania Industries of the Future
Callen Manufacturing Corporation
CertainTeed
ABCO Diecasters Inc.
Energy Industries of Ohio
U.S. Silica Company
Borax
A&B Die Casting
PPG Industries
Brillcast, Inc.
Durametal
May Foundry & Machine
NEENAH Foundry Company
Citation Innovative Metal Components
SECAT

PREPARED STATEMENT OF IMPACT TECHNOLOGIES LLC

Dear Honorable Senators: I am a citizen, tax payer, small business owner, engineer, inventor and developer of new technology covering several industries. I am also a small oil producer and investor in the oil and gas industry. I have worked for a very large (major) oil and gas company (Chevron) and smaller independent oil and gas producers. After establishing my own companies I have obtained bank financing, industry financing, angel financing, personal investments, state investment groups and directly with the U.S. Department of Energy (DOE) and other groups supported by DOE funding, including the Petroleum Technology Transfer Council (PTTC), Stripper Well Consortium (SWC) and several universities. In fact, I have invested my time by (previously) serving on the governing boards of the SWC and PTTC.

The return on public investments (DOE, NASA, others) in properly vetted technologies is tremendous. I have found that industry will not support a new tech-

nology unless it is proven. For higher technologies that proving process is expensive and risky—too risky or requiring too long a time frame for all banks, most angel financing and too small for venture capital groups. I have invested significant personal monies in my own projects, but that will only go so far in developing significant technologies. That investment GAP must be filled (fully or partially) by public investment yielding tremendous returns in dollars and in public good.

Industry wide, that tremendous return on public investment through DOE has included the coal bed methane resource development (measured in the trillion of cubic feet of natural gas) for the public benefit. Unconventional oil and gas shale development will only occur with DOE support of key technologies. The public investment of the DOE (directly and through SWC) has allowed technologies to be developed and tested so that private groups can then invest to take the products commercial. Most of these technologies would not become commercial if not for this public investment boost.

Specifically and on a more direct and personal level, approximately $170,000 in DOE and SWC (cost share) funds has allowed Impact to design and prove of a new, patented pump technology that will gross an estimated $305 million over 10 years, generating taxes and jobs. This new pump technology will impact the oil and gas, construction, demolition, environmental and job shop industries. It will be licensed to existing pump manufacturers after the 5 years. That small, but significant, DOE and SWC investment will allow private angel investors to see proven technology and feel comfortable enough to invest and take the company to the next commercialization level. It will yield a direct return on investment of over 1,800:1 not counting the benefits it will generate for the impacted industries! It would not have occurred without DOE and SWC funding.

A second technology now being commercialized by Impact is based on a $180,000 (cost share) investment from DOE and the SWC plus (funds used to leverage other state funds including) Oklahoma's OCAST investment group. With that public investment Impact has built a patented motor prototype and is now building on that success to commercialize these new motors for drilling. This new motor technology will impact the oil and gas, environmental, geothermal, resource mining, utilities and construction industries. That DOE and SWC investment will generate an estimated $228 million over 10 years, based on our conservative business plan forecasts. That is a return on public investment of over 1,300:1 not including the benefits to the impacted industries and the public through taxes, jobs and improved competition!

A third technology Impact has developed with others is the SPI Gel Technology which is directly a result of the Department of Energy's investment in the Stripper Well Consortium. This is a new patent-pending silicate based gel for reducing water production and pipe repairs. It is environmentally safe for fresh water applications. We are in the field test stage of this technology right now and will license it out later this year. The public investment of $203,000 (cost share) will return over a 1,000:1 return in gross sales and other benefits to society through jobs, taxes and continued resource production. This technology would not be developed without DOE and SWC funds.

I have personally seen the investments of the DOE directly in and through the SWC and PTTC on small oil and gas producers. These new technologies are significant and will have a major impact on the public energy resources. These investments are small but have a extremely high return (over 1,000:1) and should be continued. These public funds fill the gap between concept and private funding to commercialize good ideas.

PREPARED STATEMENT OF THE NATIONAL MINING ASSOCIATION (NMA)

NMA RECOMMENDATIONS

Department Of Energy (DOE)

$108 million for the FutureGen project; $257 million in previously appropriated funds should be designated for FutureGen; $300 million for base coal research and development programs; $273 million for the Clean Coal Power Initiative (CCPI); $8.4 million for the loan guarantee office and $9 billion cap on federal loan guarantee commitments; $15 million for DOE's participation in the Asia-Pacific Partnership on Clean Development and Climate.

U.S. Army Corps Of Engineers

Civil Works Program.—$180 million for the Regulatory Program. See the table below for NMA's list of priority lock and dam projects and recommendations for levels of funding required for their completion.

BACKGROUND

Office of Fossil Energy

NMA strongly supports: the $108 million requested for the FutureGen project; as a zero cost action, the $257 million in unused Clean Coal Technology Program funds should be deferred to fiscal year 2009 for the FutureGen project (this action is essential to maintaining private sector cost-share and financing construction); and recommends at least $300 million be appropriated for base coal research and development programs.

In addition, NMA recommends that CCPI be funded at a level of $273 million, which would enable DOE to conduct a third solicitation targeting advanced technology systems that capture carbon dioxide for sequestration.

The FutureGen public-private partnership will design and build, in the United States, the first-of-a-kind commercial-scale power plant that will provide the technological capability to: (1) capture and permanently store 90 percent or more of the plant's CO_2 emissions; (2) power about 150,000 American homes with the clean electricity it generates from coal; and (3) co-produce hydrogen and potentially other useful by-products from coal.

The FutureGen Industrial Alliance, comprised of the largest coal producers and users in the world, has signed a cooperative agreement with the DOE to provide $250 million toward the cost of the project. The alliance members have extensive experience in building large-scale coal-fueled projects, while meeting budget and performance requirements. The alliance remains committed to moving the FutureGen project to its targeted completion in 2012, provided a multi-year funding scenario is secure, and its funding does not come at the expense of other coal research and demonstration programs.

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. NMA believes these programs should be funded at a level of at least $300 million (which should include $109 for carbon sequestration—$30 million above the president's fiscal year 2008 budget request). In addition, the advanced turbine program should be funded at $40 million instead of the requested level of $22 million. The increase in funding for these and other programs will ensure the FutureGen project meets the intended goals.

In addition, NMA recommends a $3 million level of funding for the Center for Advanced Separation Technology (CAST), which is led by a consortium of seven universities with mining research programs. The advanced separation program conducts high-risk fundamental research which will lead to revolutionary advances in separation processes for the coal industry and develop technologies that crosscut the full spectrum of mining and minerals industries.

Asia-Pacific Partnership on Clean Development and Climate (APP)

NMA supports the administration's total request of $52 million for this partnership and specifically, the request of $15 million to fund the U.S. DOE's participation.

The APP will spur development of cutting edge technologies and practices that support economic growth while reducing emissions, including greenhouse gas emissions. It will result in expansion of market opportunities for U.S. mining and equipment companies and other U.S. businesses.

The APP, involving the United States, Australia, China, India, Japan and South Korea, is important for a number of reasons:

—It will result in real emissions reductions. With the participation by China and India, APP is the only international agreement addressing rapid emissions growth in the developing world, which is forecast to surpass emissions of industrialized nations in 2010. APP is a voluntary, technology-based approach to emissions reduction geared towards future economic growth and energy security and will be more effective than unrealistic mandates or treaties.

—It builds on Methane-to-Markets and other successful programs that reduce greenhouse gas emissions. The U.S. coal industry has captured and re-used 308 billion cubic feet of coal mine methane—the equivalent of removing 40 million automobiles per year from the roads. APP, working with the EPA's Methane-

to-Markets program will use U.S. experience and expertise to accelerate large-scale capture and recycling of methane in China and India.

—It helps preserve coal as an important energy source. The United States, China, India and Japan will be at the center of a significant rise in population, economic activity and energy use in the next 50 years. Coal is essential to sustaining America's competitiveness and vitality in a changing world, as it is in China and India. APP supports improvements in efficiency in both coal mining and use through the acceleration of clean coal technologies, industrial technology strategic planning and energy efficiency best practices.

—It creates new markets for U.S. companies in the emerging economies of China and India.

U.S. Army Corps Of Engineers

Regulatory Program.— NMA supports the Administration's request of $180 million for administering the Corps' Clean Water Act (CWA), Section 404 permit program and for implementing the Memorandum of Understanding (MOU).

The Corps' Regulatory Branch plays a key role in the U.S. economy since the Corps currently authorizes approximately $200 billion of economic activity through its regulatory program annually. The ability to plan and finance mining operations depends on the ability to obtain CWA Section 404 permits issued by the Corps within a predictable timeframe. In addition, NMA recommends that a portion of such regulatory program funding be used for implementing the MOU issued on February 10, 2005, by the Corps, the U.S. Office of Surface Mining, EPA and the U.S. Fish and Wildlife Service. The MOU encourages a coordinated review and processing of surface coal mining applications requiring CWA Section 404 permits.

Below is a table indicating NMA's fiscal year 2008 Priority Navigation Projects.

NMA FISCAL YEAR 2008 PRIORITY NAVIGATION PROJECTS

Construction	Fiscal Year 2007 Request	Fiscal Year 2008 Request	NMA Recommendations
Robert C. Byrd Lock and Dams Ohio River, OH/WV	$1,800,000	$1,000,000	$1,800,000
Kentucky River Lock Addition, Tennessee River, KY		$52,000,000	$52,000,000
Marmet Lock and Dam, Kanawha River, WV	$50,800,000	$25,000,000	$27,000,000
McAlpine Locks and Dams, Ohio River, IN/KY	$70,000,000	$45,000,000	$45,000,000
Locks and Dams 2, 3, 4, Monongahela River, PA	$62,772,000	$70,300,000	$70,300,000
J.T. Myers Locks and Dams, Ohio River, IN/KY			$10,500,000
Olmsted Locks and Dams, Ohio River, IL/KY	$110,000,000	$104,000,000	$104,000,000
Winfield Lock and Dam, Kanawha River, WV	$4,300,000		
Emsworth Dam, Ohio River, PA	$17,000,000	$43,000,000	$43,000,000
Greenup Lock and Dam, Ohio River, KY/OH			$12,100,000

PREPARED STATEMENT OF THE AMERICAN NUCLEAR SOCIETY

Chairman Dorgan, Ranking Member Domenici, members of the subcommittee, on behalf of the more than 10,000 members of the American Nuclear Society, I am pleased to provide testimony on fiscal year 2008 appropriations for the U.S. Department of Energy.

First, as you know, ANS represents a diverse cadre of nuclear professionals. As such, our members' opinions on nuclear issues are often wide-ranging, and perhaps sometimes different from the subcommittee. However, the ANS truly appreciates the thoughtful and deliberate manner in which the subcommittee approaches issues related to nuclear energy, science, and technology.

For fiscal year 2008, the ANS supports a strengthened portfolio of Federal investments in nuclear energy, science and technology. Specifically, the ANS recommends that the subcommittee fully fund the DOE Office of Nuclear Energy's fiscal year 2008 request, including the Advanced Fuel Cycle Initiative, the Nuclear Hydrogen Initiative, and the Generation IV reactor programs.

The ANS also supports full funding for the Yucca Mountain repository program, so that DOE can proceed with its plans to submit a license application to the NRC by June 2008, and $913 million for the Nuclear Regulatory Commission.

The ANS is aware that the Bush administration has proposed terminating funding for the University Reactor Infrastructure and Education Assistance program line in its fiscal year 2007 and 2008 budget requests.

In response, the ANS created the Special Committee on Federal Investment in Nuclear Education to review the issues and make recommendations on the issue.

This report, entitled "Nuclear's Human Element," focuses on longer term issues that need to be addressed by Congress and the executive branch in order to ensure the health and vitality of the U.S. nuclear science and engineering enterprise. It has generated a lot of positive discussion within the nuclear community, and we hope the subcommittee will use it to help guide the scope and structure of future Federal investments in this area.

For fiscal year 2008, the ANS supports the request by the Nuclear Engineering Department Heads Organization (NEDHO) and the National Organization of Test, Research, and Training Reactors (TRTR) to provide $50.1 million in fiscal year 2008 in funding for university-based nuclear engineering programs, the level authorized by the Energy Policy Act of 2005.

The ANS is aware that the DOE Office of Nuclear Energy has indicated its desire to continue funding university programs through its existing R&D programs and we recognize the debate over funding vehicles is more nuanced than "line-item or nothing." However, we agree with NEDHO and TRTR that, regardless of the mechanism through which it is provided, DOE funding for university programs must be predictable, growth-oriented, and focused on longer-term scientific and workforce development milestones.

Regarding the Global Nuclear Energy Partnership (GNEP), the ANS recognizes that there are concerns about the aggregate costs and technological pathways associated with implementation of the GNEP initiative. However, the Society supports the administration's proposed increase in fiscal year 2008 funding for the Advanced Fuel Cycle Initiative which will allow the pertinent cost and design questions to be explored at an expedient pace.

Finally, the ANS supports an fiscal year 2008 funding level of $100 million for the Next-Generation Nuclear Plant, funded through the Generation IV Nuclear Energy Systems Initiative account. The NGNP holds great promise to employ nuclear energy to meet U.S. hydrogen production and industrial process heat needs, and its development should be accelerated to meet the milestones set forth in the Energy Policy Act of 2005.

PREPARED STATEMENT OF THE AMERICAN GEOLOGICAL INSTITUTE

To the chairman and members of the subcommittee: Thank you for this opportunity to provide the American Geological Institute's perspective on fiscal year 2008 appropriations for geoscience programs within the subcommittee's jurisdiction. The President's budget request for Department of Energy (DOE) research programs provides no funding for oil and gas research and development. Not only would the request terminate basic research for oil and gas, it would also repeal the ultradeep water and unconventional natural gas and other petroleum research funding proposed in the Energy Policy Act of 2005. Given the interest of the administration and Congress to reduce the Nation's foreign oil dependence and reduce prices on oil and natural gas, it seems like an inopportune time to eliminate programs that could help with these objectives. We are especially concerned about the reduction or outright termination of oil and gas research funding for universities. These programs not only support innovations in oil and gas exploration and extraction, but the teaching and training of the next generation of professionals and faculty in these vital areas. AGI applauds the requested 7 percent increase for the largest supporter of physical science research in the United States, DOE's Office of Science, and encourages the subcommittee's full support for this increase. We also support increased funding requests for clean energy research, which focuses spending on solar, biomass/biofuels, hydrogen fuel, FutureGen and nuclear power, however, spending for other clean energy alternatives, such as geothermal, could be included in appropriations while remaining consistent with national needs and objectives.

AGI is a nonprofit federation of 44 geoscientific and professional associations that represent more than 100,000 geologists, geophysicists, and other earth scientists. The institute serves as a voice for shared interests in our profession, plays a major role in strengthening geoscience education, and strives to increase public awareness of the vital role that the geosciences play in society's use of resources and interaction with the environment.

DOE FOSSIL ENERGY RESEARCH AND DEVELOPMENT

AGI urges you to take a critical look at the Department of Energy's Fossil Energy Research and Development (R&D) portfolio as you prepare to craft the fiscal year 2008 Energy and Water Development Appropriations bill. Over the past 7 years, Members of Congress have strongly emphasized the need for a responsible, diversified and comprehensive energy policy for the Nation. The growing global competition

for fossil fuels has led to a repeated and concerted request by Congress to ensure the Nation's energy security. Energy Information Administrator Guy Caruso has noted the Nation's need for fossil fuels over the next 30 years and thus the critical need to continue R&D on fossil fuels and all other energy resources. The President's proposal, which provides no funding for oil and gas R&D, is short sighted and inconsistent with congressional concerns. No funding for oil and gas R&D will hinder our ability to achieve energy stability and security.

The research dollars spent by Fossil Energy R&D go primarily to universities, State geological surveys and research consortia to address critical issues like enhanced recovery from known fields and unconventional sources that are the future of our natural gas supply. This money does not go into corporate coffers, but it helps American businesses remain competitive by giving them a technological edge over foreign companies. All major advances in oil and gas production can be tied to research and technology. AGI strongly encourages the subcommittee to ensure a balanced and diversified energy research portfolio that does not ignore the Nation's primary sources of energy, fossil fuels, for at least the next 30 years.

Today's domestic industry has independent producers at its core. With fewer and fewer major producing companies and their concentration on adding more expensive reserves from outside of the contiguous United States, it is the smaller independent producers who are developing new technologies to extract our domestic resources efficiently and cleanly. However, without Federal contributions to basic research that drives innovation, small producers cannot develop new technologies as fast, or as well, as they do today. The DOE program has produced many key successes among the typical short-term (1 to 5 year) projects. And even failed projects have proven beneficial, because they've often resulted in redirection of effort toward more practical exploration and production solutions. Ideally, DOE and private sector participants share the programs R&D funding on a 50–50 basis, with the government contributing actual dollars and the company contributing dollars or "in kind" products and services. To justify the use of public funds, new technology developed from such projects is made available to industry.

In 2003, at the request of the House Interior Appropriations Subcommittee, the National Academies released a report entitled Energy Research at DOE: Was It Worth It? Energy Efficiency and Fossil Energy Research 1978 to 2000. This report found that Fossil Energy R&D was beneficial because the industry snapped up the new technologies created by the R&D program, developed other technologies that were waiting for market forces to bring about conditions favorable to commercializing them and otherwise made new discoveries. In real dollars from 1986–2000 the government invested $4.5 billion into Fossil Energy R&D. During that time, realized economic benefits totaled $7.4 billion. This program is not only paying for itself, it has brought in $2.9 billion in revenue.

Unfortunately, despite this success, the President's fiscal year 2008 budget request continues the alarming reduction of energy R&D funding by eliminating all funding for our primary energy resources, oil and gas. There has been an 85 percent drop in renewable, fossil and nuclear energy R&D funding at DOE since 1978. Federal funding for renewable, fossil and nuclear R&D has decreased dramatically from $5.5 billion in 1978 to $793 million in 2005 according to a Government Accountability Office (GAO) report entitled Key Challenges Remain for Developing and Deploying Advanced Energy Technologies to Meet Future Needs and released in December 2006. Such significant under-investment in energy R&D over many decades hinders progress on cost-effective and environmentally-sound exploration and extraction of raw energy resources and clean and efficient development, production and use of energy products.

The Federal investment in energy R&D is particularly important when it comes to longer-range research with diversified benefits. In today's competitive markets, the private sector focuses dwindling research dollars on shorter-term results in highly applied areas such as technical services. In this context, DOE's support of fossil energy research, where the focus is truly on research, is very significant in magnitude and impact compared to that done in the private sector, where the focus is mainly on development. Without more emphasis on research, we risk losing our technological edge in the highly competitive global market place.

As we pursue the goal of reducing America's dependence on unstable and expensive foreign sources of oil, we must continue to increase recovery efficiency in the development of existing domestic oilfields, conserving the remaining in-place resources. Since the 1980s, 80 percent of new oil reserves in this country have come from additional discoveries in old fields, largely based on re-examination of previously collected geoscience data. These data will become even more important in the future with the development of new recovery technologies.

Perhaps one of the most promising areas of R&D for domestic oil supplies are in the ultradeep waters where drilling is allowed in the Gulf of Mexico. The Energy Policy Act of 2005, set aside $50 million annually from collected offshore royalties for ultradeep water and other unconventional oil and gas R&D to support clean and efficient exploration and extraction in the Gulf. The President's budget request would repeal this program and provide no funding for ultradeep water and other unconventional oil and gas R&D. AGI asks that you consider R&D spending or other incentives to encourage the private sector to invest in clean and efficient technological advances to enhance our unconventional fossil fuel supply in offshore regions where drilling is allowed and significant infrastructure already exists.

The research funded by DOE leads to new technologies that improve the efficiency and productivity of the domestic energy industry. Continued research on fossil energy is critical to America's future and should be a key component of any national energy strategy. The societal benefits of fossil energy R&D extend to such areas as economic and national security, job creation, capital investment, and reduction of the trade deficit. The Nation will remain dependent on petroleum as its principal transportation fuel for the foreseeable future and natural gas is growing in importance. It is critical that domestic production not be allowed to prematurely decline at a time when tremendous advances are being made in improving the technology with which these resources are extracted. The recent spike in oil and natural gas prices is a reminder of the need to retain a vibrant domestic industry in the face of uncertain sources overseas. Technological advances are necessary to maintaining our resource base and ensuring this country's future energy security.

DOE OFFICE OF SCIENCE

The DOE Office of Science is the single largest supporter of basic research in the physical sciences in the United States, providing more than 40 percent of total funding for this vital area of national importance. The Office of Science manages fundamental research programs in basic energy sciences, biological and environmental sciences, and computational science and, under the President's budget request, would grow by 7 percent from about $4.1 billion last year to $4.4 billion. AGI asks that you support this much needed increase.

Within the Office of Science, the Basic Energy Sciences (BES) program supports fundamental research in focused areas of the natural sciences in order to expand the scientific foundations for new and improved energy technologies and for understanding and mitigating the environmental impacts of energy use. BES also discovers knowledge and develops tools to strengthen national security.

The Basic Energy Sciences (BES) would remain the largest program in the office with an increase of 5.5 percent from $1.420 billion in fiscal year 2007 to $1.498 billion in fiscal year 2008 in the President's request. Within the BES, Chemical Sciences, Geosciences and Biosciences would receive a $15.4 million increase over their fiscal year 2007 budget. AGI strongly supports the requested increases for these programs.

DOE ENERGY EFFICIENCY AND RENEWABLE ENERGY

Within DOE Energy Efficiency and Renewable Energy, the President's fiscal year 2008 budget request would not support any R&D in geothermal technology. AGI asks that the subcommittee consider supporting geothermal R&D at the fiscal year 2006 level of $23 million.

PREPARED STATEMENT OF THE ALLIANCE TO SAVE ENERGY

The Alliance to Save Energy (the Alliance) is a bipartisan, nonprofit coalition of business, government, environmental, and consumer leaders committed to promoting energy efficiency worldwide to achieve a healthier economy, a cleaner environment, and greater energy security. The Alliance, founded in 1977 by Senators Charles Percy and Hubert Humphrey, currently enjoys the leadership of Senator Mark Pryor as chairman; Duke Energy President and CEO James E. Rogers is the co-chairman; and Representatives Ralph Hall, Zach Wamp and Ed Markey and Senators Jeff Bingaman, Susan Collins, Larry Craig and Byron Dorgan as its vice-chairs. More than 120 companies and organizations support the Alliance as Associates. The Alliance recommends increases of $41.3 million for several existing energy-efficiency deployment programs, and $55 million for new programs in fiscal year 2008.

BACKGROUND

Energy Efficiency—Our Greatest Resource.—Gasoline, natural gas, and electricity prices have all reached all-time highs in the last couple of years. These price increases cost American families and businesses over $300 billion each year. The President recognized energy security as a major issue in the State of the Union message. And many of the world's top scientists recently reaffirmed the urgent need to address global warming in a timely manner. Energy efficiency is the quickest, cheapest, and cleanest way to address the linked issues of energy prices, energy security, air pollution, and global warming. Energy efficiency already is the Nation's greatest energy resource—we now save more energy each year due to actions since 1973 to increase energy efficiency than we get from any single energy source, including oil. But much more can and needs to be done.

A Record of Success.—DOE programs play a key role in developing the energy-efficiency resource through the research and development (R&D) of new energy-efficient technologies, and by helping to deploy these technologies. A 2001 National Research Council report found that every dollar invested in 17 DOE energy-efficiency R&D programs returned nearly $20 to the U.S. economy in the form of new products, new jobs, and energy cost savings to American homes and businesses. Environmental benefits were estimated to be of a similar magnitude.

Efficiency-Related Budget Authorizations and Studies.—Several reports and legislative authorizations have supported major increases in funding for DOE energy efficiency programs. The Energy Policy Act of 2005 (EPAct 2005) authorized $865 million for energy efficiency R&D in fiscal year 2007, more than $1 billion for deployment programs, and additional funds for hydrogen and fuel cells and for electric energy R&D. This follows calls for expanding energy efficiency research by the National Commission on Energy Policy, the President's Committee of Advisors on Science and Technology, the Energy Future Coalition, and the President's National Energy Policy Development Group.

Summary of the President's Energy Efficiency Fiscal Year 2008 Budget Request.—The President's overall fiscal year 2008 budget request for energy-efficiency programs within DOE's Office of Energy Efficiency and Renewable Energy is $515 million, down nearly $117 million (18 percent) from the fiscal year 2006 appropriated level. This large cut follows a gradual slide from the $695 million that was appropriated for these programs in fiscal year 2002. Funding for these programs has decreased by one-third (37 percent) since 2002, after adjusting for inflation. In addition, the request for electricity R&D programs, many of which focus on efficiency, is $86 million, a decrease of $50.3 million (37 percent) from the fiscal year 2006 appropriated level. Several deployment programs, along with industrial R&D, have experienced some of the biggest funding cuts.

ALLIANCE RECOMMENDATIONS

In order to address the critical energy problems facing our Nation, the Alliance recommends funding DOE energy-efficiency programs in line with the EPAct 2005 authorized levels. Some specific funding requests are outlined below:

It is important to maintain a broad portfolio of programs. The impact of DOE energy-efficiency programs has been multiplied by the combination of research to develop new technologies, voluntary deployment and market transformation programs to move them into the marketplace, and standards and codes to set minimum thresholds for using cost-effective technologies. And while the combination of programs has had tremendous impact, the government has often not been successful at picking winning technologies.

Thus, it is important that the increases proposed in the administration's budget and those proposed below not be paid for through cuts to other highly-effective efficiency programs, which also address critical national energy needs. While the fuel cell and alternative fuels programs are important, they do not take the place of core programs that can have broader, more certain, and more near-term energy savings impacts. In particular, the Alliance opposes repeated cuts that threaten the viability of Industrial Technologies research programs and the dramatic proposed cuts to the distributed energy R&D program and the Weatherization Assistance Program.

Key Existing Deployment Programs (Office of Energy Efficiency and Renewable Energy)

Building Energy Codes (Building Technologies).—While residential and commercial building codes are implemented at the State level, States rely on DOE for technical specifications, training, and implementation assistance. The Alliance estimates that building energy codes could save 7.2 quads of energy by 2025. The new 2006 IECC model residential code includes measures to simplify the code and ease imple-

mentation, and thus presents exciting opportunities to increase code adoption and compliance. Yet the administration has proposed cutting funding for building codes by one-third.

EPAct 2005 (sec. 128) authorized $25 million per year for building codes, including $10 million for a new program to help States improve compliance with their codes. Several studies have found poor rates of compliance with building codes, causing unnecessary energy waste. This new program would assist states that have adopted up-to-date building codes to implement a plan to achieve 90 percent compliance through better training, enforcement, or other measures. Thus the Alliance recommends a $19.4 million increase above the fiscal year 2006 appropriated level, for a total of $25 million.

Federal Energy Management Program.—This program helped cut Federal building energy use by 24 percent from 1985–2001—a reduction that now saves Federal taxpayers roughly $1 billion each year in reduced energy costs. But funding has steadily decreased for this program, even though large savings remain untapped. EPAct 2005 and Executive Order 13423, in addition to setting aggressive new Federal energy saving targets, require DOE to implement rules, guidelines, and reports on the targets, Federal building standards, Federal procurement, and metering. A needed funding increase for this program will actually save taxpayers money in lower Federal energy bills. The Alliance recommends a $5 million increase above the fiscal year 2006 level, for a total funding level of $24 million.

Equipment Standards and Analysis (Building Technologies).—Appliance energy efficiency standards (e.g. for refrigerators) have already reduced U.S. electricity use by an estimated 2.5 percent and reduced peak power demand by the output of 70 power plants, at minimal cost to the Federal Government, and saving consumers billions of dollars in their energy bills. But the program is years behind on issuing standards for close to 20 products. EPAct 2005 requires additional rulemakings. DOE has issued an ambitious plan to catch up, and has requested a $3.5 million increase to do so. But a new GAO report says that is not enough to meet a 600 percent increase in workload, and some of the most important standards are not even in the plan. The Alliance recommends a $10 million increase over the fiscal year 2006 level for total funding of $20.2 million.

New Deployment Programs (see also Building Energy Codes above)

Energy Efficiency Pilot Program (Office of Electricity Delivery and Energy Reliability).—State and utility energy-efficiency programs have been remarkably successful at reducing electricity demand, strain on the grid, and the need for costly new power plants. However, they have been starved for funds due to electric utility restructuring. A few states are experimenting with innovative performance-based policies to prioritize efficiency resources before increasing energy supplies. EPAct 2005 (sec. 140) authorized $5 million per year for a new program to provide funding to several States to assist in the design and implementation of energy-efficiency resource programs that will lower electricity and natural gas use by at least 0.75 percent a year. The Alliance recommends $5 million for this new program.

Zero Energy Commercial Buildings Initiative (Building Technologies).—Buildings are a major part of the problem and solution of high natural gas and electricity use and climate change. The buildings sector in the United States accounts for about 40 percent of total energy consumption and 40 percent of carbon dioxide emissions, and about half of that is from commercial buildings. There is a growing consensus on the need and opportunity for aggressive action to dramatically improve building energy efficiency; the American Institute of Architects (AIA) has called for reducing fossil fuel use in new and renovated buildings by 50 percent by 2010 and eventually by 100 percent. DOE has a zero energy homes program, but achieving this goal for the many kinds of commercial buildings is even more difficult and more complicated. A large concerted multi-year initiative is critical to achieve these deep savings throughout the commercial sector.

The Alliance, along with the AIA, American Society of Heating Refrigerating and Air-conditioning Engineers, Lawrence Berkeley National Laboratory, U.S. Green Building Council, and World Business Council for Sustainable Development, are the founding sponsors of an initiative for zero-energy commercial buildings by 2030. This public-private collaboration will combine better tracking of real energy performance, demonstrations of replicable solution packages for different building types, strategic research, and a market transformation plan. The Alliance recommends $20 million for this new program in fiscal year 2008, to add to and complement the existing funding request for commercial buildings R&D.

Energy Efficiency Public Information Initiative (Program Support).—The quickest way to reduce energy demand and bring high energy prices down is through consumer education. EPAct 2005 (sec. 134) authorizes $90 million per year for a public

education program to provide consumers the information and encouragement necessary to reduce energy use. Such programs have a proven track record of success, as in the 2001 "Flex Your Power" campaign in California, which significantly reduced consumer electricity demand and assisted in avoiding further blackouts. DOE has contributed small amounts of funding to effective education campaigns, but much more is needed. The Alliance recommends $30 million for this new program in fiscal year 2008.

Additional Priorities

Industrial Best Practices (Industrial Technologies—Crosscutting).—One of the most effective DOE industrial programs conducts plant-wide energy assessments, develops diagnostic software, conducts training, develops technical references, and demonstrates success stories. Oak Ridge National Laboratory reports that DOE–ITP's Best Practices outreach saved 82 trillion Btu in 2002, worth $492 million. The Alliance recommends a $3 million increase for Best Practices, for total funding of $10.9 million.

Energy Star (Building Technologies).—Energy Star is the most successful voluntary, public-private deployment program at EPA and DOE, making it easy for consumers to find and buy numerous energy-efficient products. And it functions on a very small budget. Every Federal dollar spent on the Energy Star program results in an average savings of more than $75 in consumer energy bills and a reduction of about 3.7 tons of carbon dioxide emissions. With additional funding, the Energy Star program could update its criteria, expand the program to other areas and add more product categories. The Alliance recommends a $2 million increase over the fiscal year 2006 appropriated level for total funding of $7.9 million.

Building Technologies R&D.—Of all the DOE energy-efficiency programs, Building Technologies continues to yield perhaps the greatest energy savings. The 2001 National Research Council study found that just three small R&D programs—in electronic ballasts for fluorescent lamps, refrigerator compressors, and "low-e" glass for windows—have already achieved cost savings totaling $30 billion, at a total Federal cost of only about $12 million. Buildings R&D should be a priority for funding increases, especially in the areas of Windows and Insulation and Materials R&D.

Energy Information Administration (EIA) Energy Consumption Surveys.—EIA's Energy Consumption Surveys provide unique and invaluable data to policy makers, industry, and researchers. The Alliance recommends an increase of $1.9 million, for total funding of $5.5 million, in order to reinstate the residential transportation survey, last conducted in 1994, and to conduct the Residential, Manufacturing, and Commercial Buildings Energy Consumption Surveys (RECS, MECS, and CBECS) every 3 years, as required by the Energy Policy Act of 1992, instead of the current 4-year schedule.

PREPARED STATEMENT OF WESTERN MICHIGAN UNIVERSITY (WMU)

R&D activities administered through DOE's Fossil Energy programs play a vital role to discover, develop and produce a significant portion of the Nation's domestic natural energy needs.

Western Michigan University (WMU) provides invaluable research to develop new technologies for improved exploration and production of hydrocarbons in an environmentally responsible manner. WMU also disseminates this information through workshops to Michigan's small independent oil companies that cannot develop such technologies on their own.

Most of the oil companies in Michigan consist of a few employees, often referred to as "Mom and Pop" independent producers. In the Midwest, there are thousands of such companies that produce many tens of millions of barrels of oil and equivalent natural gas a year.

Ten years ago, in a consortium with private industry, with funding by DOE, WMU developed and proved a new drilling technology to recover oil from abandoned fields. Subsequent application of this technology has produced more than 20 million barrels of oil and more than 500 billion cubic feet of natural gas in Michigan. We are now studying the origins and evolution of some of Michigan's major oil and gas reservoirs and using newly developed computer-based 3D models for predicting their distribution. This will create the ability to produce energy more efficiently, in larger quantities, and with less drilling. WMU is one of a limited number of universities nationwide capable of this type of research.

WMU has presented its research results and techniques to several thousand participants at interactive workshops for industry and government. And WMU has an

increasing enrollment of undergraduate and graduate students who are being trained to meet an urgent need for geoscientists.

WMU's website, which receives more than 6,000 hits per month, connects producers, the research community and support services industries that produce hydrocarbons.

This program would not be possible without DOE funding.

WMU is nearing the final year in our current multi-year research program. To cut off funding now, as we are just coming to fruition with new results and technologies would be such a loss of taxpayers' money already invested.

There are those who ask why tax dollars should support oil and gas research and programs such as ours at WMU. My response is that these are vital to the Nation's security and to the domestic economy. This research can improve the domestic supply of oil and gas, which in turn will drive down the price. When constituents of each member of Congress ask what the government is doing about the current high price of oil, one logical response is to say that they support efforts that will improve the domestic supply through R&D funds.

Eighty-five percent of DOE's R&D programs are tailored to the exploration and development activities of the independent producer. These small companies drill 90 percent of the Nation's oil wells and they produce 85 percent of the Nation's natural gas. For these companies, undertaking costly research activities is not a viable option. They must gain education and access to technology from outside their doors, a key function provided by WMU.

There is another benefit to government-supported R&D that is rarely recognized—training urgently needed geoscientists. The research spawns Master's and Ph.D. students who will take critical roles in an industry that suffers from a shrinking population of professionals, particularly American professionals. Where will the domestic industry be in the future if skilled students do not enter the oil and gas industry? All aspects of these professional jobs require increasingly complex skills and abilities. Who will be the explorers and developers of oil and gas for the next generation?

I urge you to reinstate full funding for the DOE Oil and Gas research program at WMU. This is desperately needed for the American economy and its security. We are increasingly dependent on foreign oil and gas to run our economy. When will our dependency on imports be too great? Sixty-five percent? We are there now! Seventy-five percent? Eighty-five percent? I think that such high levels make us very vulnerable to supply interruptions, huge price spikes, and an unstable economy.

PREPARED STATEMENT OF THE AMERICAN FOREST & PAPER ASSOCIATION

The Agenda 2020 Technology Alliance, a Special Project of the American Forest & Paper Association (AF&PA) welcomes this opportunity to provide the committee with its views on our industry's key public-private partnerships within the Office of Energy Efficiency and Renewable Energy (EERE) and to urge increased funding to adequately address industry's challenges in fiscal year 2008. The Industrial Technologies Program (ITP) and the Office of Biomass Programs (OBP) provide vital funding for research, development, and demonstration (RD&D) of technologies that dramatically reduce the forest products industry's energy intensity and transforms our industry into producers of carbon-neutral biofuels—thus addressing strategic national needs associated with energy efficiency, energy security, diversified energy supply, and environmental performance. We recommend industry specific funding of $6 million for forest products industry in ITP. We support the President's request for $179 million for Biomass and Biorefinery Systems R&D in OBP and ask that the Committee work to ensure eligibility of forest biorefineries in these programs and keep the appropriations unencumbered to allow for full funding of competitive biomass systems and biorefinery RD&D grants. Furthermore, we recommend that the Committee restore OBP Platforms Research and Development funding of $10 million for competitive R&D for black liquor gasification, a key enabling technology of the forest biorefinery.

The Agenda 2020 Technology Alliance is an industry-led partnership with government and academia that holds the promise of reinventing the forest products industry through innovation in processes, materials and markets. The collaborative, precompetitive research, development, and deployment supported through Agenda 2020 provide the foundation for new technology-driven business models that will enable our industry to meet competitive challenges, while also contributing solutions to strategic national needs. The technology solutions developed through Agenda 2020 are aligned to provide solutions to the competitive challenges faced by the U.S. forest products industry, which accounts for approximately 6 percent of the total U.S. manufacturing output, employs more than a million people, and ranks among the

top 10 manufacturing employers in 42 States with an estimated payroll exceeding $50 billion.

As is the case with many U.S. manufacturing industries, we face serious domestic and international challenges. Since early 1997, 136 pulp and paper mills have closed in the United States, contributing to a loss of 84,000 jobs, or 39 percent of our workforce. An additional 60,000 jobs have been lost in the wood products industry since 1997. New capacity growth is now taking place in other countries, where forestry, labor, and environmental practices may not be as responsible as those in the United States. Several drivers have heightened the need to develop new energy efficiency technologies: the recent volatility of energy markets, especially for natural gas; renewed national focus on climate change and environmental performance; and aging process infrastructure. Global competition, coupled with massive industry restructuring due to financial performance pressures from Wall Street, continue to hinder the ability of U.S. companies to make new investments. Each year without new investments, new technologies and new revenue streams, we lose ground to our overseas competitors.

Currently, energy is the third largest manufacturing cost for the forest and paper industry at 18 percent for pulp and paper mills—up from 12 percent just 3 years ago. For some of our mills, the cost of energy is about to eclipse employee compensation.

Since 1994, the forest products industry has been one of DOE's "Industries of the Future," partnering with ITP through the Agenda 2020 Technology Alliance in RD&D that has yielded successful advances towards our national energy and environmental goals. Agenda 2020 stands as an example of successful industry-government collaboration to develop technologies that hold the promise of reinventing industry, while providing real solutions for strategic national energy needs. Every Federal dollar spent on ITP saves $7.06 in annual energy costs and 1.3 million in annual source BTUs (2004 estimates). As recently as 2003, the ITP/Agenda 2020 portfolio included a total shared DOE and industry investment of almost $48 million, with nearly 55 percent coming from direct project cost shares by industry.

Today, after several years of continuous and substantial cuts, the ITP/Agenda 2020 budget has been reduced by over 83 percent since fiscal year 2002. This undermines our progress in achieving crucial energy efficiencies at a time when energy and response to climate change are major factors in the survival of the U.S. forest products industry. Projects rescoped or cut in recent years due to budget shortfalls resulted in a lost energy savings potential of 5 trillion BTUs/yr. Recent reductions make us unable to pursue projects in key priority areas such as advanced water removal and high efficiency pulping, which represents a lost savings potential of 100–200 trillion BTUs/yr. In fiscal year 2008, a further funding reduction is proposed and emphasis shifted from industry specific funding. Unfortunately, the type of technologies that cross all industries are not those from which we can achieve the maximum savings for energy and environmental emissions. Furthermore, the proposed funding of $1.752 million, is barely sufficient to fund ongoing projects, let alone address the high priority R&D needs specific to the forest products industry that have been jointly identified by industry with the DOE.

This comes at a crucial time when the forest products industry, like many energy-intensive industries, is facing unprecedented pressures due to the rising costs of energy and potential climate change mandates. Although we are nearly 60 percent self-sufficient (using biomass), it is imperative that we seek solutions as diverse as fuel switching, finding new energy sources, and options for reducing energy consumption. Thus we are in greater need than ever for the technology-based energy efficiency solutions that could be provided through our Agenda 2020 partnership with ITP. AF&PA's recommended ITP funding for forest products research ($6 million) would help our industry partially recover its capacity to develop and deploy vital energy efficiency technologies. Restoring Agenda 2020 funding to pre-fiscal year 2005 levels will not only help the competitive position of American industry, but will also serve national strategic goals for reduced dependence on foreign oil.

The Integrated Forest Products Biorefinery (IFPB) is a key Agenda 2020 technology platform and a top technical and economic priority for our industry. The objective is to develop and deploy core technologies that can be integrated into existing processing infrastructure, which would be transformed into geographically distributed production centers of renewable "green" bioenergy and bioproducts. This can be done while co-producing existing product lines, creating higher skilled and better paying jobs, strengthening rural communities, and opening new domestic and international markets for U.S. forest products companies.

The IFBP technology has the potential to integrate agricultural wastes, agricultural producers, forest landowners, agricultural landowners, forest product producers, and the petrochemical industry to produce clean renewable bio-fuels to sup-

port our local economies and the Nation. Widespread application of this technology would not only reduce environmental impact of burning fossil fuels, it would also increase the viability of agricultural, forest products, and other industries that use waste heat. It will create new high paying jobs, both direct and indirect, increasing tax revenue. From an energy perspective, the IFPB has the benefit of making the forest products industry even more energy self-sufficient, serving the DOE strategic goal of reduced energy intensity in industry by reducing fossil energy consumption. In addition, the IFPB would permit the industry to become a producer of renewable, carbon-positive bioenergy and biofuels, contributing to DOE strategic goals to dramatically reduce dependence on foreign oil and to create new domestic bioindustry.

AF&PA supports the President's announced $179 million budget initiative in fiscal year 2007 for biorefinery research and demonstration.—This initiative provides much needed funding to advance core enabling IFPB technologies, as well as providing major capital cost-share for commercial scale biorefinery demonstration. The forest products industry is an ideal partner to develop and commercialize integrated biorefineries. We have much of the infrastructure and expertise—wood harvesting, transportation and storage, manufacturing and conversion infrastructure, waste handling and recovery—needed to achieve the goals of integrated biorefineries. By and large, they are located in rural communities where they can help realize important synergies between agricultural and forest-based feedstocks. Recent estimates from Princeton University show significant potential for net environmental benefits of IFPBs, inclusive of offsetting other fossil fuel consumption in the mill. The industry-wide potential is to reduce nearly 100 million tons of carbon emissions annually from IFPBs. The study also estimates the cumulative value of savings due to reduced CO_2, SO_2, and NO_X emissions is $6 million to $40 billion.

However, private/public investments in RD&D are critical to bring IFPB technologies into full commercial use. Co-investment for RD&D can help mitigate the technical risks (especially integration with capital-intensive, legacy infrastructure) of early adopters of emerging IFPB technologies. Risk mitigation is an important factor in achieving the benefits of IFPBs, especially for integrating biorefinery technologies with existing manufacturing infrastructure. Federal support through research funding and other investments, such as loan guarantees and tax credits, is critical.

In order to achieve the promise of IFPB technologies for the industry and for the Nation, we need greater stability and availability of funds provided through the OBP budget. We urge the committee to preserve the proposed $179 million funding of Biomass and Biorefinery Systems R&D, so that there will be sufficient appropriations to fund biorefinery demonstration and commercialization projects. We also urge the committee to ensure that forest-based materials are eligible for this and future biorefinery research and demonstration funding. Forest-based materials can sustainably produce enough biofuels to displace up to 10 percent of the country's petroleum production. They are a vital feedstock for achieving reduced dependence on foreign oil and facilitating bioindustries domestically and should be included in programs for biomass and biorefinery RD&D.

A core enabling technology for part of the IFPB is black liquor gasification (BLG), which converts the by-product of the chemical pulping process into a synthetic gas. The synthetic gas can subsequently be burned to directly produce clean, efficient energy, or converted to other fuels such as hydrogen, renewable transportation fuels, and/or other high value chemicals. If fully developed and commercialized, a biorefinery based on BLG can produce up to 10 billion gallons of other renewable transportation fuels, and as much as 20,000 MW of biomass power.

In fiscal year 2006, DOE eliminated funding for BLG and related research, despite recent technical progress to bring the technology to pre-commercial demonstration. BLG is a core enabling technology for the IFPB, and is identified as a priority technology area for biorefineries in technology roadmaps created by industry, as well as in research plans developed by OBP to accelerate biorefineries and development of national bioindustry. Critical research areas identified by OBP include: integrated biorefinery support for thermochemical biorefineries, products core R&D in chemicals and fuels from syngas; thermochemical platform core R&D in BLG and syngas cleanup. AF&PA is recommending that $10 million be restored in the OBP budget for competitive research in these critical areas and to complete BLG core research and projects that were eliminated in recent cuts. This funding will provide the groundwork needed for next vital steps leading to large-scale demonstration of biofuels and biochemicals production in association with the industry's dominant Kraft pulping process.

We appreciate the committee's interest in ensuring sustained and adequate funding for RD&D partnerships and look forward to working with you to advance industry and national interests.

PREPARED STATEMENT OF THE CENTER FOR ADVANCED SEPARATION TECHNOLOGIES, VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Chairman Dorgan and Ranking Member Domenici of the subcommittee, I represent the Center for Advanced Separation Technologies (CAST), which is a consortium of seven leading U.S. mining schools. I appreciate the opportunity to submit this testimony requesting your committee to add $3 million to the 2008 Fossil Energy Research and Development budget, U.S. Department of Energy, for Advanced Separations research. Research in Advanced Separations Technology Development is authorized by the Energy Policy Act of 2005, title IX, subtitle F, section 962. I am joined in this statement by my colleagues from the consortium: Richard A. Bajura: West Virginia University; Peter H. Knudsen: Montana Tech of the University of Montana; Richard J. Sweigard: University of Kentucky; Jan D. Miller: University of Utah; Ibrahim H. Gundiler: New Mexico Tech; and Maurice C. Fuerstenau: University of Nevada-Reno.

FUNDING REQUEST FOR CENTER FOR ADVANCED SEPARATION TECHNOLOGIES

The Center for Advanced Separation Technologies (CAST) is a consortium of seven universities with expertise in separations science as applied to energy research. It was established in 2001 to develop advanced technologies that can be used to efficiently produce cleaner fuels in an environmentally acceptable manner and to study the basic sciences and engineering involved. The new technologies developed and the highly skilled personnel produced as a result of its research activities will help the United States develop its domestic energy resources and achieve energy independence.

The United States faces an energy crisis created by an imbalance between domestic supply and demand. While the United States makes up only 4.6 percent of the world's population, it consumes 24 percent of the world's energy resources, 25 percent of oil, and 44 percent of motor gasoline, while its domestic energy production lags behind. As a result, the United States imported 30 percent of its energy needs in 2005, which is expected to grow in the future. On the other hand, the United States has large amounts of untapped energy resources within its borders, which include 271 billion tons of recoverable coal, 2.6 trillion barrels of oil in the form of oil shale, and 20 billion barrels of oil in oil sands. In addition, the United States has 200,000 trillion cubic feet (Tcf) of methane (CH4) deposited in the form of hydrates in ocean floors and permafrost. The amount of energy deposited as methane hydrates alone far exceeds the amounts of all fossil energy resources combined. There is a dire need to exploit these untapped domestic energy resources by developing advanced separation technologies.

Organization

The Center for Advanced Separation Technologies (CAST) was formed initially between Virginia Tech and West Virginia University with the objective of developing technologies that can help the U.S. coal industry produce cleaner solid fuels with maximum carbon recovery in environmentally acceptable ways. The scope of work was limited to studies on solid-solid and solid-liquid separation methods that are used in the coal industry. In 2002, five other universities listed above joined the consortium to develop crosscutting technologies that can also be used in a broader spectrum of the U.S. resources industries. Therefore, the scope of CAST research was expanded to include studies of chemical/biological separations and environmental control.

By working together as a consortium, the center can take advantage of the diverse expertise available in its member universities and address the interests of different geographical regions of the country. Working together as a consortium is consistent with the recommendations of a recent National Research Council (NRC) report. It stated that "consortia are a preferred way of leveraging expertise and technical inputs to the mining sector," and recommended that DOE should support "academia, which helps to train technical people for the industry."

Progress And Next Step

At present, a total of 59 research projects are being carried out at the 7 CAST member universities. Of these, 20 projects are in solid-solid separation, 5 in solid-liquid separation, 15 in chemical/biological separation, 9 in modeling and control, and 10 in environmental control. These projects were selected by industry panels in accordance with the priorities set forth in the CAST Technology Roadmap, which was developed by an industry panel in 2002. Research results are presented at workshops to provide a forum to exchange ideas, create synergy, and interact with

industry. The next workshop will be held during July 24–26, 2007, in Blacksburg, Virginia.

Despite the high price of coal, many coal companies are losing significant amounts of their mined coal due to the lack of appropriate solid-solid and solid-liquid separation processes. In general, efficiencies of removing ash, sulfur and mercury from coal using these processes deteriorate sharply with decreasing particle size. As a result, many companies discard coal fines to impoundments. According to a National Research Council (NRC) report, the U.S. coal industry discards approximately 70 to 90 million tons of fine coal annually, which represents a significant loss of valuable national energy resource and at the same time creates serious environmental concerns. The NRC report was produced as a result of a congressionally directed investigation of a major impoundment failure that occurred on October 11, 2000, in Martin County, Kentucky. The report recommended a study to identify technologies that can eliminate (or reduce) the need for slurry impoundments.

There are more than 760 impoundments in the eastern United States, many of which are rated "high risk." Companies have been recovering some of the fine coal from the waste impoundments by taking advantage of the section 29 Synfuels Tax Credit. However, this tax credit is due to expire in 2007; therefore, there is an impending need to develop advanced fine coal cleaning and dewatering technologies that can be used not only to recover the fine coal from impoundments without the benefit of a tax credit but also to eliminate the waste from the source so that there is no need to create future impoundments.

For the reasons described above, CAST has been focusing on developing advanced fine coal cleaning and dewatering technologies. In one project, pilot-scale tests were conducted on the coal slurry from an impoundment (Pinnacle) in Pineville, West Virginia. Based on the successful test results obtained by CAST on the coal samples taken from the impoundment, Beard Technologies constructed a recovery plant in late 2006, and is currently in the process of shakedown testing. This is the first plant designed to recover practically all of the coal in a waste impoundment without the benefit of tax credit. If successful, the company plans to build additional plants using the advanced separation technologies developed by CAST. It is estimated that there are more than 2.5 billion tons of coal discarded in numerous impoundments in the United States.

In another fine coal dewatering project, CAST is developing a hyperbaric centrifuge that can remove water from fine coal using a combination of air pressure and centrifugal force. Recently, a semi-continuous bench-scale test unit has been designed and constructed. In a series of preliminary tests conducted on a coal sample finer than 0.15 mm in size, moisture was reduced to less than 10 percent by weight, which is substantially lower than those obtainable using conventional methods. Decanter Machine Company in Johnson City, Tennessee, has acquired a license from CAST to market the new technology, and is planning to construct a large-scale prototype unit for onsite testing. There are several other dewatering research projects carried out at CAST, all of which are promising. These include a flocculant injection system, which is already in use in many coal cleaning plants, and a deep-cone thickener which is designed to increase the consistency of refuse materials (mainly clay) so that they can be disposed of without using impoundments.

Traditionally, the western United States subbituminous coals are not cleaned before burning for power generation. However, depletion of higher quality reserves may soon force companies to remove impurities prior to shipping to eastern markets. Unfortunately, the water-based coal cleaning methods employed for cleaning eastern coal cannot be used for the western coal due to the lack of water. To address this problem, CAST researchers have been developing ways to clean western coal using a dry solid-solid separation method. A pilot-scale test conducted onsite showed that about one-quarter of the ash and one-third of the sulfur can be removed with high recoveries. Further, the dry cleaning process also removed more than 50 percent of the mercury originally present in the coal. It is anticipated that the technology will be commercialized in 2007.

CAST has also developed metallic filters that can remove mercury from flue gas. The process has been tested successfully at an operating power plant in Colstrip, Montana, with over 90 percent removal efficiencies. The spent filter can be cleaned of the captured mercury and reused, while the mercury stripped off the filter can be stored permanently in stable forms.

Many of the separation technologies developed by CAST can also be used to upgrade fertilizer minerals such as potash and phosphate. In 2006, Mosaic Potash Carlsbad, Inc. implemented a new method of minimizing the harmful effect of clay in processing potash ores and increased recovery by 6 percent. An improvement such as this has allowed mining companies in New Mexico, which produce more than 70 percent of potash in the United States, retain 600 high-paying jobs. At

present, CAST is developing new methods of processing difficult potash ores. These new methods will make it possible to mine 50 million tons of langbeinite ores, which will greatly increase the life of the U.S. potash industry.

The United States is the second largest copper producer in the world; however, much of the ores are of too low grade to be economically recovered using the conventional solid-solid separation methods such as flotation. Therefore, CAST has been developing an alternate method of extracting copper from low-grade ores using a chloride-based leaching, followed by direct electrowinning of dissolved copper. This could replace the traditional methods involving fine grinding, flotation, and smelting, which are energy intensive and, therefore, are not amenable for processing low-grade ores in western United States. The energy savings that can be realized by using this new method can be as high as 25 million Btu per metric ton of copper.

In addition to the more practical projects described above, CAST has also conducted fundamental research. As an example, a mathematical model has been developed to describe froth flotation—the most widely used solid-solid separation process in both the coal and minerals industries. The model is based on first principles so that it has predictive and diagnostic capabilities. In another project, computational fluid dynamic (CFD) simulation techniques have been employed to design optimal flotation machines. This project is cost-shared by Dorr-Oliver EIMCO, Salt Lake City, Utah, the world's largest coal and minerals processing equipment manufacturer. In still another project, the forces acting between two microscopic surfaces immersed in water have been measured using an atomic force microscope (AFM) and a surface force apparatus (SFA). The results showed that strong attractive forces are present between hydrophobic surfaces, the origin of which is not yet known. The new surface force, which is referred to as "hydrophobic force" plays an important role in processing energy minerals, such as coal, oil sands, oil shale, petroleum, and methane hydrates, that are naturally hydrophobic.

Many of the separation processes being developed at CAST can be used for water clean up. For example, the flotation technique which was developed originally for separating one type of mineral from another is used to remove suspended solids from waste water streams. Furthermore, the basic scientific knowledge gained from the solid-liquid and biological separations research at CAST can be used to remove toxic elements present in waste water, mine effluents, and ground water. Water treatment research is of critical importance worldwide, particularly to the western United States which has been under drought conditions since 1999. A recent study showed that by 2050 untreated wastewater could reduce the supply of renewable water supply by one third.

FUNDING REQUEST AND RATIONALE

The United States is by far the largest mining country in the western world. In 2005, the industry produced $73.8 billion worth of raw materials, including $22.3 billion for coal, and $51.5 billion for minerals. Australia is a smaller mining country, but has five centers of excellence in advanced separations as applied to coal and minerals processing. In 2005, Australia established the Mineral Science Research Institute with a funding of $22.6 million for 5 years. In the United States, CAST is the only consortium serving the U.S. energy and minerals resources industry.

CAST is developing a broad range of advanced separation technologies. Although it is a relatively new center, many of our research projects have yielded technologies that have already been deployed to industry. Many other promising projects are ongoing and require financial support. Continued funding will allow CAST to develop advanced technologies that can be used to exploit the abundant national energy resources in a manner that is acceptable to the environment. For fiscal year 2008, CAST is requesting $3 million for its research activities.

PREPARED STATEMENT OF THE PETROLEUM TECHNOLOGY TRANSFER COUNCIL

Mr. Chairman and members of the subcommittee, on behalf of the Petroleum Technology Transfer Council (PTTC) and its partners throughout its domestic oil and natural gas industry network, I would like to express our concern if Federal funding for technology research and development is terminated.

The administration has proposed to completely stop Department of Energy natural gas and oil R&D funding through the appropriations process and to rescind R&D funding previously authorized in the 2005 Energy Policy Act (EPACT).

PTTC strongly opposes this policy and believes it will be harmful over the near- and long-term. Among those that will be negatively impacted are:

—The academic community where tomorrow's scientific professionals gain valuable seasoning through participation in DOE-supported projects in their graduate years;
—The young and newly trained scientific professional which is already entering the workforce at near low historic levels; and
—The domestic petroleum supply, which is developed primarily by independent producers that rely heavily on evolving technologies to exploit mature and problematical petroleum resources.

The R&D Consortium created and funded through EPACT, which will be implemented by the Research Partnership to Secure Energy for America (RPSEA), enables focused research in areas critical to the U.S.'s energy future: deepwater offshore and unconventional resources. These needs should be addressed.

Still, there are significant R&D gaps that the Consortium will not cover that must be supported through R&D funding through the appropriations process:
—Enhanced oil recovery, particularly the interplay of CO_2 flooding with carbon capture;
—Field demonstration and technology transfer of newly developed technologies in topic areas outside those addressed by EPACT; and
—Technology transfer for proven yet under-applied technologies.

Rightly so, there is recognition that alternative energy sources are important to the U.S.'s energy future. It will take time for alternative energy R&D spending to lead to sound and significant sources of alternative fuels. The scientific professionals being seasoned in today's natural gas and oil R&D programs will more than likely be those participating in tomorrow's alternative energy research. The academic pipeline that provides those professionals cannot be stopped up by intermittent starts and stops of R&D funding. Our country deserves better.

WHY THE FEDERAL INVESTMENT IN RESEARCH AND DEVELOPMENT IS IMPORTANT

PTTC primarily serves the upstream domestic energy industry by facilitating the transfer of applied technology between technology developers and independent producers who are the driving forces in the domestic natural gas and oil exploration and production (E&P) industry. Independents drill 90 percent of the U.S.'s natural gas and oil wells, produce 82 percent of the natural gas and 68 percent of oil produced domestically. According to the Independent Petroleum Association of America (IPAA), independent producers have been recently investing 150 percent of their domestic cash flow back into domestic oil and natural gas development. Much of that investment is for proven technology that is essential for developing the more difficult to recover unconventional resources that are a primary target of today's exploration effort.

It's a reality that the "easy" natural gas and oil in the U.S. has already been developed. Those resources that remain—deep water, unconventional gas, enhanced oil recovery, even oil shale—are increasingly complex, requiring both more manpower and new technologies, not to mention a tremendous capital investment. Where will those new technologies come from?

Major oil companies have scaled their R&D back, and what research they do fund is focused on larger international opportunities. The technology provider/service sector R&D dollars logically follow this high volume, high profit mark. Technologies that are developed have some application in mature U.S. producing basins, but they often need adaptation and resizing/simplification. And when they are developed, it is more costly for the service sector to connect with "thousands" of dispersed independents.

Independents are the dominant players in the domestic industry and their human resources have reached critical low levels. The few who do have the capital and human resources—not already dedicated to drilling and production activities—typically do not have the technical experience or knowledge to effectively invest R&D dollars.

Collaborative research, partially supported with Federal funding to keep it focused and broadly applicable, makes good economic sense. History is well documented to show that federally funded R&D has led to significant increases in domestic energy supplies. This research also seasons scientific professionals emerging from the academic pipeline, improving their productivity to successfully exploit natural gas and oil reserves and making America more competitive in global energy markets. This higher productivity leads to more natural gas and oil recovery, faster.

In conclusion the Congress has a responsibility to the United States to take logical actions towards a secure energy future. One of those steps is continuing support for natural gas and oil R&D—to both, recover more domestic oil and natural gas and to feed the pipeline for future scientific professionals.

PREPARED STATEMENT OF THE INTERSTATE OIL AND GAS COMPACT COMMISSION

Chairman Dorgan, Ranking Member Domenici and members of the subcommittee, thank you for the opportunity to submit testimony on the appropriation to the U.S. Department of Energy (DOE) and specifically the Office of Fossil Energy. My testimony represents the views of an organization of governors of 30 member States of the Interstate Oil and Gas Compact Commission (IOGCC). These States account for virtually all of the onshore domestic production of crude oil and natural gas.

The States strongly and unequivocally support an appropriation to the Fossil Energy Research and Development "Gas—Natural Gas Technologies" and "Petroleum—Oil Technology" programs in an amount no less than that appropriated in fiscal year 2005 ($78.76 million), which was the budget year before the President's budget called for the complete elimination of funding for these vital functions. States strongly oppose the administration's fiscal year 2008 budget request that would terminate these programs, which would also effectively eliminate the DOE's Office of Oil and Natural Gas within the Office of Fossil Energy. This would be a colossal mistake for a variety of reasons, set out more fully below. Taxpayers are very supportive of Federal investments in energy security, and there is no better investment than in Research and Development (R&D).

In spite of the fact that the country operates under a constant threat of another "energy crisis," government is proposing to do less to ensure the Nation's resources are fully produced. The U.S. domestic oil industry today is the Nation's largest single supplier of crude oil, providing about 40 percent of the national demand for oil. The rest is imported—and the percentage of imports grows every year—making us more and more vulnerable to international crises and foreign economic manipulation. Our dependence on others for our energy security has never been greater. However, domestic natural gas suppliers provide about 85 percent of all of the natural gas demand in the Nation, with most imports coming from Canada. The United States even exports natural gas and has an abundant supply.

One thing we can count on, however, is that domestic supplies of crude oil and natural gas are our best hedge against this vulnerability and increasing import dependency. In addition to energy security, there are a myriad of other reasons why domestic production is preferable to imports:

—Our domestic resources are produced under the world's most effective environmental protections, which have been established and are enforced primarily by the States.

—Domestic resources create high-quality jobs here at home and provide the energy that powers our standard of living. For example, few realize that stripper oil wells (wells producing less than 10 barrels per day) account for about one-quarter of the lower 48 States' onshore domestic oil production and stripper gas wells (wells producing 60 Mcf per day or less) about 10 percent of onshore domestic gas production. This is a critical natural resource and it should not be abandoned in favor of imported energy.

—Despite perceptions to the contrary, large quantities of oil and natural gas remain onshore in the United States. These resources represent the most stable and secure energy available. These resources may exist in fields that have already been discovered and await a new technology that results in cost-effective recovery. Or they may lie in reservoirs yet undiscovered due only to a lack of technology appropriate for deeper horizons or greater geologic complexity. The bottom line is vast reserves remain untapped. While recovery rates have increased dramatically in the past 50 years and exciting new tools have been developed for exploration, still more can be done to reach the full production potential for reservoirs.

The U.S. Department of Energy's Office of Oil and Natural Gas, which is funded by the programs set forth above, is the only place in the U.S. Government that is responsible exclusively for oil and natural gas policy. It is also the only place in the U.S. Government that fully understands and is thus able to represent within the administration the critical importance of domestic oil and natural gas to our country, our economy, and our national security. This resident expertise is a national asset—one that is especially important as other agencies embark on rulemaking and take other actions which impact our domestic oil and natural gas industry. Terminating this office and its programs, including its critical Research and Development programs, would be a tragic mistake. For these reasons the IOGCC and its member States strongly support the continued existence and viability of DOE's Fossil Energy Office of Oil and Natural Gas and an appropriation in fiscal year 2008 at least equal to the fiscal year 2005 appropriation.

Turning to critical area of R&D specifically, many experts believe R&D is the most important factor in maximizing the availability and utilization of petroleum resources, especially domestic reserves.

A recent report compiled by the IOGCC confirms the declining trend in R&D expenditures while the country is experiencing a corresponding increase in reliance on imports. Major oil companies once poured millions into research and development. Today, however, many large companies have shirted their focus overseas and offshore. Eighty five percent of the wells in the United States are drilled by independent oil and natural gas producers (producing roughly 40 percent of the domestic oil and 65 percent of the domestic natural gas). Such smaller independents lack both the resources and infrastructure for significant R&D and it is here where government—State and Federal—can fill an obvious void.

The decline of Federal and private support for oil and gas research is well documented. The reasoning for cutting government support seems steeped in politics and a failure to understand the importance of Federal R&D to our domestic oil and gas industry and our energy security. However, this is a new era of uncertainty in our energy security that requires a fresh look at spending priorities.

An IOGCC publication entitled "Who Will Fund America's Energy Future?" states that "A strong domestic energy policy demands a strong R&D component. As the largest holder of domestic oil and gas resources, the Nation benefits from their production. Domestic production creates wealth for other royalty owners, contributes significantly to State, Federal and local economies and tax bases, offsets imports on a barrel-per-barrel basis, and cuts into trade deficits that are running at record levels."

If the United States is to maintain its ability to produce its domestic supplies of oil and natural gas, Federal expenditures on R&D must fill the leadership role left behind by private industry. Federal funding on oil and natural gas must increase if the United States is to maintain its ability to produce the domestic oil and natural gas resources our country so desperately needs. But instead the administration's budget for fiscal year 2008 eliminates oil and natural gas research.

In fact, the proposed budget calls for cutting the petroleum technology R&D program at the very moment that our country could benefit the most from technology breakthroughs that can be applied to our own resources.

Informed taxpayers support funding R&D to protect the environment and produce more energy—precisely the mission of DOE's oil and gas research program. Much promising work lies ahead including developing new methods of drilling that reduce impacts to the environment; inventing new materials that allow better, faster drilling; creating new chemicals and biological tools that increase production; identifying better uses of renewables in the production of fossil fuels; minimizing waste; and creating high quality jobs.

There have been many success stories from the DOE oil and gas research program. One recent, striking example of how DOE makes a real contribution to advances in environmental protection, energy production and innovation comes from a DOE–IOGCC project in California. Under DOE's Preferred Upstream Management Practices (PUMP) program, the project is proving that unmarketable gas can be used on site to provide power to oil wells previously idle. At the same time, the project is meeting the strict air quality standards in the Los Angeles area. DOE funding for this project was matched 100 percent by other partners, which enabled the government to double its R&D investment. Every government program investment should be as effective.

This is but one example of DOE helping provide leadership in demonstrating a technology that may have much broader implications for operators in 30 other oil and gas producing States who now won't have to reinvent the well in order to satisfy environmental restrictions and the urgent need for domestic energy.

Through careful regulation, IOGCC member States have helped maximize production and minimize wasteful practices that can lead to the premature abandonment of reservoirs. States have also developed innovative approaches to deal with temporarily idled wells, created incentives that maximize production and supported R&D that improves recovery rates and lowers finding costs.

Going forward, the IOGCC believes that a balanced and effective energy policy must encompass a number of fundamental principles, with R&D serving as a centerpiece in each. Other guiding principles include conservation of resources both in the producing and consuming sectors, encouraging domestic production to create economic growth and stability, increasing access to public lands for responsible development and prolonging production from wells at economic risk.

We strongly encourage the subcommittee's support of funding oil and gas research and development as a positive step toward our national security today and our energy security in the future.

PREPARED STATEMENT OF STRAND ENERGY, L.C.

Dear Sirs or Madams: I am the project manager for a small DOE award (DE–FG26–00BC15254) granted to Strand Energy, L.C. (Strand) under the Technology Development with Independents program which is administered by the National Energy Technology Laboratory (NPTL). This $75,000 grant is for the optimization and implementation of an improved oil recovery project in a small oil field operated by Strand and located in southwest Arkansas, the St Mary Barker Sand Unit (SMWBSU).

I am writing you to present testimony concerning the benefits of this award in fostering the development of technical skills for Strand Energy that are allowing us to add value to this domestic energy asset through local and regional job development and increased reserves that are benefiting the citizens of Arkansas through increased tax revenues and royalties. Specifically, the award has allowed Strand engineering and geological staff to develop a skill set in the science of reservoir modeling; computer characterization and simulation of reservoir processes. This is guiding Strand in our efforts to reduce development risk while increasing oil reserves for this property.

Although less than $5,000 of the $75,000 award has been used to date it is expected the remainder of the award will be invested during 2007 and early 2008 in new technologies for this active small domestic independent exploration, exploitation and production company operating in the southwestern U.S. and specifically in adding further value to the SMWBSU. Strand Energy and our Partners have invested to date in access of $600,000 in equipment and well workovers in the SMWBSU property to implement the improved oil recovery project.

The DOE–NPTL grant program requires that technologies and practices developed as a result of the project award be published publicly to the domestic oil and gas independents community. This will further benefit development of our domestic energy resources through improved oil recovery projects implemented by other active operators as well as by Strand as we acquire additional mature oil properties for redevelopment through secondary and tertiary recovery processes and practices experienced successfully at the SMWBSU field.

I hope, as well as do the professors and graduate students I have worked with on this project, that the DOE will be allowed to continue the administration and development of additional programs like the NPTL's Technology Development with Independents in the future.

PREPARED STATEMENT OF THE COAL UTILIZATION RESEARCH COUNCIL

CURC submits this testimony in support of an increase of $288 million in the fiscal year 2008 Department of Energy Fossil Energy budget request, as follows: $88 million for the Coal R&D program (for a total of $333.5 million); and $200 million for the CCPI program (for a total of $273 million). CURC supports the administration's request to fund FutureGen at $108 million. Details supporting these recommendations are discussed below.

INTRODUCTION

Coal is our country's most abundant, low cost source of fossil energy providing more than one-half of the electricity generated domestically and capable of supplying transportation fuels, chemical feedstocks, and pipeline quality synthetic natural gas. The challenge has been to sustain cost effective ways to use this abundant domestic energy resource in a manner that continues to provide low cost power and products for the American consumer while meeting environmental goals and national energy security needs. In large measure, technology is the means to these ends.

More than three decades of experience has proven that any barriers to the use of coal can be overcome through the collaborative efforts of industry and government in jointly pursuing technology solutions. Now, global warming and concerns that the use of fossil fuels is an important factor in causing changes to the climate are a central focus of technology development. Equally important is the need for reliable, safe, and cost effective energy (and electricity) for the American consumer. These dual needs should be the focus of the Department of Energy's clean coal program.

In light of the growing concerns over climate change and the need for reliable, domestically secure energy resources, it is vitally important that the DOE's technology research, development, demonstration and deployment programs, undertaken in partnership with the private sector, be robust and occupy a key spot on the national agenda. Unfortunately, even while there is acknowledgement over the impor-

tance of technology, there is not the corresponding commitment in dollars and focus. The DOE fiscal year 2008 budget request must be focused specifically upon the dual needs of energy security and achieving our Nation's environmental goals, and that budget must be dramatically increased if we are to succeed in developing technologies to address these needs.

THE CLEAN COAL TECHNOLOGY ROADMAP

The CURC–EPRI Roadmap defines the steps necessary to achieve near zero emissions from coal use, including the cost effective capture and long-term storage of CO_2. The Roadmap includes a technology development program for carbon management, defined as the capture and storage of carbon dioxide. The Roadmap targeted two approaches to carbon management: (1) higher efficiency; and (2) capture and storage of CO_2 in geologic reservoirs. The goal of the Roadmap is to have, by 2025, new combustion and gasification based systems that can reduce emissions of traditional pollutants an order of magnitude beyond the performance of current technologies, capture and store 90 percent or more of the carbon in the coal, achieve improved efficiency over today's systems, and do all of these things while maintaining competitive low cost power generation. Our analysis suggests that the combined Federal and industry investment necessary to achieve the goals of the Roadmap is approximately $11 billion between now and 2025.

When the Roadmap costs were first estimated, the cost of steel and other key power plant commodities had been relatively stable. In the last 2 years, these prices alone have risen by more than 50 percent and there is every likelihood that such prices will not lower. This means that the estimate of the Roadmap's projected cost to develop and demonstrate these improved technologies will likely increase dramatically as well. That analysis is underway, but was not completed in time for this written statement. At a minimum, demonstration programs will be most clearly impacted by these increased costs. Secondly, while much of technology development simply requires time to initiate and complete, it is also true that focusing efforts upon carbon capture and storage (CCS) technologies and augmenting funding in related areas will best insure the availability of such technologies in a timely fashion. Adequate funding for CCS technology development and demonstration is critical to addressing climate change; reduced funding levels that stretch out the time required to complete RD&D is not an option.

The "good news" finding from the Roadmap is that there is a clear pathway to reach our technology performance goals for coal, and the ultimate technology products will be highly competitive if we conduct the needed RD&D. And industry stands ready to contribute its part, in money and intellectual resources, to the program of collaborative research. The "bad news" is that government funding, to date, has not been adequate and moreover, the fiscal year 2008 budget request is not sufficient. In sum, CURC believes that current funding for R&D is substantially inadequate, and funding for demonstrations is totally inadequate.

Recognizing the fact that we are operating within a severely constrained budget, and Congress is intending to develop legislation to address global warming, CURC believes that funds provided for the entire DOE Clean Coal Program should focus primarily on those technology development programs that will enable both short- and long-term CCS technology development and an extended near term program for mercury control technology. Activities that do not support these activities should be considered lower priority and only funded if additional funding is made available for those activities.

RECOMMENDATIONS

Using the roadmap as a tool to identify our Nation's coal research, development and development (RD&D) needs, CURC has examined the President's fiscal year 2008 budget request for coal and submits the following recommendations.

Clean Coal Power Initiative (CCPI).—The funding proposed for the CCPI, $73 million in fiscal year 2008, is wholly inadequate to meet the needs that this program was created to address. This is DOE's only program that can support the demonstration of CO_2 capture technologies that might be retrofitted to the existing fleet of coal fired power generation. Equally important, funding for this program will support demonstrations of CO_2 capture and storage technologies integrated with advanced combustion and IGCC based systems. The CURC–EPRI Roadmap recommends approximately $5.6 billion in funding for these types of demonstrations through 2015. The President's request is clearly not enough to fund the scale and magnitude of the projects needed. CURC recommends that funding for CCPI in fiscal year 2008 be increased by an additional $200 million. Combined with other resources currently available for the program, this should be sufficient to allow a 3rd

CCPI solicitation for project proposals to be issued in calendar year 2007, with anticipated awards made in 2008. CURC also recommends that the next CCPI solicitation primarily focus on large scale, fully-integrated power generation and carbon capture and storage demonstrations.

FutureGen.—The Roadmap recognizes the benefits to technology development that the FutureGen project can provide and CURC supports this important R&D program that can serve as a test bed for validating technologies developed out of the DOE's R&D program. To succeed as originally envisioned, basic R&D activities must continue to provide the technology components needed in FutureGen. The administration seeks to use previously appropriated funds to support FutureGen in fiscal year 2008, which CURC supports. The administration also seeks to rescind $149 million in prior year appropriations. CURC recommends that this $149 million be deferred for future use. The FutureGen Industrial Alliance has stated previously that FutureGen, CCPI and the coal R&D programs each must be adequately funded because all of these programs are necessary to support commercial deployment of advanced clean coal technologies. CURC also endorses this position.

Coal R&D Program.—The coal R&D program should be focused on technology R&D designed to address efficiency improvements to reduce CO_2 emissions and on alternative CO_2 capture technologies that might provide long term technology options, one result of which would be to drive down the costs of carbon management. CURC has concluded that the basic R&D needs identified in the CURC–EPRI Roadmap cannot be met with the fiscal year 2008 budget request for the coal R&D programs. CURC recommends that funding in fiscal year 2008 be increased by $88 million, without funding for earmarks, and be directed to the coal R&D program as follows:

—*Innovations for Existing Plants (IEP).*—Much progress has been made in developing and deploying technologies to reduce emissions from existing coal-fired power plants. However, there is a need to focus additional attention on mercury emissions control. Expert opinion concluded initially that controlling and capturing mercury emitted from combusting bituminous coals would be the least problematic, while the lower rank (western) coals would be most challenging. With this focus, control problems related to western coals have been solved, but unexpected issues arose with bituminous coals and problems remain in that area. It is imperative that funding for this program be restored to $25 million in order to continue long-term (more than 30 day) mercury control field tests so that industry can be equipped with the technologies necessary to comply with the USEPA Clean Air Mercury Rule.

—*Carbon Sequestration.*—CURC recommends an increase of $30 million to support the front end of a multi-year carbon sequestration RD&D program. CURC recommends that DOE expand the focus of the program that is supporting novel approaches to capturing CO_2 from the existing fleet of coal plants as well as pre- and post-combustion and oxy-coal combustion. CURC also recommends that sufficient funds be made available to initiate or complete the Phase II CO_2 injection pilot-scale tests in reservoirs other than oil/gas reservoirs, unless tests in oil and gas reservoirs would add significant knowledge to the monitoring, measurement and verification of injecting CO_2 into other reservoirs. It is very important that these recommended additional funds support those projects that advance the science of sequestration in reservoirs other than oil/gas reservoirs, which is a commercial technology in use today. Additionally, the DOE budget justification indicates 3 or 4 large scale CO_2 injection demonstrations will be initiated to validate carbon storage techniques through Phase III of the regional partnerships. CURC supports the DOE shift to Phase III, but recommends that DOE conduct numerous large scale demonstrations in a variety of permanent storage reservoirs other than applications for enhanced oil recovery, which is a commercial activity. These demonstrations need to be undertaken in multiple regions of the country with uniquely different reservoir characteristics. Finally, every effort should be made to couple Phase III demonstrations with coal-based energy projects that include CO_2 capture (if such CCS projects are undertaken then significantly more funding for demonstrations will be required).

—*Advanced Turbines.*—This program should be increased by $12 million to insure that the development of the hydrogen turbine is not delayed. The hydrogen turbine is an essential component of FutureGen. It is also important that other advanced turbines that will use synthesis gas derived from coal should be supported, as well. In both instances, such turbines are essential to increase plant efficiencies and reduce carbon emissions. The primary objective of this program must be to focus upon the development of large scale turbines needed to support advanced generation coal power facilities. University research programs to ensure long term technology development are also important.

—*Advanced Research.*—CURC recommends an additional $8 million for ultra supercritical materials research activities. This program, which has been under funded for the past 2 years, supports the development of high temperature materials that will enable boiler systems and steam turbines to become more efficient, resulting in the reduction of power plant CO_2 emissions. Advanced materials derived from a successful high temperature materials program will enable efficiency gains which, in turn, will reduce CO_2 emissions. Therefore, this program is very important for its applicability to new ultra supercritical and IGCC systems.

—*IGCC.*—CURC recommends an additional $5 million to continue important ongoing R&D at the Power Systems Development Facility and on alternative gasification based systems that are critical to supporting both FutureGen and future gasification technology needs.

—*Coal to Liquids.*—CURC recommends an increase of $8 million to focus on coal to liquids activities. Any funding increase should be directed towards activities that will achieve the dual goal of increased energy security and reduced CO_2 emissions from coal to liquids facilities.

CURC is concerned that the practice of earmarking funds undermines the competitive nature and fundamental goals of the DOE clean coal program. Understanding that some earmarks may be consistent with the DOE program goals and those of the CURC–EPRI Roadmap, CURC believes that Congress and DOE should consider a set of principles to govern the earmark process. These principles would insure that the earmarks have been reviewed by Congress through hearings or through other measures to make certain they are consistent with the goals of the program and focus on the development of critical CCS technologies.

CONCLUSION

Continued long term use of coal, and realization of its benefits, will only occur if an extensive commitment to technology development allows coal to overcome environmental challenges. The fiscal year 2008 budget request does not reflect such a commitment. Congress must support the development of FutureGen, and substantially increase funding for the R&D and CCPI programs with broad support for the development of both combustion- and gasification-based technologies, if we are to develop effective technology solutions to address climate change.

PREPARED STATEMENT OF THE ELECTRIC DRIVE TRANSPORTATION ASSOCIATION

The Nation has come to understand that achieving real national security and addressing climate change will require a concerted effort to end America's oil dependence. The electric drive technologies being developed by the Department of Energy's Office of Energy Efficiency and Renewable Energy (EERE), in particular, the Vehicle Technologies and Hydrogen and Fuel Cell Technologies programs, are integral to the success of that effort. As you assemble the fiscal year 2008 Energy and Water Development budget, we respectfully request that you fund these programs at levels commensurate with their major contribution to ending our oil dependence.

At the Electric Drive Transportation Association (EDTA), our mission is promotion of electric drive technologies, which reduce petroleum consumption and decrease emissions of greenhouse gases and of air pollutants. Using electricity, by itself or in conjunction with another fuel, electric drive technologies power the wheels of vehicles that are being used today throughout the transportation sector, including passenger vehicles, trucks, tractors, locomotives and ground support equipment. Electric drive also powers transportation infrastructure, such as truck refrigeration and truck stop electrification facilities, which allow idled trucks to power with clean, alternative electricity.

Electric drive technologies also complement the national effort to increase the use of biofuels with their ability to use renewable fuels in hybrid applications and to use renewable power in exclusively electric operation.

Multiple fuel and vehicle technologies, including hybrids, battery electric vehicles, fuel cell vehicles, and plug-in versions of these electric drive vehicles, need to be part of the national plan to end America's oil dependence. A substantial and consistent level of Federal support for research, development and deployment is essential to moving these technologies fully into the mainstream.

EERE's Hydrogen and Fuel Cell Technologies Programs and the Vehicle Technologies Programs are the leading edge of the Federal effort to advance these technologies and to bring us closer to our energy goals. For instance, increased energy storage technologies, such as advanced batteries, are the foundation of the next wave of electric drive. They are the key to commercialization of plug-in electric

drives and will accelerate advances in all electric drive vehicles. The administration's $41 million request for energy storage research and development is a step in the right direction. However, it is too small a step when considered against what is at stake and what can be achieved.

For Fuel Cell and Hydrogen Technology Programs, the administration wisely maintains its overall commitment to hydrogen and fuel cell development, but the request falls short in two key areas. In the Technology Validation program, hydrogen infrastructure and fuel cell systems are certified under real world conditions. This work guides research agendas and helps establish the "real world" data collection necessary to develop fuel cell vehicles. However, DOE's allocation of fiscal year 2007 funds for this work is unclear at this time and the $30 million fiscal year 2008 program request is $3 million lower than the fiscal year 2006 appropriated level and nearly a third ($9.5 million) lower than the 2007 request. We urge you to provide the appropriate guidance and ensure continuous and credible funding for the Technology Validation program's critical work.

An additional tool in speeding commercialization of hydrogen fuel cells was created in the Title VII Federal procurement programs of EPAct05. The programs were designed to use the power of the Federal Government to promote increased overall fuel cell production and reduce costs by helping Federal agencies defray the incremental costs of purchasing hydrogen energy systems and fuel cell vehicles and equipment. Unfortunately, these market transition programs have not yet been funded and were not included in the administration's fiscal year 2008 request.

We ask you to implement the EPAct05 procurement programs with sufficient funds to maximize agencies' hydrogen and fuel cell purchases and leverage the Federal Government's purchasing power to increase and build the market for these clean, efficient energy systems.

The Clean Cities program is another deployment program with a record of success. The Clean Cities program consists of voluntary local and regional coalitions working to build clean and efficient fleets, including schools, airports, and municipal buses, with advanced technology and alternative fuel vehicles. The program's ability to help more communities reduce petroleum consumption is limited only by lack of resources.

The administration's $9.6 million request for the program is a welcome increase over the prior year's request, but still represents a missed opportunity for oil savings and clean technology deployment. We request that you provide technology- and fuel-neutral funds above the requested level to maximize the program's proven ability to reduce petroleum use and emissions while helping to commercialize new technologies, fuels and infrastructure.

Other important demonstration and deployment efforts are advanced in the EPAct fleet programs. By requiring the use of alternative vehicles and fuels in Federal, State and utility fleets, the EPAct program requirements reduce petroleum consumption while helping to demonstrate and build markets for new technologies. Implementation of the EPAct05 alternative compliance waiver, which recognizes hybrid vehicles in compliance efforts for the first time, will also be part of the program's fiscal year 2008 responsibilities.

The administration's request of $1.8 million will not support effective implementation of these key fleet programs. We request that you provide funding at a level that will allow the program to work as intended and to secure the oil savings, environmental benefits and new technology deployment that Congress intended.

EDTA appreciates the committee's support for EERE's vehicle and hydrogen and fuel cell technology programs. We ask that you make the necessary investments to help transform the fuel consumption of the U.S. fleet with electric drive technologies and finally break our dependence on oil. Only then can we achieve real national security and a cleaner and more sustainable environment.

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 2008 appropriation for the Department of Energy (DOE) science programs. The ASM is the largest single life science organization with more than 42,000 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 for economic and environmental well-being.

The DOE Office of Science supports research that drives discovery and innovation to create alternative energy sources, efficient energy production, and a sustainable environment. Increased resources for the DOE Office of Science are necessary to meet these challenges and the ASM supports the President's request of $4.398 bil-

lion for the DOE Office of Science, an increase of $602 million over the fiscal year 2007 funding level.

The requested increase is consistent with the American Competitiveness Initiative (ACI) and the Advanced Energy Initiative (AEI). DOE supported research on microbial biology is essential in meeting the goals of these initiatives. Microbial biology research is critical for advances in bioenergy. Microbial research contributions includes:

—Novel bioenergy production methods, and improved biofuel production by microbes. Different microbes produce a variety of energy products such as ethanol, hydrogen, oils and even electrical current. Discovery of new processes that use microbes and microbes that enhance the efficiency of these processes, genetic engineering microbes that achieve this goal and learning to manage consortia of microbes to optimize biofuel production are all needs that will enhance the economics of bioenergy.

—Discovery of novel plant cell wall decomposition enzymes. Microbes have a tremendous diversity of undiscovered biochemical capabilities, including enzymes that naturally recycle biomass. Capturing this diversity for more efficient release of plant carbon for conversion to energy is a central need for better bioenergy processes.

—Efficient, sustainable plant-soil systems for biofuel production. Healthy, low-cost, and productive plant communities require a supportive soil microbial community to recycle nutrients, protect against root pathogens, produce plant growth factors, fix nitrogen and aid soil structure. Furthermore, management of these plant-soil systems must be done to minimize greenhouse gas production.

The ASM strongly encourages DOE to support a balanced research portfolio as it seeks to increase production of bioenergy sources. While the ASM recognizes that the AEI and ACI are critical for meeting the Nation's competitiveness and energy challenges, it also encourages the DOE to maintain support for other science and technology solutions to long-term environmental challenges, such as climate change and environmental remediation.

BIOLOGICAL AND ENVIRONMENTAL RESEARCH

Within the DOE Office of Science, the Biological and Environmental Research (BER) division uses peer-reviewed research at national laboratories, universities, and private institutions to build a science, technology, and knowledge base for understanding and harnessing the capabilities of microbial and plant systems that will lead to cost-effective, renewable energy production, greater energy security, clean-up of legacy wastes, and mitigation of increases in atmospheric carbon dioxide. The ASM supports the President's request to fund the BER at $510 million, an increase of $70 million over fiscal year 2007 for base BER programs, with $75 million directed to GTL Bioenergy Research Centers.

BER research programs such as the Genomic: GTL program, Environmental Remediation Sciences Division (ERSD), the Joint Genome Institute (JGI), and Climate Change programs are instrumental for understanding microbial biology, how microorganisms interact with and respond to their environments, and how microorganisms can be harnessed to produce clean, efficient energy, remove excess carbon from the atmosphere, and help clean up the environment.

The fiscal year 2008 request for BER would support about 1,500 graduate students and post-doctoral investigators at universities and national laboratories. Fellowship programs are also supported by BER for undergraduate and graduate students through its Global Change Education Program. This support for undergraduate and graduate students and post-doctoral investigators is critical for the development of the next generation of scientists, engineers, and science educators.

GENOMICS: GTL

GTL research conducts explorations of microbes and plants at the molecular, cellular, and community levels. The goal is to gain insights about fundamental biological processes and, ultimately, a predictive understanding of how living systems operate. The resulting knowledge base—linked through DNA sequence and freely available—will catalyze the translation of science into new technologies for energy and environmental applications.

Microbes make up the foundation of the biosphere and sustain all life on earth. DOE has sponsored the genome sequencing of key model plants and some 200 microbes relevant for generating clean energy, cleaning up toxic waste from nuclear weapons development, and cycling carbon from the atmosphere.

In May 2006, the National Research Council of the National Academies of Science completed an independent review of the Genomics: GTL program that endorsed the systems biology approach of the program, applauded the research conducted by its grantees, and recommended the formation of interdisciplinary research centers focused on fundamental research addressing DOE mission needs, including bioenergy. The DOE embraced this recommendation, and is currently reviewing proposals for GTL Bioenergy Research Centers. The administration requested that $75 million be provided in fiscal year 2008 for three of these centers. The ASM believes the GTL Bioenergy Research Centers are an important step forward to addressing national energy needs but they must be supplemented by a vigorous and well funded research effort. Funding for the GTL centers should not be at the expense of the core BER science programs.

ENVIRONMENTAL REMEDIATION SCIENCES DIVISION

The Environmental Remediation Sciences Division (ERSD) sponsors and supports fundamental scientific research to understand the complex physical, chemical, and biological properties of contaminated sites for new solutions to environmental remediation. DOE is responsible for the largest, most complex, and diverse collection of environmental remediation challenges in the Nation.

DOE's remediation challenges occur in the field where highly interactive natural processes, over a broad range of scales, control the fate and transport of contaminants. The ERSD goal is to help provide the basis for development of innovative remediation measures to support decision making critical to long-term stewardship. Of the 144 sites where DOE has remediation, waste management, or nuclear materials and facility stabilization responsibilities, nearly 100 have soils, sediments, or groundwater contaminated with radionuclides, metals, or organic materials.

The ASM is concerned with the steady decline in funding for the ERSD from fiscal year 2004 to fiscal year 2007. The ERSD research conducted on microbes is an essential component in developing effective, sustainable remediation technologies. ASM urges Congress to provide at least the President's fiscal year 2008 request of $97.4 million for ERSD.

JOINT GENOME INSTITUTE

The DOE Joint Genome Institute (JGI) has completed the sequence of the 100 microbial genomes and released this information for the benefit of the global research community. The JGI is the primary source of genomic data for non-medical microbiology and immensely benefits the community.

The JGI's Community Sequencing Program (CSP) devotes all of its sequencing capacity to the merit-reviewed sequencing needs of the broader non-medical scientific community, while addressing the DOE mission-relevant criteria of energy production, carbon sequestration, research and bioremediation research, and low dose radiation research. JGI is an integral component as the area of metagenomics for both energy and carbon sequestration grows.

The ASM supports the President's fiscal year 2007 request of $62 million for JGI, a $10.5 million increase over fiscal year 2006, and a $2 million increase over the President's fiscal year 2008 request.

CLIMATE CHANGE RESEARCH

The mission of the Climate Change Research subprogram is to provide the scientific base for making predictions and assessments of the potential effects of greenhouse gases and aerosol emissions on climate and the environment, such as abrupt climate change, understanding the global carbon cycle and the development of approaches for enhancing biological carbon sequestration in terrestrial ecosystems. The ASM supports the President's fiscal year 2008 request of $138 million for Climate Change Research.

Research exploring the responses and behavior of microorganisms in ecosystems is necessary in understanding the changes in the expanded plant and animal systems. Greater collaboration with the Genomics: GTL program and climate change research would provide a stronger basis for understanding the core elements of the ecosystem and its responses. The ASM urges greater linkages between the GTL program and Climate Change Research, similar to the current collaborative relationship between GTL and the ERSD.

WORKFORCE DEVELOPMENT

Cultivating a well-trained workforce of teachers and scientists is vital for maintaining our Nation's competitiveness, and meeting the challenges of the future. The

ASM supports the President's request of $11 million for Workforce Development for Scientists and Engineers within the DOE Office of Science, through undergraduate research internships, graduate and faculty fellowships, and pre-college activities. These programs build links between the national laboratories and the science education community, provides mentor intensive research experiences at national laboratories for undergraduate and graduate students, and encourages middle and high school students in the fields of math and science.

CONCLUSION

The ASM supports the President's 16 percent increase for the DOE Office of Science in fiscal year 2008, and urges Congress to provide adequate funding for the BER, including ERSD, Genomics: GTL, JGI, and Climate Change Research programs, which are essential in meeting DOE's mission. The DOE Office of Science programs enhance U.S. competitiveness through fundamental research for advanced scientific breakthroughs that will revolutionize our approach to the Nation's energy and environment challenges.

The ASM appreciates the opportunity to provide written testimony and would be pleased to assist the subcommittee as it considers the fiscal year 2008 appropriation for the DOE.

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