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Before the Committee on Appropriations

Energy and Water, and Related Agencies Appropriations

Fiscal Year 2006

109*th* CONGRESS, FIRST SESSION

H.R. 2419

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

Energy and Water, and Related Agencies Appropriations, 2006 (H.R. 2419)

S. HRG. 109–107

ENERGY AND WATER, AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 2006

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

UNITED STATES SENATE

ONE HUNDRED NINTH CONGRESS

FIRST SESSION

ON

H.R. 2419

AN ACT MAKING APPROPRIATIONS FOR ENERGY AND WATER DEVELOPMENT FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 2006, AND FOR OTHER PURPOSES

Department of Defense—Civil
Department of Energy
Department of the Interior
Nondepartmental witnesses

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ENERGY AND WATER, AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 2006

THURSDAY, MARCH 10, 2005

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

The subcommittee met at 10:01 a.m., in room SD–192, Dirksen Senate Office Building, Hon. Pete V. Domenici (chairman) presiding.

Present: Senators Domenici, Allard, Reid, and Murray.

DEPARTMENT OF ENERGY

OFFICE OF ENVIRONMENTAL MANAGEMENT

STATEMENT OF PAUL M. GOLAN, PRINCIPAL DEPUTY ASSISTANT SECRETARY FOR ENVIRONMENTAL MANAGEMENT

OPENING STATEMENT OF SENATOR PETE V. DOMENICI

Senator DOMENICI. The hearing will please come to order. I understand that Senator Reid and Senator Murray may attend, but Senator Reid, ranking member, as usual has been very accommodating. Because of his busy schedule he has suggested that we start and he will arrive shortly. I think it's—the scheduled time has arrived.

So good morning everyone. Today the subcommittee is going to take testimony on the fiscal year 2006 budget request for the Office of Environmental Management and the Office of Civilian Radioactive Waste Management. We're joined by Paul—do you say Golan?

Mr. GOLAN. Yes, sir.

Senator DOMENICI. Principal Deputy Assistant Secretary for Environmental Management. You have some big shoes to fill. Your predecessor was a very——

Mr. GOLAN. Yes, I do.

Senator DOMENICI [continuing]. Excellent person. And Ted Garrish, Deputy Director for the Office of Civilian Radioactive Waste Management. Essentially that's a nice name for the Yucca Mountain project. That's an easy job.

Mr. GARRISH. Yes, sir.

Senator DOMENICI. I don't know how—well, I'm looking at you now, so we can see what you look like in 3 or 4 years.

Mr. GARRISH. Much grayer.

Senator DOMENICI. I understand that both of you are serving as acting replacements for Jessie Roberson and Dr. Chu. Both women were exceptional administrators and I enjoyed working with both of them. Obviously everyone knows that Dr. Chu was from New Mexico, from one of our great laboratories. While she was a very small person, she carried a very big stick. She was a very powerful person with a very, very fine intellect, and we appreciated her wonderful work.

I do appreciate your participation here today. This year's presidential budget requests $6.5 billion for environmental clean-up activities. This is a reduction from $7.4 billion that we appropriated last year, which was in turn the highest level we had provided in the history of the clean-up program.

Over the past 4 years, the Department succeeded in reducing the total cost of the environmental clean-up—I didn't see you, Senator. Good morning.

Senator MURRAY. Good morning, Senator.

Senator DOMENICI. Of environmental clean-up by $50 billion—that is the expected cost—and shortening the estimated time table imagined by 35 years. Now you'll have to tell us how much that leaves. We shortened it by 35 years, but it's still a long time left.

By focusing on risk-based clean-up as a strategy and accelerated clean-up agreements with States, the Department contends—there it is—they'll finish by 2035. By the end of 2006, DOE will complete an additional 10 facilities, including Rocky Flats in Colorado. This will bring the total of sites that have been cleaned up to 89 of the 114 sites.

The President's budget has proposed shifting clean-up responsibilities from the Office of Environmental Management to the NNSA at six sites. The budget claims that operational efficiencies can be achieved by eliminating the dual chain of management between DOE and NNSA. While I agree with the goal of the increased efficiency, I'm not totally convinced and have some concerns about NNSA. They may not be able to do this and they may have so much to do they might not be up to the challenge. They have many responsibilities, including the maintaining of our nuclear deterrent and combating proliferation of nuclear materials. So it remains to be seen as to whether that change in the management scheme would be acceptable up here, at least for this committee.

The President's budget requests $651 million for Yucca Mountain to be funded from the civilian nuclear waste fund and defense nuclear waste account. This is up 14 percent from $572 million, and while it's not as much as could be used, it is indeed a very good change in that it is funded in a way that will not charge this account against the appropriated account, which made it very difficult in the past, because the President would not charge it—would not charge it to the accounts of the appropriation, and we were compelled to by our rules. So that's been fixed and we appreciate OMB doing that.

The President did not include the reclassification of the fee paid into nuclear waste fund as we proposed last year. However, the President did suggest as a matter of fairness that the annual fee

collections be consistent with the level of appropriations, as I just indicated, and that makes sense.

While this funding debate was underway, the State of Nevada—and the Senator from the State of Nevada has just arrived—one lawsuit effectively vacating the radiation standard, as proposed by the Environmental Protection Agency. The Yucca Mountain project is facing some critical legal and political challenges, and the landscape we face today is a very difficult one. In addition to tight budgets, the Department has slipped the submittal of a license application by another year.

Also, the administration is working to address the court of appeals' ruling that has discussed a radiation standard of 10,000 years. Now the EPA must promulgate new standards and go through whatever legal hoops are involved in that.

Last week in a separate hearing, the Energy and Natural Resources Committee when we had the new Secretary here, I asked him to provide a status report on Yucca Mountain that will give us an update on all the various issues, licensing, safety assessments, technical challenge, transportation needs. I hope the Department is working on this project. If not, to the extent that you can serve as a reminder for that, I ask that you do that for the committee.

Now I note that the distinguished minority leader has arrived, and I'm going to yield to him. I'd like to remind the witnesses that your statements are going to be made a part of the record now, so I don't think you have to give them in detail. We'd like you to abbreviate them. With that, Senator Reid.

STATEMENT OF SENATOR HARRY REID

Senator REID. Mr. Chairman, thank you very much. I'm grateful to you for holding these hearings, especially in light of the fact that we have the most important bill—resolutions before the Budget Committee, and you having been chairman of that for so many years. I want to extend my appreciation to Patty Murray for filling in for me today for this hearing. She is a stalwart member of the Appropriations Committee and I am grateful for her helping on this issue today.

Last year was really a bad year for Yucca Mountain. On July 9, 2004, the Circuit Court of Appeals ruled with the State of Nevada about radiation standards. A month later, the NRC's Atomic Safety and Licensing Board rejected DOE's Yucca Mountain document database, saying it failed to make public many of the documents it had in its possession. October 4, last year, DOE Inspector General found DOE gave away more than half a million dollars worth of Yucca Mountain construction equipment. On November 22, the Nuclear Waste Technical Review Board said DOE does not have a plan for safely transporting nuclear waste. Just in February, Margaret Chu, the former director, said that she was going to delay the application which would probably take until 2006 before the application would be considered by the Nuclear Regulatory Commission.

There are just so many other things I want to say that in spite of the fact that a lot of people think that Senator Domenici and I are constantly at each other's throat on this issue, we have, I think, constructively worked over the years to do what legislators

are supposed to do, and that is work toward compromise. We've done that. I appreciate his attention to this matter each year and look forward to working with him.

And the most important part of all of this is going to be when we finish our bill, what happens with the House of Representatives, not only on this issue, but all issues. We've developed a tremendously difficult situation with the House and I hope we can resolve it better than we did last year.

Thank you, Mr. Chairman. If you would excuse me, I'd appreciate it.

Senator DOMENICI. Yes. Thank you very much. Senator from Colorado, would you like to make a comment?

Senator ALLARD. I would, Mr. Chairman, if I might.

Senator DOMENICI. Please.

STATEMENT OF SENATOR WAYNE ALLARD

Senator ALLARD. First of all, this is the first time I've had an opportunity to attend this subcommittee meeting. I just want to tell you how much I appreciate being on the Appropriations Committee and particularly being on this subcommittee. I look forward to working with members of this subcommittee.

I just want to—I do have a total statement I'd like to make a part of the record—but I'd just like to call to the attention of the committee that we do have a success story that is happening in the State of Colorado with Rocky Flats. Originally some 10 years ago, we were looking at cost estimates of over 70 years and $35 billion. With some extra expenditure up front, we figured we could save a lot of money over time, and we have. And on top of that, we are now a year ahead of schedule from what I understand, and that we're going to save close to a billion dollars.

And this is a cost savings—this is a—due to incentive-driven contracts, where you pay bonuses for performance, and this is reflected, I think we've saved taxpayers a lot of dollars. You'll probably hear more about it, Mr. Chairman, and I look forward to continuing to work with this committee on issues that are important.

PREPARED STATEMENT

Thank you very much to the country. Thank you. Mr. Chairman, I'm going to be gone too, because as you know, I serve with you on Budget Committee and I've got to be there for some amendments, so if I could be excused, I would appreciate it.

[The statement follows:]

PREPARED STATEMENT OF SENATOR WAYNE ALLARD

Thank you, Mr. Chairman, for holding this important hearing. Over the last 4 years, the Department of Energy's Environmental Management program has made enormous progress. Under the leadership of former Under Secretary Bob Card, former Assistant Secretary Jesse Roberson and now Acting Assistant Secretary Paul Golan, EM has taken several steps forward. Today, in Colorado, we have seen the fruits of their labor and we thank them for their efforts.

Mr. Chairman, 10 years ago, most doubted that Rocky Flats could be cleaned up in 6 years and for under $7 billion. In fact, most thought the clean-up would take 70 years and cost as much as $35 billion. The task of cleaning up Rocky Flats was considerable. Over 800 facilities and structures had to be torn down, including building 771, which was labeled the "Most dangerous building in America" because of the level of contamination present. Indeed, much of the 385-acre industrial area

needed to be decontaminated and treated. The special nuclear material also needed to be shipped off site and the orphan waste needed to be disposed of.

Now, we are on the brink of a major success story. The Department of Energy announced just last week that clean-up was a year ahead of schedule and will save the taxpayers close to $1 billion. Few of the buildings remain and most of the decontamination effort has been completed.

I believe the success we have seen at Rocky Flats is a result of combined effort by the Department of Energy, the local governments, the State of Colorado, the Colorado delegation, and with committees like this one. Because of team work and cooperation we have enjoyed at the local, State, and Federal levels, the people of Colorado will shortly be able to live without the fear of nuclear contamination. It is my hope that in a few months I will be able to invite you, Mr. Chairman, and other members to this committee to join me at a ceremony this fall celebrating the completion of the clean-up at Rocky Flats.

Thank you, Mr. Chairman for the opportunity to share a few words about Rocky Flats. I look forward to the testimony of our witnesses.

Senator DOMENICI. I will be there shortly.

Senator ALLARD. Okay. Very good.

Senator DOMENICI. I just wanted to say we welcome you, Senator, and we know that you have a genuine interest, not only in the issue you just described, but in your State you have a very powerful facility with reference to renewable energy.

Senator ALLARD. Yes, that's true.

Senator DOMENICI. And we have funded it regularly and we look forward to you participating in the oversight, because it is a formidable operation. And in all other respects we welcome you, because you will be a dedicated member.

Senator Murray.

STATEMENT OF SENATOR PATTY MURRAY

Senator MURRAY. Thank you very much, Mr. Chairman. You know, I say it every year, but again I want to thank you and I want to thank Senator Reid for your leadership on this subcommittee. This jurisdiction of this subcommittee really touches on so many critical issues in my State, the Corps of Engineers, Bureau of Reclamation, Pacific Northwest National Lab, and most prominent today is the Hanford nuclear reservation. So I really appreciate the time and consideration you and Senator Reid and the entire subcommittee staff give to matters that affect my State.

I know we all have to get to the Budget Committee that's doing the markup, we've got votes on the floor, so I'll be brief. But I first want to thank Senator Reid for being here. He had to leave as we all know, but I know he and a number of other Senators had statements and questions they wanted submitted, so I'd just ask unanimous consent that those can be submitted for the record and answered in a convenient time frame.

HANFORD CLEAN-UP FUNDING CUTS

Mr. Chairman, I do want to make some comments about the budget for Hanford and for the Environmental Management Program. By my calculation, the Defense Environmental Program has been reduced by $548 million, and Hanford alone will suffer 54 percent of that cut. This massive funding cut is dramatically disproportionate to Hanford's share of the overall EM Program. And that fact, combined with the absolutely lack of sound rationale for

the majority of Hanford budget cuts, can easily lead some of us to believe that the State was targeted by both DOE and OMB.

This—I want to point out just one budgeting issue that makes no sense. The budget cuts the tank farm program by $89 million on the basis of legal uncertainty caused by the reclassification issue. I'll move beyond the fact that DOE itself created that legal uncertainty, but the fact is that the tank farm activities going on this year can and should proceed in fiscal year 2006. There's absolutely no legal or technical reason that these activities have to end on September 30. So this budget is already undercutting a scope of work that has yet to be awarded.

There are a lot of other examples of this budget's lack of integrity and intelligence when it comes to Hanford. I'll not spell them out. But, Mr. Chairman, let me end here with my hope that communication and agreement between Washington State and the Department of Energy is going to improve, and that hope is largely based upon the nominations of Clay Sell and David Garman. I really respect the work they did here in the Senate, their willingness to listen, and their forthright communication, and I hope their confirmations will help us move past the political and legal games and back to the strong partnership between Washington State and the Department of Energy.

PREPARED STATEMENT

But regardless of improving relationships between the State and the Department of Energy, I want you to know I do not accept the Department's rationale for these cuts, and I will urge this subcommittee to maintain the Federal Government's moral and legal obligation to Washington State and the Hanford communities.

Thank you, Mr. Chairman.

[The statement follows:]

PREPARED STATEMENT OF SENATOR PATTY MURRAY

Thank you, Mr. Chairman.

I say it every year, but I again want to thank you and Senator Reid for your leadership on this subcommittee.

The jurisdiction of the subcommittee touches on so much that is critical to my State including the Corps of Engineers, the Bureau of Reclamation, the Pacific Northwest National Laboratory, and—most prominent today—the Hanford Nuclear Reservation.

I appreciate of the time and consideration you, Senator Reid, and the entire subcommittee staff give to matters affecting Washington State.

Now, we both have to get to the Budget Committee that is beginning its mark up at this time, so I'll try to be brief.

I first want to recognize that Senator Reid wished to be here, but Budget Committee and floor matters required his attention.

I know Senator Reid, myself and others likely have statements and questions they would like to have been able to give in person, but will not be able to. I ask that Senators be given an appropriate amount of time to submit these for the record and response from the Department.

Mr. Chairman, I'd like to make some comments about the budget for Hanford and the Environmental Management program.

By my calculation, the Defense Environmental Management program has been reduced by $548 million. Hanford alone would suffer 54 percent of this cut.

This massive funding cut is dramatically disproportionate to Hanford's share of the overall EM program.

This fact, combined with the absolute lack of sound rationale for the majority of Hanford budget cuts, can easily lead one to believe Washington State was targeted by DOE and OMB.

Let's just point out one budgeting issue that makes no sense.

The budget cuts the tank farm program by $89 million on the basis of legal uncertainty caused by the reclassification issue. I will move beyond the fact that DOE itself created this legal uncertainty.

The fact is that tank farm activities going on this year can and should proceed in fiscal year 2006. There is absolutely no legal or technical reason that these activities must suddenly end September 30.

So, this budget is already undercutting a scope of work that has yet to be awarded.

There are other examples of this budget's lack of integrity and intelligence when it comes to Hanford, but I will not spell them all out.

Rather, Mr. Chairman, let me end with my hope that communication and agreement between Washington State and the Department of Energy will improve.

This hope is largely based upon the nominations of Clay Sell and David Garman.

I respect the work they did here in the Senate, their willingness to listen, and their forthright communication.

I hope their confirmations will help us move past the political and legal games and back to a strong partnership between Washington State and the Department of Energy.

But, regardless of improving relationships between the State and the Department of Energy, I do not accept the Department's rationale for these cuts and I will urge this subcommittee to maintain the Federal Government's moral and legal obligation to Washington State and the Hanford communities.

Senator DOMENICI. Thank you very much, Senator. I assure you that we will do everything we can to make sure that whatever happens at Hanford is not the result of any kind of targeting. I'm not aware of that. I don't accept that as reality. We'll see as we work it through, but it's going to be treated fairly.

I can say that as I alluded in my statement, the last 4 years, whatever has been said about the administration, could always complain that the clean-up is not enough, this is the best 4 years of clean-up that we've ever had in terms of getting things done, in terms of achieving goals, in terms of saving money, and in terms of new ideas that will get the job done. And I think there's a lot—you weren't in charge, but a lot that you can be proud of. We want to make sure that continues for the next 4 years, and we're going to do our best to help with that.

And we will proceed now in—let's go in the order that—starting on my left with you, Mr. Golan.

STATEMENT OF PAUL M. GOLAN

Mr. GOLAN. Thank you, Mr. Chairman, and members of the subcommittee. As this is my first time to appear before this committee, I'd like to thank you for the support you've given to the Department of Energy's clean-up program. This support has been crucial in turning this program around and revitalizing it, because it had lost track of its objectives in the 1990's.

Over the last 4 years, our goal has been simple: transform this program from one that managed risks to one that reduces risk and cleans up the environment, a program that delivers real risk reduction, that's safe for the workers, protective of the environment, and respectful of the taxpayers.

Over the last 4 years, we've gotten our sites to focus on this goal and these objectives, which in my written statement, Mr. Chairman, which I'd like to submit for the record, contains a full accounting of the accomplishment of the Environmental Management Program over the last 4 years, articulates a more complete list. I'd

just like to highlight a few of those today as a precursor as we talk about 2006.

At the Savannah River site, we've completed our nuclear stabilization missions. That's plutonium residues, plutonium metals, and plutonium oxides. We've consolidated all our special nuclear materials into two storage vaults. Additionally, we've consolidated all our spent nuclear fuel into a single spent fuel pool.

Just last week we de-inventoried the FB line, once a major nuclear processing facility at Savannah River built in the 1950's that helped fight and win the cold war.

At Hanford, we removed all the spent nuclear fuel from the K-basins, and we're working diligently to get the sludge out today. All pumpable liquids have been removed from the single shelled tanks, dramatically reducing the risk to the Columbia River. Additionally, the nuclear materials stabilization missions, the plutonium and the plutonium residue missions have also been completed at the Hanford site.

At Idaho, all the spent nuclear fuel has been either dry-stored or put into our most robust storage basin. And right now we're actually removing water from the five older, less robust basins, dramatically reducing the risk to the Snake River aquifer. We've also taken down 300,000 square feet of old and decaying infrastructure at that facility, and just in the last 15 months, reducing our fixed costs and allowing the Idaho National Laboratory to engage on its new mission.

At Rocky Flats, as Senator Allard alluded to, we've just completed demolition of two major nuclear facilities: Building 771, which in the 1990's was called the most dangerous facility in America, and building 707, which is the facility that manufactured all the pits in the nuclear weapons inventory today, have been completely demolished. In addition, just last week we commenced demolition of building 776, the site of the largest industrial and radiological accident at its time in 1969 in the United States. Rocky Flats is on track to meet is closure goals.

In Ohio, we've demolished all the former uranium processing facilities at the Fernald site, and we recently demolished the tritium processing facility at Mound.

In the area of safeguards and security, or places where we store our special nuclear material, we've reduced by over half the number of protected areas this program has, eliminating potential security vulnerabilities as well as reducing the fixed costs, as these are some of the highest cost areas to maintain and keep secure.

These are a sampling of our progress. We are committed to work diligently with all concerned parties to continue to reduce risk and remediate the environment.

Now I'd like to turn this discussion to the administration's fiscal 2006 budget request for the Environmental Management clean-up program and how we plan to use the taxpayers' investment to continue to deliver risk reduction and environmental remediation.

Future success of this program depends on key elements we've worked so hard over the last 4 years to put in place, such as continuing to improve worker safety, where our goal and my personal goal is to eliminate accidents and injuries from the workplace entirely. It depends on continuing to work with our local commu-

nities, tribal nations, regulators, and local representatives. It depends on continuing to challenge our contractors to work smarter and safer under the contract and continuing to bring competition to our work.

Our future success depends on us rising to meet new challenges, and these are going to be demanding challenges, that include finding disposition pathways for waste that has no disposition pathway today. Our future success involves resolving important waste issues that we will work closely with our regulators in South Carolina and Idaho, as well as the Nuclear Regulatory Commission. Our future success depends on our ability to resolve seismic issues that we recently discovered at the waste treatment plant at our Hanford site where we design—where we're designing and constructing a facility to deal with the millions of gallons of waste that's at that site.

Some may say that we have yet to tackle our most difficult issues. A program as large and complex as environmental management is not without issue, nor should anyone expect it to be. Our job is to find those problems and solve them. We have proven we can reduce risk and we've—and complete environmental remediation. We have projected that we can take decades off the time to complete the removing of the source term and hazards decades before anybody hoped or planned.

We did not want to have this program take longer to complete than the actual cold war, which is the origin of our work. We need to maintain our sense of urgency to complete the work rather than put it off. We need to keep a clear and unambiguous vision of risk reduction and continuation of clean-up. Our aim is for a site to be cleaned up so that the end state is protective of the environment while fully supportive of the future users of that site.

Our clean-up approaches are based on good science, require full review and approval by State and local and Federal regulators. Our continuing work with our communities and stakeholders on a day-in and day-out basis is instrumental in addressing these concerns and is crucial for our success.

In fiscal year 2006, for example, our $6.5 billion request includes funding such key activities as decommissioning the F Canyon at Savannah River, reducing a large fixed cost; removing the sludge from the K-basins at Hanford, reducing the risk to the nearby Columbia River; completing our clean-ups at Rocky Flats, Ashtabula, Mound, and Columbus; completing transuranic waste retrieval from Pit 4 at the Idaho National Laboratory; removing a source term over the Snake River aquifer; completing the clean-up of the Melton Valley project at the Oak Ridge reservation; mitigating a major source term that's in close proximity to the Clinch River; and continuing to eliminate our high-security protected areas, further reducing our fixed costs and vulnerabilities.

Over the law few months, some aspects of our clean-up program became clearer and our path forward is better defined. Other aspects of our clean-up program have become less certain and our path forward has become less clear. I'd be more than happy to discuss these particular issues in my question and answer session today.

PREPARED STATEMENT

We believe that will take a combined effort of all parties working together to resolve our challenges so we can continue to deliver risk reduction and clean-up for the community and for the taxpayer. I look forward to working with you and this committee and others to achieve this goal. Thank you, Mr. Chairman.

[The statement follows:]

PREPARED STATEMENT OF PAUL M. GOLAN

Mr. Chairman and members of the subcommittee, I take great pleasure today in discussing the fiscal year 2006 budget request for the Environmental Management (EM) program, our progress in implementing cleanup reform, and the importance of sustaining this momentum for the benefit of our workers, our communities, our environment, and the generations to come.

In 2001, we embarked on a course to revitalize and reform a cleanup program that had lost track of its objectives. As a result of the reforms and Congressional investments of additional funds in the cleanup budget, the Department of Energy set forth to accelerate the reduction of risk and site cleanup completion in a manner that is safe for the worker, protective of the environment, and respectful to the taxpayer. To stay true to these principles and cleanup objectives, EM established business management, project management, and performance management systems, a new organizational structure, and acquisition strategies. The principles and cleanup objectives used as a basis for this transformation are now in place.

This strategy to quickly reduce urgent risks to workers, communities and the environment was tied to our requests for funding increases in fiscal years 2003, 2004, and 2005. The fiscal year 2006 budget request represents the next stage of our strategy. The principles and management systems have been tested and although there are and will continue to be very difficult obstacles, the program is continuing forward. The Department has addressed challenges as they arise and is positioned to move to the next stage of cleaning up the Cold War legacy.

For fiscal year 2006, the President's Budget includes a request for $6.5 billion for the Department's cleanup program, a 7.8 percent reduction from our fiscal year 2005 comparable appropriation. We committed that if we could eliminate urgent risks and associated fixed costs, then starting in fiscal year 2006, we would request a declining level of funding to complete our work. The investment has paid off and we believe we are providing the return on the taxpayer's investment that the American people expect and deserve. Some may say incorrectly that we may be accomplishing less work or will need to slow the pace of cleanup by requesting a lower funding level. But the investments of 2003 through 2005 have allowed us to lower the infrastructure costs, complete work, reduce high cost security areas, and pull work forward. Thus, we have reduced fixed costs, allowing a greater proportion of our funds to go to actual cleanup—a trend we will continue to improve upon.

The EM portion of the fiscal year 2006 congressional budget structure is analogous to last year. The budget structure focuses on completion, accountability, and visibility; institutionalizes our values; and integrates performance and budget. Requested funding can clearly be associated with work that is planned and achievable in 2006.

This budget request reflects a transfer of legacy environmental cleanup at most NNSA sites and management of newly generated waste at Lawrence Livermore National Laboratory and the Oak Ridge Y–12 plant to NNSA. The NNSA Act provides only the Secretary and Deputy Secretary of Energy, through the NNSA Administrator, the authority to direct or control officers', employees', and contractors' work. This creates a very cumbersome and inefficient management structure. Under the proposed transfer, EM would transfer the following activities to NNSA as follows:

—Transfer legacy waste treatment, storage, disposal, and remediation at 7 sites: Nevada Test Site; Sandia National Laboratory; Separations Process Research Unit; Kansas City Plant; Lawrence Livermore National Laboratory Main Site and Site 300; and Pantex Plant to NNSA.

—Transfer newly generated waste activities at 2 sites: Lawrence Livermore National Laboratory and Oak Ridge Y–12 Plant to NNSA.

—Transfer operation of the Nevada Test Site low-level waste disposal site to NNSA.

In addition, EM has completed active cleanup at the Laboratory for Energy-Related Health Research and is transferring the long-term response actions to the Office of Legacy Management (LM).

This budget request includes funds for the new national Consolidated Business Center (CBC) in Cincinnati, Ohio. The CBC will be the central clearinghouse for a wide range of activities supporting small sites and near-term closure sites.

The administration considers this budget request crucial to maintaining the successful trend of the past 3 years. Without your continued support, we could face higher risk to the environment and the public and lose the headway we have worked so hard to achieve. With your support, we will continue to produce measurable results that will last for years to come. We thank you for your trust and support, and plan on continuing to earn your trust in producing real risk reduction with future investments.

DELIVERING ON COMMITMENTS

A major priority is to eliminate accidents and injuries from the EM work. Our best performing sites are also our safest sites. EM is no different than any other industry; improved safety performance is a necessary precursor for improved operational performance. In order to accomplish our accelerated risk reduction and cleanup mission, we must improve safety performance first. Safety and results go hand in hand. Neither can be compromised if we are to reach our goals. We are committed to continue instilling this philosophy in every worker's day-to-day decisions.

In fiscal year 2004, EM has been able to:

—Complete packaging all excess plutonium into a safe long-term storage configuration. Performance is largely due to accelerated schedules at Savannah River and Hanford.

—Retrieve spent fuel from all aging water-filled pools and placing it into dry storage or modern, more robust storage pools.

Cumulatively, EM has accomplished the following (included are activities at the NNSA sites proposed for transfer):

—3,228 containers of enriched uranium (out of 9,101 containers required over the cleanup lifecycle) have been packaged and certified for long-term storage, 173 containers ahead of the accelerated schedule.

—9,057 metric tons of depleted uranium (out of 742,149 metric tons required over the cleanup lifecycle) have been packaged in a suitable form for disposition. The complex is cumulatively ahead of the accelerated schedule by 4,142 metric tons.

—615,473 cubic meters of legacy mixed low-level waste (MLLW) and LLW (out of 1,154,636 cubic meters required over the cleanup lifecycle) have been disposed. The complex is ahead of the accelerated schedule by 166,437 cubic meters because almost all sites have accelerated their schedules.

—Eliminate half of the Material Access Areas, highly secure and costly special nuclear materials storage areas, a significant reduction in fixed costs.

—911 out of 2,647 industrial facilities have been completed. The complex is cumulatively ahead of the accelerated schedule by 212 facilities.

—5,486 release sites (out of 10,374 release sites required over the cleanup lifecycle) have been completed. The complex is ahead of schedule by 144 release sites. Hanford, Savannah River, and Rocky Flats contributed greatly to the positive performance on this goal.

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

—Completed packaging all (2,090 metric tons) of Hanford K-Basins spent nuclear fuel for final disposition and moved them well away from the Columbia River for long-term storage;

—Removed all pumpable liquids from the 149 single shell tanks at Hanford;

—Removed all spent nuclear fuel from three aging pools at the Idaho National Laboratory;

—Dispositioned 50 percent (124 out of 248) of the Oak Ridge Reservation facilities which include 2 nuclear facilities, 6 radiological facilities, and 116 industrial facilities;

—Removed all spent nuclear fuel from the West Valley Demonstration Project site to safe and secure long term off-site storage;

—Completed 35 percent of the Defense Waste Processing Facility mission by producing 1,712 out of 5,060 high-level waste canisters;

—Disposed of more than 18,300 cubic meters of transuranic (TRU) waste at the Waste Isolation Pilot Plant (WIPP), roughly 10 percent of the legislated 176,000 cubic meters capacity of WIPP; and

—Stayed on track to complete cleanup and closure of Rocky Flats, Fernald, and Mound and four other sites in 2006.

By completing these actions and reducing risks, the liability to the taxpayer is reduced and the environment for future generations will be safer.

CHALLENGES AHEAD

Many of the acute hazards to communities and the environment have been substantially reduced. And although we can and should feel proud about what we have done, real challenges still lie in front of us. While our nuclear materials stabilization mission is by and large completed, the EM program is evolving into a more a radiological and industrial facilities deconstruction program. For example, at the Portsmouth Gaseous Diffusion Plant in Ohio, EM is transitioning from cold standby operations to decontamination and decommissioning, a step consistent with the development of the new United States Enrichment Corporation Gas Centrifuge facility at Portsmouth.

In addition, we have uncertainties that challenge us such as end states for some sites, disposition paths for some wastes, and legal and regulatory issues. For example, the Department must:

—Successfully implement the path forward provided by section 3116 to disposition tank waste stored at Savannah River and Idaho, working with the Nuclear Regulatory Commission and State regulators;

—Initiate major procurement activities at Hanford and Savannah River in fiscal year 2006 to align cleanup work scope for these sites with our contracts, thereby bringing an even greater portion of the Department's cleanup work under contracts that better drive performance;

—Establish a disposition pathway for silos residues from the Fernald site, to allow that site to close in 2006;

—Address seismic design issues for the Waste Treatment Plant at Hanford, to ensure we build a plant that meets all design requirements;

—Resolve uncertainties that challenge our ability to clean up and dispose of radioactive wastes at our Department of Energy sites. The cleanup of the EM program requires us to work together cooperatively.

In front of us still remains a tremendous amount of risk reduction and environmental remediation, which is why this program still requires $6.5 billion in fiscal year 2006 to operate. In addition we have uncertainties that challenge us, issues like end states for some sites, disposition paths for some wastes, and legal and regulatory issues.

The Department is taking proactive steps in anticipating and addressing such challenges, challenges which are to be expected for a program as complex and diversified as EM. We have taken on challenges in the past. This experience gives us the confidence to take on what some may think are insurmountable issues. We will use our technical, legal, and regulatory resources and will work with Congress, affected Tribes, State and local authorities along with our community stakeholders to continue to provide to our nation the risk reduction and cleanup it expects and deserves. EM is and will continue to refocus new energy on resolving significant issues and safety performance as well as contract performance and integrated acquisition strategy, managing post cleanup liabilities, and human capital.

THE FISCAL YEAR 2006 BUDGET REQUEST

The investment we have requested in our fiscal year 2006 budget will continue the Department's success in achieving its mission of accelerated risk reduction and cleanup completion.

DOE's 2006 budget request for EM activities totals $6.5 billion. The request includes five appropriations, three of which fund on-the-ground, core mission work, and two of which serve as support. The five appropriations and associated requested funding are:

—Defense Site Acceleration Completion ($5.184 billion)

—Defense Environmental Services ($831 million) (Includes $451 million for the Federal contribution to the Uranium Enrichment Decontamination and Decommissioning Fund.)

—Non-Defense Site Acceleration ($172 million)

—Non-Defense Environmental Services ($178 million)

—Uranium Enrichment Decontamination and Decommissioning Fund ($591 million)

In building the request, the Department applied the following principles and priorities:

Protect workers, public, and the environment.—The budget request continues to place the highest priority on protecting workers, the public, and the environment. The implementation of EM's cleanup strategies allows for an overall improvement in safety and reduction in risk because cleanup will be completed sooner, reducing the extent to which workers, the public, and the environment have the potential to

be exposed. Over the past 3 years, improvements in safety performance have been demonstrated.

Ensure the appropriate levels of safeguards and security.—It is crucial that we maintain vigilance in our security to protect our citizens. The EM program is responsible for many tons of surplus nuclear material. There is an overall increase in the safeguards and security budget in fiscal year 2006 due to additional security requirements primarily at Hanford, but also Savannah River, Oak Ridge, Portsmouth, and Paducah, as a result of revisions to the Department's Design Basis Threat—the risk scenarios which each of our sites must plan to withstand.

Risk reduction and cleanup completion.—Accelerated risk reduction requires a pragmatic approach to cleanup and occurs in various stages, which involve the elimination, prevention, or mitigation of risk. Because safe disposal of many materials will take a number of years to complete, our major focus of risk reduction is stabilization of high-risk materials, including:

—High-curie, long-lived isotope liquid waste;
—Special nuclear materials;
—Liquid transuranic waste in tanks;
—Sodium bearing liquid waste in tanks;
—Deteriorating spent nuclear fuel in leaky or poor integrity basins;
—Remote-handled transuranic waste and high transuranic content waste; and
—Transuranic waste stored on the surface.

Although all of these items are to be considered when setting priorities, their relative ranking may vary from site to site. Risk reduction is a major consideration in the development of the site baselines. Examples of planned activities and milestones for fiscal year 2006 that correspond to site-specific risk categories are:

Hanford

—*Complete cleanout of K East and K West basins (sludge, debris, and water)*.—The K basins are located about ¼ mile from the Columbia River. This project involves removing radioactive sludge, debris, and water from wet storage in the K Basins to safe, interim storage or final disposition away from the Columbia River. The K Basin facilities are well past their design lives and are a major threat to the environment due to the potential for basin leakage to the surrounding soil and the Columbia River. Continued deactivation of the K Basins will support final turnover to the River Corridor Closure contractor. Their cleanout will decrease the risks posed by the basins to human health and the environment.

—*Complete remaining activities to support interim safe storage (cocooning) of the H-Reactor*.—Complete all remaining activities to support interim safe storage of the H-Reactor, provide safe storage for approximately 825 metric tons of unirradiated fuel in the 300 Area facilities and begin preparations for shipping the material offsite. The interim safe storage of the reactor and fuel will decrease the risks they pose to human health and the environment.

—*Complete dismantlement of 232–Z facility within Plutonium Finishing Plant (PFP) Complex to slab-on-grade*.—The PFP Complex consists of several buildings that were used for defense production of plutonium nitrates, oxides and metal from 1950 through 1989. The end state for the PFP is the dismantlement of all facilities to slab-on-grade. Progress will continue on the deactivation and decommissioning of the Plutonium Processing Facility, Plutonium Reclamation Facility, High-Level Liquid Waste Facility, Americium Facility and other nuclear facilities within PFP. Dismantlement of the 232–Z incinerator facility will be completed resulting in reduced risk to human health and the environment.

—*Accelerate the retrieval of suspect transuranic waste and shipments to the Waste Isolation Pilot Plant*.—Hanford has several thousand containers of previously generated suspect transuranic waste stored in the ground in a retrievable configuration. The retrieval of this waste will be accelerated from 1,500 m^3 in fiscal year 2005 to 1,800 m^3 in fiscal year 2006. Of the retrieved waste, more than 700 m^3 of transuranic waste will be shipped to the Waste Isolation Pilot Plant for final disposal. Characterization and shipment of this waste to the Waste Isolation Pilot Plant for final disposal will reduce the risks to facility workers as well as reduce the safeguard and security vulnerability associated with this waste. This action represents final disposal of this waste in an environmentally protective repository.

—*Prepare T Plant to support Tri-Party Agreement M–91 Milestone Requirement*.—T Plant will be utilized for support of various waste management missions including repackaging of mixed low-level and transuranic wastes. T Plant preparation supports the Tri-Party Agreement M–91 milestone requirements for repackaging of large/remote handled mixed low-level and transuranic wastes.

—*Complete upgrade of the remediation system for the 100–D Area Chromium Plume*.—Chromium-contaminated groundwater is reaching the Columbia River in the 100–D Area. The contamination levels are more than 20 times the aquatic life water standard, and the area is adjacent to potential salmon spawning locations. To address this, the ground water remediation system in the 100–D Area will be upgraded. As a result, the groundwater reaching the Columbia River will once again meet the aquatic water standards, thereby protecting human health and the salmon population in the River.

—*Complete construction of Integrated Disposal Facility and initiate treatment of selected low-level and transuranic wastes from single-shelled tanks*.—Radioactive liquid waste stored in older single-shelled tanks has the potential of leaking and contaminating soil and groundwater that flows to the Columbia River, presenting a risk to human health and the environment. Construction of the Integrated Disposal Facility will provide expandable, on-site disposal capacity for treated low-activity tank wastes, low-level and mixed low-level wastes. Treatment of selected low-level and transuranic tank wastes using supplemental treatment technologies such as bulk vitrification will allow early and accelerated treatment of tank wastes outside the Waste Treatment Plant currently under construction at Hanford.

Idaho

—*Complete the construction and startup repackaging facilities for remote handled transuranic waste, and disposition 6,800 m^3 of transuranic waste at the Waste Isolation Pilot Plant. Disposition 5,600 m^3 of low level and mixed low level waste*.—These actions will serve to reduce operating, surveillance, and maintenance costs while at the same time offering improvements in waste management and long-term safety and security.

—*Complete design and initiate construction of the Sodium Bearing Waste Treatment Project, to treat tank radioactive wastes*.—These actions support the EM goal of reducing the risk of stored liquid radioactive waste and support the 1995 settlement agreement with the State of Idaho. These actions will reduce the potential risk to human health by preventing the migration of contamination into the Snake River Plain Aquifer which is a sole source aquifer used to supply water to the people of southeastern Idaho.

—*Close one underground storage tank (WM–184)*.—This would be the first liquid waste underground storage tank closed since 1997. Removing the liquid waste decreases the risks they pose to human health and the environment, including the underlying Snake River Plain sole-source aquifer.

—*Initiate the deactivation of excess reactors and complete deactivation of the Power Burst Facility, building 620*.—These actions will reduce potential risk by deactivating high risk excess Idaho National Laboratory nuclear buildings that have reached the end of their useful lives.

Paducah

—*Continue construction of Depleted Uranium Hexafluoride (DUF_6) Conversion facility*.—The DUF_6 conversion facility will convert depleted uranium hexafluoride into a more stable form (depleted uranium oxide) suitable for reuse or disposition. Depleted uranium oxide will be disposed of at a licensed commercial facility, the hydrogen fluoride by-products will be sold on the commercial market, and the empty cylinders will be crushed and disposed of or reused.

—*Disposition 116 cubic meters of waste*.—The continued shipment and disposal of newly generated and legacy waste will proportionally reduce the risk such wastes present to the health and safety of workers and reduce the on-going potential for release to the environment from aging storage containers.

—*Continue decontamination and decommissioning of C–410 Complex*.—The C–410 Complex is a large chemical complex in a shutdown condition. Removal of contaminated materials and equipment reduces potential risk to onsite workers and represents a key step in stabilizing the facility such that contaminants are prevented from release to the environment.

Portsmouth

—*Complete Shutdown of Cold Standby Operations and transition to D&D*.—Planned transition from cold standby to final shutdown and subsequent decontamination and decommissioning activities. This will result in a significant mortgage cost reduction and will eliminate risk to public health and the environment.

—*Disposition 1,600 cubic meters of legacy waste*.—The continued shipment and disposal of legacy waste will proportionally reduce the risk such wastes present

to the health and safety of workers and reduce the on-going potential for release to the environment.

—*Operate active and passive groundwater treatment systems*.—Plume control keeps contaminants from reaching surface streams and off-site drinking water supplies. Trichloroethylene (TCE), which is an industrial solvent, is the main groundwater contaminant at the site.

—*Complete disposition of the Gas Centrifuge Enrichment Plant components*.—Complete shipment of 720 disassembled centrifuges, disposition all RCRA waste, and complete decontamination in certain Gas Centrifuge Enrichment Plant facilities. These facilities are to be used by the United States Enrichment Corporation (USEC) for development and deployment of an advanced centrifuge uranium enrichment plant.

—*Continue construction of DUF_6 Conversion facility*.—The DUF_6 conversion facility will convert depleted uranium hexafluoride into a more stable form (depleted uranium oxide) suitable for reuse or disposition. Depleted uranium oxide will be disposed of at a licensed commercial facility, the hydrogen fluoride by-products will be sold on the commercial market, and the empty cylinders will be crushed and disposed of or reused.

Oak Ridge

—*Continue demolition of the K–25 and K–27 buildings and process equipment removal*.—Decommissioning the buildings will reduce the footprint of the site, and therefore reduces significant fixed costs and risks to the workers by eliminating the need to enter the buildings to perform required, routine surveillance and maintenance activities. Decommissioning the buildings also eliminates the potential environmental and human health risk of accidental releases from these facilities.

—*Initiate the construction of the final expansion of the Environmental Management Waste Management Facility (EMWMF)*.—Construction of the final expansion of the EMWMF represents an important step in the completion of environmental cleanup at the Oak Ridge Reservation. Waste received from remedial action/decontamination and decommissioning projects from all of the Oak Ridge Reservation will be placed in the engineered disposal facility. Disposition of this waste will greatly decrease the risks to public health and the environment.

—*Complete Melton Valley cleanup*.—Completion of Melton Valley cleanup in fiscal year 2006 will ensure that the largest source term threatening the nearby Clinch River is contained, on-site surface water quality is improved to meet required standards, and off-site users of the Clinch River remain protected.

—*Complete shipment of DUF_6 cylinders to Portsmouth*.—This will complete the removal of all remaining cylinders from the East Tennessee Technology Park in accordance with the Tennessee Department of Environment and Conservation Order.

—*Initiate contact-handled transuranic waste processing at the Waste Treatment Facility*.—This waste is stored in above grade-storage facilities and in earthen trenches. Processing the waste prevents the risk of release to the environment and the continued cost of waste storage and monitoring.

—*Complete Offsite Remediation. Complete Atomic City Auto Parts. Complete building and debris removal at Witherspoon 901 sites*.—This action will reduce the risks posed to workers and the surrounding community from uranium and polychlorinated biphenyls contamination in the soil.

Los Alamos National Laboratory

—*Disposition 1,400 cubic meters of legacy transuranic waste and initiate retrieval of legacy transuranic waste storage above ground*.—Characterization and shipment of this waste to the Waste Isolation Pilot Project for final disposal will reduce the risks to facility workers as well as reduce the safeguard and security vulnerability associated with this waste. This action represents final disposal of this waste in an environmentally protective repository.

Savannah River Site

—*Complete processing neptunium solutions*.—SRS has approximately 6,000 liters of neptunium-237 nitrate solution in H-Canyon. Through processing, the neptunium solutions are converted into a more stable form, and the risks they pose to human health and the environment are reduced.

—*Complete de-inventory and deactivation of the F-Area nuclear materials processing facilities*.—Complete de-inventory and deactivation of the F-Area nuclear materials processing facilities including F Canyon, FB Line, and F Outside Facilities. In addition, complete the stabilization and packaging of plutonium to DOE Standard 3013 in FB Line. This will greatly reduce the security threat

and the large fixed costs associated with these facilities as well as the risk posed to human health and the environment.

—*Continue to stabilize liquid waste from underground storage tanks*.—Complete design and begin construction of Salt Waste Processing Facility; produce 250 canisters of vitrified high-level waste.

—*Complete decommissioning of 28 industrial, nuclear, and radioactive facilities, including the completion of M Area Facilities*.—Decommissioning excess radioactive facilities will reduce the footprint of the site and associated fixed costs, and therefore collectively reduce risk to the worker by eliminating the need to enter the facilities to perform required, routine surveillance and maintenance activities. Risk of worker exposures while performing these activities is eliminated. Decommissioning excess radioactive facilities also eliminates the potential environmental and human health risk of accidental releases from these facilities.

Brookhaven National Laboratory

—*Complete removal of Brookhaven Graphite Research Reactor Canal and continue Reactor Pile removal*.—Brookhaven National Laboratory sits over a sole-source aquifer used as a primary source of drinking water for the people of Long Island. Decontamination and decommissioning of the Brookhaven Graphite Research Reactor activities for fiscal year 2006 will remove the Canal and the Graphite Pile, both highly contaminated components from the reactor; contaminated soils adjacent to the reactor will also be removed. These actions will reduce the potential risk to human health by eliminating a possible source of contamination to the aquifer.

Waste Isolation Pilot Plant

—*Begin receipt and placement of remote-handled transuranic waste*.—The Waste Isolation Pilot Plant, in Carlsbad, New Mexico, is the Nation's mined geologic repository for the permanent disposal of defense-generated transuranic waste. All transuranic waste comes to the Waste Isolation Pilot Plant for receipt, handling, and disposal. WIPP is not permitted to receive and dispose of remote-handled transuranic waste (defined as such because it generates higher levels of radiation). The permitting activities this year, which come from the combination of many years of regulatory, scientific and engineering efforts, will enable WIPP to receive remote-handled waste by June 2006. This will remove these wastes from around the complex where it constitutes a major health and safety risk, into a centralized, safe disposal site in New Mexico.

Maintain closure schedules.—Three major sites, Rocky Flats, Fernald, and Mound, have accelerated closure schedules. In addition, two smaller sites, Ashtabula and Battelle-Columbus are scheduled to close in 2006. Funding in the fiscal year 2006 budget will allow these sites to remain on track toward project completion and site closure.

At Rocky Flats, fiscal year 2006 funding provides for:

—*Completing the disposal of legacy low-level and mixed low-level waste to off-site disposal; completing remediation of all remaining release sites*.—During fiscal year 2006, Rocky Flats will be completing their commitment of site closure and conversion of the Rocky Flats site for future beneficial use. All of the legacy waste as well as amounts generated by remediation will be disposed of off-site in DOE or commercial disposal facilities. Remediation will be completed on all remaining release sites including building foundations and ponds. Site recontouring and grading will be completed along with all necessary regulatory and project closure documentation.

—*Completing nuclear facility deactivation and decommissioning for all nuclear as well as non-nuclear buildings on site*.—All the buildings where plutonium and other hazardous materials were used in support of the nuclear weapons deterrent, which constitute over 1,000,000 square feet of space, will be demolished. All final quantities of radioactive wastes will be removed from the site, and the grounds will be receiving the necessary remediation action. These actions, when complete, will allow the Department of Energy to release the site to the U.S. Fish and Wildlife Service to become the Rocky Flats National Wildlife Refuge with little or no further risk to human health or the environment.

At Fernald, fiscal year 2006 funding provides for:

—*Completing decontamination and decommissioning of Silos 1, 2, and 3 treatment facilities and associated support structures/facilities*.—Silos 1 and 2 contain the highest levels of radiological activity residing in any waste stream at the site, a risk to human health and the environment. The Silos 1 and 2 Project con-

stitute the Site Closure Critical Path. Their successful completion is a prerequisite for a timely and safe closure.

—*Completing construction of the On-Site Disposal Facility Cells 6 and Cell 7 caps, contaminated soil excavation, expansion and capping of Cell 8, and natural resource restoration*.—Completing soil excavation, disposal into the onsite cells, and capping the cells of the On-Site Disposal Facility (OSDF) will insure the reduction in risk to human health and the environment during post closure. Overall, the OSDF will be composed of 8 cells, containing 2.5 million cubic yards of waste soil and debris. The OSDF has been designed and engineered to possess a 5-foot thick liner and a 9-foot thick cap. The OSDF has a design life of 1,000 years.

At Mound, fiscal year 2006 funding provides for:

—*Completing the excavation and verification of Potential Release Site 131 (soil beneath Buildings R, SW, and B Slab) and the remaining Potential Release Sites and ship the remaining remediation waste for off-site disposal, and transfer remaining land to the Miamisburg Mound Community Improvement Council*.—Completing Potential Release Site 131 decreases risk by preventing any further radioactive contamination from migrating into clean soil areas and ground water, by reducing potential exposure to site workers and other personnel located on site, and by precluding any potential environmental impacts to off site areas.

At Ashtabula, fiscal year 2006 funding provides for:

—*Completing remediation of the Waste Management Unit*.—Remediating the Waste Management Unit significantly reduces the remaining risks of organic and inorganic chemical exposure to both soil and groundwater at the RMI site.

At Battelle-Columbus, fiscal year 2006 funding provides for:

—*Completing demobilization of equipment and site infrastructure to support closure and complete off-site disposal of transuranic waste*.—Demobilization of the remaining equipment and infrastructure will support final closure of the site. Removal of the transuranic waste will also reduce risk to off-site areas and members of the general public.

CONCLUSION

Three years ago we started down the path to bring clarity and focus to our mission and deliver on our commitments. We must continue to improve our performance and look beyond the gains we have made to achieve our vision for the benefit of future generations. I have challenged our partners in cleanup: our workforce, our contractors, our regulators, our communities, and all those interested in joining us in our vision of cleanup to put their most innovative ideas and people forward. We must not lose the momentum that has been established, particularly as we work through the tremendous challenges that still face us. This program spends nearly $1 million per hour, 24 hours per day, 7 days a week. The question is how we continue to return value to the communities and taxpayers with this program. We are committed to using our resources to show meaningful risk reduction and cleanup completion results.

We must never go backwards, to the time when we measured success by how much we spent, not by how much we did. We must never again believe the falsehood that it is a choice between being safe and doing work, for it is only when we do our work that we are really safe. We must not by our inaction allow this legacy to become our children's, grandchildren's, or our great-grandchildren's problem . . . it is for us to solve and for us to complete. We must demand excellence and never again accept the notion that this job is too hard or too dangerous to complete. We have demonstrated that we can do this work, that we can do it safely, and that we can do it on a schedule to be completed in our lifetime.

The challenges before us are formidable. To solve them will require our collective resources, ingenuity, and hard work. But we are up to this challenge. Over the last 3 years, EM has demonstrated that challenges can be overcome.

Again, I thank you for the support you have provided these last few years, and I ask for your continued support in this very important work. The potential is there to lose what we have gained should we fail to stay true to our commitments: a cleanup that is safe for the worker, protective of the environment, and respectful of the taxpayers.

I look forward to working with the committee and others to achieve this worthy goal.

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

STATEMENT OF THEODORE J. GARRISH, DEPUTY DIRECTOR

Mr. GARRISH. Mr. Chairman, members of the committee, I am Ted Garrish, Deputy Director of the Department's Office of Civilian Radioactive Waste Management. I'd like to thank the committee for inviting me here to discuss our program, and in the interest of time, I'd like to cut down a little bit on some of my remarks.

As you know, it is a priority of this administration to consolidate waste currently at 125 sites in 39 States to a single, secure, remote location. We remain committed to our obligation to safely dispose of spent fuel and high-level radioactive waste resulting from commercial nuclear power and defense activities.

First, as I begin, I'd like to address some of the opinions that have been offered to the effect that the program is unable to move forward. Some people have suggested that it's even broken. On the contrary, this program has a sound, scientific, and technical basis, and we are moving forward step by step toward the development of a repository at Yucca. I believe we are better situated than we have ever been to move forward with this program, and let me describe a couple of the reasons.

First and foremost, we have a site for the repository. Congress approved the Yucca Mountain site in 2002, and the courts have affirmed the constitutionality of the site selection process and we have a location for the repository. Secondly, we have a draft of the entire license application in hand and we are making improvements to the analysis to provide a high quality presentation by the end of this calendar year.

To this end, we have submitted 293 of the key technical issue agreements to the Nuclear Regulatory Commission, and they are in the process of reviewing them. Two hundred and nine have been closed. We are improving our computer models to reflect the conditions in the future. We have provided over 1 million documents, which is 5 million pages, to the Nuclear Regulatory Commission for their web site for interested parties to review the license application and related material. We currently estimate that we have approximately 3.7 million documents to put into the licensing support network and we are approximately 44 percent complete.

We have had positive exchanges with the Nuclear Waste Technical Review Board ranging from groundwater flow to the waste package corrosion. All told, the license application process is going well.

Third, the transportation program in Nevada and throughout the country is moving forward in earnest. The EIS process for the Nevada rail alignment is well along in the process, and we expect the draft EIS to be completed in the near future. And we have begun our institutional activities with getting tribes and States as our partners around the country. These are all positive developments

demonstrating that we are making progress. Nevertheless, the program does face challenges involving parties outside the Department. These include the court decision on the EPA standard and the need for funding reform.

Last summer, as you know, the U.S. Court of Appeals vacated EPA's Yucca Mountain radiation protection standard with regard to the 10,000 year regulatory compliance period. EPA is currently preparing a radiation standard to conform with the court's direction. We remain optimistic that EPA's work in promulgating the standard will be contemporaneous with our work on the license application, and both will be ready by the latter part of this year.

In addition, we are facing serious funding issues for the future. Both Congress and the administration have recognized the funding program facing the program and have desired to make the nuclear waste money—fund monies available for their intended purpose. To ensure sufficient and stable funding, the administration remains supportive of the concept embodied in our legislative proposal submitted last year, and the administration remains interested in pursuing further discussions with Congress on these issues in the hope of reaching some agreement that will assure access to the nuclear waste fund when that money is needed.

Despite these challenges, the program is on sound footing and we are poised to make significant progress in the coming years. In the current fiscal year 2005, there have been several important objectives, mainly to focus on refining and completing the license application. Supporting that, we are continuing to work on the design of the waste package, the surface and sub-surface facilities, and to complete the total system performance assessment.

We anticipate completing the certification of the licensing support network mid-summer, preparing millions of pages of documentation for the public. And on transportation, we are anticipating completing the draft EIS of the Nevada rail and completing the conceptual design of that rail objectives in fiscal year 2005.

Fiscal year 2006 is a critical period for the Department. We will be submitting our license application and we will begin the NRC regulatory process leading to the issuance of the construction authorization. As we submit the license application and as we proceed, we are going to need to advance the repository design. We will need to support the NRC review and to support our defense of the license application.

For transportation, we will need to continue with our design and pre-construction activities for the Nevada rail and to develop cask and railroad cars used to develop waste. Our budget request of $651 million represents a modest increase in funding to complete the tasks we believe can reasonably be accomplished in fiscal year 2006. We will continue to make real progress on the license and the repository and the development of the national infrastructure for accepting and transporting waste, and we urge your support for our budget request, and we're pleased to work with you on the various issues that should come up in fiscal year 2006.

PREPARED STATEMENT

Finally, I cannot emphasize enough the administration's continued strong support for this program as we move forward with the

implementation. And I will be happy to respond to your questions. Thank you.

[The statement follows:]

PREPARED STATEMENT OF THEODORE J. GARRISH

Mr. Chairman and members of the committee, I am Ted Garrish, Deputy Director of the Department of Energy's (DOE) Office of Civilian Radioactive Waste Management (OCRWM). I appreciate the opportunity to present our fiscal year 2006 budget request and discuss our plans to license, build, and operate a geologic repository at Yucca Mountain in Nevada, and our efforts to develop the transportation system needed to deliver spent nuclear fuel and high-level radioactive waste to the repository.

There has been a lot of comment about this Program being unable to move forward. On the contrary, the Program is as well situated as it has ever been. Indeed, we are in excellent shape for the future and we are moving ahead deliberately, step-by-step, toward development of a geologic repository at Yucca Mountain. Here are some of the reasons why this Program is poised for success:

—We have a site for the geologic repository. Congress approved the Yucca Mountain site in Nye County, Nevada for development as a repository in 2002. Lawsuits have affirmed the constitutionality of the process and therefore we have a location for the development of a repository.

—We have a draft of the license application in the process of refinement. We are making improvements to the analysis and presentation of information to meet one objective of completing preparation of a high quality license application by the end of this calendar year.

—Transportation activities have begun in earnest. We issued Records of Decision for both transportation mode and the rail line corridor through Nevada. We are currently preparing an Environmental Impact Statement for the specific rail alignment within that corridor. Institutional activities to include the States as partners have also begun.

—We are requesting the full funding amount needed to complete those tasks we can reasonably accomplish in fiscal year 2006. The Department will continue to request the appropriate funding required for the project.

—The administration continues its strong support of this Program as we move forward with its implementation.

This Program does face a couple of challenges involving parties outside the Department that I would like to briefly bring to your attention.

First, the U.S. Court of Appeals for the District of Columbia Circuit vacated the Environmental Protection Agency's Yucca Mountain radiation protection standard with regard to its 10,000 year regulatory compliance period. EPA is currently working to revise its Yucca Mountain radiation standard to conform to the court's direction. We remain hopeful that EPA's work in promulgating the standard will be contemporaneous with our work on the license application and that both will be ready by the latter part of the year.

Second, both Congress and the administration have recognized the long-term funding problem facing the Program and the need to make Nuclear Waste Fund monies available for their intended purpose. The administration believes that the fees currently paid to the government by utilities to finance the repository should be treated as offsetting collections against the appropriation from the Nuclear Waste Fund. The amount credited as offsetting collections should not exceed the amount appropriated for the repository. To ensure stable and sufficient funding, the administration continues to support the concept embodied in the legislative proposal submitted last year to provide the increased annual funding needed for construction and operation of the repository. The administration remains interested in pursuing such a proposal and intend to have further discussions with Congress on these issues in the hope of reaching some agreement.

Despite these challenges, the Program is fundamentally on sound footing and we are poised to make significant progress in the coming year.

THE FISCAL YEAR 2006 BUDGET REQUEST

Fiscal year 2006 is a crucial period for the Department and for the regulatory process leading to issuance of a construction authorization for the Yucca Mountain Project. To accomplish our goals, the budget request $651 million for the Program in fiscal year 2006. A significant portion of the work planned for fiscal year 2006 is required to advance the repository design and facilitate construction and operation, and to support the NRC's review and the Department's defense of the license

application. In addition, funding will also support design and pre-construction activities for the approximately 300-mile Nevada branch rail line. The Department will also continue to support development of transportation casks and railroad cars capable of delivering spent fuel and high-level waste to the repository.

To set the stage for our fiscal year 2006 budget request, I would like to describe briefly OCRWM's fiscal year 2004 accomplishments and our ongoing activities based on our fiscal year 2005 appropriation.

FISCAL YEAR 2004 ACCOMPLISHMENTS

Having achieved Congressional and Presidential approval of the Yucca Mountain site in 2002, we have transitioned from a scientific study program to one focused on the regulatory requirements for obtaining a license from the NRC to construct and operate the proposed repository.

Over the past 2 years the main effort of the program has been preparation of the license application for submittal to the NRC. The majority of the funding for the Yucca Mountain Project in fiscal year 2004 was devoted to various aspects of the license application. While a solid working draft had been received, the Program elected to take the time afforded by the vacating of the EPA standard to strengthen the license application and ready it for submission in calendar year 2005. The Program has established plans for completing and further strengthening the license application and has based its funding request upon these plans.

The Program prepared a design and a detailed plan for repository licensing, construction, and operation, and focused on completing the license application to the NRC for authority to construct the repository. By the end of fiscal year 2004, the Yucca Mountain Project had accomplished the following:

—Completed required elements of the design of the waste package and repository facilities in support of the license application.
—Addressed all "key technical issue" agreements that the Department and the NRC had agreed needed to be addressed prior to license application submittal.
—Prepared tens of millions of pages of relevant documentation for inclusion in the electronic Licensing Support Network.
—Prepared a draft license application for construction of the repository facilities needed to begin acceptance of spent fuel and high-level waste.
—Institutionalized a Science and Technology Program to enhance the understanding of the repository system and potentially reduce the Program's cost and schedule.

In addition, during fiscal year 2004, the OCRWM Office of National Transportation completed conceptual design and project management documentation needed to support cask and rolling stock acquisition and rail line design and construction, issued a Record of Decision to use the mostly rail mode of transportation, and issued a second Record of Decision selecting the Caliente corridor for the Nevada branch rail line.

FISCAL YEAR 2005 ONGOING ACTIVITIES

Yucca Mountain Project

Consistent with Departmental and Program objectives, the Yucca Mountain Project's main focus in fiscal year 2005 is on improving and completing the license application. The required elements of design, performance assessment, safety analyses, and technical data in the license application must be sufficient for the NRC to conduct an independent review and reach a decision to issue a construction authorization. The application must demonstrate that the repository can be constructed and operated and that the health and safety of the public will be protected.

By the end of fiscal year 2005, with the funds appropriated, our objectives are to:

—Make significant progress on and improvements to design for the waste package, surface facilities, and subsurface facilities in support of the license application.
—Complete total system performance assessment calculations and final report in support of the license application.
—Complete certification of the electronic Licensing Support Network consistent with the requirements of 10 CFR Part 2, Subpart J, by preparing tens of millions of pages of relevant documentation to support review of the license application.

Even though site characterization is complete, in fiscal year 2005 we are continuing to collect valuable scientific information, including for the Performance Confirmation baseline. The NRC requires scientific analyses in support of Performance Confirmation to continue until the repository is permanently closed.

National and Nevada Transportation Projects

In early fiscal year 2004, the transportation program focused on selecting the transportation mode and the corridor for the Nevada branch line that would establish the transportation system's infrastructure requirements. In April 2004, the Department announced the Record of Decision for the selection of rail as the mode of transportation and a second Record of Decision for the selection of Caliente corridor for construction of a branch rail line in Nevada to connect from an existing rail line to the Yucca Mountain site. The program is now planning and developing designs for infrastructure development projects to provide the capability for transporting spent nuclear fuel and high-level waste to the repository. Funding in fiscal year 2005 supports completion of the conceptual design process and issuance of the draft Rail Alignment Environmental Impact Statement for the transportation system in Nevada. Funding also supports initial investments in transportation infrastructure needs, including transportation casks, railroad rolling stock, operations planning, and the business systems needed to manage multiple procurements and construction projects.

Program Management and Integration

A key component of the Program Management and Integration budget element is Quality Assurance (QA). In the last year we continued to make progress in the implementation of our QA program requirements. Several independent assessments have determined that the QA program is being effectively implemented.

During this fiscal year, we continue to take steps to ensure we are prepared to manage major capital projects efficiently and cost-effectively. We submitted an updated Capital Asset Management Plan for the Program to the Office of Management and Budget and the Congress in November 2004 and have completed a comprehensive program acquisition strategy. We continue to strengthen our performance measurement and project management capabilities and systems, and have institutionalized their use in monitoring and managing all the activities that support license application completion. We continue to implement the President's Management Agenda.

In fiscal year 2005, the Science and Technology Program continued work in the areas of repository materials performance, applied research on the Yucca Mountain geologic environment, and methods for developing new substances that will selectively capture waste elements. Additionally, projects will be initiated to examine advanced welding technologies, development of innovative materials for potential use in waste packaging and the repository's tunnels, and the potential application of additional advanced remote handling and robotics technologies in the repository system.

FISCAL YEAR 2006 KEY ACTIVITIES

Yucca Mountain Project

Fiscal year 2006 is a crucial period for the Department and for the regulatory process leading to the NRC's issuance of a construction authorization for the Yucca Mountain Project. After submittal, the NRC is expected to start the docketing review and if, docketed, a detailed technical review of the license application. Docketing of the application will initiate adjudicatory proceedings on the license application. A significant portion of the work planned for fiscal year 2006 is required to advance the repository design and facilitate construction and operation, and to support the NRC's review and the Department's defense of the license application. Departmental activities encompassed within this work scope are premised on meeting NRC requirements and obtaining any necessary regulatory approvals.

The Department will be required to respond to technical questions and requests for additional information from the NRC in a timely fashion. The Department will also be required to appear at the evidentiary hearings that are likely to begin by fiscal year 2007 following the completion of the Commission's review of the license application and issuance of its Safety Evaluation Report on that application. The NRC is expected to issue a final decision on a construction authorization for the repository 3 to 4 years after submittal of the license application, the statutorily established time period.

In parallel with the licensing process, the Program must focus on design of the repository must and ensure that the site is ready to support construction as soon as it is authorized by the NRC.

By the end of fiscal year 2006, our objectives are to have:

—Completed the preliminary design for the waste package, surface facilities, and subsurface facilities, which requires continuing performance assessment analysis.

—Completed and submitted a license application for repository construction authorization to the NRC.
—Responded to NRC's initial Request for Additional Information as they review the license application.
—Updated the LSN certification concurrent with license application submittal.
—Continued to refine the safety analysis as needed, in response to NRC review and in accordance with NRC licensing regulations.
—Fabricated prototype waste packages to ensure a process that is replicable while meeting rigid quality assurance requirements.
—Initiated procurement activities for materials, equipment and services needed for construction of the surface and underground facilities.
—Completed upgrades of existing facilities needed for site safety.
—Developed designs for site infrastructure facilities and utilities needed to support the start of construction.
—Completed the detailed work plan, cost estimate, and schedule, and established a performance baseline for the final repository design and construction.

We are requesting funding for payments-equal-to-taxes to the State of Nevada and to Nye County, Nevada, where Yucca Mountain is located. Our fiscal year 2006 request also includes funding for Affected Units of Local Government, as well as funding to the University System of Nevada and to Nye County and Inyo County, California, for independent scientific studies. The increased request for State and local government oversight represents a one-time adjustment in the funding cycle to align with State and county fiscal years.

National and Nevada Transportation Projects

The requested funding will support the initiation of design and pre-construction activities for the branch rail line through Nevada as well as initial procurement of railroad cars, transportation casks and auxiliary equipment and will accelerate operational capability.

For Nevada Transportation, DOE plans to issue the Final Rail Alignment Environmental Impact Statement and issue a Record of Decision identifying the alignment within the selected corridor on which the railroad may be built. The Department expects to complete the preliminary design and award a design/build contract for completion of the design and actual construction of the rail line and associated support facilities. Procurement of long lead-time rail construction materials, including track way and auxiliary equipment, will also be initiated.

The National Transportation Project encompasses overall system planning, procurement of casks and rolling stock or railroad cars, and stakeholder relations activities. Significant lead time is required for solicitation, evaluation of proposals, NRC certification (for new designs), and fabrication of transportation casks. The initial procurement of transportation casks is needed to provide the capability for waste acceptance to support repository operations. We are working with the cask vendor industry to procure an efficient cask fleet that maximizes the government's ability to support the full range of contents that need to be shipped with the minimum number of separate designs. These procurements will proceed towards cask fabrication in a step-wise manner to maintain flexibility on final procurements as long as possible. We will also continue to address a new railcar standard implemented by the American Association of Railroads for shipments of spent nuclear fuel and high-level waste. Finally, the Program will conduct conceptual design activities for transportation support facilities, most significantly for the Fleet Management Facility which will provide cask and railcar maintenance capabilities during operations.

The National Transportation Project will also continue to expand its efforts to engage a wide range of stakeholders with regard to establishing preliminary transportation routes, operating protocols, and safeguards and security activities. The Department will work with key stakeholders to identify a suite of potential transportation routes, and we will continue to support State regional groups and tribes to develop a policy for funding State and tribal emergency response training and technical assistance as required by Section 180(c) of the NWPA.

Program Management and Integration

The budget request reflects the Program's need to have the strongest possible Quality Assurance program as it moves into the licensing phase. Quality Assurance is the cornerstone in assuring that the Program has successfully implemented the radiological safety and health and waste isolation activities required by NRC regulations. We will continue to institutionalize a nuclear safety culture by completing efforts introduced through the Management Improvement Initiative to meet the NRC's expectations of its licensees.

The fiscal year 2006 request also contains funding for systems engineering and analysis activities to enable us to better evaluate and optimize the Program's component elements as they begin to converge into a single waste management system. In addition to the repository and transportation readiness, the third key piece that must be put in place is waste acceptance readiness. That is, the Program must establish the "pipeline" of wastes destined for Yucca Mountain. By addressing waste acceptance issues now, we can ensure that repository facilities and transportation infrastructure will be compatible with the commercial spent nuclear fuel and DOE-managed wastes that are planned for receipt. OCRWM will work closely with the Office of Environmental Management on DOE spent nuclear fuel and high-level waste acceptance criteria to ensure that we have an integrated, timely, and cost-effective approach.

Requested funding in fiscal year 2006 for the Science and Technology Program reflects the Department's continuing commitment to enable the repository system to take advantage of the very latest scientific discoveries and technologies that may be potentially applicable over the long life of the repository.

Program Direction

The Program Direction budget request 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 and independent technical and cost analyses. The increased request (approximately 2.5 percent) reflects a small increase in Federal staff expenses to manage additional repository design/licensing activities and National and Nevada transportation work.

ENSURING ADEQUATE RESOURCES TO COMPLETE THE MISSION

The Department of Energy and the Congress have been aware for many years that funding requirements for the repository program would increase substantially as we approach construction and transportation system development. In fiscal year 2007 and beyond, the Program will need significantly increased funding to pay for the design, construction, and operation of the repository, and for acquisition and development of the transportation infrastructure. Much greater certainty of funding is needed for such a massive capital project to ensure proper and cost-effective planning and acquisition of capital assets. Delays simply increase costs without meeting the Federal responsibility for safe, secure disposal of the waste.

In accordance with the funding approach established in the Nuclear Waste Policy Act, the Department collects annual fees from nuclear utilities for the disposal of their spent nuclear fuel. The fees are reflected in the utility bills that their customers receive. In fiscal year 2006, an estimated $752 million will be collected. We should not delay in making these resources available for their intended purpose.

The administration believes that the fees currently paid to the government by utilities to finance the repository should be treated as offsetting collections against the appropriation from the Nuclear Waste Fund. We will continue to work within the administration and with our Congressional counterparts to afford sufficient available funding to meet Yucca Mountain's programmatic requirements.

COST REDUCTION INITIATIVES

While addressing the funding needs of the Program is a high priority, we also believe that by looking at several system enhancements we can improve both the near-term and long-term funding outlook. With this goal in mind, we are looking at potential enhancements that can be achieved through phased development, technical alternatives, and acceleration of operations.

Under a phased development approach to repository construction, we have divided the surface and underground facilities into several phases so that the repository can be constructed and operated in stages. The license application will address all facilities necessary to emplace 70,000 metric tons of spent nuclear fuel and high-level radioactive waste, and will describe the incremental process for building those surface and underground facilities in modules and panels. In addition to controlling short-term cost spikes, this strategy will increase confidence in our ability to accelerate operations, allow experience from initial operations to guide later activities, and retain flexibility for the incorporation of future technology improvements.

We are making investments today in science and technology that will result in life-cycle cost savings, schedule efficiencies, and improved understanding of the safety and security of the repository system. To date, we have identified potential cost savings opportunities totaling several billion dollars over the long operating life of the repository in areas such as welding, advanced materials, techniques for excavating the underground tunnels, and low-maintenance ground support. While cur-

rent technology and technical information are adequate to support the license application, we believe that strategic investments today can yield substantial benefits over the long term.

CONCLUDING REMARKS

We are committed to the goal of beginning to receive and transport spent nuclear fuel and high-level waste to an NRC-licensed repository. Toward that end, our objective is to complete a high-quality license application and have it ready to submit to the NRC in December of this year.

We are requesting a moderate increase in funding in fiscal year 2006 to continue progress on licensing and constructing a geologic repository and developing the national infrastructure for accepting and transporting spent nuclear fuel and high-level waste. After more than 20 years of scientific study, a site approval process involving the Department, the State of Nevada, Congress, and the President, and purposeful efforts toward securing a license, we are on the edge of the licensing and construction phase of this Program. We urge your support for our budget request, and we are pleased to be able to work with you on this important national issue.

ADDITIONAL COMMITTEE QUESTIONS

Senator DOMENICI. I'm getting fairly short of time because I believe it's unfair for me not to be at the Budget Committee hearing, and you have the same situation. I assume you're going to submit some questions.

Senator MURRAY. I will submit my questions.

Senator DOMENICI. I think what I'm going to do, I have some on both issues, I'm going to submit them.

[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 PETE V. DOMENICI

OFFICE OF ENVIRONMENTAL MANAGEMENT

NATIONAL ACADEMY OF SCIENCES STUDY

Question. Last week the National Academy of Sciences panel published a report that evaluated the risk-based approach DOE utilizes in making cleanup and disposal decisions for transuranic and high level waste. The study made a number of findings. I am interested in Finding #7, which found that "DOE's planning and decision making is reduced by the apparent conflict of interest created by DOE's authority to propose and approve disposition plans for radioactive waste." The NAS suggested that as an alternative, DOE have either EPA or the NRC serve as an independent regulator.

As outlined in this finding, it would appear that the Department doesn't have any oversight or limitations on its ability to characterize and dispose of transuranic and high level waste. That isn't the case, is it?

Answer. Actually, several entities provide oversight or review of the Department's plans and operations for characterizing, retrieving, treating and disposing of transuranic (TRU) and high-level waste (HLW). The U.S. Environmental Protection Agency (EPA) is responsible for certifying all TRU waste streams to be disposed at the Department's Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico. Additionally, the New Mexico Environment Department must approve permit modification requests for certain new TRU waste streams proposed for disposal in WIPP. State environmental organizations provide oversight of certain HLW management functions conducted at DOE locations, including granting environmental permits for HLW treatment facility operations. Both the EPA and the U.S. Nuclear Regulatory Commission (NRC) have a regulatory role in the disposal of HLW. EPA specified the radiation protection standards that a HLW repository is required to meet. The NRC will license the construction and operation of a HLW repository that meets the radiation protection standards. The Defense Nuclear Facilities Safety Board (DNFSB) provides oversight of activities related to operation of defense facilities to ensure adequate protection of public health and safety. Much of DOE's TRU and HLW are defense wastes, and consequently many of the facilities used for retrieving and treating such wastes for disposal are under DNFSB oversight. Additionally, the

U.S. Department of Transportation prescribes regulations for the transportation of radioactive materials that the Department must meet for the packaging and shipping of its treated HLW and TRU from its generation sites to disposal sites.

Question. Do you believe the NAS finding has any merit, and is the Department considering using an independent arbiter to review DOE disposal plans?

Answer. The Department agrees with the approach to independent oversight of cleanup and disposal decisions for transuranic (TRU) and high-level waste (HLW) provided by the U.S. Environmental Protection Agency (EPA) and the State for TRU, and the U.S. Nuclear Regulatory Commission (NRC), EPA, the States, the Defense Nuclear Facilities Safety Board and the U.S. Department of Transportation in connection with HLW. For example, provisions of section 3116 of the National Defense Authorization Act for fiscal year 2005 call for a consultation role by the NRC, and stipulate a State-approved closure plan or State-issued permit for such wastes that the Secretary determines not to be HLW in accordance with section 3116. In addition, for wastes not subject to section 3116, DOE would continue its past practices of providing for independent review of such determinations by the NRC, and work with the host States to obtain necessary permits and approval of associated plans, such as closure plans. In these cases, both NRC and the States act as independent arbiters.

Question. Several of the findings of the National Academy of Science study determined that "it is infeasible to recover and dispose of every last bit of waste that might be classified as transuranic or high level." It also found that the cost and potential exposure of trying to recover every last gram of waste was not justified by the actually [sic] risk reduction. While the NAS study seems to favor the Department's decision to use a risk-based approach to cleanup, the report was very critical of the Department's lack of effort in seeking input from stakeholders and the public. How do you respond to this assertion that the Department has failed to include public participation and stakeholder input?

Answer. One of the keys to the Office of Environmental Management's (EM) progress in recent years has been its public outreach and stakeholder programs. This allows for substantive input into decision-making, and promotes proactive and systematic complex-wide public involvement. EM has a long history of working with a variety of intergovernmental groups (i.e., Energy Communities Alliance, Environmental Council of the States, National Association of Attorneys General, National Governors Association, and the State and Tribal Government Working Group) as well as with EM's Site-Specific Advisory Boards. The End States initiative is just one of many issues, including waste disposition, long-term stewardship, and natural resource damage assessments, that DOE and EM are working on with their various stakeholders.

The National Academy of Sciences' study was rightly critical of the lack of appropriate involvement by the public in the early stages of the EM End States (formerly the Risk-Based End States) initiative. However, beginning with the End States Workshop held in Chicago, Illinois, in October 2004, EM has increased stakeholder and regulator interactions. As a result of the Chicago workshop, EM formed an End States Working Group with representatives from the National Governors Association, the U.S. Environmental Protection Agency (EPA), State and Tribal governments, and environmental interest groups. The Working Group advises EM on the conduct of our End States initiative at the national level. At the site level, Field Office managers are providing additional time for meaningful stakeholder input into their End States Vision documents. In addition, Field Office managers have been instructed to "involve stakeholders in a straightforward and frank manner . . . ". EM has reinforced that the End States Vision documents are not final decisions on cleanup plans, but are instead a vehicle for discussions with our stakeholders and regulators on potential alternatives to the current cleanup plans. Through these efforts, EM is taking the time at the site and national levels to involve our stakeholders and regulators in the End States process.

TRANSFER OF CLEANUP FROM ENVIRONMENTAL MANAGEMENT TO THE NATIONAL NUCLEAR SECURITY ADMINISTRATION

Question. The President's budget provides for the transfer of cleanup responsibility from the Department of Energy's Office of Environmental Management to the NNSA at several NNSA sites. This transfer of authority promises to deliver savings as a result of improved efficiency and intends to be more consistent with the NNSA Act. While I appreciate the fact that NNSA site managers will no longer be required to report to both the NNSA and EM regarding cleanup activities, I am concerned that EM will not remain a top priority within NNSA. What guarantee do we have

that NNSA will approach cleanup as effectively as EM has in reducing the time and cost of cleanup of DoE sites across the complex?

Answer. This proposal resolves conflicts emanating from the NNSA statute, which precludes any non-NNSA official other than the Secretary and Deputy Secretary from directing NNSA personnel. In addition, the NNSA accepts responsibility for environmental work at NNSA sites, and will make every effort to conduct cleanup as effectively as EM has in reducing the time and cost of cleanup of DOE sites across the complex. The functional transfer of environmental scope, funding and the associated Federal personnel from the Office of Environmental Management (EM) to the NNSA aligns responsibility with accountability, ensures clear accounting of the total cost of ownership, and improves overall effectiveness and efficiency. The transfers resolve existing inefficiencies caused by the duplicate EM/NNSA chain of command. The NNSA has established the organizational and operational framework needed to ensure that cleanup activities at NNSA sites will continue to be accomplished effectively and efficiently once the transfers are approved by Congress. The cleanup processes and approaches that have worked so well in EM, along with the EM field staff who are currently executing this at NNSA sites, will be integrated into the NNSA. As with EM, the NNSA's corporate approach to environmental cleanup at NNSA sites will focus on risk reduction and compliance, pursue accelerated cleanup, and involve stakeholders. NNSA will use their successful Facilities and Infrastructure Recapitalization Program (FIRP) as the business model for managing their new environmental responsibilities. This includes strong central management and accountability for results; best-in-class business practices; and transparency in budget and program performance.

Question. The NNSA has major responsibilities of maintaining our nuclear deterrent, supporting the Naval Reactor program and stopping proliferation of nuclear material. Do you believe NNSA will be able to achieve the same level of success that EM has achieved in cleaning up 80 DOE sites?

Answer. Yes. The decision to transfer cleanup responsibilities at NNSA sites to the NNSA is the culmination of 2 years of effort within the Department. After careful consideration, the Department concluded that the conduct of cleanup work at NNSA sites is most effectively accomplished by NNSA personnel, who can integrate all operational requirements at NNSA sites to ensure that the NNSA Stockpile Stewardship mission, as well as the environmental cleanup responsibilities (which are inextricably intertwined at many NNSA sites), are successfully and most efficiently accomplished and resolve operational and priority conflicts between program mission and cleanup mission.

Key underpinnings of the environmental transfers are that the cleanup strategies, processes, and approaches that worked successfully in EM will be incorporated into the NNSA. The NNSA's environmental performance strategy will continue to focus on risk reduction and compliance, accelerated cleanup, and stakeholder involvement. The EM field staff currently conducting NNSA environmental activities will directly transfer to the NNSA, thereby maintaining the same level of technical expertise. The NNSA intends to manage its new environmental responsibilities using approaches proven to be effective in the Facilities and Infrastructure Recapitalization Program (FIRP) to include strong central management with accountability for results; focus on best business practices; and transparent budgets and program performance. The NNSA and EM are working corporately to ensure a seamless transfer of environmental responsibilities from EM to the NNSA.

Question. The budget provides over $696 million over the next 5 years to support NNSA-led cleanups. Does this budget provide sufficient funding to support these cleanup activities within NNSA and not divert scarce resources from science or nonproliferation activities?

Answer. Yes. This budget provides sufficient funding to support these cleanup activities within the NNSA and will not divert scarce resources from science or nonproliferation activities. The environmental transfers represent a zero sum budget transfer, fully resourced, from EM to the NNSA that provides sufficient funding and full time equivalent (FTE) positions to accomplish environmental cleanup activities at NNSA sites. The NNSA intends to manage its new environmental cleanup activities and funding entirely separate from other programs in the NNSA budget.

LOS ALAMOS NATIONAL LABORATORY CLEANUP STAYS WITH ENVIRONMENTAL MANAGEMENT FOR FISCAL YEAR 2006

Question. The President's budget proposes moving the cleanup responsibilities at six NNSA sites from the Office of Environmental Management to the NNSA. Two sites were not included in that transfer—Los Alamos and Y–12. Why didn't the

NNSA accept cleanup responsibility for Los Alamos and Y–12 this year? Will these facilities be transferred eventually?

Answer. The Department is taking a measured approach to this transfer to ensure that environmental responsibilities at NNSA sites are fully accounted for in the budget transfer requests.

The NNSA and EM agreed to defer the transfer of cleanup responsibilities for Los Alamos until after the Department of Energy and State of New Mexico finalize an important and complex Consent Order for Los Alamos National Laboratory. The Order was signed in March 2005. EM and NNSA are jointly reviewing all aspects of the Los Alamos environmental activities to ensure there is a clear understanding and agreement on the scope and attendant funding requirements of environmental responsibilities at LANL. Because of these issues, the Department will consider the transfer of Los Alamos environmental activities to the NNSA in fiscal year 2007.

The NNSA and EM agreed to postpone the transfer of Y–12 National Security Complex environmental restoration projects to coordinate it with the transition of contracting arrangements for environmental services at Oak Ridge. The Department plans to transfer environmental activities at Y–12 in future years.

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

OPENING OF YUCCA MOUNTAIN

Question. Originally, the Department was to open Yucca Mountain in 1998 to receive spent fuel from the Nation's utilities. Obviously that schedule has slipped. Last year, the President's budget proposed that the Department would submit the license application to the NRC at the end of 2004. Now, we understand that date has been delayed until December 2005—a delay of 1 year. Dr. Margaret Chu, the outgoing Director of the Office of Civilian Radioactive Waste Management was recently quoted in the press as saying that 2012 was now an optimistic forecast for initial operations at Yucca Mountain.

When do you believe Yucca Mountain will begin to receive spent nuclear fuel if the license application is submitted to the NRC in December 2005 as proposed in this budget?

Answer. As the Department indicated in last year's testimony, if the program did not receive its full request of $880 million, it would be unable to meet the goal of beginning waste acceptance in 2010. As you know, the Department did not receive the full funding amount and so now we are re-evaluating the program's schedule. The Department's efforts in this area are complicated by the Court's remand of the 10,000-year time period in the Environmental Protection Agency's radiation protection standard and by the ongoing need for stable funding. When these issues are resolved, the Department will then be in a position to establish a better estimate for opening the repository.

Question. In order to meet your current schedule what level of funding needs to be provided to the program for each fiscal year beginning in fiscal year 2006 until facility construction is complete?

Answer. The Department has developed two 10-year funding profiles that are only preliminary planning estimates. These funding profiles are intended to be used only for purposes of illustrating the possible funding levels associated with a 2012 or 2015 date for the start of repository operations. These profiles are based on several critical assumptions, including predictable and adequate program funding, the EPA radiation protection standard being in place by December 2005, and the start of construction of various non-nuclear items, such as the Nevada rail line before receipt of NRC construction authorization. Some of these assumptions will require specific policy decisions that have not yet been made, and as such these profiles do not represent administration policy.

A major operational problem is the lack of a regular funding profile. When appropriations are significantly below the budget request, which happens often, plans are derailed, staff are realigned or dismissed, deadlines missed, and costs increased.

PRELIMINARY PLANNING ESTIMATES 2012 START OF OPERATIONS

[In thousands of dollars]

	Fiscal Year 2006 Request	Fiscal Year 2007 Request	Fiscal Year 2008 Request	Fiscal Year 2009 Request	Fiscal Year 2010 Request	Fiscal Year 2011 Request	Fiscal Year 2012 Request	Subtotal	Fiscal Year 2013 Request	Fiscal Year 2014 Request	Fiscal Year 2015 Request	Total
Total Program Requirements	651,447	1,019,503	1,169,740	1,616,000	1,804,000	1,911,000	1,520,000	9,691,690	1,090,000	850,000	850,000	12,481,690
Funding From:												
Nuclear Waste Fund Fee Income	300,000	519,503	619,740	765,000	766,000	767,000	769,000	4,506,243	772,000	620,000	620,000	6,518,243
Nuclear Waste Fund Corpus	.....	.....	.....	301,000	488,000	594,000	201,000	1,584,000	38,000	.....	.....	1,622,000
Defense Nuclear Waste	351,447	500,000	550,000	550,000	550,000	550,000	550,000	3,601,447	280,000	230,000	230,000	4,341,447
Total Funding	651,447	1,019,503	1,169,740	1,616,000	1,804,000	1,911,000	1,520,000	9,691,690	1,090,000	850,000	850,000	12,481,690

PRELIMINARY PLANNING ESTIMATES 2015 START OF OPERATIONS

[In thousands of dollars]

	Fiscal Year 2006 Request	Fiscal Year 2007 Request	Fiscal Year 2008 Request	Fiscal Year 2009 Request	Fiscal Year 2010 Request	Fiscal Year 2011 Request	Fiscal Year 2012 Request	Fiscal Year 2013 Request	Fiscal Year 2014 Request	Fiscal Year 2015 Request	Total
Total Program Requirements	651,447	1,019,503	1,169,740	1,391,000	1,404,000	1,711,000	1,695,000	1,365,000	1,175,000	1,060,000	12,641,690
Funding From:											
Nuclear Waste Fund Fee Income	300,000	519,503	619,740	765,000	766,000	767,000	769,000	772,000	774,000	778,000	6,830,243
Nuclear Waste Fund Corpus	.....	.....	.....	76,000	88,000	394,000	376,000	313,000	171,000	52,000	1,470,000
Defense Nuclear Waste	351,447	500,000	550,000	550,000	550,000	550,000	550,000	280,000	230,000	230,000	4,341,447
Total Funding	651,447	1,019,503	1,169,740	1,391,000	1,404,000	1,711,000	1,695,000	1,365,000	1,175,000	1,060,000	12,641,690

EPA AND THE RADIATION STANDARD

Question. Last summer, the radiation standard for the project was vacated by a ruling from the U.S. Court of Appeals in *NEI* v. *EPA*. It has been rumored the EPA is preparing a draft regulation to be available by mid-2005. What impact will this Court decision have on the project if EPA fails to develop a new regulation setting the radiation standard?

Answer. The license application will be delayed further.

Question. Are you aware of any discussions within the administration to ensure a radiation standard is in place in order to support DOE's license application to the NRC?

Answer. It is my understanding that the administration is fully committed to the issuance of a revised EPA standard as soon as practicable.

LICENSE SUPPORT NETWORK

Question. The NRC has indicated they will not docket a license application until 6 months after certification of the License Support Network, a web-based data collection of all relevant documents for the application. What is the status of your work to address the shortcomings NRC identified in your earlier license support network submission?

Answer. Since the NRC ruling, the Department has focused on three key activities—processing legacy e-mails, identifying additional documents that may be relevant to the licensing proceedings, and reviewing relevant documents for privileges. The Department has made substantial progress in its efforts to complete the work necessary for certification of the Licensing Support Network.

Question. When do you anticipate it will be certified?

Answer. The Department's objective is to be prepared to certify its document collection by this summer.

Question. Are you confident that you can meet this target?

Answer. The certification process has proven more time-consuming than originally envisioned. We are working diligently toward our goal of certifying this summer.

LICENSE APPLICATION

Question. The Department now plans to submit a license application to NRC late in 2005 for the construction of the repository, a year later than the schedule you provided to us by DOE last year. What specific activities will you be undertaking this year on the license application at DOE headquarters and will these activities facilitate an expeditious review of the application by NRC?

Answer. We are making improvements to the analysis and presentation of information in the draft license application to meet our objective of completing preparation of a high quality license application. These improvements to the document will facilitate the NRC's review by making our analyses more robust and straightforward. We also continue to interact with NRC staff in meetings open to the public in the form of technical exchanges and management meetings to inform the NRC on the status of our technical activities and our plans.

Question. What milestones are scheduled to complete overall for the project this year?

Answer. Our foremost milestone is to complete the license application by December of this year and have it ready to submit to the NRC.

TRANSPORTATION

Question. The increase in the request over fiscal year 2005 appropriations is primarily focused in the transportation arena, an aspect of the program that has been repeatedly deferred when appropriations were reduced from budget requests. Please provide a description of the specific transportation activities included in the budget request.

Answer. We have requested funding appropriate for the activities we can reasonably accomplish in fiscal year 2006. Within the request of $651 million, funding is provided for transportation infrastructure development activities, including design and long-lead procurement for the Nevada rail line; design, certification and procurement of transportation casks and rolling stock; completion of the rail alignment final Environmental Impact Statement (EIS); issuance of a record of decision; and expansion of institutional outreach.

Question. If funding is not provided for these activities, would this impact initial operation of the repository?

Answer. As waste acceptance at the repository depends on our ability to transport it there safely and securely, full funding of our transportation activities is critical.

Not funding these activities would adversely impact the initial operation of the repository.

Question. What transportation related challenges still face this project?

Answer. The following challenges still face the project: (1) An EIS on rail alignment has to be completed, and a final alignment selected. (2) The selected alignment needs protection through establishment of a permanent withdrawal or establishment of a right-of-way. (3) New cask designs and certificates of compliance from the Nuclear Regulatory Commission are needed to ship the majority of the contents destined for disposal at the repository. (4) Rail cars have to be designed and tested to meet new railroad standards for shipment of spent nuclear fuel. In addition, the Department is actively working with stakeholders to develop transportation routes and to establish the process for funding emergency preparedness training.

None of these challenges is dependent on new technology, but they all require funding to be completed successfully. Additionally, the State of Nevada's legal case challenging the transportation mode and rail corridor records of decision or any additional lawsuits could cause delays.

Question. What opportunities could the State of Nevada interfere with various permits or rights of way that may delay the Yucca Project even further?

Answer. DOE will need several permits from the State of Nevada under the Clean Air Act and the Clean Water Act. DOE also will need land use permits, approval of road construction projects, and appropriation of water for use at the project. We are hopeful that the State will proceed in a fair and expeditious manner to grant the required permits, although the State Engineer has already denied the project's water use permit. This denial is in litigation.

TECHNICAL CHALLENGES

Question. The budget justification for Yucca Mountain and supporting documentation identified a number of regulatory and legal risks that may further jeopardize the timely completion of the Yucca Mountain project, but there was no mention of any technical risks. Are you aware of any technical, geologic or other scientific reasons that might prevent the placement of spent nuclear fuel or high level waste at Yucca Mountain?

Answer. No. We have confidence that we have addressed the technical, geological, and other scientific matters that are relevant to the placement of spent fuel and high-level radioactive waste at Yucca Mountain. The NRC will ultimately decide through the licensing process, with full public participation, whether our efforts are sufficient to justify issuance of a license to construct and operate a repository at Yucca Mountain.

FEES PAID FOR YUCCA MOUNTAIN

Question. The Department has not provided a Total Systems Life Cycle Cost Analysis for the program since May 2001. This analysis is required to determine the adequacy of the fees paid into the Nuclear Waste Fund and the appropriate mix of civilian and defense funding sources. Is the Department currently conducting an updated Total System Life Cycle Cost Analysis, and if not why not?

Answer. Although a complete program analysis has not been conducted since 2001, the Department has updated portions of the life cycle cost estimate to support planning and budget developments. We expect to undertake a comprehensive, bottom-up cost analysis following submission of the license application to the NRC. Additionally, in accordance with the Nuclear Waste Policy Act, the Department annually assesses the adequacy of the fee under a variety of economic, cost-sharing, and life cycle costs scenarios.

Question. The budget proposed that the fees should be tied to the annual appropriation to ensure that the fees paid by ratepayers not exceed what has been appropriated. Will the administration propose legislation to enact this change? What impact will this have on the budget?

Answer. The administration supports legislation to enact the 2005 Budget proposal to reclassify receipts as discretionary offsetting collections. Although Congress did not adopt that language last year, the administration remains interested in pursuing such a proposal and intends to have further discussions with the Congress on these issues in the hope of reaching some agreement on reclassifying receipts in a budget-neutral manner.

QUESTIONS SUBMITTED BY SENATOR PATTY MURRAY

OFFICE OF ENVIRONMENTAL MANAGEMENT

HANFORD CLEANUP CUTS

Question. Mr. Golan, it appears Hanford makes up over 50 percent of the cut facing the entire Environmental Management program. Hanford's proposed cut is around 13 percent while the proposed cuts for other large, ongoing DOE cleanup projects range from 1 percent to 6 percent. Based on these numbers, it appears that Hanford is taking a disproportionate share of these cuts in the DOE cleanup budget request. Why does Hanford take this large budget reduction when it is the most contaminated site in DOE's complex, and why is Hanford's cut so large in comparison to these other sites?

Answer. The fiscal year 2006 budget supports the Department's needs in meeting its commitments at Hanford. In fiscal year 2006, the Department is requesting more than $1.8 billion for cleanup work at Hanford, a figure representing over 27 percent of the entire EM budget and 20 percent more than the fiscal year 2001 funding.

For the past few years, the administration has requested and received funding increases to address its urgent risks sooner and to accelerate cleanup. We committed that if we could eliminate those urgent risks, then starting in fiscal year 2006, we would request a declining level of funding to complete our work. The fiscal year 2006 budget represents the next stage in our strategy.

Hanford's fiscal year 2006 budget request accounts for this completion of work, and is commensurate with seismic, legal, and programmatic uncertainties. Examples of major risk reduction at Hanford include completion of removal of spent nuclear fuel from the K-Basins, completion of nuclear material and residue stabilization project, and removal of all pumpable liquids from older-style single shell tanks.

The budget request for Waste Treatment Plant (WTP) construction is $59 million less than the fiscal year 2005 comparable appropriations due to recently discovered seismic uncertainties. A detailed analysis of the impacts associated with the change in seismic criteria is underway. The analysis will allow DOE to decide how to proceed with the completion of the WTP. There are also several legal uncertainties which impact the Department's ability to close waste tanks. The associated fiscal year 2006 request to account for these uncertainties is $70 million less than the fiscal year 2005 comparable appropriations budget. There are uncertainties associated with retrieval and disposal of tank waste that the Department believes may be transuranic waste. These uncertainties account for a fiscal year 2006 request that is $20 million less than the fiscal year 2005 comparable appropriations budget.

Question. Mr. Golan, the Department of Energy seems to contend this budget cut will not result in missing legally enforceable cleanup milestones in fiscal year 2006 and beyond. How is it that these cuts will not delay cleanup completion and increase life cycle costs?

Answer. This budget supports the Department's needs in fiscal year 2006 for implementing the accelerated risk reduction and cleanup completion at our sites and meeting enforceable milestones. As noted in our budget justifications, fiscal year 2006 represents the first year of a declining budget request from our "peak year" of fiscal year 2005, an expected outcome brought about by accelerating risk reduction and cleanup completion. For the past few years, the administration has requested and received more funding for the Environmental Management program to accelerate cleanup and reduce risk. The strategy was to invest these additional resources to accelerate cleanup and complete work sooner, reform the acquisition strategy to compete more work and place incentives on cleanup completion, and work with regulators to develop more effective cleanup approaches, resulting in cost savings in the longer term. This is being accomplished at Hanford and regulatory milestones are expected to be met with this budget request. However, the Hanford cleanup program has significant technical and legal/regulatory challenges that are resulting in uncertainties. Thus, in fiscal year 2006, some projects will be slowed due to such uncertainties, and our budget reflects them accordingly. Our Hanford staff is continuously reviewing its strategies and technologies for optimization, such as tank retrieval and waste loading at the Waste Treatment Plant. Because of these efforts, it is premature to assume there will be a delay or cost increase.

HANFORD WORKFORCE REDUCTIONS

Question. Mr. Golan, as I'm sure you'll acknowledge, the reduction in funding being proposed by the administration for Hanford will mean significant workforce reductions there. I understand the estimate is that the proposed cuts will mean layoffs of between 1,500 and 2,000 workers across the site. That means the layoff proc-

ess will have to begin in August and September in order not to further magnify the impacts in fiscal year 2006. Is this correct?

Answer. Workforce reductions are always a possibility at Hanford as projects are completed and the skills mix for the remaining work scope is reprioritized. DOE and its contractors continue to identify and manage work scope, schedule, and cost.

DOE has currently approved workforce reductions for Fluor Hanford, Inc., (FHI) for up to 1,000 contractor employees, with 600 employees to be separated by September 30, 2005. The remaining 400 employees are planned to be separated no later than September 30, 2006.

Additionally in fiscal year 2005, DOE approved a previous workforce reduction request from FHI which resulted in a reduction of 154 contractor employees. The 154 reductions consisted of 148 FHI employees who were separated by April 29, 2005, and six Bechtel Hanford, Inc., employees who were separated by June 3, 2005.

These reductions are attributable to planned clean up progress and reprioritization of fiscal year 2006 work scope and the projected skills mix needs for the balance of the contract.

HANFORD TANKS WASTE TREATMENT

Question. Mr. Golan, all of us in the Pacific Northwest delegation applauded your efforts to complete the removal of the liquids from the single shell tanks, but there are still millions of gallons of sludge and solids that must be removed. Now we're looking at delays in completion of the waste treatment plant, which means that if you stay on schedule for tank farm retrieval operations, the existing double-shell tanks are going to fill up long before you have the treatment plant in operation. Do you still plan to meet your commitment to empty the single shell tanks by 2018? And if so, aren't you going to have to build more double-shell tanks to receive the remaining wastes?

Answer. We continue to take the steps that are necessary and prudent to meet our Tri-Party Agreement (TPA) commitments, including emptying the single-shell tanks by 2018. In the Hanford Performance Management Plan (August 2002), DOE's analyses indicated that in order to meet the TPA requirement to complete tank waste treatment by 2028, several changes in our approaches were required to enable waste to be retrieved and treated sooner. One of the recommended changes is to evaluate the use of supplemental treatment techniques for low-activity waste (LAW).

Bulk vitrification (BV) is one of the candidate technologies under evaluation for the immobilization of LAW from the Hanford tanks. The Washington Department of Ecology (Ecology) recently issued a Research, Development, and Demonstration permit that enables DOE to test the BV technology on approximately 200,000 gallons of low-activity tank waste. If the BV technology performs as anticipated based upon laboratory, engineering scale, and full-scale tests with surrogate materials, it would provide a means to more rapidly treat LAW, which makes up approximately 90 percent of the single-shell tank waste volume.

Some of the LAW requires less pretreatment than the WTP is designed to provide. This waste could, therefore, proceed through other treatment processes, such as BV, which have minimal need for double-shell tank space. We do not plan to build any additional double-shell tanks to facilitate single-shell tank retrievals. Whereas new double-shell tanks may offer some advantages relative to facilitating certain retrieval actions, those benefits are more than offset by the additional contaminated underground tanks that would be created, all of which would need to be cleaned and closed at some future date.

HANFORD WORKER HEALTH AND SAFETY ISSUES

Question. Mr. Golan, there are many significant worker health and safety issues with Hanford cleanup. I know that Secretary Bodman has said that safety is his No. 1 priority. What procedures are you putting in place to assure that the Department continues to improve its health and safety protection for workers at sites such as Hanford?

Answer. As you have mentioned, safety is the Secretary's No. 1 priority. Safe working conditions and processes are an essential precursor to and an indicator of performing quality work.

We have established an organizational goal of zero injuries and zero accidents. To reach this goal, we have done the following.

—Weekly and individual calls with the field managers, EM management staff meetings and other interactions with direct reports at Headquarters, and quarterly project reviews with each site that focus on safety and safety management.

—We have incorporated safety performance as the highest weighted standard in the field managers' performance objectives. This includes a commitment that the field managers and their direct reports overseeing operations and cleanup are in the field, in personal protective equipment where needed, at least 200 hours a year observing first hand work activities with an emphasis on operational safety.

—We have also directed the use of contracts to define and communicate worker safety and health expectations, and on multiple occasions have used the contract clauses to hold contractors accountable for less than adequate safety performance.

—We have significantly upgraded accident and injury reporting by requiring all contractors, subcontractors, and vendors, regardless of size, to report their illness and injury statistics to DOE. With these data, we can analyze trends and share lessons learned, which we do on nearly a daily basis among the sites.

—We are improving Federal oversight by ensuring we have the Federal staff with the right training and qualifications, positioned in the right place at the right time. We have made more resources available for training to qualify our managers and safety professionals who are in the field where the work is being performed.

—We are instilling the expectation that any worker can question the work activities and has the authority to stop that work if he or she believes safety is compromised. By empowering the worker with the ability to stop work, we are better able to address errors before accidents happen.

The emphasis we have placed on responsibility, accountability, oversight, and technical competence flowing down through the DOE manager to the contractors and subcontractors management and most importantly to the workers, is the right course of action to improve the Department's health and safety record.

EM PROCUREMENT DECISIONS

Question. Mr. Golan, many EM procurement decisions are being challenged and some have been overturned. What actions are you taking to improve the quality, fairness, timeliness, and success of the EM procurement process, specifically for River Corridor and FFTF, which have been delayed for many months?

Answer. The Secretary has ordered a review of the procurement process. This review is currently being conducted. We would be happy to meet with you after the review is completed and the Secretary has made his determination.

HANFORD WASTE TREATMENT PLANT

Question. Mr. Golan, DOE has made a major commitment to the Hanford Waste Treatment Plant to separate and vitrify tank waste. The Defense Nuclear Facilities Safety Board and others have raised serious questions about the safety of the design and prospect for cost increases and schedule slippage. Given the supreme importance of this project to the future of Hanford cleanup, what do you propose to ensure that this facility stays on track? Should there be an independent review by nationally recognized technical experts to advise DOE on how to address these issues and minimize the impacts to cost and schedule?

Answer. A detailed analysis of the impacts associated with the change in seismic design criteria is underway. The analysis will allow DOE to decide how to proceed with the completion of the WTP. To provide an independent view, EM has brought in a number of outside experts on seismic issues and their effect on facility design and construction, including the U.S. Army Corps of Engineers and the Pacific Northwest National Laboratory.

VOLPENTEST HAZARDOUS MATERIALS MANAGEMENT AND EMERGENCY RESPONSE TRAINING CENTER (HAMMER) FACILITY

Question. Mr. Golan, the Volpentest HAMMER Training and Education Center at Hanford was built by DOE to ensure the health and safety of Hanford cleanup workers and emergency responders. HAMMER's unique hands-on "Training as Real as It Gets" is essential to the safe, cost-effective, and successful completion of Hanford cleanup. Further, as the cleanup workforce decreases, more of HAMMER's capabilities will become available for other DOE missions, such as energy assurance and hydrogen safety, and for training law enforcement, security, emergency response, and other homeland security-related personnel. Yet, funds were eliminated again from the budget for HAMMER.

After being proposed by DOE and authorized by Congress, for the past several years DOE has failed to request the funding needed to operate HAMMER. Why do

you force Congress year after year to direct you to fund this facility that is essential to achieving your mission of safe accelerated cleanup at Hanford?

Answer. The Volpentest Hazardous Materials Management and Emergency Response Training Center (HAMMER) facility continues to play an important role in Hanford cleanup, training our workers to safely perform their roles in their cleanup activities. We continue to include the costs for HAMMER in our baseline Hanford budget, distributing the costs to each of the EM programs that use the HAMMER facility for their workers. HAMMER was established to ultimately be self-sustaining. Thus, as EM cleanup is accomplished and the workforce decreases, the non-Hanford work at HAMMER should grow. This will allow HAMMER to continue to provide its unique facilities to other national priorities, such as energy assurance, hydrogen safety, emergency response, and other homeland security-related training.

Question. Mr. Golan, what are you going to do to ensure that DOE continues to fully utilize HAMMER to protect the safety and health of Hanford cleanup workers? Will you support the development of new DOE training missions at HAMMER? Will you actively work with the Department of Homeland Security and other agencies to develop, expand, and support other training missions at HAMMER?

Answer. DOE continues to use the Volpentest Hazardous Materials Management and Emergency Response Training Center (HAMMER) to provide hands-on safety training for workers involved in the Hanford cleanup mission and considers HAMMER's role in Hanford's safe operation to be vital.

The HAMMER facility remains available for use by other DOE entities and other agencies on a full cost recovery basis. By covering the costs of maintaining HAMMER, EM is, in fact, making excess capacity at HAMMER available for use by others. HAMMER was established to ultimately be self-sustaining. We continue to encourage the development of new missions at HAMMER to offset the impacts of a declining EM workforce in the future. EM will cooperate with the Department of Homeland Security (DHS) to develop a strategy and a cooperative agreement to ensure that HAMMER remains available to meet their growing training needs. We want to ensure that HAMMER, as a national asset, continues to serve this country's needs now and in the future, beyond the cleanup mission.

HAMMER is already involved in the training of fire, law enforcement, Customs and Border Protection, security, emergency medical, and other emergency response personnel for a wide-spectrum of regional and Federal agencies on a full cost recovery basis. A strong partnership has been forged between HAMMER and the Pacific Northwest National Laboratory to use HAMMER as a test bed to deploy new field technologies for homeland security personnel. Sharing HAMMER with DHS would maximize the investment of Federal funds spent so far to build and develop HAMMER.

EM CONTRACTOR WORKFORCE

Question. Mr. Golan, what has DOE done to ensure that all cleanup work scheduled for the current fiscal year (fiscal year 2005) is not impacted by the costs associated with funding reductions and layoffs for fiscal year 2006?

Answer. The Office of Environmental Management (EM) uses a combination of contractor workforce restructuring strategies that most effectively accomplish a site's mission objectives. The primary objective is to retain employees with the skills, knowledge and abilities necessary to effectively and safely meet assigned and future missions. Restructuring strategies are closely integrated with planning based on identified work requirements. Both short-term requirements for immediate tasks, as well as long-term requirements for skills based on missions identified in the sites' strategic plans are considered. Improvements in organization and operations efficiency are also considered, including changes in internal organizational structure and contracting mechanisms, as well as contractual provisions, collective-bargaining agreements, and other legal obligations.

Cleanup work for fiscal year 2005 is being completed as scheduled. Timing of workforce reductions is driven primarily by the completion of work consistent with the pace of the program's cleanup progress. The fiscal year 2006 budget request reflects the fact that cleanup is progressing as projects are completed. Contractors continue to identify and manage work scope, schedule, and cost, and plan their workforce needs accordingly with anticipated funding. Additional workforce reductions may occur throughout fiscal year 2005, regardless of the fiscal year 2006 budget. As these additional reductions become necessary, timely congressional notification will be provided.

ADEQUATE FUNDING FOR YUCCA MOUNTAIN

Senator DOMENICI. Let me just ask, did you say in your testimony that the amount requested by the administration, that it is your position that that is satisfactory for this year?

Mr. GARRISH. Six hundred fifty-one million dollars is satisfactory to complete the activities that we can reasonably accomplish in fiscal year 2006.

Senator DOMENICI. Okay. Since we are discussing such large amounts of money for the clean-up of the sites, I just want for the record to make a statement that I think perhaps in a couple years people will understand what this means, but we've been spending billions and billions of dollars in clean-up and all of that's been done on the basis that the current standard for impact on human health from low-level radiation exposure is accurate. And it's a very old standard and it's linear in nature, and I'm just going to state in the record, wouldn't we be shocked to learn maybe 10 years from now that that standard is wrong and has been wrong all along, and that that dosage is far too low in terms of the relationship to human safety. Incidentally, there is a major study going on right now, it's in its fifth year, by the National Academy and great scientists who are looking at that.

SUBCOMMITTEE RECESS

I am convinced, and I just want to state this in the record, that they will conclude that it is not right, and that will say that—will indicate that over the years perhaps we have spent untold amounts of money trying to save ourselves from something that wasn't harmful to begin with. That doesn't—you can't do anything about that. You've got to keep on doing that.

Having said that, we are recessed.

[Whereupon, at 10:33 a.m., Thursday, March 10, the hearing was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER, AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 2006

TUESDAY, MARCH 15, 2005

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

The subcommittee met at 2:21 p.m., in room SD–124, Dirksen Senate Office Building, Hon. Pete V. Domenici (chairman) presiding.

Present: Senators Domenici, Craig, Allard and Dorgan.

DEPARTMENT OF ENERGY

OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY

STATEMENT OF DAVID GARMAN, ASSISTANT SECRETARY

OPENING STATEMENT OF SENATOR PETE V. DOMENICI

Senator DOMENICI. The hearing will please come to order.

We have checked, and the minority has suggested that we proceed, even though they're not in attendance, because they won't be able to be here for awhile, and we have to get a few things on the record. So if there are questions, we will give them plenty of opportunity to present them, and if you would answer them in due course we would appreciate it.

So, today we are going to hear from the Office of Science, the Office of Nuclear Energy, and the Office of Energy Efficiency and Renewable Energy.

Since the Senate Appropriations Committee reorganized 2 weeks ago, this is the first opportunity for this subcommittee to hold hearings on several DOE activities that had previously been under the jurisdiction of the Interior Subcommittee. Overall, this subcommittee will add to its jurisdiction roughly $1.6 billion in new programs, and various functions from the Interior Subcommittee.

Today we have three witnesses; Dr. Ray Orbach, Director of the Office of Science; David Garman, Assistant Secretary for the Office of Energy Efficiency and Renewable Energy; Mr. William Magwood, Director of the Office of Nuclear Energy.

Mr. Garman, the President has nominated you to serve as the Under Secretary. During the last Congress, you served in this same position and did a fine job. I hope that we're going to be able to work out things where we can proceed with your confirmation quickly.

Mr. GARMAN. Thank you, Mr. Chairman.

Senator DOMENICI. The President made deficit reductions a top priority in his budget; as a result, things are very tight. The budget for the Department of Energy proposes a $23.4 billion, which overall is a 2 percent reduction from the current year. The Office of Science budget provides for $3.46 billion, and it's down about 3.8 percent.

Despite these tight budgets, Dr. Orbach and his team have put together a program that supports cutting-edge research and funds for world-class research facilities, at least as we see it. We'll be talking about that briefly today. Completes the construction of a Spallation Neutron Source at Oak Ridge, a marvelous new facility which I think will make that national laboratory a very significant laboratory for years to come.

The DOE will also complete construction of four of the five nanotechnology centers, another very exciting activity. We read a lot about it, not very often do they mention the DOE is out front, on the cutting edge of that.

In Biology and Environmental Research programs, funding for the Genomes to Life program, the human genome and the low dose radiation study are all continued at current levels.

One area which we believe the budget comes up short is in the area of fusion energy research. The budget shifts funding from the United States research to the international thermonuclear experimental reactor, despite the fact that there is no agreement on the site of that facility as we speak here today. If we're to remain at the cutting edge of fusion research, it would seem to me, unless we can be convinced to the contrary, that we can't undermine our scientific excellence by under-funding our own capability. Now, maybe we can be convinced that we're not under-funding to that extent, but it would appear so, just looking at the numbers and activities.

OFFICE OF NUCLEAR ENERGY

The Office of Nuclear Energy—which concerns all of us—last year Congress increased the funding for the Office of Nuclear Energy and R&D by $100 million. In the fiscal year 2006, this account is up an additional 12 percent. This budget provides $56 million to support the Nuclear Power (NP) 2010 program, and that provides matching funds for early-site permitting, and shares the cost associated with the first of the kind engineering of a new plant. To date, three utilities have now applied for early-site permits—rather exciting news—three more in the exploration phase. Two consortia have applied for DOE funding, to support construction and operating licenses for new plants before the Nuclear Regulatory Commission.

While I am pleased with the utility interest, and will be having further meetings with others who will be financing nuclear power plants in the future—so we'll get a full picture of the enthusiasm, or lack of it, whichever the case may be—since Congress last passed the budget in November, DOE designated two groups go forward. Four months later, the Office of Nuclear Energy has yet to send out a single dollar in that regard. So, I'm concerned with the administration's commitment to supporting long-term research in

the next generation of reactors. We would expect some comment on that today.

The budget fails to mention what has become of the $25 million earmarked in the 2005 Energy Conference Report for the deployment of the next generation of nuclear plants at Idaho National Laboratory. I intend to work with the Secretary and certainly with Senator Craig to develop a path to ensure that the Idaho National Lab will develop the next generation nuclear plant. We designated that laboratory to do that, and we're really wondering what happened—I assume something has happened—but we want to make sure that the resources are there to continue with it.

We all know that we're going to continue to support new reactors that are more efficient, produce less waste, and support the President's Hydrogen Initiative. On the Office of Energy Efficiency and Renewables, this budget provides $1.2 billion for that function, and that's a 4 percent reduction. We'd like to know what you think that's going to do, I would assume that you're moving things around, and assume that the major activities won't be harmed significantly.

The budget for the Hydrogen Initiative for the present is a big winner, and well it should be. While it's way out in the future—or out in the future—it clearly is one of the bright spots, it's where we might go with a new kind of transportation, an engine that will move our transportation. In addition, that budget provides a $359.9—almost $600 million—for hydrogen research, that's a $34 million increase, and a $100 million from 2004, so that's pretty good.

Biomass, it won't get as much money as before, we'll have somebody talk about that. There's a reduction of 37 percent. Solar energy research is down about 2 percent, funding for research is up on wind energy, significantly.

Finally, the administration has proposed ending the hydropower R&D effort, and requested only nominal funding to close out this office. I'm sure some Senators will be interested in that, we'll see what they have to say. Perhaps Senator Craig will be one, I don't know.

As I noted earlier, there's a significant number of functions and activities now under this jurisdiction of our subcommittee. We'll be learning of these new accounts, hopefully finding some savings through efficiencies that can be applied toward additional scientific research, which is what we want to try to stress.

Now, Senator Reid is not here, but I note that—I assume he's not going to be here, Senator Reid, is that correct? Okay, so we'll put Senator Reid's statement in the record, whenever he wants to put it in, and with that, Senator Craig, if you have some comments, and Senator Dorgan, if you do, then we'll proceed to our witnesses. Senator Craig.

STATEMENT OF SENATOR LARRY CRAIG

Senator CRAIG. Mr. Chairman, I'll be very brief. You've outlined the essence of the President's budget, and in many ways it points to energy's future, it's a budget that's gone wanting for more resource. I say that, gentlemen, because I know you spend a good deal of time out traveling and speaking—as do many of us—and in

every audience, the question is always asked, "What are you going to do about our national energy policy? What are you going to do about the future of energy for our country?" Because most Americans believe it has been a failure of Congress and administrations to produce a national energy policy. We're doing that. The chairman is working overtime at this moment to assure that by the close of this year, we're going to have a national energy policy in place, and this administration and this President have worked very hard to promote that.

But, I must tell you, this budget is not reflective of as much of that as we would like to see, without question. Because the kind of money that the Federal Government spends as the R&D and future type of research that builds that long-term energy base, so we'll work closely with you as we deal with this budget, it is a tight budget year, and all of us can afford, and will do, some belt tightening. But I hope that in the budget we can establish the priorities that really are futuristic in their vision as it relates to need, and certainly as it relates to what's going on in this country. I just can't imagine that the Congress and this administration will sit idly by, and allow our energy future to continue to erode. Certainly that's not where we're all intending to go, and where we're all intending to be at the close of business on this issue, and I hope that we can work with you to make sure that the budgets also reflect that. Thank you, Mr. Chairman.

Senator DOMENICI. Thank you very much. Senator Dorgan.

STATEMENT OF SENATOR BYRON L. DORGAN

Senator DORGAN. Mr. Chairman, thank you very much. I'm unable to stay for the entire hearing, but I did want to be able to comment, say just a word at the start. I share many of the comments made by my colleague from Idaho, and you, Mr. Chairman.

We are just one terrorist event away from a catastrophe with respect to energy. Sixty percent of our oil comes from off our shores, and our economy is vulnerable as a result. I really think that we need to move towards a hydrogen fuel cell economy. I know that the chairman also has an interest in that and other members of the Energy Committee on which we serve. I think to do that you need to be bold and aggressive, and need almost a Manhattan or an Apollo-type project to get there. I really hope that we will be able to have some discussion about that once again this year. I think in the near term, we need to expand the role that renewables play with respect to our energy supply. Mr. Garman, I know that you've been to some events that I've held, and others have held on renewables, and you understand that.

I might make just one other comment: probably one of the cheapest ways to acquire a barrel of oil is to save a barrel of oil through increased efficiency. The saving of energy is critically important. I'm involved—along with some of my colleagues here in Congress—in something called the Alliance to Save Energy. It has done a lot of important work, including the development of the Energy Star Awards with the Department of Energy.

And so, I think those three areas are critically important: a bold hydrogen fuel cell initiative which moves us towards a different kind of energy construct; the use of more renewables, including re-

newable portfolio standards; and then focusing on efficiency. And I have great hope as we—in another committee—put together an energy bill. I have great hope that we will be able to construct an energy bill this year that really moves aggressively down the road in all three of those areas, and I hope also that we're able to find ways—as my colleague Senator Craig just said—to fund, aggressively, these areas in the appropriations process. Mr. Chairman, thank you for your patience.

STATEMENT OF DAVID GARMAN

Senator DOMENICI. Let's proceed. As I understand it, it is common that you will proceed first, Dr. Orbach, then Mr. Magwood. So, if you please be as brief as you can, your statement will be made a part of the record, so will yours, and Mr. Magwood, so will yours at this point. Please proceed.

Mr. GARMAN. I will briefly summarize, Mr. Chairman.

As you mentioned, the President's budget includes $1.2 billion for the Office of Energy Efficiency and Renewable Energy, and I'll briefly outline our priorities for the use of those funds.

REDUCE DEPENDENCE ON FOREIGN OIL

First, our top priority is to reduce America's dependence on foreign petroleum. And since the majority of the oil that we use is used to fuel transportation, we're seeking increases in both our vehicle technologies program, and our hydrogen and fuel cell program, proposing to spend nearly $349 million in these areas. Our work, conducted in partnership with auto makers and energy providers, among others, includes research and development on gasoline-electric hybrid propulsion, new generations of spark and compression ignition internal combustion engines, vehicle systems, lightweight materials, and of course, hydrogen fuel cells, and elements of the hydrogen re-fueling structure to support them.

WEATHERIZATION PROGRAM

Our next priority—and this is a new area under this subcommittee—is to reduce the burden of energy prices on the disadvantaged. To this end, we're proposing $230 million for the low income Weatherization Program, an increase over last year's appropriated levels.

RENEWABLE ENERGY

Another priority of our office is to increase the viability and deployment of renewable energy technologies. To this end, we're seeking approximately $260 million. This funding includes our work on solar, wind, biomass, geothermal, hydropower and the facilities and activities needed to support these programs.

BUILDINGS AND APPLIANCES

Our next priority is to increase the energy efficiency of buildings and appliances. To this end, we're seeking more than $75 million for our Building Technologies Program, ENERGY STAR®, Rebuild America, and building code training and assistance activities.

BIOMASS

Our fifth priority is the creation of the domestic bio-industry. In pursuit of this priority, we are seeking over $72 million for our Biomass Technologies Program. Our work in this area includes lowering the cost of sugars derived from discarded or under-utilized cellulosic materials, from which ethanol and other chemicals and products can be made.

DISTRIBUTED POWER GENERATION

Our sixth priority is to increase the efficiency and performance of distributed power generation, which can enhance the reliability of the entire electricity grid. We propose to spend $57 million on our distributed energy program, which includes work on reciprocating engines, microturbines, thermally activated technologies, and the packaging and integration of these technologies into compact, affordable systems.

INDUSTRIAL TECHNOLOGIES

Our seventh priority is to increase the energy efficiency of industry, and to that end we're seeking $56.5 million for our industrial technologies program. Technologies we're working on in that area are as varied as continuous melt electric arch furnaces, coke-less iron making, and high pressure super boilers. We're also making efforts to communicate best energy efficiency practices among a wide spectrum of industrial partners.

FEDERAL ENERGY MANAGEMENT

Our eighth priority is to assist the largest single user of energy in the United States' economy—the U.S. Federal Government—to lead by example in using energy more efficiently, and procuring more energy from renewable resources. In pursuit of this goal, we operate the Federal Energy Management Program, with over $19 million of funding for those activities.

PREPARED STATEMENT

Mr. Chairman, this is an extremely diverse portfolio of different activities that's sometimes challenging to manage, and that's why our ninth priority has been to change and continuously improve the way that we do business. While we have made a great deal of progress, there's still much we can do to improve our performance. We appreciate the efforts of the subcommittee in working with us to ensure that we continue that improvement through stronger planning and program management efforts. With that, Mr. Chairman, I'd be pleased to take any questions you have, either today or in the future. Thank you.

[The statement follows:]

PREPARED STATEMENT OF DAVID GARMAN

Mr. Chairman and members of the subcommittee, I appreciate the opportunity to testify on the President's Fiscal Year 2006 Budget Request for the Office of Energy Efficiency and Renewable Energy (EERE). My focus today will be on the energy conservation, renewable energy, and hydrogen activities under the purview of this subcommittee.

The President's Fiscal Year 2006 Budget includes $1.2 billion for EERE. In his February 2 State of the Union Address, the President underscored the need to restrain spending in order to sustain our economic prosperity. As part of this restraint, it is important that total discretionary and non-security spending be held to levels proposed in the Fiscal Year 2006 Budget. The budget savings and reforms in the budget are important components of achieving the President's goal of cutting the budget deficit in half by 2009 and we urge the Congress to support these reforms. The Fiscal Year 2006 Budget includes more than 150 reductions, reforms, and terminations in non-defense discretionary programs, of which one affects EERE's programs. The Department wants to work with the Congress to achieve these savings.

The programs funded by this appropriation continue support for certain Presidential initiatives; build on research, development, and deployment successes already achieved; and focus on implementing results-oriented business practices to help achieve strategic energy goals and fulfill the Department's mission.

EERE has made good on its strategic goal of "changing the way it does business." Last fall, the National Academy of Public Administration (NAPA) completed an 18-month review of EERE's reorganized structure and noted in its final report, Reorganizing for Results, that "the basic construct of the reorganization—eliminating the sector organizations and restructuring around the major programs, and consolidating the business administration functions—was sound," and that "EERE has made great strides to reinvent how it does business." Our innovative business and management model is enabling EERE to fund the right mix of research and development (R&D) and to get more technical work done effectively with the R&D dollars appropriated. EERE is also guided by the research and development investment criteria (RDIC) called for in the President's Management Agenda, as well as the Office of Management and Budget's (OMB) Program Assessment Rating Tool (PART) to guide its decisions and focus its R&D on long-term, high-payoff activities that require Federal involvement to be successful.

A primary long-term goal for our Nation must be to significantly reduce our dependence on foreign oil, and to develop the technologies that enable Americans to make greater use of our abundant, clean, domestic renewable energy resources. EERE's fiscal year 2006 request continues support for the President's Hydrogen Fuel Initiative to ensure that hydrogen production, storage, and infrastructure technologies will be available and affordable when hydrogen-powered fuel cell vehicles are ready for commercialization. EERE also continues support for its FreedomCAR program (where CAR stands for Cooperative Automotive Research), working with industry to improve the efficiency and lower the cost of advanced combustion engines and hybrid vehicle technologies. In addition, EERE will pursue critical technical improvements to biorefineries and the processes that use biomass, the only renewable resource that can directly produce liquid transportation fuels such as ethanol.

But long-term results are only part of the story for EERE's programs. The Fiscal Year 2006 Budget Request is designed to provide results to the American people today by advancing technologies that are making their way into energy-related products and services that are an integral part of America's energy economy. Since 2001, research sponsored by EERE has won 37 R&D 100 awards, ten in 2004 alone. One technology winner this year is the world's first portable, flexible photovoltaic (PV) power module made from thin-film copper indium gallium selenide (CIGS). The U.S. Army is already using these lightweight PV systems that can be folded as small as a 9×12 envelope, stowed in a small backpack, and easily carried over long distances to supply efficient and reliable power.

Targeting all sectors of energy use, EERE's fiscal year 2006 activities are designed to make a difference in the everyday lives of Americans today, and an even greater difference in years to come.

ENERGY CONSERVATION AND RENEWABLE ENERGY PROGRAMS FISCAL YEAR 2006 REQUEST

EERE programs funded by the Energy and Water Development appropriation include Hydrogen and Fuel Cell Technologies, Vehicle Technologies, Solar Energy Technologies, Wind and Hydropower Technologies, Geothermal Technologies, Biomass and Biorefinery Systems, Weatherization and Intergovernmental, Distributed Energy Resources, Building Technologies, Industrial Technologies, Federal Energy Management, and Program Management and Direction.

HYDROGEN AND FUEL CELL TECHNOLOGIES

The Fiscal Year 2006 Budget Request for Hydrogen and Fuel Cell Technologies totals $182.7 million: $99.1 million for hydrogen activities, a $5.1 million increase over the fiscal year 2005 comparable appropriation, and $83.6 million for fuel cell activities, an $8.7 million increase. Hydrogen and fuel cell technologies are the foundation of the President's Hydrogen Fuel Initiative and help support the Department's FreedomCAR program. Under the FreedomCAR and Fuel Partnership, government and industry are working together on research activities to overcome key technical barriers to commercialization of advanced efficient vehicles, and to facilitate a fuel cell hybrid vehicle and hydrogen infrastructure commercialization decision by industry in the year 2015. Because hydrogen fuel cell vehicles emit no criteria pollutants or carbon dioxide, their development and commercial success would essentially remove light-duty transportation as an environmental issue. The hydrogen will be produced from diverse domestic resources, making our Nation self-reliant for our personal transportation energy needs.

Much of the proposed increase in Hydrogen Technology is to accelerate and expand research and development of advanced technologies for producing hydrogen using renewable feedstocks such as biomass and renewable energy sources such as wind and solar. The program is also developing technologies for distributed hydrogen production from reforming of natural gas and from electrolysis. Other priorities include development of on-board vehicular hydrogen storage systems to achieve a driving range of greater than 300 miles and development of hydrogen delivery technologies. The ultimate goal is to reduce the cost of producing, storing, and delivering hydrogen to a cost competitive with that of gasoline.

Validation of fuel cell vehicle and hydrogen infrastructure technologies under "real-world" operating conditions is essential to track progress and to help guide research priorities. This year's request contains $24 million for fuel cell technology validation which is a 35 percent increase over the fiscal year 2005 comparable appropriation. We are also requesting $14.9 million in funding for the validation of hydrogen infrastructure technology, a 58 percent increase over the fiscal year 2005 comparable appropriation. Automotive and energy partners are matching public dollars on a "50–50" cost-shared basis, and the Department is beginning to receive essential statistical data on the status of fuel cell vehicle and infrastructure technologies relative to targets in the areas of efficiency, durability, storage system range, and fuel cost. By measuring progress under real-world driving conditions, the Department can accurately monitor success in overcoming remaining fuel cell and infrastructure technology barriers and assess progress towards the 2015 commercialization decision by industry. These activities also provide technical information and analysis to support the development of codes and standards for the commercial use of hydrogen, and feedback on vehicle and infrastructure safety. Fiscal year 2006 activities include opening eight hydrogen fueling stations, assessing performance and cost of hydrogen production and delivery technologies, and validating 1,000 hours of fuel cell vehicle durability "on the road." By 2009, the program is expected to validate fuel cell vehicle durability of 2,000 hours, a 250-mile vehicle range, and hydrogen production cost of less than $3.00/gge (gasoline gallon equivalent).

As highlighted by Secretary Bodman in earlier Congressional testimony, I am pleased to report that our fuel cell activities achieved an important technology cost goal this past year when they reduced the high-volume cost of automotive fuel cells from $275 per kilowatt in 2002 to $200 per kilowatt in 2004. This accomplishment is a major step toward the program's goal of reducing the cost of transportation fuel cell power systems to $45 per kilowatt by 2010.[1] Research successes like this will enable a positive commercialization decision in 2015 that could lead to the market introduction of hydrogen fuel cell vehicles by 2020.

The President's Hydrogen Fuel Initiative was received by Congress with enthusiasm, and we appreciate this subcommittee's support. However, while the EERE fiscal year 2005 comparable appropriation for hydrogen technology was $94 million, 40 percent of those funds were earmarked for specific projects that are not wholly consistent with our research plan or the recommendations of the National Research Council. As a consequence, we must delay some very important work in areas such as hydrogen production and storage, and our ability to meet our established research targets in the specified timeframes may be in jeopardy. The Department looks forward to working with the subcommittee to help ensure that projects supported by the committee are consistent with our established goals in an effort to keep our progress on track.

[1] Cost of 50 kW vehicle fuel cell power systems estimated for production rate of 500,000 units per year.

VEHICLE TECHNOLOGIES

The FreedomCAR & Vehicle Technologies Program focuses on the development of more energy efficient and environmentally friendly technologies for cars and trucks that will use significantly less oil, and still preserve America's freedom of mobility. Many of these technologies also serve as the foundation of tomorrow's hydrogen fuel cell vehicles.

The Fiscal Year 2006 Budget Request for Vehicle Technologies is $165.9 million, a $0.5 million increase over the fiscal year 2005 comparable appropriation. Activities in this program contribute to two Departmental initiatives: the FreedomCAR initiative and the 21st Century Truck initiative.

FreedomCAR activities in fiscal year 2006 focus on innovative, high-efficiency vehicle technologies including advanced combustion engines, advanced fuel formulations, hybrid vehicle systems, high-powered batteries, lightweight materials, and power electronics. These critical technologies can lead to near-term oil savings when used with advanced combustion hybrid electric vehicles and support the future development of hydrogen fuel cell hybrid vehicles.

FreedomCAR goals include increasing passenger and light-duty vehicle combustion engine efficiency from 30 percent to 45 percent by 2010 (while meeting 2010 EPA emissions standards), and reducing the cost of high-power batteries for hybrid vehicles from $3,000 (1998 baseline) to $500 for a 25kW battery by 2010. Combustion engine efficiency is making good progress, and in fiscal year 2006 we expect to reach 41 percent efficiency, a major step towards the 2010 goal of 45 percent. Battery technologies have also made significant progress toward these goals: the program reached its $1,000 cost target for fiscal year 2004, and the fiscal year 2006 budget is expected to bring that down to $750.

The 21st Century Truck initiative has similar objectives but is focused on commercial vehicles. The 2006 request will fund cooperative research efforts between the commercial heavy-duty vehicle (trucks and buses) industry and major Federal agencies to develop technologies that will make our Nation's commercial vehicles more efficient, cleaner, and safer. The effort centers on R&D to improve engine systems, heavy-duty hybrids, truck safety, and to reduce parasitic losses (e.g., aerodynamic drag as the vehicle moves down the road at 60 mph, and the power drain from belt driven accessories like power steering and air conditioning) and engine idling.

In fiscal year 2004, the heavy-duty vehicle activity demonstrated a reduction of parasitic losses from 39 percent baseline to 27 percent in a laboratory setting, and activities included in the fiscal year 2006 budget are expected to bring those losses down to 24 percent. The program also demonstrated an increase in heavy-duty diesel engine efficiency from the baseline of 40 percent to 45 percent in fiscal year 2004 (while meeting EPA 2007 emission standards) and we expect the fiscal year 2006 budget to raise that to 50 percent (while meeting EPA 2010 emission standards)—important steps toward meeting our long-term goal of 55 percent energy efficiency in 2013.

SOLAR ENERGY TECHNOLOGIES

The Solar Energy Technologies Program focuses research on advanced solar devices that can bring reliable and affordable solar energy technologies into the marketplace, helping our Nation meet electricity needs and reducing the stress on our critical electricity infrastructure. The Department's efforts are directed in the interrelated areas of photovoltaics, concentrating solar power (CSP), and solar heating and lighting. The Fiscal Year 2006 Budget Request for solar technology is $84.0 million, which is roughly equivalent to the fiscal year 2005 comparable appropriation of $85.1 million.

The Department's photovoltaic research and development is focused on next-generation technologies such as thin-film photovoltaic cells and leap-frog technologies such as polymers and nanostructures. The fiscal year 2006 request of $75.0 million for photovoltaic energy systems includes $31.4 million for critical laboratory research, $28.6 million for advanced materials and devices, and $15.0 million for technology development efforts to improve reliability of the entire system. The Department has included $4.5 million in the fiscal year 2006 request to support the new Collaborative Crystalline Silicon Photovoltaic Initiative designed to strengthen through research and development the technological competitiveness of U.S. products in a rapidly growing world market.

The $6.0 million request for concentrating solar power research includes funds to accelerate the development of next-generation parabolic trough concentrators and receivers. Development of advanced thermal energy storage technologies will continue and field validation will be conducted on new collector technology being de-

ployed in trough projects in Arizona and Nevada. For distributed applications, research in fiscal year 2006 will focus on improving the reliability of dish systems through the operation and testing of multiple units at Sandia National Laboratory. Technical support will also be provided to the Western Governors' Association to assist their CSP deployment activities.

WIND AND HYDROPOWER TECHNOLOGIES

Wind Energy research and development promotes greater use of the Nation's fastest growing energy resource. Since 2000, installed wind turbine capacity in the United States has more than doubled, driven in large part by the tremendous reductions in cost that have resulted from wind energy research. Our research contributed to reducing the cost of electricity generation by a factor of 20 since 1982, to 4 cents or less per kilowatt-hour in areas with excellent wind resources.

The Fiscal Year 2006 Budget Request for Wind Energy is $44.2 million, $3.4 million more than the fiscal year 2005 comparable appropriation. Most of the fiscal year 2006 request is to fund R&D on multiple large wind system technology pathways in lower wind speed areas to achieve the goal of 3 cents per kilowatt-hour for onshore systems and 5 cents per kilowatt-hour for off-shore systems by 2012. Working in collaborative partnerships with industry, the Department plans to complete field testing of the first full-scale Low Wind Speed Technology prototype turbine in fiscal year 2006, and begin fabrication of a second prototype turbine (both 2.5 MW scale) which will enable electricity to be generated closer to where people live.

Hydropower is the most widely used form of renewable energy in the world today, accounting for over 7 percent of total electricity generation in the United States and over 75 percent of domestic renewable electricity generation. The Department has supported the development of new turbine technology that reduces fish mortality associated with hydropower plant operation. With the completion of testing on new turbine technologies, and consistent with previous Congressional direction, the Department plans to close out the Hydropower Program and transfer remaining program activities and information to the private sector.

The fiscal year 2006 hydropower request of $0.5 million will be used to complete the monitoring of plant operation and maintenance, and document previous program activities. Outstanding contracts will be closed out in fiscal year 2006.

GEOTHERMAL TECHNOLOGY

The Geothermal Technologies Program works in partnership with industry to establish geothermal energy as an economically competitive contributor to the U.S. energy supply. Currently a $1.3 billion a year industry, geothermal energy production generates electricity or provides heat for applications such as aquaculture, crop drying, and district heating, or for use in heat pumps to heat and cool buildings without the emission of greenhouse gases. The Fiscal Year 2006 Budget Request for Geothermal Technologies is $23.3 million, a $2.0 million decrease from the fiscal year 2005 comparable appropriation. The fiscal year 2005 appropriation included $3.6 million in funds for congressionally-directed activities now completed.

In fiscal year 2006, the program will conduct extensive field tests of exploration technologies such as remote sensing techniques to increase the U.S. geothermal resource base, and expand and accelerate the geothermal resource assessments conducted in collaboration with the U.S. Geological Survey. The program will continue its Enhanced Geothermal Systems (EGS) technology research to increase the productivity and lifetime of engineered reservoirs. The Department estimates that EGS technology could quadruple the amount of economically and technically viable geothermal resources in the West and open up new geothermal possibilities throughout the United States.

BIOMASS AND BIOREFINERY SYSTEMS R&D

EERE's Biomass Program focuses on advanced technologies to transform the Nation's domestic biomass resources into high value fuels, chemicals, materials, and power. Working with the U.S. Department of Agriculture (USDA), the program leads a multi-agency initiative that coordinates and accelerates all Federal bioenergy R&D in accordance with the Biomass Research and Development Act of 2000.

In fiscal year 2006, the Department is requesting $72.2 million for Biomass Program activities, $15.9 million less than the fiscal year 2005 comparable appropriation. Last year's appropriation, however, included $35.3 million in funds for congressionally-directed activities for which the Department is not requesting additional funds.

The Department requests $43.4 million to support platforms R&D. The $15 million request for Thermochemical Platform R&D will focus on developing technologies for the production, cleanup, and conditioning of biomass syngas and pyrolysis oils suitable for conversion to fuels and chemicals. This will be done in collaboration with industrial partners selected under a joint DOE/USDA solicitation issued in fiscal year 2004. The $28.4 million requested for Bioconversion Platform R&D is to work with industry to improve the performance and reduce the costs of enzymes and biomass pretreatment, resulting in a low cost sugar stream in support of the nearer-term biorefinery.

The request also includes $21.8 million for cost-shared R&D with U.S. industry to advance technologies that will convert this low cost sugar stream into affordable products (chemicals and materials), furthering the development of efficient biorefineries. Work with industry, universities, and the National Laboratories will focus on improving the efficiency of individual process steps such as catalysis and separations, with a focus on producing key building-block chemicals that have the potential to result in a multitude of high-value, renewable chemicals and materials.

WEATHERIZATION AND INTERGOVERNMENTAL PROGRAMS

In fiscal year 2006, we are requesting $310.1 million for Weatherization and Intergovernmental Activities, a $15.7 million reduction from the fiscal year 2005 comparable appropriation. This includes $230 million for the Weatherization Assistance Program, which will support weatherization of approximately 92,300 low-income homes, saving the low-income homeowner an average of $274 annually on their energy bills at today's prices, according to estimates by the Oak Ridge National Laboratory.

The Department's Intergovernmental activities promote rapid deployment of clean energy technologies and energy efficient products. The Fiscal Year 2006 Budget requests $41.0 million for State Energy Program grants. These grants, and the funds they leverage, allow State governments to target their own high priority energy needs and expand clean energy choices for their citizens and businesses.

In fiscal year 2006, we request $4.0 million for the Tribal Energy Program which will enable the Department to continue to build partnerships with Tribal governments to assess Native American energy efficiency needs and renewable energy opportunities for residential, commercial, and industrial uses. These activities are helping to complete the foundational work that will encourage private sector investment in energy projects on Native American lands.

The Department includes an increase of $1.7 million in its fiscal year 2006 request to expand and support Home Performance with ENERGY STAR®, an innovative residential program designed to improve the energy efficiency of existing homes by up to 30 percent using certified local contractors to perform whole-house retrofits. State and local pilot projects will be supported at the national level by the dissemination of best practices, contractor training, program design assistance, and marketing support.

DISTRIBUTED ENERGY RESOURCES

By producing electricity where it is used, distributed energy technologies can strengthen our Nation's aging electricity power infrastructure, relieve congestion on transmission and distribution systems, and increase supplies during periods of peak demand. The Distributed Energy Program seeks to develop and deploy a diverse array of integrated distributed generation and thermal energy technologies that are competitively priced, reliable, and highly efficient. The Fiscal Year 2006 Budget Request for this program is $56.6 million, a $3.8 million reduction from the fiscal year 2005 comparable appropriation. This funding level reflects the reallocation of funds given the advances made in previous years and changes within the overall energy research and development portfolio. As in previous years, this year's request emphasizes integrated designs for end-use systems.

Key performance target goals for fiscal year 2006 include the development of a combined heat and power (CHP) system which operates at over 70 percent efficiency and a prototype microturbine which can achieve 35 percent efficiency for small-scale power generation. To help potential users take better advantage of distributed energy opportunities, the program will complete a State regulatory database including information on regulations such as environmental permitting, utility tariffs, and interconnection standards, and continue funding the eight Regional Combined Heat and Power Application Centers across the United States.

BUILDING TECHNOLOGIES

With an annual price tag of over $250 billion, energy use by residential and commercial buildings accounts for nearly 40 percent of the Nation's total energy consumption, including two-thirds of the electricity sold in the United States. The $58 million included in this year's request for the Building Technologies Program is a decrease of $7.5 million from the fiscal year 2005 comparable appropriation, primarily due to reductions in space conditioning and building envelope R&D that is nearing commercialization. Fiscal year 2006 activities include solid state lighting, improved energy efficiency of other building components and equipment, and their effective integration using whole-building-system-design techniques, and the development of codes and standards for buildings, appliances, and equipment.

The $18.3 million request for Residential Buildings Integration aims to develop design packages that enable residential buildings to use 40 to 50 percent less energy than current practice, and integrate renewable energy systems into highly efficient building designs and operations in working toward the ultimate goal in 2020 of net Zero Energy Buildings: houses that produce as much energy as they use on an annual basis.

As part of the Department's focus on longer-term, high-risk activities with great potential for public benefit, in fiscal year 2006 we are requesting $11 million for solid state lighting research. Solid state lighting holds the potential to more than double the efficiency of general lighting systems, revolutionizing the energy efficiency, appearance, visual comfort, and quality of lighting products.

The fiscal year 2006 request also reflects the Department's continued commitment to advancing buildings codes and appliance standards. Because key analyses and peer reviews for several priority appliance rulemakings will be completed in fiscal year 2005, funding requirements for fiscal year 2006 will be reduced in this area.

FEDERAL ENERGY MANAGEMENT PROGRAM

The Federal Energy Management Program (FEMP) and the Departmental Energy Management Program (DEMP) assist Federal agencies and the Department in increasing their use of energy efficiency and renewable energy technologies through alternative financing contract support, technical assistance, and funding for retrofit projects. By using existing energy efficiency and renewable energy technologies and techniques, the Federal Government can set an example and lead the Nation toward becoming a cleaner, more efficient energy consumer.

FEMP's fiscal year 2006 request is $19.2 million, a $0.7 million reduction from the fiscal year 2005 comparable appropriation. We are requesting $6.8 million for FEMP technical support that promotes agency use of alternative financing tools, which allow Federal agencies to access private sector financing to fund energy improvements through Energy Savings Performance Contracts (ESPC) and Utility Energy Service Contracts (UESC) at no net cost to taxpayers. In addition, we are requesting $7.7 million for Technical Guidance and Assistance activities to help Federal energy managers identify, design, and implement new construction and facility improvement projects that incorporate energy efficiency and renewable energy.

INDUSTRIAL TECHNOLOGIES

The Industrial Technologies Program seeks to reduce the energy intensity of the U.S. industrial sector through a coordinated program of R&D, validation, and dissemination of energy-efficiency technologies and operating practices. The Department is working to achieve the program's goals by partnering with domestic industry, its equipment manufacturers, and its many stakeholders.

The Fiscal Year 2006 Budget Request is $56.5 million, an $18.3 reduction from the fiscal year 2005 comparable appropriation. We strongly believe that this level of funding is sufficient because the Industrial Technologies Program is becoming more focused and more strategic in its investments in next-generation industrial technologies. The Program's strategic approach is based on developing a focused, multi-year plan that is designed to identify a limited number of high-priority, energy-saving research and development opportunities, characterize the technical barriers associated with each of those opportunities, and implement a multi-year development pathway to achieve success in each identified focus area. Many of these R&D efforts will be in exploratory phases in fiscal year 2006 as the program identifies the most promising technology areas and adopts a balanced portfolio of high-risk, high-return R&D.

PROGRAM MANAGEMENT AND DIRECTION

The Program Management (Energy Conservation) and Program Direction (Energy Supply) budgets provide resources for executive and technical direction and oversight required for the implementation of EERE programs. The Budget Request covers Federal staff as well as the equipment, supplies, materials, information systems, technology equipment, and travel required to support management and oversight of programs. Also funded by this request are properties; public information activities; support service contractors; and crosscutting performance evaluation, analysis and planning.

The Fiscal Year 2006 Budget requests for Program Management and Program Direction total $108.1 million, representing a $4.0 million (3.6 percent) decrease from the fiscal year 2005 comparable appropriations. The decrease primarily reflects completion of the National Academy of Science review, the absence of support for prior congressionally-directed activities, and the movement of support service funding for the Climate Change Technology Program out of this request. With these activities excluded, our request actually represents an increase of $4.9 million to support our efforts to improve project management and to more accurately report our true cost of doing business. We also request $2.9 million within Renewable Program Support for crosscutting analysis and planning, which was formerly funded within individual renewable program budgets.

CONCLUSION

Mr. Chairman, we believe the administration's Fiscal Year 2006 Budget for energy efficiency and renewable energy research, development, demonstration, and deployment programs will contribute to improved energy security by promoting a diverse supply of reliable, affordable, and environmentally sound energy, and by promoting the efficient use of energy.

This completes my prepared statement, and I am happy to answer any questions the subcommittee may have.

Senator DOMENICI. Thank you very much. Dr. Orbach, will you please abbreviate your statement, and we'll ask you some questions shortly.

OFFICE OF SCIENCE

STATEMENT OF RAYMOND L. ORBACH, DIRECTOR

Dr. ORBACH. Mr. Chairman, Senator Allard, thank you for giving me this opportunity to testify on the President's fiscal year 2006 budget request for the Office of Science.

Mr. Chairman, you have laid out the major new initiatives that the 2006 budget contains. The budget is premised upon the maintenance of U.S. scientific leadership, of increased present and future research opportunities. In order to achieve this goal, difficult decisions had to be made within this budget climate, prioritizing core research funding, and facility construction and operation. The result augers well for U.S. science and scientists.

This budget enables a breathtaking array of scientific initiatives and opportunities. There are costs working within the current budget climate, but they are balanced against the opportunities essential for continued U.S. scientific primacy.

The Office of Science is committed to providing basic research support for the missions of the Department of Energy, leading to energy security for our country. Our programs contribute substantially to our Nation's economic development, to enhancing scientific literacy, and to our society's intellectual growth and excitement through scientific discovery. I believe this budget will accomplish these goals.

Mr. Chairman, I'd like to thank you again for this opportunity to discuss the work of the Office of Science, and I would be pleased to answer your questions.

[The statement follows:]

PREPARED STATEMENT OF RAYMOND L. ORBACH

Mr. Chairman and members of the subcommittee, thank you for the opportunity to testify today about the Office of Science's fiscal year 2006 budget request. I am deeply appreciative of your support for basic research, Mr. Chairman, and the support we have received from the other members of this subcommittee. I am confident that our fiscal year 2006 request represents a sound investment in our Nation's future. Through this budget we will position the Office of Science to be ready for the opportunities of the next decade.

This budget, Mr. Chairman, will enable thousands of researchers located across our Nation to work on some of the most pressing scientific challenges of our age. These researchers will demonstrate the scientific and technological feasibility of creating and controlling a sustained burning plasma to generate energy through participation in ITER (Latin for the way, ITER is an international fusion collaboration); use advanced computation and modeling tools to resolve complex scientific problems; restore U.S. leadership in neutron science with the start of operations at the Spallation Neutron Source (SNS); expand the frontier of nanotechnology through operation of Nanoscale Science Research Centers (NSRC's); pursue an understanding of how the universe began; contribute to our understanding of climate change including the potential of carbon sequestration; develop the knowledge that may enable us to harness microbes and microbial communities to improve energy production and environmental remediation; and contribute basic research that underpins the President's Hydrogen Fuel Initiative.

The Office of Science requests $3,462,718,000 for the fiscal year 2006 science appropriation, a decrease of $136,828,000 from the fiscal year 2005 appropriation, for investments in basic research that are critical to the success of Department of Energy (DOE) missions in national security and energy security; advancement of the frontiers of knowledge in the physical sciences and areas of biological, environmental, and computational sciences; and provision of world-class research facilities for the Nation's science enterprise (see Figure 1).

The Office of Science, within a period of budget stringency, has chosen its priorities so that the United States will continue its world primacy in science. We have made the hard decisions that will enable our scientists to work on the finest machines whose scale and magnitude will give them opportunities not found elsewhere. As a consequence, we have made difficult choices. But these have been taken with one end in mind: the Office of Science will support a world-class program in science and energy security research with this budget.

This budget request supports the following programs: Basic Energy Sciences, Advanced Scientific Computing Research, Biological and Environmental Research, High Energy Physics, Nuclear Physics, Fusion Energy Sciences, Science Laboratories Infrastructure, Science Program Direction, Workforce Development for Teachers and Scientists, and Safeguards and Security.

The Office of Science supports research across the scientific spectrum from high energy physics to biology and environmental research; from fusion energy sciences to nuclear physics, from basic energy sciences to advanced scientific computation research. We provide 42 percent of the Federal funding for the physical sciences in the United States, and are the stewards of support for fields such as high energy physics, plasma physics, catalysis, and nuclear physics. We build and operate the large scientific facilities used by over 19,000 faculty, students, and postdocs each year. They include synchrotron light sources, neutron sources, high energy and nuclear physics accelerators, fusion energy experiments, dedicated scientific computing resources, specialized environmental research capabilities, the Production Genome Facility, and will soon include the SNS, five NSRCs, and an X-ray free electron laser light source. Roughly half of our budget goes to the construction and operation of these facilities; the other half is split, roughly equally, between research at the DOE laboratories and research at universities. This supports the research of approximately 23,500 students, postdocs, and faculty throughout our Nation.

FIGURE 1.—OFFICE OF SCIENCE FISCAL YEAR 2006 PRESIDENT'S REQUEST

[In thousands of dollars]

	Fiscal Year 2004 Comparable Approp.	Fiscal Year 2005 Comparable Approp.	Fiscal Year 2006 President's Request
Basic Energy Sciences	991,262	1,104,632	1,146,017
Advanced Scientific Computing Research	196,795	232,468	207,055
Biological and Environmental Research	624,048	581,912	455,688
(Congressionally-directed projects)	(136,798)	(79,608)	.....
(Core Biological and Environmental Research)	(487,250)	(502,304)	(455,688)
High Energy Physics	716,170	736,444	713,933
Nuclear Physics	379,792	404,778	370,741
Fusion Energy Sciences	255,859	273,903	290,550
Science Laboratories Infrastructure	55,266	41,998	40,105
Science Program Direction	150,277	153,706	162,725
Workforce Development for Teachers and Scientists	6,432	7,599	7,192
Safeguards and Security	56,730	67,168	68,712
Small Business Innovation Research/Technology Transfer	114,915	.....	.....
Subtotal, Science	3,547,546	3,604,608	3,462,718
Use of prior year balances	−11,173	−5,062	.....
Total Science	3,536,373	3,599,546	3,462,718
(Total, excluding Congressionally-directed projects)	(3,399,575)	(3,519,938)	(3,462,718)

FISCAL YEAR 2006 SCIENCE PRIORITIES

In his testimony before the House Science Committee, the President's Science Adviser, Dr. Jack Marburger indicated, "Making choices is difficult even when budgets are generous. But tight budgets have the virtue of focusing on priorities and strengthening program management. This year's R&D budget proposal maintains levels of funding that allow America to maintain its leadership position in science and move ahead in selected priority areas."

The priorities the Office of Science has set within the overall Federal R&D effort and in support of DOE's mission are clear: Through the fiscal year 2006 budget, we will fully support Presidential initiatives in fusion and hydrogen; we will continue strong support for other administration priorities such as nanotechnology and information technology; we will complete—on time and within budget—unique scientific facilities that will maintain and enhance research in areas we believe offer the greatest potential for broad advances in future energy technologies. These scientific facilities were prioritized in our 20-year facilities outlook, announced in November 2003.

We will continue moving ahead with our contributions to the President's Hydrogen Fuel Initiative. We are supporting U.S. participation in the ITER project to pursue the potential of energy from fusion.

One of the biggest science stories of the year 2006 will be the start-up of the Spallation Neutron Source at our Oak Ridge National Lab, which will provide the most intense—by an order of magnitude—neutron beam in the world for cutting-edge research.

The fiscal year 2006 budget will also bring four of our five nanoscale science research centers on line, providing tools found nowhere else in the world for exploration at the atomic level, offering huge potential for the discovery of entirely new ways to build materials.

We are fully funding construction of the Linac Coherent Light Source at the Stanford Linear Accelerator Center, a machine that will produce X-rays 10 billion times brighter than any existing X-ray source on Earth. When it comes on line in 2009, it essentially will allow stop-action photography of atomic motion. Just ask the pharmaceutical industry what they could do with a machine that shows them how the chemical bond forms during a chemical reaction.

The Office of Science also will fully fund the National Energy Research Scientific Computing Center, a key center for capacity supercomputing used by roughly 2,000 researchers every year, and a separate open-access leadership class computing facility at Oak Ridge, focused on providing the capability to carry out a limited number of massive simulations not possible on any other civilian supercomputer in the United States.

The Department will also expand research underpinning biotechnology solutions to the world's energy challenges and research supporting the President's climate change science program.

Our research programs in high energy physics continue to receive strong support. We have increased funding for future accelerators such as the Large Hadron Collider, scheduled to begin operation in 2007, and the proposed International Linear Collider, which is now in an early R&D phase. Our nuclear physics program will continue to offer world-class facilities for use by thousands of researchers from around the world.

SCIENCE ACCOMPLISHMENTS

The Office of Science has proven its ability to deliver results over the past 50 years. That legacy includes 70 Office of Science sponsored Nobel Laureates since 1954. Our science has spawned entire new industries, including nuclear medicine technologies that save thousands of lives each year, and the nuclear power industry that now contributes 20 percent of the power to our Nation's electricity grid. It has also changed the way we see the universe and ourselves; for example—by identifying the ubiquitous and mysterious "dark energy" that is accelerating the expansion of the universe and by sequencing the human genome. The Office of Science has taken the lead on new research challenges, such as bringing the power of terascale computing to scientific discovery and industrial competitiveness. The Nation's investment in SC's basic research programs continues to pay dividends to the American taxpayer. Some of the past year's highlights include:

—*Promoting Science Literacy and Fostering the Next Generation of DOE Scientists*.—In fiscal year 2004, DOE launched a seven-part program named STARS: Scientists Teaching and Reaching Students. This program is designed to enhance the training of America's mathematics and science teachers; boost student achievement in science and math, especially in the critical middle school years; and draw attention to the women and men who have done DOE science so very well—and thereby encourage young people and prospective teachers to pursue careers in math and science. STARS is a critical step in leveraging the resources of DOE—and of all our national laboratories—to help create a new generation of scientists who will achieve the scientific breakthroughs and technological advances so essential to our future security and prosperity.

—*Nobel Prize in Physics*.—The 2004 Nobel Prize in physics was awarded to David J. Gross (Kavli Institute, UC Santa Barbara), H. David Politzer (Caltech), and Frank Wilczek (MIT) for their discovery of "asymptotic freedom" in the strong force. What they discovered was a surprising fact: as fundamental particles get closer to each other, the strong force between them grows weaker, and the further apart they are, the stronger it is, like stretching a rubber band. This discovery is a key component of the very successful Standard Model of particle physics, which describes three of the four fundamental forces of nature: electromagnetic, weak, and strong. Physicists dream of extending the theory to include the fourth fundamental force, gravity. The Office of Science has supported the research of Wilczek since the 1980's at Princeton and the Massachusetts Institute of Technology (MIT) and has supported Politzer at Caltech from the 1970's.

—*Nobel Prize in Physics*.—The 2003 Nobel Prize for Physics was shared by Argonne National Laboratory (ANL) researcher Alexei A. Abrikosov for his pioneering contributions to the theory of superconductors. The Office of Science has long supported Abrikosov's work on the mechanisms of high temperature superconductivity. Amongst the myriad applications of superconducting materials are the magnets used for magnetic resonance imaging, or MRI, and potential applications in high efficiency electricity transmission and high-speed trains.

—*New Physics Emerges From Quark-Gluon Plasma*.—In 2004, the Relativistic Heavy Ion Collider (RHIC) at the Brookhaven National Laboratory (BNL) delivered gold beams at twice the accelerator design limits and greatly exceeded the expectations of the 1,000+ international physicists working on the four experiments at RHIC. The goal of RHIC is to recreate the predicted quark-gluon plasma, an extremely dense state of matter thought to have last existed microseconds after the Big Bang. RHIC data have revealed evidence of a quark-gluon state of matter at high density and temperature, exhibiting the properties of a highly correlated liquid—something new and unexpected—as well as indications of a dense, weakly interacting gluonic matter that has been called a "Color Glass Condensate"—again something new.

—*Wide Acceptance of Open-Source, High-End Cluster Software by Industry and Users*.—The Oak Ridge National Laboratory (ORNL) Open Source Cluster Ap-

plication Resources (OSCAR) computing software for high-end computing continues to expand its capability and to increase its user base. The software has been downloaded by more than 130,000 groups around the world and is promoted by vendors such as Dell and Intel. The adoption of this system has expanded the number of software packages available to the cluster community, and continues to reduce cluster total cost of ownership. It has simplified the job of software authors, system administrators, and ultimately the application user by providing a timely and much simpler method of supplying and applying software updates. The Scientific Discovery through Advanced Computing (SciDAC) Scalable Systems Software Integrated Software Infrastructure Center leverages OSCAR technology to simplify deployment for the end-user as well as application developers.

—*Advances in Fusion Energy Sciences Contribute to ITER*.—Efficient burning of the fusion's plasma fuel, a mixture of hydrogen isotopes, requires stably confining the plasma at temperatures of 50–100 million degrees, comparable to those found on the Sun, with magnetic fields designed to hold the plasma in place. Recent application of diagnostics that can measure the magnetic fields deep inside this highly energetic plasma with great precision and advanced computer codes that can model the detailed behavior of the plasma has given scientists unprecedented control over the behavior of the plasma. Experiments on the DIII–D tokamak have led the way in prototyping future experiments on ITER. Scientists are now able to use feedback control systems to confidently operate the plasma at pressures which optimize the fusion power output within a given magnetic field. In addition, experiments and the use of massively parallel computing to benchmark models that validate a whole new theoretical understanding of how plasmas can be insulated from loss of particles and energy give confidence that ITER can achieve the needed gain of 10 (50 Megawatts of heating, 500 Megawatts of fusion power production) required to enter the burning plasma regime.

—*Using DOE Technology and Know-how to Bring Sight to the Blind*.—DOE's artificial retina project is a model for success in an era when the boundaries of scientific disciplines, public and private sector roles in science, and Federal agency responsibilities are increasingly blurred. Success has come through the strength of partnerships between scientists in the public and private sectors, spanning scientific disciplines from materials to medicine to engineering to surgery, and with funds from both DOE and the National Institutes of Health (NIH). In June 2004, the project reached a major milestone as a sixth blind patient was successfully implanted with an artificial retina device. One patient has had the device since February 2002. All six patients can now read large letters (2-foot large letters 1 foot away) as well as tell the difference between a paper cup, a plate, and a plastic knife. The patients can also see colors although learning and understanding this process is still a challenge for both patients and scientists. Patients will soon begin using their retinal implants outside the laboratory and will even be able to use them alone at home. These initial patient studies are a key part of a Food and Drug Administration Investigational Device Exemption trial.

—*Record Operations Advance Physics at the Frontier*.—Both the Fermi National Accelerator Laboratory (Fermilab) and the Stanford Linear Accelerator Center (SLAC) set significant new records in data delivery ("luminosity") in 2004, with the accelerators at each of these centers more than doubling their outstanding performance levels from 2003. On Friday, July 16, the Tevatron proton-antiproton collider at Fermilab set a new luminosity record of 1×10^{32} cm^{-2} sec^{-1}. The use of the Recycler and Accumulator together to maximize the number of antiprotons available for collisions helped to set the new record. Since January 2004, the peak luminosity of the Tevatron has increased 100 percent. The fiscal year 2004 PEP–II/Babar run at SLAC ended as scheduled on July 31, setting new performance records. Since the SLAC facility for B meson research began operations in 1999, its accumulated total number of electron-positron collisions (integrated luminosity) has steadily increased to a level about five times higher than the design performance.

PROGRAM OBJECTIVES AND PERFORMANCE

Underpinning all of SC's programs is a fundamental quest for knowledge. Our program history provides a compelling story of how this knowledge has already shaped the world around us, and the future appears even more promising.

DOE's Strategic Plan identifies four strategic goals (one each for defense, energy, science, and the environment) and seven subordinate general goals. The Office of

Science supports the Science Goals. Detailing Office of Science contributions to DOE's Science goals are 27 annual performance goals. Progress toward the annual goals is tracked quarterly through the Department's Joule system and reported to the public annually through the Department's Performance and Accountability Report (PAR).

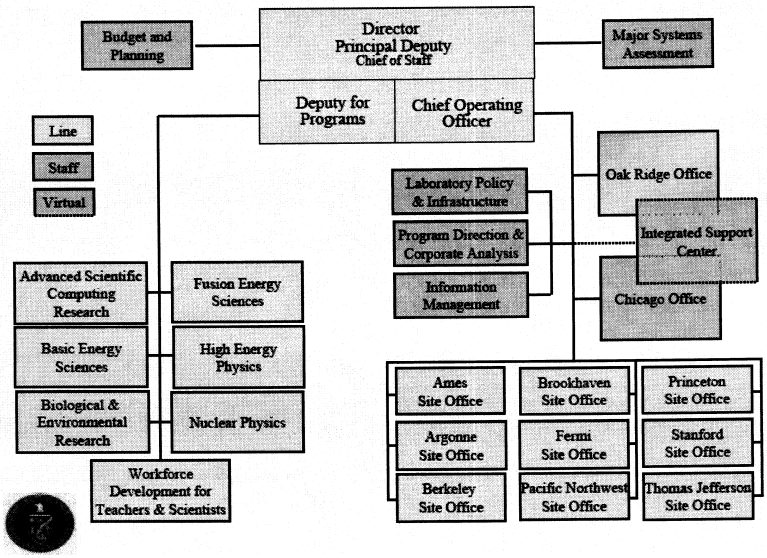
The one Office of Science annual performance goal that was not met in fiscal year 2004 was: "Focus usage of the primary supercomputer at the NERSC on capability computing. 50 percent of the computing time used will be accounted for by computations that require at least one-eighth of the total resource." The allocation process for NERSC resources is based on the potential scientific impact of the work, rather than on how well the work scales to large numbers of processors. When we proposed this measure we did not understand the extent to which users who run large jobs also run small jobs. It is critical for users to be able to run their software at both scales on the same computer because it significantly simplifies their software management. Therefore we are reducing the percentage of time dedicated to large jobs at NERSC to 40 percent. In addition, we have tasked the NERSC Users Group to develop science-based measures to better assess NERSC performance.

As a basic research program, the meaning and impact of our performance goals may not always be clear to those outside the research community. The Office of Science has created a website (www.sc.doe.gov/measures) to better communicate what we are measuring and why it is important. We are committed to improving our performance information and will soon be expanding the information included on the website and simplifying the interface so that the program objectives and results will be accessible to a wide audience.

ORGANIZATION

The OneSC Project was initiated to streamline the Office of Science structure and improve operations across the Office of Science complex in keeping with the principles of the President's Management Agenda. The first phase of this multiphase effort is now complete and we have realigned the Office of Science organization structure to establish a clear set of integrated roles and responsibilities for all Headquarters (HQ) and Field elements (Figure 2). Policy direction, scientific program development and management functions were defined as HQ responsibilities. Program execution, implementation, and support functions were defined as Field responsibilities. The major structural change implemented is the removal of a layer of management from the Office of Science Field structure, in effect removing the layer that existed between the Office of Science Director and the Site Office Managers located at Office of Science laboratories. In addition, the Chicago Office will now serve as the personnel office for Office of Science employees in HQ. The second phase of the OneSC initiative will entail a reengineering of our business processes and is in the preliminary stages of development.

FIGURE 2



SCIENCE PROGRAMS

BASIC ENERGY SCIENCES

Fiscal Year 2005 Comparable Appropriation—$1,104.6 Million; Fiscal Year 2006 Request—$1,146.0 Million

The Basic Energy Sciences (BES) program advances nanoscale science through atomic- and molecular-level studies in materials sciences and engineering, chemistry, geosciences, and energy biosciences. BES also provides the Nation's researchers with world-class research facilities, including reactor- and accelerator-based neutron sources, light sources soon to include the X-ray free electron laser, nanoscale science research centers, and 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. Theory, modeling, and computer simulations will also play a major role in achieving these outcomes and will be a companion to experimental work. Also supported is basic research aimed at advancing hydrogen production, storage, and use for the coming hydrogen economy.

Fiscal year 2006 will mark the completion of construction and the initial operation of the Spallation Neutron Source (SNS). The SNS will be significantly more powerful (by about a factor of 10) than the best spallation neutron source now in existence—ISIS at the Rutherford Laboratory in England. We estimate the facility will be used by 1,000–2,000 scientists and engineers annually from academia, national and Federal labs, and industry for basic and applied research and for technology development. The high neutron flux (i.e., high neutron intensity) from the SNS will enable broad classes of experiments that cannot be done with today's low flux sources. For example, high flux enables studies of small samples, complex molecules and structures, time-dependent phenomena, and very weak interactions. The fiscal year 2006 budget authority request completes funding for the SNS Project. This will

involve procurement and installation of equipment for instrument systems, completion of an accelerator readiness review, commissioning of ring and target systems, and meeting all requirements to begin operations; and all SNS facilities will be turned over to operations. The estimated Total Project Cost remains constant at $1,411,700,000.

Operations will begin in fiscal year 2006 at four of the five NSRCs: the Center for Nanophase Materials at ORNL, the Molecular Foundry at Lawrence Berkeley National Laboratory (LBNL), the Center for Integrated Nanotechnologies at Sandia National Laboratories/Los Alamos National Laboratory (SNL/LANL), and the Center for Nanoscale Materials at ANL. The exception is the Center for Functional Nanomaterials at BNL, which is scheduled to begin operations in fiscal year 2008. The NSRC's are user facilities for the synthesis, processing, fabrication, and analysis of materials at the nanoscale. They are designed to promote rapid advances in the various areas of nanoscale science and technology and are part of the DOE contribution to the National Nanotechnology Initiative. The NSRC's are sited adjacent to or near existing BES synchrotron or neutron scattering facilities to enable rapid characterization of newly fabricated materials. Fiscal year 2006 funds are requested for construction of NSRC's located at LBNL, at SNL/LANL, and at BNL. Funds are also requested to complete the Major Item of Equipment (MIE) for the NSRC at ANL.

The Linac Coherent Light Source (LCLS) will continue Project Engineering Design (PED) and fiscal year 2006 budget authority is requested to initiate physical construction of the LCLS conventional facilities. Funding will be provided separately for preconceptual design of instruments for the facility. BES funding will also be provided to partially support, in conjunction with the High Energy Physics program, operation of the SLAC linac. This will mark the beginning of the transition to LCLS operations at SLAC. The LCLS project will provide the world's first demonstration of an X-ray free-electron-laser (FEL) in the 1.5–15Å (angstrom) range, 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 advance in brightness is similar to that of a synchrotron over a 1960's laboratory X-ray tube. Synchrotrons have revolutionized science across disciplines ranging from atomic physics to structural biology. Advances from the LCLS are expected to be even more dramatic. The LCLS project leverages capital investments in the existing SLAC linac as well as technologies developed for linear colliders and for the production of intense electron beams with radio-frequency photocathode guns. The availability of the SLAC linac for the LCLS project creates a unique opportunity for demonstration and use of X-ray FEL radiation. The estimated Total Project Cost is $379,000,000.

The fiscal year 2006 budget supports a Major Item of Equipment (MIE) for the Transmission Electron Aberration-corrected Microscope (TEAM). The Total Project Cost is in the range of $25,000,000 to $30,000,000. The TEAM project will construct and operate a new aberration-corrected electron microscope for materials and nanoscience research. The projected improvement in spatial resolution, contrast, sensitivity, and flexibility of design of electron optical instruments will provide unprecedented opportunities to observe directly the atomic-scale order, electronic structure, and dynamics of individual nanoscale structures.

Research to realize the potential of a hydrogen economy will be increased from $29,183,000 to $32,500,000. This research program is based on the BES workshop report Basic Research Needs for the Hydrogen Economy. The 2003 report highlights the enormous gap between our present capabilities for hydrogen production, storage, and use and those required for a competitive hydrogen economy. To be economically competitive with the present fossil fuel economy, the cost of fuel cells must be lowered by a factor of five and the cost of producing hydrogen must be lowered by a factor of four. Moreover, the performance and reliability of hydrogen technology for transportation and other uses must be improved dramatically. Simple incremental advances in the present state-of-the-art cannot bridge this gap. Narrowing the gap significantly is the goal of a comprehensive, long-range program of innovative high-risk/high-payoff basic research that is intimately coupled to and coordinated with the DOE's applied programs.

In order to accomplish these very high-priority, forefront activities, some difficult choices had to be made. In particular, the BES support for the Radiochemical Engineering and Development Center at ORNL will be terminated. The operations budgets of the remaining facilities will be at about the same level as in fiscal year 2005, decreasing available beam time and service for users. Core funding for university and national laboratory researchers decreases 7.8 percent compared to the fiscal year 2005 appropriation. While no research activities will be terminated, there will be reductions throughout.

ADVANCED SCIENTIFIC COMPUTING RESEARCH

Fiscal Year 2005 Comparable Appropriation—$232.5 Million; Fiscal Year 2006 Request—$207.1 Million

The Advanced Scientific Computing Research (ASCR) program significantly advances scientific simulation and computation, applying new approaches, algorithms, and software and hardware combinations to address the critical science challenges of the future. ASCR also provides access to world-class scientific computation and networking facilities to the Nation's scientific community to support advancements in practically every field of science. ASCR will continue to advance the transformation of scientific simulation and computation into the third pillar of scientific discovery, enabling scientists to look inside an atom or across a galaxy; and inside a chemical reaction that takes a millionth of a billionth of a second or across a climate change process that lasts for a thousand years. In addition, ASCR will shrink the distance between scientists and the resources—experiments, data, and other scientists—they need, and accelerate scientific discovery by making interactions that used to take months happen on a much shorter timescale.

The Mathematical, Information, and Computational Sciences (MICS) effort is responsible for carrying out the primary mission of the ASCR program. In addition, MICS research underpins the success of SciDAC. MICS supports both basic research and the development of the results from this basic research into software usable by scientists in other disciplines. MICS also supports partnerships with scientific discipline users to test the usefulness of the research—facilitating the transfer of research and helping to define promising areas for future research. This integrated approach is critical for MICS to succeed in providing the extraordinary computational and communications tools that DOE's civilian programs need to carry out their missions.

Major elements of the ASCR portfolio related to the SciDAC will be re-competed in fiscal year 2006, with attention paid to support for the long term maintenance and support of software tools such as mathematical libraries, adaptive mesh refinement software, and scientific data management tools developed in the first 5 years of the effort. In addition, in fiscal year 2006 ASCR is changing the way in which it manages its Genomics: GTL partnership with the Biological and Environmental Research program. The management of these efforts will be integrated into the portfolio of successful SciDAC partnerships. The fiscal year 2006 budget request includes $7,500,000 for continued support of the Genomics: GTL research program. The fiscal year 2006 budget request also includes $2,600,000 for the Nanoscale Science, Engineering and Technology initiative led by BES, and $1,350,000 for support of the Fusion Simulation Project, led by the Fusion Energy Sciences program. ASCR's contributions to these partnerships will consist of advancing the mathematics and developing new mathematical algorithms to simulate biological systems and physical systems at the nanoscale. The fiscal year 2006 budget request also provides $8,000,000 to initiate a small number of competitively selected SciDAC institutes at universities which can become centers of excellence in high end computational science in areas that are critical to DOE missions.

The fiscal year 2006 budget also includes $8,500,000 to continue the "Atomic to Macroscopic Mathematics" (AMM) research support in applied mathematics needed to break through the current barriers in our understanding of complex physics processes that occur on a wide range of interacting length- and timescales. Achieving this basic mathematical understanding will provide enabling technology to virtually every challenging computational problem faced by SC.

The National Leadership Computing Facility acquired under the Next Generation Architecture (NGA) Leadership Class Computing Competition in fiscal year 2004 will be operated to provide high performance production capability to selected Office of Science researchers. The NGA effort will play a critical role in enabling Leadership Class Machines that could lead to solutions for scientific problems beyond what would be attainable through a continued simple extrapolation of current computational capabilities. NGA will continue its focus on research in operating systems and systems software and will initiate a new competition for Research and Evaluation Prototype Computer testbeds. ASCR research efforts in Collaboratory Tools and Pilots and Networking will be restructured into an integrated Distributed Network Environment activity focused on basic research in computer networks and the middleware needed to make these networks tools for science. This change will enable the reduced NGA effort to operate computers acquired in fiscal year 2004 and fiscal year 2005 at the ORNL Center for Computational Sciences (CCS) as tools for science and especially to satisfy the demand for resources that has resulted from the successful SciDAC efforts.

BIOLOGICAL AND ENVIRONMENTAL RESEARCH

Fiscal Year 2005 Comparable Appropriation—$581.9 Million; Fiscal Year 2006 Request—$455.7 Million

The Biological and Environmental Research (BER) program advances energy-related biological and environmental research in genomics and our understanding of complete biological systems, such as microbes that produce hydrogen; develops models to predict climate over decades to centuries; develops science-based methods for cleaning up environmental contaminants; provides regulators with a stronger scientific basis for developing future radiation protection standards; and develops new diagnostic and therapeutic tools, technology for disease diagnosis and treatment, non-invasive medical imaging, and biomedical engineering such as an artificial retina that is restoring sight to the blind.

The fiscal year 2006 budget includes funds for the continued expansion of the Genomics: GTL program—a program at the forefront of the biological revolution. This program employs a systems approach to biology at the interface of the biological, physical, and computational sciences to address DOE's energy, environment, and national security mission needs. This research will continue to more fully characterize the inventory of multi-protein molecular machines found in selected DOE-relevant microbes and higher organisms. It will determine the diverse biochemical capabilities of microbes and microbial communities, especially as they relate to potential biological solutions to DOE needs, found in populations of microbes isolated from DOE-relevant sites. Support for Microbial Genomics research as a separate research activity is terminated to consolidate all microbial research within Genomics: GTL. Support of structural biology, human genome, and health effects research is also reduced to support GTL research. GTL research will provide the scientific community with knowledge, resources, and tools that benefit large numbers of research projects with positive impacts on more scientists and students than are negatively impacted by the initial reduction.

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 causes and consequences, is possible over the next 5 years. In fiscal year 2006, BER will contribute to the CCRI from four programs: Terrestrial Carbon Processes, Climate Change Prediction, Atmospheric Radiation Measurement (ARM), and Integrated Assessment. Activities will be focused on (1) helping to resolve the magnitude and location of the North American carbon sink; (2) deploying and operating of a mobile ARM Cloud and Radiation Testbed 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; and (4) developing and evaluating assessment tools needed to study costs and benefits of potential strategies for reducing net carbon dioxide emissions.

The completion of the International Human Genome Project and the transition of BER's Human Genome research program from a human DNA sequencing program to a DNA sequencing user resource for the scientific community which focuses on the sequencing of scientifically important microbes, plants, and animals will bring BER's Human Genome Ethical, Legal, and Societal Issues (ELSI) program to an end. In fiscal year 2006, ELSI research will include activities applicable to Office of Science issues in biotechnology and nanotechnology such as environmental or human health concerns associated with Genomics: GTL or nanotechnology research. Research with these funds will be coordinated across the Office of Science.

BER will focus fiscal year 2006 research activities on higher priorities, including GTL and Climate Change Research, in support of DOE goals and objectives. Funding reductions are initiated in the Environmental Remediation Research subprogram and the Medical Applications and Measurement Science Research subprogram. Accordingly, some current research activities will be phased out in fiscal year 2005. Based on findings of the BER Committee of Visitors for the Environmental Remediation Research subprogram, research activities are integrated into a single program to increase the efficiency of the activities and to better address the BER long term goals in environmental remediation research.

HIGH ENERGY PHYSICS

Fiscal Year 2005 Comparable Appropriation—$736.4 Million; Fiscal Year 2006 Request—$713.9 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 dark energy and dark matter, the lack of symmetry in the current universe, the basic constituents of matter, and the possible existence of other dimensions, collectively revealing key secrets of the universe. HEP expands the energy frontier with particle accelerators to study fundamental interactions at the highest possible energies, which may reveal new particles, new forces, or undiscovered dimensions of space and time; explain the origin of mass; and illuminate the pathway to the underlying simplicity of the universe. At the same time, the HEP program sheds new light on other mysteries of the cosmos, uncovering what holds galaxies together and what is pushing the universe apart; understanding why there is any matter in the universe at all; and exposing how the tiniest constituents of the universe may have the largest role in shaping its birth, growth, and ultimate fate.

The HEP program in fiscal year 2006 will continue to lead the world with forefront user facilities producing data that help answer key scientific questions, but these facilities will complete their scientific missions by the end of the decade. Thus, we have structured the fiscal year 2006 HEP program not only to maximize the scientific returns on our investment in these facilities, but also to invest in R&D now for the most promising new facilities that will come online in the next decade. This has required a prioritization of our current R&D efforts to select those which will provide the most compelling science within the available resources. In making these decisions we have seriously considered the recommendations of the High Energy Physics Advisory Panel (HEPAP) and planning studies produced by the U.S. HEP community. This prioritization process will continue as the R&D programs evolve.

Because of its broad relevance in addressing many of the long-term goals of HEP, and its unique potential for new discoveries, the highest priority is given to the planned operations, upgrades and infrastructure for the Tevatron program at Fermilab. This includes the completion of the upgrade to the Tevatron accelerator complex in 2007 to provide increased luminosity and additional computational resources to support analysis of the anticipated larger volume of data. Over the last few years, the laboratory has developed and implemented a detailed, resource-loaded plan for Tevatron operations and improvements, which has resulted in more reliable luminosity projections. The Office of Science has reviewed the plan and is actively engaged in tracking its progress.

The fiscal year 2006 request supports initial operations of the Neutrinos at the Main Injector (NuMI) project at Fermilab, which has just completed construction and will study the puzzling but fundamental physics of neutrino masses and mixings. The NuMI beam operates in parallel with the Tevatron, also at Fermilab, currently the highest energy accelerator in the world.

In order to fully exploit the unique opportunity to expand our understanding of the asymmetry of matter and antimatter in the universe, a high priority is given to the operations, upgrades and infrastructure for the B-factory at SLAC. Support for B-factory will include an allowance for increased power costs and fully funded upgrades for the accelerator and detector which are currently scheduled for completion in 2006. This includes the completion of the upgrade to the accelerator complex and BaBar detector to provide more data; additional computational resources to support analysis of the larger volume of data; and, increased infrastructure spending to improve reliability. Funding for SLAC operations includes support from the BES program for the LCLS project, marking the beginning of the transition of Linac operations from HEP to BES as B-factory operations are terminated by fiscal year 2008 at the latest.

As the Large Hadron Collider (LHC) accelerator in Europe nears its turn-on date of 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 a leadership role for U.S. research groups in the LHC physics program will continue to be a high priority for the HEP program.

In order to explore the nature of dark energy, pre-conceptual R&D for potential interagency sponsored experiments with NASA will continue in fiscal year 2006. These experiments will provide important new information about the nature of dark energy and dark matter that will in turn lead to a better understanding of the birth, evolution and ultimate fate of the universe. At this time, no funding for a space-based DOE/NASA Joint Dark Energy Mission past the pre-conceptual stage has been identified.

The engineering design of the BTeV ("B Physics at the Tevatron") experiment, which was scheduled to begin in fiscal year 2005 as a new Major Item of Equipment, is cancelled. This is consistent with the guidance of HEPAP which rated BTeV as of lesser scientific potential than other projects, although still important scientifically and of the Particle Physics Project Prioritization Panel (P5) which supported BTeV but only if it could be completed by 2010, which is not feasible given schedule and funding constraints.

The Linear Collider has been judged to be of the highest scientific importance by HEPAP as well as by scientific advisory bodies of the Asian and European HEP communities. In order to address the opportunity for significant new future research options, R&D in support of an international electron-positron linear collider is increased relative to fiscal year 2005 to support the continued international participation and leadership in linear collider R&D and planning by U.S. scientists.

Recent discoveries and studies have pointed to neutrinos as being an extremely important area of research for deepening our understanding of the nature of matter and the structure of the universe, and HEP is working with the Nuclear Physics program and the National Science Foundation to plan a coordinated program in neutrino physics. To provide a nearer-term future program, and to preserve future research options, R&D for other new accelerator and detector technologies, particularly in the emerging area of neutrino physics, will increase.

NUCLEAR PHYSICS

Fiscal Year 2005 Comparable Appropriation—$404.8 Million; Fiscal Year 2006 Request—$370.7 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. NP builds and operates world-leading scientific facilities and state-of-the-art instrumentation to study 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 and to understand how the quarks and gluons combine to form the nucleons (proton and neutron), what are the properties and behavior of nuclear matter under extreme conditions of temperature and pressure, and what are the properties and reaction rates 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. Scientific discoveries at the frontiers of nuclear physics further the Nation's energy related research capacity, in turn contributing to the Nation's security, economic growth and opportunities, and improved quality of life.

In fiscal year 2006 the NP program will operate world-leading user facilities and make investments that will produce data and develop the research capabilities to achieve the scientific goals discussed above. The budget request reflects a balance in on-going facility operations and research support, and investments in capabilities. The fiscal year 2006 budget request provides the resources to operate the program's user facilities at 65 percent of optimum utilization with investments allocated so as to optimize their scientific programs. Fiscal year 2006 investments in capital equipment address opportunities identified in the 2002 Long Range Plan of the Nuclear Sciences Advisory Committee (NSAC) and in subsequent recommendations.

In fiscal year 2006 the Relativistic Heavy Ion Collider's (RHIC) beams of relativistic heavy ions will be used by approximately 1,000 scientists to continue the exploration of the nature of hot, dense matter and to recreate conditions under which nuclear matter dissolves into the predicted quark-gluon plasma. RHIC started operations in fiscal year 2000 and its first 3 runs have produced over 70 refereed journal papers, creating great interest in the scientific community with the observation of a new state of nuclear matter. In fiscal year 2006 funds are provided for accelerator improvements that will increase accelerator reliability and reduce costs, for detector upgrades needed to characterize the new state of matter observed and for Research and Development to increase the luminosity of the collider. These investments are important for optimizing the scientific research and productivity of the facility. These investments are made at the expense of operating time. Fiscal year 2006 funding will support 1,400 hours of operations, a 31 percent utilization of the collider. Effective operation will be achieved by combining fiscal year 2006-fiscal year 2007 running into a single back-to-back run bridging the 2 fiscal years.

Operations of the Thomas Jefferson National Accelerator Facility (TJNAF) in fiscal year 2006 will continue to advance our knowledge of the internal structure of protons and neutrons, the basic constituents of all nuclear matter. By providing pre-

cision experimental information concerning the quarks and gluons that form the protons and neutrons, the approximately 1,000 experimental researchers, 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. In fiscal year 2006 funds are provided to continue R&D activities for a potential 12 GeV Upgrade of the Continuous Electron Beam Accelerator Facility (CEBAF). These investments will poise the facility for a cost-effective upgrade that would allow insight on the mechanism of "quark confinement"—one of the compelling unanswered puzzles of physics.

In the fiscal year 2006 request funds are provided for the operation of the Argonne Tandem Linac Accelerator System (ATLAS) at ANL and the Holifield Radioactive Ion Beam Facility (HRIBF) at ORNL, for studies of nuclear reactions, structure and fundamental interactions. Included in this funding are capital equipment and accelerator improvement project funds provided to each facility for the enhancement of the accelerator systems and experimental equipment. These low energy facilities will carry out about 80 experiments in fiscal year 2006 involving about 300 U.S. and foreign researchers.

In fiscal year 2006, funds are provided to continue the fabrication of a next generation gamma-ray detector array (GRETINA) and of the Fundamental Neutron Physics Beamline (FNPB) at the Spallation Neutron Source (SNS) that will provide the United States with world-leader capabilities in nuclear structure and fundamental neutron studies, respectively. Support continues for completion of the important neutrino experiments at the Sudbury Neutrino Observatory (SNO) and KamLAND.

The research programs at the major user facilities are integrated partnerships between DOE scientific laboratories and the university community, and the planned experimental research activities are considered essential for scientific productivity of the facilities. Funding for university and national laboratory researchers and graduate students decreases 6.8 percent compared to the fiscal year 2005 appropriation.

While we have a relatively good understanding of the origin of the chemical elements in the cosmos lighter than iron, the production of the elements from iron to uranium remains a puzzle. The proposed Rare Isotope Accelerator (RIA) would enable study of exotic nuclei at the very limits of stability, advancing our knowledge of how the elements formed. In fiscal year 2006, R&D activities for the proposed RIA are maintained at the fiscal year 2005 Congressional budget request level.

FUSION ENERGY SCIENCES

Fiscal Year 2005 Comparable Appropriation—$273.9 Million; Fiscal Year 2006 Request—$290.6 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. This includes: (1) exploring basic issues in plasma science; (2) developing the scientific basis and computational tools to predict the behavior of magnetically confined plasmas; (3) using the advances in tokamak research to enable the initiation of the burning plasma physics phase of the FES program; (4) exploring innovative confinement options that offer the potential of more attractive fusion energy sources in the long term; (5) focusing on the scientific issues of nonneutral plasma physics and High Energy Density Physics (HEDP); and (6) developing the cutting edge technologies that enable fusion facilities to achieve their scientific goals. 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.

The fiscal year 2006 request is $290,550,000, an increase of $16,647,000, 6.1 percent over the fiscal year 2005 appropriation. The fiscal year 2006 budget continues the redirection of the fusion program to prepare for and participate in the ITER project. The ITER International Agreement is currently being negotiated and is expected to be completed by the end of fiscal year 2005. Fiscal year 2006 FES funding of $49,500,000 is for the startup of the U.S. Contributions to ITER MIE. The total U.S. Contributions to the ITER MIE, $1,122,000,000, supports the fabrication of the equipment, provision of personnel, limited cash for the U.S. share of common project expenses at the ITER site, and ITER procurements. This MIE is augmented by the technical output from a significant portion of the U.S. Fusion Energy Sciences community research program. Virtually the entire FES program provides related con-

tributions to such ITER relevant research and prepares the United States for effective participation in ITER when it starts operations.

Within the overall priorities of the fiscal year 2006 FES budget, $15,900,000 is requested for the National Compact Stellarator Experiment (NCSX), a joint ORNL/Princeton Plasma Physics Laboratory (PPPL) advanced stellarator experiment being built at PPPL. This fusion confinement concept has the potential to be operated without plasma disruptions, leading to power plant designs that are simpler and more reliable than those based on the current lead concept, the tokamak. Fiscal year 2006 operation of the three major fusion research facilities will be reduced from a total of 48 weeks to 17 weeks.

Fiscal year 2006 funding for the Inertial Fusion Energy/High Energy Density Physics program is $8,086,000, a reduction of $7,255,000 from the fiscal year 2005 level. This will be accomplished by reducing the level of research on heavy ion beams. In addition, the Materials Research program will be eliminated in favor of utilizing the general BES materials effort for scientific advances in areas of fusion interest.

SCIENCE LABORATORIES INFRASTRUCTURE

Fiscal Year 2005 Comparable Appropriation—$42.0 Million; Fiscal Year 2006 Request—$40.1 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 to maintain the general purpose infrastructure and the clean up for reuse or removal of excess facilities. 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-East, BNL, and ORNL.

In fiscal year 2006, General Plant Projects (GPP) funding is requested to refurbish and rehabilitate the general purpose infrastructure necessary to perform cutting edge research throughout the Office of Science laboratory complex. Fiscal year 2006 funding of $3,000,000 is requested to support continued design of the Pacific Northwest National Laboratory (PNNL) Capabilities Replacement Laboratory project. Funding of $11,046,000 is requested to accelerate decontamination and decommissioning (D&D) of the Bevatron Complex at the LBNL.

No funding is requested under the Health and Safety Improvements subprogram to continue health and safety improvements at the Office of Science laboratories identified in the Occupational Safety & Health Administration (OSHA) and Nuclear Regulatory Commission (NRC) reviews. If the administration determines that health and safety issues remain, resources will be requested in future years as necessary.

SCIENCE PROGRAM DIRECTION

Fiscal Year 2005 Comparable Appropriation—$153.7 Million; Fiscal Year 2006 Request—$162.7 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 research and development (R&D) information of the Department of Energy (DOE) 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.

WORKFORCE DEVELOPMENT FOR TEACHERS AND SCIENTISTS

Fiscal Year 2005 Comparable Appropriation—$7.6 Million; Fiscal Year 2006 Request—$7.2 Million

The mission of the Workforce Development for Teachers and Scientists (WDTS) program is to provide a continuum of educational opportunities to the Nation's students and teachers of science, technology, engineering, and mathematics (STEM).

The Scientists Teaching and Reaching Students (STARS) education initiative was launched in fiscal year 2004 to promote science literacy and help develop the next generation of scientists and engineers. In support of this effort, additional fiscal year 2006 funding is requested for both the Laboratory Science Teacher Professional Development (LSTPD) activity and the Middle School Science Bowl. The LSTPD activity is a 3-year commitment experience for K–14 teachers and faculty. The LSTPD will run at five or more DOE national laboratories with about 105 participating STEM teachers, in response to the national need for science teachers who have strong content knowledge in the classes they teach.

The Faculty Sabbatical activity, which is being initiated in fiscal year 2005 for 12 faculty members from Minority Serving Institutions (MSI), will have five positions available in fiscal year 2006. The Faculty Sabbatical is aimed at providing sabbatical opportunities to faculty members from MSIs to facilitate the entry of their faculty into the research funding mainstream. This activity is an extension of the successful Faculty and Student Teams (FaST) program where teams consisting of a faculty member and two or three undergraduate students from colleges and universities with limited prior research capabilities work with mentor scientists at a national laboratory on a research project that is formally documented in a paper or presentation.

In the fiscal year 2006 request, the Pre-Service Teachers (PST) activity will be run at one national laboratory, as opposed to twelve national laboratories in fiscal year 2005, and students will be recruited from participating National Science Foundation (NSF) programs.

SAFEGUARDS AND SECURITY

Fiscal Year 2005 Comparable Appropriation—$67.2 Million; Fiscal Year 2006 Request—$68.7 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 SC's Integrated Safeguards and Security Management strategy encompasses 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 2006 request meets minimum, essential security requirements. Protection of employees and visitors is of primary concern, as well as protection of special nuclear material and research facilities, equipment and data. Priority attention is given to protective forces, physical security systems, and cyber security.

CONCLUSION

The Office of Science occupies a unique and critical role within the U.S. scientific enterprise. We fund research projects in key areas of science that our Nation depends upon. We construct and operate major scientific user facilities that scientists from virtually every discipline are using on a daily basis, and we manage civilian national laboratories that are home to some of the best scientific minds in the world.

Mr. Chairman, we have made some difficult decisions this year within the President's budget request for the Office of Science—consistent with our research priorities—which will allow us to build on the solid foundation created over the last 4 years, propel us into new areas of great scientific promise, and maintain America's world-class stature in science.

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. On behalf of DOE, I am pleased to present this fiscal year 2006 budget request for the Office of Science.

This concludes my testimony. I would be pleased to answer any questions you might have.

Senator DOMENICI. Thank you very much. Director of the Office of Nuclear Energy, Science and Technology, it's good to have you with us again, would you please give us your testimony?

OFFICE OF NUCLEAR ENERGY, SCIENCE AND TECHNOLOGY

STATEMENT OF WILLIAM D. MAGWOOD, IV, DIRECTOR

Mr. MAGWOOD. It's a pleasure. It's a pleasure, Mr. Chairman, I was trying to count the number of times I've appeared before you. I think this is the seventh. Mr. Garman, I believe, holds the record in the Department for the number of hearings overall, but I think I may beat him in terms of Appropriations Hearings.

It's a great pleasure to be here to talk about our fiscal year 2006 budget request. The Office of Nuclear Energy's request for 2006 totals $511 million, and it's a budget we believe will enable us to proceed to accomplish our mission of developing and deploying advanced energy technologies in the United States.

NUCLEAR ENERGY RESEARCH PROGRAM

In fiscal year 1998—as I'm sure you recall, Mr. Chairman—the Nation's Nuclear Energy Research Program came to a virtual standstill. In that year, our energy R&D budget in the Office of Nuclear Energy hit zero, and it was a year where the students who were taking nuclear engineering fell to a number that was below 500 for the first time. It was also a year that the international community began to turn away from the United States as a leader in nuclear technology.

Since that time, with the great help of this subcommittee and your colleagues in the House, we've been able to turn that situation around considerably. We've invested a lot of effort into turning the program around, and I think the results speak for themselves.

An important indicator is to look at the University community. Since 1998, when there were 480 students taking nuclear engineering in the United States, we're now seeing the number recovering to almost 1,600.

Senator DOMENICI. From which?

Mr. MAGWOOD. It went from 480 in 1998, to almost 1,600 now. So, we feel quite good about that. And that's due to the strong programs in the schools, such as Ohio State, Purdue, Texas A&M and many others across the country, but also new programs at small schools, such as South Carolina State University, and Wilberforce University. We're very pleased with our progress to date, and we think there's more to be done.

One thing, Mr. Chairman, that we'd like to alert you to is that we are, in fact, expanding our efforts to the high school level. Starting in 2 weeks, juniors and seniors from seven Pittsburgh high schools will begin a new nuclear science and technology curriculum that was developed by DOE and high school science teachers. These students will tour research reactors, participate in experiments, and receive lectures from national laboratory scientists. Once this pilot is complete, we plan to make this course available to high schools across the country, and we're very excited by that.

Senator DOMENICI. Would you please hold for a minute? I think the Senator from Colorado has to leave, but he wanted to ask a question.

PREPARED STATEMENT OF SENATOR WAYNE ALLARD

Senator ALLARD. I do, thank you, Mr. Chairman. I just want to submit my statement for the record, if I may. I just want to congratulate you on your commitment to new science and technology in the energy field. I know you're a strong proponent of nuclear energy, and I stand shoulder to shoulder with that. I'm a strong proponent of renewables, and working hard on many a legislation there, and I just thank you for your effort, and thank the panel for their testimony.

[The statement follows:]

PREPARED STATEMENT OF SENATOR WAYNE ALLARD

Mr. Chairman, thank you for holding this hearing today. As you know, I am co-chairman of the Senate Renewable Energy & Energy Efficiency Caucus and represent the State which the National Renewable Energy Laboratory calls home. And, as a scientist myself, I have always been a strong supporter of research funding in all areas. For these reasons, I have a special interest in today's hearing.

Today more attention is being focused on clean energy and energy efficient technologies. This is a time when the development of alternative energy sources and increased energy efficiency technology are becoming more important than ever.

We must also 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.

The National Renewable Energy Laboratory in Colorado can, and does, make an incredible contribution to the development of these resources. Technologies being developed at NREL—whether providing alternative fuels and power, or making our homes and vehicles more energy efficient—are vital to our Nation's energy progress.

This is a step in the right direction. 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. 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 entities is very important to allowing these opportunities to live up to their potential.

I look forward to working with the committee to ensure that R&D 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 DOMENICI. Thank you very much. Mr. Magwood.

Mr. MAGWOOD. Thank you.

We have also reasserted U.S. leadership in the international community. One of the examples I note is that, as a representative of the United States, I've been elected by my colleagues internationally to serve as the chair of two international bodies. The Organization for Economic Cooperation and Development (OACD) Steering Committee for Nuclear Energy, and The Generation IV International Forum. And I wanted to recognize Helen Leiser who is with me here today, back there somewhere, who is an official with the United Kingdom's Department of Trade and Industry who has spent the last 2 years detailed to the Department of Energy, to serve as a Generation IV International Forum policy director. She's leaving us at the end of this month with a record of success, and we appreciate her accomplishments.

NEXT GENERATION NUCLEAR ENERGY TECHNOLOGIES

Last month Secretary Bodman joined ambassadors and senior officials from France, the United Kingdom, Japan and Canada to sign the world's first multi-lateral agreement for the development of next generation nuclear energy technologies. As this Gen IV agreement, and other actions, demonstrate, the United States is once again setting the pace for international cooperation and partnership.

NUCLEAR POWER 2010 INITIATIVE

At the same time, we're working with U.S. utilities toward exploring the construction of new U.S. nuclear power plants for the first time in many decades. The discussions we've been having with these utilities are the most detailed and serious I've ever seen, and I believe they will eventually lead to the first new nuclear power plants we've seen since the 1970's.

Mr. Chairman, I have no doubt that our work on the Nuclear Power 2010 program contributed to these positive developments. For this effort, we've helped the industry organize itself to take the vital steps towards building the next plants. The subcommittee's support has been essential to this progress, and the administration's request of $56 million for fiscal year 2006 will enable this effort to proceed on schedule.

IDAHO NATIONAL LABORATORY

Finally, Mr. Chairman, I'd like to note that in February we also successfully launched the new Idaho National Laboratory. The development of this new laboratory is an essential step in furthering our nuclear energy research agenda. We now—like each of the programs represented here today—have a core laboratory that can serve as the command center for our program's key research efforts. We are committed to the success of this laboratory, and working with Beth Sellers—the manager of the Idaho Operations Office, who's joined me here today—we are working towards making sure the Department is a good partner to work with the lab to make sure its goal of becoming the world's premier nuclear energy resource center in 10 years can be achieved.

PREPARED STATEMENT

I conclude my remarks, Mr. Chairman, by recognizing and thanking you for your long leadership in this endeavor, and as I say, I think we've been an effective team in reviving the Federal Government's nuclear energy technology efforts. While much remains to be done, we should remember that we've accomplished quite a bit over the last several years. Thank you very much.

[The statement follows:]

PREPARED STATEMENT OF WILLIAM D. MAGWOOD, IV

Mr. Chairman, Senator Reid, and members of the subcommittee, it is a pleasure to be here to discuss the Fiscal Year 2006 Budget submission for DOE's Office of Nuclear Energy, Science and Technology.

In his February 2 State of the Union Address, the President underscored the need to restrain spending in order to sustain our economic prosperity. As part of this restraint, it is important that total discretionary and non-security spending be held

to levels proposed in the Fiscal Year 2006 Budget. The budget savings and reforms in the budget are important components of achieving the President's goal of cutting the budget deficit in half by 2009 and we urge the Congress to support these reforms. The Fiscal Year 2006 Budget includes more than 150 reductions, reforms, and terminations in non-defense discretionary programs, of which six affect Department of Energy programs. The Department wants to work with the Congress to achieve these savings.

Of these six programs, two programs are from the Office of Nuclear Energy, Science and Technology: the Nuclear Energy Plant Optimization (NEPO) and the Nuclear Energy Research Initiative (NERI) programs. Research conducted under the NEPO program is designed to assure the ability of currently operating nuclear power plants to remain in service up to and beyond their licensed operating period. No funding is requested for the NEPO program in fiscal year 2006 because industry is committed to continuing the research begun under NEPO without DOE support, allowing DOE to focus on higher priority activities. No stand-alone funding is requested for the NERI program as the Department's principal nuclear energy research and development (R&D) programs (Generation IV Nuclear Energy Systems Initiative, Advanced Fuel Cycle Initiative, and Nuclear Hydrogen Initiative) will be sponsoring NERI research projects within the Nation's university research community to enhance the research cooperation between academia and our national laboratories and to strengthen our mainline R&D programs.

For most of our Nation's history, America's vibrant economy and society have benefited from the abundant energy options we have had available. Even though we experienced oil price shocks in the 1970's and 1980's, the vast majority of the energy used in the United States is, even today, produced in the United States. Our coal, oil, natural gas, nuclear, and renewable resources all contribute to a diversified and reliable energy picture.

However, we are entering a new era in energy supply. As highlighted in the President's National Energy Policy, forecasts indicate that our need for energy—even with ambitious implementation of energy efficiency measures across all sectors of the economy—will continue to grow as our economy grows. The Energy Information Administration forecasts that by 2025, the United States will import 38 percent of all of its energy and 68 percent of its energy for transportation uses. Buried in these estimates is an ominous fact that has escaped casual notice—the United States will, over this period, begin a steadily increasing dependence on imports for fuels needed for electricity generation that may, over the coming decades, follow the patterns of our accelerating dependence on imports required for the transportation sector.

To meet these challenges while still assuring America's access to reliable baseload electricity—while setting a path toward reduced emissions—we must apply advanced technologies. New technology can help us to exploit renewable energy sources when they are practical, and enable coal to continue as a viable, long-term element of our energy supply. And as the President conveyed in his State of the Union address, we must consider new nuclear energy as part of our long-term energy picture.

The Department of Energy's nuclear energy program has made significant progress over the past several years. From the time, not so many years ago, when it appeared that the United States might abandon advanced nuclear research and development, we have been successful in reasserting U.S. leadership in this area around the world. Representing the United States, I have been elected by my international colleagues to serve as the chair of two important international bodies—the Organization of Economic Cooperation and Development Steering Committee on Nuclear Energy and the Generation IV International Forum.

We continue to build on our leadership. Just a few weeks ago, we celebrated the launch of the Nation's central laboratory for nuclear research and development—the Idaho National Laboratory (INL). This new national laboratory combines the resources of the former Idaho National Engineering and Environmental Laboratory (INEEL) and the former Argonne National Laboratory-West (ANL–W). The INL will lead much of the Department's exploration into advanced nuclear reactor and fuel cycle technology. We have set an aggressive goal for the new INL to become the world's premier center for nuclear energy research and education within a decade.

Developing a central research laboratory is a major step forward for the nuclear energy program. We, like other key energy programs at the Department, have created a central, dedicated research site at which we can consolidate our infrastructure investments and build the expertise needed to accomplish our long-term program goals. A central lab also helps us minimize the shipment of nuclear materials across the country and allows us to bring our nuclear materials together in a single, secure location. In addition, we expect that our new central, dedicated research laboratory will become a major player in the education of the next generation of nu-

clear energy technologists that this Nation will need to assure our energy security in the future.

The Department's fiscal year 2006 request for the nuclear energy program proposes a $511 million (an increase of $25 million compared to fiscal year 2005) investment in nuclear research, development, education and infrastructure for the Nation's future that is designed to continue this progress. This budget request demonstrates our commitment to support the President's priorities of enhancing the Nation's energy independence and security while limiting air pollution. Our request supports the development of new nuclear generation technologies and advanced energy products that will provide significant improvements in the economics, sustainability, safety and reliability of nuclear-based energy, as well as its resistance to proliferation and terrorism.

We are committed to efficiently managing the funds we are provided. We have abandoned outdated field office and laboratory management paradigms and have integrated the Idaho Operations Office with our headquarters organization, enabling us to closely manage our responsibilities in the field to achieve greater quality and efficiency. We are enhancing our expertise in critical areas such as project management through training and certification of existing staff and the acquisition of experienced, proven managers. We are also applying international and public-private partnerships in the implementation of our research and development programs as a way of leveraging our investments and assuring the utility of our programs. We believe these steps must be taken to assure our program's ability to make the best use of the taxpayer dollars.

While we have made great progress in all these areas, much remains to be done. Our fiscal year 2006 request moves us in the right direction.

NUCLEAR POWER 2010

Today, American utilities operate 103 nuclear power plants. These facilities operate reliably and efficiently and provide a fifth of the Nation's electricity. These plants are emissions-free and can operate year-round in all weather conditions.

Over the last 15 years, nuclear utilities in the United States have been increasingly better managed, improving both efficiency and safety. In the early 1990's, U.S. plants were available to produce energy only 70 percent of the time on average. These plants are now producing power over 90 percent of the time. More efficient operation has allowed nuclear plant operators to produce more energy than ever before, adding the equivalent of 25 new nuclear plants to the U.S. grid since 1990 without building any new nuclear power plants.

Consolidation of nuclear plant ownership to a fewer number of excellent operators has made the operation of U.S. plants safer than ever, more cost-effective, and more reliable. Companies acquiring nuclear plants are the leaders in the nuclear industry with high marks in operating performance. These utilities bring newly acquired plants the benefit of economies of scale, experienced staff, well-honed management processes. As a result of this success, essentially all U.S. nuclear plants are expected to apply for renewed licenses that will keep most plants in operation into the middle of the century. There will also be some new generation, with The Tennessee Valley Authority rebuilding a plant that ceased operating in 1985. TVA expects to invest $1.8 billion to bring a 1,065-megawatt plant on-line by 2007.

With renewed interest from industry, the Department is investing in the Nuclear Power 2010 Program. This program's basic missions are to cost-share with industry demonstration of new, untested Nuclear Regulatory Commission licensing processes, finding sites on which to build new plants, and certifying state-of-the-art (or "Generation III+") designs for new nuclear power plants. The program also conducts economic studies and analysis that help point to the barriers facing the construction of new plants.

While it is too early to determine success, this program appears to be on the right track. Three utilities are cooperating with the Department to obtain "Early Site Permits" for three sites across the country—the first time this important regulatory tool has ever been used. The Nuclear Regulatory Commission is currently reviewing the utilities' applications and is expected to issue these permits during fiscal year 2006. Once done, these utilities will have sites that are pre-approved by regulators to host new plants. This process will avoid the problems in siting that vastly escalated the cost of some plants in the 1980's and led to the abandonment of others (most notably the Shoreham plant in New York).

In November 2004, the Nuclear Power 2010 program took its next major step by awarding two major projects to utility-led consortia to implement plans that could lead to the construction and operation of new U.S. nuclear plants. Central to this effort, these projects will demonstrate—again, for the first time—the Nuclear Regu-

latory Commission's combined Construction/Operating License (or "one-step" license) process. These projects could result in a new nuclear power plant order by 2009 and a new nuclear power plant constructed by the private sector and in operation by 2014.

In addition to regulatory barriers, it is also important to deal with the financial barriers facing new nuclear power plant projects. Under the Nuclear Power 2010 program, DOE sponsored an independent study by the University of Chicago's Department of Economics. This study found that the first few nuclear power plants built in the United States would be too costly for utilities to build because of early plant costs. These high initial costs arise because the United States has not built nuclear plants in a very long time—the resulting new design, construction, licensing, and financial uncertainties are reflected as higher costs. However, the study found that once these early plant costs are absorbed, new nuclear power plants may be less expensive to build and operate than either coal-based power plants or natural gas-fired plants.

The need to deal with these early plant costs is expected to become a central issue for the industry as the Nuclear Power 2010 program addresses the institutional barriers. Without the construction of new plants, the contribution of nuclear power as a percentage of the Nation's total energy mix will steadily decline. Supporting nuclear power helps to maintain a more diversified energy supply and, because it is emissions-free, will not contribute to air pollution—nuclear power today comprises almost 75 percent of all the non-emitting power generation in the country. The President's Budget supports continuation of the Nuclear Power 2010 initiative in fiscal year 2006 with a request of $56 million (an increase of $6.4 million compared to fiscal year 2005).

GENERATION IV NUCLEAR ENERGY SYSTEMS INITIATIVE

Our Generation IV effort continues to make significant progress. Since the Generation IV International Forum (GIF) and the Nuclear Energy Research Advisory Committee (NERAC) issued their joint report, A Technology Roadmap for Generation IV Nuclear Energy Systems, the members of the Forum have expanded to include Switzerland and the European Union. The now eleven members (Argentina, Brazil, Canada, the European Union, France, Japan, the Republic of Korea, the Republic of South Africa, Switzerland, the United Kingdom and the United States) have organized into interest groups associated with each of the six selected Generation IV.

A landmark international framework agreement for collaborative research and development among the GIF member countries was signed in Washington, DC, by the United States and its GIF partners on February 28, 2005. The Framework Agreement for International Collaboration on Research and Development of Generation IV Nuclear Energy Systems, which has been under negotiation for the past year, will allow the United States and its partner countries to embark on joint, cost-shared research and development of Generation IV nuclear energy systems. These next-generation nuclear technologies offer the potential for significant improvements in sustainability, proliferation resistance, physical protection, safety and economics. The agreement will further the development of advanced technologies that are widely acceptable; enable the Department to access the best expertise in the world to develop complex new technologies; and allow us to leverage our scarce nuclear R&D resources.

With this agreement in place, we are moving forward with these countries to develop advanced reactor technologies that could be made available in the 2020 to 2030 timeframe. Generation IV concepts offer significant improvements in the sustainability, proliferation resistance, physical protection, safety and economics of nuclear energy. These advanced systems will not only be safe, economic and secure, but will also include energy conversion systems that produce non-electricity products such as hydrogen, desalinated water and process heat. These features make Generation IV reactors ideal for meeting the President's energy and environmental objectives.

We will explore a range of Generation IV concepts, including the Supercritical Water-Cooled Reactor, the Gas-Cooled Fast Reactor and the Lead-Cooled Fast Reactor. Our efforts will focus on establishing technical and economic viability, and developing core and fuel designs, and advanced materials for these concepts. We request $45 million (an increase of $5.3 million compared to fiscal year 2005) support our investigation of technical and economic challenges and risks, including waste products, to inform a decision on whether to proceed with a demonstration of the Next Generation Nuclear Plant (NGNP), which would use very high temperature reactor technologies to economically produce both electricity and hydrogen gas. The

President's Budget supports advanced research into the systems, materials, and fuels that are needed to bring Generation IV concepts to fruition. Key to the strategy for conducting all Generation IV research and development is the multiplication effect derived from international collaboration. By coordinating U.S. efforts with those of the GIF partner nations, our funding is leveraged by a factor of 2 to 10, depending on the reactor concept involved.

We are also working in close cooperation with the Department's Office of Science through the "Materials for Advanced Energy Systems Initiative" to coordinate the research advanced materials for use in Generation IV nuclear energy systems, fusion energy systems, and advanced energy technologies such as hydrogen production systems. Through a joint working group, the offices are coordinating on energy materials related issues with the purpose of investigating materials behavior in high temperature, radiation, and hostile corrosive environments, as well as the fabrication and non-destructive evaluation or monitoring of such materials. As common projects are identified, the offices will work to establish research objectives and cooperative work plans to leverage research funding.

NUCLEAR HYDROGEN INITIATIVE

Hydrogen offers significant promise as a future domestic energy source, particularly for the transportation sector. The use of hydrogen in transportation will reduce U.S. dependence on foreign sources of petroleum, enhancing national security. Hydrogen can be combusted in a traditional internal combustion engine, or can produce electricity in a fuel cell. Significant progress in hydrogen combustion engines and fuel cells is bringing transportation using hydrogen closer to reality. Before hydrogen can become a significant part of the Nation's energy infrastructure, the cost associated with the production, storage, and delivery of hydrogen must be reduced considerably.

Today, through electrolysis, we can convert water to hydrogen using electricity. Without using a non-emitting technology, such as nuclear or renewable energy, to produce the electricity, the environmental benefits of electrolysis are negated. We believe that for the future, Generation IV systems coupled with advanced hydrogen production technology offer a more efficient technology for production of large quantities of hydrogen without release of greenhouse gases. This technology could pave the way for the commercial production of clean-burning hydrogen for transportation purposes—reducing our reliance on imported fossil fuels and supporting the President's vision for a future hydrogen economy.

The DOE Hydrogen Posture Plan and the Nuclear Hydrogen R&D Plan outline our plan for integrating and implementing technology research, development and demonstration activities needed to cost-effectively produce, store, and distribute hydrogen for use in fuel cell vehicles and electricity generation. These documents are revised periodically and used to inform our annual budget requests. Technology development work to date, which has been conducted in accordance with these plans, has proven successful. For example, last year, experiments were successfully completed on individual high-temperature electrolysis cells for hydrogen production. Since the results show that the hydrogen output of the cells closely matched the theoretical calculations, this year we are evaluating the performance of stacks of cells to achieve higher hydrogen production rates. In fiscal year 2006, the program will proceed with the plan to test cell stacks for long-duration and transient operation. As a result of these achievements, the fiscal year 2006 budget request includes an increase of $11 million to conduct research and development on processes that operate across a range of temperatures for various advanced reactors being considered under the Generation IV Nuclear Energy Systems Initiative.

ADVANCED FUEL CYCLE INITIATIVE

In addition to leading the development of a new generation of nuclear power plants, the Department is developing and demonstrating technologies that will enable the United States and other advanced countries to implement an improved, long-term nuclear fuel cycle that provides substantial environmental, nonproliferation, and economic advantages over the current once-through nuclear fuel cycle. The Advanced Fuel Cycle Initiative is a research program to develop new technologies for reducing the volume, toxicity, and longevity of the high-level nuclear wastes that result from the production of energy from nuclear power plants. The initiative is designed so that these technologies can be made available to support the operation of current nuclear power plants, Generation III+ light-water reactors, and Generation IV advanced reactors in order to achieve a significant reduction in the amount of high-level radioactive waste requiring geologic disposal; to significantly reduce the

amount of plutonium accumulated in civilian spent nuclear fuel; and to extract more useful energy from nuclear fuel.

Under all scenarios, the Nation will need to establish a permanent geological repository to deal with the radioactive wastes resulting from the operation of nuclear power plants. Substantial growth in the use of nuclear energy in the United States will require the construction of additional geologic repositories to address the nuclear waste generated over time. The advanced research conducted under the Advanced Fuel Cycle Initiative, if successful, could provide an alternative to building multiple "Yucca Mountains" while still supporting an expanding role for nuclear power in the United States. In the longer term, the Advance Fuel Cycle Initiative could enable us to extend the useful life of the Yucca Mountain repository and reduce the radiotoxicity of the wastes it contains such that it would decay to the toxicity of natural uranium ore in less than 1,000 years—instead of over 100,000 years as is the case with untreated spent fuel. This technology could also allow nuclear plants to exploit a far higher fraction of the energy contained in uranium ore, potentially expanding the lifetime of the world's nuclear fuel resources from around 100 years up to 1,000 years.

The Advanced Fuel Cycle Initiative, with an investment of $70 million for fiscal year 2006 (an increase of $2.5 million compared to fiscal year 2005), will continue the progress made in the development of proliferation-resistant treatment and transmutation technologies that can reduce both the volume and toxicity of spent nuclear fuel. These technologies would support both national security and energy independence by reducing inventories of commercially-generated plutonium while recovering residual energy value from spent nuclear fuel. If successful, these same technologies offer benefits of enhancing national security by reducing inventories of commercially-generated plutonium and enhancing energy independence by recovering the energy value contained in spent nuclear fuel.

The program has already enjoyed considerable success. We have proven the ability of our URanium EXtraction (UREX) technology to separate uranium from spent fuel at a very high level of purity. We have demonstrated the ability of a derivative technology, UREX+, to separate a combined mixture of plutonium and neptunium that can serve as the basis for a proliferation-resistant fuel for light water reactors. While the UREX+ process has great potential to address the spent fuel challenges associated with today's light water reactors, we have also been investigating an alternative separation technology called pyroprocessing. This technology is a highly efficient, proliferation-resistant non-aqueous approach to separate the actinides in spent fuel from fission products. Among other potential applications, pyroprocessing could support the reduction of the radiotoxicity of nuclear waste through the transmutation of minor actinides in future Generation IV fast spectrum reactors providing the means for closure of the fuel cycle for Generation IV fast reactors.

For the Advanced Fuel Cycle Initiative to be successful, advanced fuel treatment and transmutation research and development must be integrated with the development of Generation IV nuclear energy systems, particularly with those reactor technologies that can produce the high energy neutrons needed to transmute a wide variety of toxic radioactive species. We have organized our national labs, universities, and international collaborations in a manner that will enable the success of the Advanced Fuel Cycle Initiative.

UNIVERSITY REACTOR INFRASTRUCTURE AND EDUCATION ASSISTANCE

In addition, the Department has paid close attention to developments impacting university research reactors. The research conducted using these facilities is critical to many national priorities. Currently, there are 27 operating university research reactors at 26 campuses in 20 States. These reactors are providing support for research in such diverse areas as medical isotopes, human health, life sciences, environmental protection, advanced materials, lasers, energy conversion and food irradiation.

The most exciting development in University Reactor Infrastructure and Education Assistance is the Innovations in Nuclear Infrastructure and Education (INIE) Program established in fiscal year 2002. The consortia have demonstrated remarkable collaborative efforts and strong formation of strategic partnerships between universities, national laboratories, and industry. These partnerships have resulted in increased use of the university nuclear reactor research and training facilities, upgrading of facilities, increased support for students, and additional research opportunities for students, faculty and other interested researchers. Today, the Department funds six INIE consortia, providing support to 32 universities in 23 States across the Nation.

To complement INIE and the other university assistance programs, the University Reactor Infrastructure and Education Assistance program provides assistance to universities to improve the operational and experimental capabilities of their research reactors and provides for the fabrication and shipment of fresh fuel to their research reactors.

Grants are provided to universities to purchase equipment and services necessary to upgrade the reactor facilities, such as reactor instrumentation and control equipment, data recording devices, radiation, security and air monitoring equipment, and gamma spectroscopy hardware and software. Each year, as many as 25 universities request and receive this assistance. The Reactor Sharing program enables universities with reactors to "share" access to their facilities with students and faculty at their own institutions, with universities that lack such a facility, and with visiting students from other local institutions including high schools and middle schools. The reactors are made available for use in research, experiments, material irradiations, neutron activation analysis and training, and for facility tours and other educational activities.

The growth of nuclear energy in the United States is dependent on the preservation of the education and training infrastructure at universities. The Department has played a substantial role in reversing the decline in undergraduate enrollments in this area of study. In 1998, the United States saw only around 450 students enroll as nuclear engineers—down from almost 1,500 in 1992. After several years of focused effort, the United States now has nearly 1,600 students studying nuclear engineering. That number is set to increase further, as strong programs—such as at Purdue and Texas A&M—continue to grow and we see new programs start at schools such as South Carolina State University, the University of South Carolina, and the University of Nevada-Las Vegas. Given the very large number of retirements expected in the nuclear field over the next 5 to 10 years, industry, government, and academia find that this upswing in student interest comes at a critical time.

The Department provides tuition, stipends, and a practicum to outstanding graduate students studying nuclear engineering and health physics and scholarships and a practicum to undergraduate students pursuing a nuclear engineering course of study. This highly competitive program has produced outstanding graduates who have become leaders in nuclear research and university education. Also, within the fellowships and scholarships program is the University Partnership program, which encourages students enrolled at minority-serving institutions to pursue a nuclear engineering degree at universities with nuclear engineering programs. There are currently six university partnerships consisting of 13 institutions working cooperatively in this innovative program. South Carolina State University (SCSU) and the University of Wisconsin were involved in the pilot program and now SCSU administers the program for all university partnership members. SCSU has also added two nuclear engineering faculty members and has become the only historically black college or university in the United States with an accredited nuclear engineering program.

We continue our small but important effort to provide scholarships and graduate fellowships to students studying the vital and too-often overlooked discipline of health physics. The Department is concerned that the Nation may soon not have the trained health physicists who are needed to assure the safety of vital nuclear and radiological activities. This program will help heighten the visibility of health physics as a viable career opportunity and strengthen the health physics pipeline to replace retiring professionals.

The Nuclear Engineering Education Support program prepares students for nuclear engineering and science careers and assists universities with special needs to improve their educational infrastructure. This program is helping to address the knowledge gap of incoming college freshmen in the area of nuclear science and engineering. In fiscal year 2005 a nuclear science and technology education pilot was established between the Department and the Pittsburgh Public School System to provide advanced placement high school science students an intensive educational experience in the field of nuclear science and technology. This effort provides course materials, tours to nuclear facilities, and lectures from internationally-recognized experts. In fiscal year 2006, the program will expand its efforts to enlist local organizations in sponsoring the model used in the Pittsburgh pilot program to other school systems across the country, thereby strengthening the understanding of nuclear science in our public schools.

The President's Budget supports continuation of the University Reactor Infrastructure and Education Assistance Program in fiscal year 2006 with a request of $24 million (an increase $190,000 compared to fiscal year 2005).

RADIOLOGICAL FACILITIES MANAGEMENT

In addition to nuclear research and development programs, we have the responsibility to maintain and enhance the Nation's nuclear science and technology infrastructure. This budget request also includes $64.8 million (a decrease of $3.7 million compared to fiscal year 2005) to fund the management of the Department's vital resources and capabilities at Oak Ridge National Laboratory, Los Alamos National Laboratory, Sandia National Laboratory, and Brookhaven National Laboratory in a safe, secure, and cost effective manner to support national priorities. The mission of the Radiological Facilities Management program is to maintain these critical user facilities in a safe, environmentally-compliant and cost-effective manner to support national priorities. These funds assure that NE facilities meet essential safety and environmental requirements and are maintained at user-ready levels. Actual operations, production, research, or other additional activities are funded either by other DOE programs, by the private sector, or by other Federal agency users.

The Department is responsible for maintaining the necessary nuclear material and infrastructure that is required to deliver plutonium-238 fueled radioisotope power systems (using plutonium-238) to various Federal users. These systems are an irreplaceable enabling technology for deep space exploration missions and national security missions. As part of the Department's emphasis on consolidating nuclear material, increasing nuclear security, reducing nuclear risks, and addressing secure transportation issues, we are currently performing an environmental review to assess the consolidation of all of our plutonium-238 operations. DOE has identified consolidation at the Idaho National Laboratory as the preferred alternative for this proposed action.

In addition, the Radiological Facilities Management program assures appropriate oversight of the operations and maintenance of the Department's Paducah Gaseous Diffusion Plant uranium enrichment facilities to assure that USEC Inc. meets its commitments under the 2002 DOE-USEC Agreement and that the government's rights and options are being preserved.

The fiscal year 2006 $64.8 million budget request includes $18.7 million to prepare the final design, procure equipment, and begin facility modifications for the Uranium-233 Disposition Project at Oak Ridge National Laboratory. This project is aimed at stabilizing materials left over from the Cold War to address a Defense Nuclear Facilities Safety Board recommendation, while extracting isotopes from the uranium that are needed for very promising medical research.

IDAHO FACILITIES MANAGEMENT AND IDAHO SITEWIDE SAFEGURDS AND SECURITY

The Idaho Facilities Management program maintains the Department's facilities at Idaho in a safe, secure and environmentally compliant condition for a range of vital Federal missions. The Idaho Site-wide Safeguards and Security program supports activities that are required to protect the Department's Idaho complex assets from theft, diversion, sabotage, espionage, unauthorized access, compromise, and other hostile acts which may cause unacceptable adverse impacts on national security, program continuity, the health and safety of employees, the public, or the environment.

We have now established the Idaho National Laboratory (INL), which combines the resources of the former Idaho National Engineering and Environmental Laboratory (INEEL) and the former Argonne National Laboratory-West (ANL–W). This new lab began operations on February 1, 2005, and will lead much of the Department's exploration into advanced nuclear reactor and fuel cycle technology. We have set an aggressive goal for the new INL to become the world's premier center for nuclear energy research and education within a decade.

Developing a central research laboratory is a major step forward for the nuclear energy program. We have now joined the other key energy programs at the Department by having a central, dedicated research site at which we can centralize our infrastructure investments and build the expertise needed to accomplish our program goals. A central lab also helps us minimize the shipment of nuclear materials across the country and allows us to bring our nuclear materials together in a single, secure location. In addition, we expect that our new central, dedicated research laboratory will become a major player in the education of the next generation of nuclear energy technologists that this Nation will need to assure our energy security in the future.

Our funding request of $80.1 million from Energy Supply and $17.8 million from Other Defense Activities for the Idaho Facilities Management program maintains and operates the Department's facilities at Idaho in a safe, reliable, and environmentally compliant condition for a range of vital Federal missions. The overall funding for the Idaho Facilities Management program decreases from fiscal year 2005

to fiscal year 2006 because of a $43.4 million one-time cost associated with restructuring the INL complex and supporting site infrastructure services. This decrease is offset by an increase of $19.7 million for maintenance and recapitalization projects to support the goal of achieving and maintaining an expenditure rate of 2 to 4 percent of Replacement Plant Value, a level recommended by the National Academy of Sciences and incorporated in Departmental guidance, for the facilities at INL. One of the essential facilities for ongoing and planned national security and energy research programs at the INL is the Advanced Test Reactor (ATR). Replacing the ATR with a new test reactor with similar capabilities would exceed $2 billion dollars and likely take at least 10 years to build. An independent review group of reactor experts studied the ATR and provided their perspectives on the life extension of the reactor. This review prompted several projects, most notably an exhaustive safety basis reconstitution to assure that all safety related systems meet modern standards. This project is in progress and results to date are favorable.

The recommendations of this review and other analyses will be incorporated into the INL Ten-Year Site Plan (TYSP), which is the foundation for INL facilities and infrastructure strategic planning and the cornerstone of the Program's initiative to restore the INL and the other essential facilities on the site. The TYSP provides recommendations for short- and long-term recapitalization of existing mission essential facilities and infrastructure. The TYSP identifies and prioritizes the project, activities, and mission resource requirements for real property assets that cover a 10-year planning horizon as well as includes a prioritized list of maintenance, repair, and recapitalization projects necessary to correct the maintenance backlog.

Our budget request of $75 million (an increase of $17.3 million compared to fiscal year 2005) from the Other Defense Activities appropriations account for the Idaho Sitewide Safeguards and Security program supports activities that are required to protect the Department's Idaho complex assets from theft, diversion, sabotage, espionage, unauthorized access, compromise, and other hostile acts which may cause unacceptable adverse impacts on national security, program continuity, the health and safety of employees, the public, or the environment. As a result of merging the former INEEL and ANL–W sites into the INL, the two existing safeguards and security programs at the Idaho site will be merged into a single program. This integration will continue in fiscal year 2005 with additional changes anticipated to increase efficiency and contain costs for safeguards and security for the site.

The Department issued a revised Design Basis Threat in October 2004. These requirements will be implemented using a risk-informed approach to physical upgrades and by seeking efficiencies associated with combining the two contracts. The Department believes that early investment in improved positions for defending forces, more capable detection systems, and technological deterrent devices at target locations will result in cost avoidance over the lifetime of enduring facilities by reducing the number of additional protective force members needed to counter the revised threat. The fiscal year 2006 request reflects increased funding of $17.3 million to permit these investments.

CONCLUSION

Our Nation cannot rely on any single energy technology to secure its future. A broadly diverse energy supply has served us well in the past and must be available for the future. Nuclear energy should be a part of that diverse portfolio as look to support our growing economy while limiting air emissions and enhancing America's energy independence.

The Department of Energy's goal is to work with the private sector, our overseas partners, and other agencies to assure that the benefits of nuclear technology continue to increase the security and quality of life for Americans—and other citizens of the world—now and into the future.

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 tasks ahead.

I would be pleased to answer any questions you may have.

Senator DOMENICI. Thank you. Dr. Orbach, we appreciate having you here, and even before you testify, I want to thank you and congratulate you on your excellent work on behalf of our country.

Dr. ORBACH. Thank you.

Senator DOMENICI. Please proceed. You've already, did you have anything further to add, Doctor?

Dr. ORBACH. No, thank you.

LINEAR NO THRESHOLD MODEL

Senator DOMENICI. Well, I wanted to start with you, Doctor, and just ask you—or congratulate you—and ask you to comment a little bit. As you know, this subcommittee started a research program to determine whether the low dose radiation standard that we had—which is commonly known as the Linear No Threshold model, LNT—whether it was the appropriate model to determine risk, and thus to use to set standards for clean up and exposure. You're familiar with the research that's been done in the Department, and are you the supervisor of that, or what is your role?

Dr. ORBACH. Yes, as Director of the Office of Science, I'm responsible for that program. It works through our Office of Biological and Environmental Research directed by Dr. Ari Patrinos. They have made major strides in that area, thanks to your support. They have now, I think, more or less laid to rest the LNT model. It is not an adequate method of determination of low dose effects, it works entirely on isolated cells—which we know not to be typical of tissue. We believe that the results of our own research that you have helped initiate and support, point to collective interactions in tissue, and as Dr. Patrinos informed you last week, we believe that within 5 years, we can determine the genetic susceptibility and also the difference of response between isolated cells and tissues, leading to—what we believe would be—robust models which could serve as vehicles for a credible prevention of radiation injury standard for this country.

Senator DOMENICI. Now, all of this, from somebody who has been really looking at it, thinking about it, sounds like it's really something significant. In terms of what's going on in the country, what might it mean if there is a new standard? Take some things happening in the country that we might be overdoing, or that we might be doing that we don't need to do, and could you give us some examples?

Dr. ORBACH. I can think of two immediate examples, first of all, nuclear energy, where the low dose radiation is simply estimated incorrectly by the LNT model. Others would be in clean up areas——

Senator DOMENICI. Let's just stop at the first one.

Dr. ORBACH. Yes.

Senator DOMENICI. So, it's currently incorrect, which means that we are setting standards which are not necessary in terms of protecting public health from the low dose?

Dr. ORBACH. Yes, Senator.

Senator DOMENICI. So, from a practical standpoint, what does that mean with reference to nuclear power, or nuclear activities?

Dr. ORBACH. It means that we could be spending a great deal more money than is necessary to protect human health. We still have to determine the effects of low dose, but we believe that there are differences between individuals, and that remarkably, tissues seem to be able to repair themselves by cell death when a cell does suffer radiation, something which is actually a measure of protection, built into the way tissues behave. But the consequence of that is that we do not have the appropriate standards, and we may be spending billions that we don't need to, to protect human health.

Senator DOMENICI. You had a second one.

Dr. ORBACH. The second one is involved in clean up, where we have background radiation, and also radiation from the sites themselves. The same situation applies, we need to understand the real effects of low dose—this is low dose radiation—it is simply incorrect to use this isolated cell results to set that.

I should say, with regard to the latter, again with your encouragement and support, we are developing microbes which can be very effective in terms of clean up, so we have a microbe called geobactor, which can change uranium from soluble to insoluble, so as to remove the problem of contamination in the soil over large distances. We believe through our Genomes to Life program, we can be very effective in both of these efforts.

Senator DOMENICI. So, about 8 years ago, the Department of Energy brought us a flow sheet as to what it might cost to clean up Hanford, the great leftovers in the Savannah River, Rocky Flats, and the predictions were maybe over 20 years, $180 billion—I'm just guessing—but huge. Now what we're talking about—maybe, most probably—those estimates, if they were using the Linear No Threshold dosage as the guide against which you would measure the cleanup, that may be a very inaccurate number in terms of cost. Is that, in a sense, what we're saying?

Dr. ORBACH. Yes, yes, Mr. Chairman, that is exactly what I'm saying.

Senator DOMENICI. So that means without harming the public, we could do things completely different, or somewhat different, and it would cost a lot less money?

Dr. ORBACH. Yes.

Senator DOMENICI. Well, I know this is kind of a threshold issue for a lot of people, especially those who are frightened to death of radiation, period, and thus oppose nuclear power, oppose anything like that. This is going to have to be scientifically sound, or it will be a useless endeavor. Are you taking care that this program is being properly peer reviewed, and only the best of scientists, and they are not—in any way—prejudiced toward nuclear—or any other source—of radiation?

Dr. ORBACH. Mr. Chairman, all of the research that's done in this area is peer reviewed by the community, and only the highest ratings are funded. My statements on the failure of the LNT is a strong statement, but it is backed by the best research in science, and I will stand behind that research as fully supportive of scientific rigor.

Senator DOMENICI. Your strong statement can be summarized one more time, with reference to the Linear No Threshold is what?

Dr. ORBACH. The results of our research, which show the Linear No Threshold radiation limits, or radiation dosage, and effect, are incorrect for low dose radiation, and—though supported by isolated cells—do not, in fact, describe what happens in tissue, or in groups of cells.

Senator DOMENICI. Now, why do you need 5 more years?

Dr. ORBACH. Because of that very rigor which I mentioned to you. We need to establish models which will be based on the scientific results. I'm hopeful it could be more rapid, but I'm trying

to be as careful as I can. These models, then, would be used to assess radiation levels which will protect human health.

Senator DOMENICI. We have some other detailed questions; we'll submit them to you, Doctor.

Mr. Magwood, let me ask you, I've been saying—not here for the first time—but, I've been saying that within 5 years, we should have a license application for a nuclear power plant in the United States, we should have one of those completed, and the site location plan improved and completed in 5 years. Is that a—in your opinion, as one who is working in that area—if that's not a correct statement, would you tell us what you think?

Mr. MAGWOOD. I think it's a very correct statement, I think it's entirely possible that we could see that happen before 5 years. The utilities we're working with through the Nuclear Power 2010 program have established plans, that if they are brought to fruition, would see the one-step licenses for new nuclear power plants completed, around 2008, 2009, certainly within the 5 years you mentioned.

Senator DOMENICI. Now, I guess there's always a risk when—you're ready to move from a stalemated application of technology, which is where we've been, and you want to start up again—there's always a risk that in the meantime, you're trying to do something so new, and so different, that instead of expediting, you waste time, because you're trying to get the next, and then the next, and you don't decide on what you're going to use. I read a little bit that there might be a risk of us trying to prove up too much in terms of a new reactor, instead of being ready with something in this 2-, 3-, 4-, 5-year range. What about that?

Mr. MAGWOOD. I don't think that's a danger, Mr. Chairman. The utilities, as a group have—in this country—concluded that they will build, most likely, one of three designs, and the very high probability of one of two designs, or maybe two of those designs, and I think that the field has narrowed considerably. There's always going to be discussion on other possible technologies, but the serious utilities are focused on a very, very small number of technologies that are out that are very much available to the market today.

Senator DOMENICI. Mr. Garman, with reference to hydrogen and transportation, I notice you've told us how much the budget is, and it's a pretty robust program, at least it sounds like it. I would assume in terms of dollars the automobile manufacturers are spending in this area, there's a lot more money being spent than just our money.

Mr. GARMAN. That's correct.

Senator DOMENICI. Do you have any way of describing for us, for the record, what's going on overall?

Mr. GARMAN. It's very difficult—with any precision — to estimate what the private sector is spending, because it's proprietary, and a lot of automobile companies don't really want others, or their competitors to know, with precision, but I believe General Motors has made the public statement, for example, that they have committed over a half a billion dollars to fuel cell technology in vehicles. I have been to Japan, I have seen what Toyota, Nissan and other Japanese companies are doing; I've been to Europe and have

seen what those companies are doing. I think it's fair to say that billions and billions of dollars have been committed for this effort.

Senator DOMENICI. Okay, with all that going on, so that we have some idea what is probable, and what isn't, what do you think we're looking at in terms of the timeframe when we might have a variety, something to choose from, or the public might be involved in using?

Mr. GARMAN. I think the original 2020 timeframe that we've expressed continues to hold true today. Some auto makers have said they might, General Motors in particular, maybe they can go a little quicker than that, but I still see substantial technical obstacles. We have some technical challenges, which include things such as storage on board the vehicles that have to be overcome. I think the 2020 estimate is a good one; I don't think auto makers will be in a position before 2015 to really be able to make a business case decision on whether or not to proceed with the investment that will be needed in both the infrastructure and the vehicles, so 2020 is still what we're looking at.

Senator DOMENICI. We have CAFE standards which apply to fleets, but what's happening aside from that in terms of automobiles being produced that are either hybrids or get better mileage performance? Is there some headway being made by either American manufacturers, or by those who sell cars in America?

Mr. GARMAN. There's a great deal of headway, it's just that the efficiency improvements have generally been turned into performance. The four cylinder vehicle that you buy today has the performance of the eight cylinder vehicle that I bought when I was a teenager. And there are a number of different technologies that are available, and in use today, such as hybridization, continuously variable transmission, variable valve timing, even people are beginning to think about camless engines, and a new trend on the horizon is what I call the "dieselization" of the gasoline engine—a compression ignition engine. There are still a lot of efficiency improvements that can be made to internal combustion engines, and those types of technologies are—let me put it this way—I've driven some things on automotive proving grounds that I can't talk about, because I signed a non-disclosure agreement, but technologies are being developed, they are available, and they can be geared toward greater efficiency, or greater performance, or both.

Senator DOMENICI. We're going to have five stacked votes, so if we were to leave you here waiting, you'd be stacked here all afternoon, so I'm just going to ask Dr. Orbach a question.

In your capacity as the head of the Office of Science, are you—in any way—charged with looking at what the state of dependence on crude oil by America, in terms of the future, might be? Or do you not involve yourself in that?

Dr. ORBACH. We are committed to support the Department of Energy's energy security responsibility. Two years ago we held a major conference on energy security, and basic research needs of this country in order to approach energy security. Last year we had a major conference on hydrogen. Mr. Garman has talked about the hydrogen initiative; we are working together with EERE on the issue of hydrogen generation, storage, and fuel cells, from a basic research perspective, and this spring we are having a solar energy

conference to look at alternate ways, improved ways of taking solar energy and producing electricity, or hydrogen.

We are attempting to support the full panoply of Departmental responsibilities through basic research, and through opportunities. In that sense, we are providing our own contribution to energy security for this country.

Senator DOMENICI. Well, I would just like to share with you, and then we'll close the meeting down with some questions to all of you, and you can turn them in within a week, 10 days, something like that. In preparing for this ANWAR debate, I have had to gather up as much information as I can with reference to the United States—how much we use, how much we're projected to use by way of petroleum products, products from crude oil, and natural gas—and I've come to the conclusion that we are a country at great risk, right now. People don't have to—we don't have to ask you to tell us when—it's already here. Our production is going to go no where but down as a Nation, unless something dramatic happens in Alaska, and that's—every time you turn around, that's terribly difficult. We are the 12th largest, we have the 12th largest reserves of all the countries, in America, and our reserves are—from what we know—they're not going anywhere but down, because we've done everything we can, and the prices are about as high as they can be, and that's all we've got. It looks like we don't know how to cut down on the use very much. You can say conserve, therefore you won't need ANWAR, but seems to me you need both—things are in such horrendous shape. I would think somebody has to be looking at, just in basic security, from a basic security standpoint, what should we do to produce some kind of oil from some source that we don't know get it, whether it be tar sands, or oil shale, something. Because we could be in a terribly dangerous condition if the supply of oil curtailed—worldwide, if it were curtailed just a few million barrels a day—the United States would be in terrible shape—and our balance of trade is just getting slaughtered by us having to buy oil—nobody knows that—but soon we'll have 30 percent of our balance of trade will be, we keep worrying about, I think it's Chinese sales—it's crude oil as much as Chinese sales, it's almost 30 percent of the balance of trade is oil, and look at what's happening with the price.

ADDITIONAL COMMITTEE QUESTIONS

So, I think that more than one person has to be concerned in the government, and you had the wherewithal to at least look at the numbers and do the science, because it is a very serious problem. I know of your great capacity to be far sighted, and yet be practical and that's why we've laid this one before you. The work you've done on the Linear No Threshold is dramatic, and we thank you for it, we think it will change a lot of things in the country, including spending a lot less money, but it also will get rid of some fears—I would think—once doctors and others begin to accept it.

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

QUESTIONS SUBMITTED TO THE DEPARTMENT OF ENERGY

QUESTIONS SUBMITTED BY SENATOR PETE V. DOMENICI

NUCLEAR ENERGY PROGRAMS

NUCLEAR POWER 2010 (NP 2010)

Question. Mr. Magwood, as I noted in my statement, I am disappointed in the delays in executing the NP 2010 program. It has been 4 months since the budget was passed, providing $50 million to execute the agreements. Two weeks ago in the Energy Committee, I asked Secretary Bodman to look into the delays in finalizing the agreements between your office and the two utility consortia. When will your office execute the agreements and begin funding the cooperative these agreements? What are the terms of the agreements?

Answer. The Department has moved with diligence to issue the Nuclear Power 2010 cooperative agreements and associated fiscal year 2005 funding to the industry. The cooperative agreement with Dominion Energy was issued on March 31, 2005, and a project kickoff meeting was held with Dominion Energy and their partners General Electric and Bechtel with Department staff on April 26, 2005. The cooperative agreement with NuStart was issued on April 26, 2005, and a project kickoff meeting is scheduled for May 3, 2005.

The Dominion Energy decision to change its selected reactor technology to the General Electric Economic Simplified Boiling Water Reactor (ESBWR) design caused the Department and industry to re-evaluate project cost, cost share, and annual funding for both the Dominion Energy and NuStart projects. This is due in part to the fact that the GE ESBWR reactor design is part of both projects. In addition, NuStart has increased their request for fiscal year 2005 funds to accelerate the Westinghouse AP–1000 work scope. Both of these conditions required re-submittal of detailed vendor and subcontractor cost information by both reactor vendors to the Department. In addition, intellectual property rights and royalty terms and conditions required complex and lengthy negotiation with the reactor vendors.

The terms of the Dominion and NuStart agreements include a project period that begins in fiscal year 2005 and continues through December 2011, with each project requiring a 50 percent industry cost-share. The current total estimated costs for the Dominion project is $426 million, and $519.8 million for the NuStart project. In light of the changes to the program over the past several months, as noted earlier, these figures may change. Detailed baseline project budgets and schedules will be developed to determine funding requirements for each project. As part of each agreement, a DOE interface and project oversight procedure will be established in fiscal year 2005 to implement an agreed upon and prudent project management control mechanism.

NEXT GENERATION NUCLEAR PLANT

Question. Mr. Magwood, last year the Energy and Water bill contained a provision providing $25 million for the Next Generation Nuclear Plant to be located at Idaho National Lab. The language also required that the administration provide a plan as to how DOE will implement the NGNP strategy consistent with the President's hydrogen initiative. In reviewing the budget for fiscal year 2006, I find no mention of either the $25 million or the implementation plan. Is this administration committed to building a Next Generation Nuclear Plant at Idaho National Lab?

Answer. The Department's fiscal year 2006 budget request provides $45 million for the Generation IV Nuclear Energy Systems Initiative. This represents a $5 million increase over the 2005 enacted level of funding and allows the Gen IV program to continue long-term, high reward research and development. This research and development work will investigate technical and economic challenges and risks and will help inform a decision on whether to proceed with a demonstration.

Question. What has the administration done with the $25 million provided for the NGNP project? Does the administration intend to send up the required report?

Answer. Our primary focus at this time is to assure that the Generation IV research program is able to answer the basic viability questions regarding this advanced technology. We will continue research and development on various Generation IV reactor designs to determine their compatibility with the desired goals of sustainability, economics, and proliferation resistance. This includes work on materials performance as well as evaluating the waste products associated with various reactor designs. As these questions are answered, we can consider additional steps in the future. The Department has provided the report titled "U.S. Generation IV

Implementation Strategy", in response to Congressional direction contained in Senate Report 107–220.

ADVANCED FUEL CYCLE

Question. Mr. Magwood, the Advanced Fuel Cycle Initiative coupled to fast reactors is needed to support a long-term diversified and sustainable energy policy. What is the Department's plan for the development of advanced fast spectrum systems, and will the Los Alamos National Lab's Material Test Station be an integral part of that program?

Answer. The Department is investigating, through its Generation IV Initiative, the development of advanced fast-neutron spectrum reactors. We currently have an active R&D program for the development of a gas-cooled fast reactor concept and a lead/lead alloy-cooled fast reactor concept. A third fast reactor concept under evaluation by the Department in consultation with the Generation IV International Forum is a sodium-cooled fast reactor concept. The U.S. interest in this concept is limited to the development of transmutation fuels—a mission of the Advanced Fuel Cycle Initiative (AFCI) program.

The Material Test Station (MTS) has the potential to be an integral part of the Generation IV and AFCI programs due to its capability to provide fast reactor type irradiation conditions needed for advanced fuels and materials development. We have requested that Los Alamos National Laboratory and Idaho National Laboratory coordinate to develop analysis and plans that will inform the Department's future decisions regarding fast-neutron irradiating capabilities.

ADVANCED FUEL CYCLE—EBR–II FUEL/EM CLEANUP

Question. Mr. Magwood, I understand that your office is responsible for managing the EBR–II spent fuel treatment activities under the Advanced Fuel Cycle initiative. Does this fuel contribute to the underlying research program, or is this a way for the Office of Environmental Management to keep yet another waste stream out of their portfolio and off their books?

Answer. Experience gained in processing spent metallic fuel from the EBR–II sodium-cooled fast reactor has contributed to the development of pyrochemical processing technology. We are working with Idaho National Laboratory to establish the most efficient approach to meeting our R&D goals while adhering to all the Department's commitments to the State of Idaho.

Question. How much did the Office of Nuclear Energy pay to safely store this material last year? How could this funding could be better applied if it were not obligated to maintaining this cleanup responsibility?

Answer. Twenty-five metric tons of EBR–II spent fuel are stored at the Idaho National Laboratory (INL). Two of these tons are located at the Idaho Nuclear Technology and Engineering Center (INTEC), which is the responsibility of the Office of Environmental Management; the Office of Nuclear Energy, Science and Technology (NE) does not fund the storage of that material. An additional 23 metric tons of EBR–II spent fuel is stored at the INL Materials and Fuels Complex and is the responsibility of NE. The annual storage cost to the Office of Nuclear Energy is $40,000. The charge is part of NE's general infrastructure maintenance function and is not the responsibility of its research programs.

Question. Mr. Magwood, the Nuclear Energy Engineering Research (NEER) Program restarted in fiscal year 1998 has the goal of strengthening the academic community's nuclear engineering infrastructure. The mechanism for doing this is by funding research at U.S. universities and colleges with nuclear engineering degree programs. The Department announced in March 2004 that it was awarding $3.6 million from fiscal year 2004 funding to universities through the NEER. I have been told that the Department has still not released this $3.6 million—from fiscal year 2004. Have you disbursed funding fiscal year 2004?

Answer. I believe your question relates to our Nuclear Energy Research Initiative (NERI). In fiscal year 2004, the Department issued a NERI solicitation and 160 proposals were received from U.S. universities. In December 2004, 35 projects were selected from the 160 proposals after a rigorous peer review. The selected projects will be conducted at 25 U.S. universities in 22 different States and many of the participants represent institutions that have not participated in DOE nuclear technology programs in recent years. Funding for the 35 projects included $3.6 million from fiscal year 2004 and $3.3 million from fiscal year 2005. As of April 15, 2005, all fiscal year 2004 funds have been disbursed, and all projects funded with fiscal year 2005 appropriations, except one, have been awarded and appropriate funds disbursed.

Question. What is the status of the fiscal year 2005 award process for this program?

Answer. All projects funded with fiscal year 2005 appropriations, except one, have been awarded and the funds have been distributed. The Department plans to conduct a workshop in June 2005 to inform universities of our future research plans. A new solicitation will be issued in the summer of 2005 for awards scheduled for issuance in fiscal year 2006 with fiscal year 2006 appropriated funds.

Question. Can you provide this subcommittee with a listing of which universities received an award and the status of those funds being disbursed?

Answer. Yes, the list of universities that received Nuclear Energy Research Initiative awards is attached. All projects funded with fiscal year 2004 appropriations have been awarded. As of April 15, 2005, all fiscal year 2004 funds have been disbursed, and all projects funded with fiscal year 2005 appropriations, except one, have been awarded and appropriate funds disbursed.

NUCLEAR ENERGY RESEARCH INITIATIVE—FISCAL YEAR 2005 APPLICATIONS SELECTED FOR AWARD NEGOTIATIONS

[In thousands of dollars]

University	Title	Fiscal Year 2005 Award	Total
University of California—Berkeley.	Development of a Risk-Based and Technology-Independent Safety Criteria for Generation IV Systems.	148	457
University of California—Berkeley.	Development and Analysis of Advanced High-Temperature Technology for Nuclear Heat Transport and Power Conversion.	191	576
Washington State University	Selective Separation of Trivalent Actinides from Lanthanides by Aqueous Processing with Introduction of Soft Donor Atoms.	281	859
Washington State University	Selective Separation of Americium from Lanthanides and curium By Aqueous Processing with Redox Adjustment.	245	847
Oregon State University	Plutonium Chemistry in the UREX+ Separation Processes	272	764
Rensselaer Polytechnic Institute.	Development of Modeling Capabilities for the Analysis of Supercritical Water-Cooled Reactor Thermal-Hydraulics and Dynamics.	119	374
State University of New York—Stonybrooke.	Novel Processing of Unique Ceramic-Based Nuclear Materials and Fuels.	272	817
University of California—Santa Barbara.	Development of High Temperature Ferritic Alloys and Performance Prediction Methods for Advanced Fission Energy Systems.	180	549
University of Cincinnati	BWR Assembly Optimization for Minor Actinide Recycling	129	400
Utah State University	Validation and Enhancement of Computational Fluid Dynamics and Heat Transfer Predictive Capabilities for Generation IV Reactors Systems.	217	600
Arizona State University	Determination of Basic Structure-Property Relations for Processing and Modeling in Advanced Nuclear Fuels: Microstructure Evolution and Mechanical Properties.	150	451
Clemson University	The Sulfur-Iodine Cycle: Process Analysis and Design Using Comprehensive Phase Equilibrium Measurements and Modeling.	289	856
Colorado School of Mines	The Application of Self-Propagating-High-Temperature Synthesis (SHS) to the Fabrication of Actinide Bearing Nitride and Other Ceramic Nuclear Fuels.	150	462
Illinois Institute of Technology	In-Situ X-ray Spectroscopic Studies of the Fundamental Chemistry of Pb and Pb-Bi Corrosion Processes at High Temperatures: Development and Assessment of Composite Corrosion Resistant Materials.	250	914
Iowa State University	Detailed Reactor Kinetics for CFD Modeling of Nuclear Fuel Pellet Coating for High-Temperature Gas-Cooled Reactors.	182	449
Johns Hopkins University	Silicon Carbide Ceramics for Compact Heat Exchangers	300	902
Total, Awards		6,870	21,077

NATIONAL ACADEMY OF SCIENCES

Question. Mr. Magwood, in the President's Budget Request, there is $1 million for the National Academy of Sciences to undertake an evaluation of the Office of Nuclear Energy's research programs. I asked Secretary Bodman 2 weeks ago about this request on the President's budget, and he didn't know. Do you know today why this request was made?

Answer. The fiscal year 2006 Budget requests funding for the National Academy of Sciences, to undertake a comprehensive, independent evaluation of the nuclear energy program's goals and plans, and to validate the process for establishing program priorities and oversight (including the method for determining the relative distribution of budgetary resources). The evaluation will result in a comprehensive and detailed set of policy and research recommendations and associated priorities (including performance targets and metrics) for an integrated agenda of research activities that can best advance NE's fundamental mission of securing nuclear energy as a viable, long-term commercial energy option to provide diversity in energy supply. An interim evaluation will be completed in time to inform NE's 2008 budget planning, with a final report completed before May 2006.

URANIUM FUEL

Question. Mr. Magwood, what are the Office of Nuclear Energy plans for ensuring that sufficient uranium supplies are available to power the future commercial nuclear facilities?

Answer. The Department continually monitors the domestic and global nuclear fuel markets to ensure that U.S. utilities can obtain available supplies of uranium, conversion and enrichment to meet their needs now and in the future.

Question. Has DoE looked at using blended-down material from nuclear weapons' program in a timeframe that would be of benefit to: new plants, non-proliferation and global nuclear security?

Answer. The Department of Energy continues to review the disposition of its surplus highly enriched uranium in a manner that maximizes the return on the Government's uranium assets and contributes to the Department's mission of eliminating the proliferation threat from stockpiles of surplus fissionable materials. The National Nuclear Security Administration and the Office of Nuclear Energy, Science and Technology are beginning to explore whether a majority of the low-enriched uranium derived from 17 metric tons of surplus highly enriched uranium planned to be down blended during 2006–2008 could be used in support of the Nuclear Power 2010 program. Legislation may be required to authorize the use of the material.

Question. What issues are associated with such an idea? Does the DoE 2006 budget include proposals that would safely implement such a program while ensuring that current market is protected during such activities?

Answer. The Department recognizes that the blending down of surplus highly enriched uranium to low-enriched uranium must be done in a manner that does not adversely impact the domestic uranium, conversion and enrichment industries. The Department's fiscal year 2006 budget does currently contain funding for down blending of surplus highly enriched uranium within the initially declared 174 metric tons. Specifically, the National Nuclear Security Administration has requested $103 million under the U.S. Uranium Disposition program for the down blending of highly enriched uranium to low-enriched uranium. This program already manages the amount of low-enriched uranium down blended in a safe manner that does not adversely impact the domestic uranium, conversion and enrichment industries. Any future efforts to down blend additional highly enriched uranium will take into consideration the same industries.

NUCLEAR PEBBLE BED REACTOR

Question. Have you considered developing a high temperature gas cooled nuclear pebble bed reactor in the 5 to 50 MW range to power ships and ocean going tugs or as a portable generator in the field?

Answer. The Office of Nuclear Energy has not investigated a high temperature gas-cooled reactor in the 5 to 50 Megawatt power range for portable land or sea application.

ENERGY EFFICIENCY AND RENEWAL ENERGY PROGRAMS

ELIMINATING REDUNDANCY AMONG DOE

Question. Mr. Garman, now that we have consolidated the jurisdiction for the Department of Energy within the Energy and Water subcommittee, we can work to eliminate redundancy and improve communication among program managers that may exist as a result of diving the jurisdiction between two subcommittees. Since you have managed the Energy Efficiency program for the past several years, and you have also served as the Under Secretary, you have a unique perspective on the management and scientific research ongoing among the offices of Science, Energy Efficiency, Fossil Energy, Energy Conservation and Electric Transmission. What of-

fices or activities would you recommend the subcommittee focus on consolidating in order to reduce unnecessary overhead and focus additional resources on scientific research?

Answer. The consolidation of the Office of Electric Transmission and Distribution and the Office of Energy Assurance, undertaken at the request of the Appropriations Committees, is a good example of an office consolidation that should reduce duplication and enhance coordination. I am not yet convinced that there are additional examples where complete office consolidations/eliminations will yield similar benefits, but I hope to explore the possibilities with you.

We have also worked to reduce redundancies in our research activities. For instance, prior to EERE's reorganization, Biomass R&D activities were undertaken in each of the old offices of Power Technologies, Industrial Technologies, and Vehicle Technologies. While the program funding for biomass R&D had been artificially split between two appropriations accounts until last year, we have been managing it as a consolidated program since the reorganization. Similarly, we have been managing hydrogen R&D as an integrated activity among Energy Efficiency and Renewable Energy, the Office of Science, the Office of Nuclear Energy, and the Office of Fossil Energy.

Should I be confirmed as Under Secretary, I expect to create an overarching Energy, Science and Environment (ESE) management and field management apparatus to meld these different organizations into a more coordinated ESE entity, with a goal to undertake better planning, budgeting and coordination. For example, all of the ESE offices engage in materials research of one kind or another that are probably not as coordinated and synergistic as they should be. By engaging in better portfolio management across the ESE office boundaries, we should be able to address duplication and unnecessary overhead.

HYDROGEN FUEL INITIATIVE

Question. Mr. Garman, the President's budget makes the Hydrogen Fuel Initiative a top priority. The budget request provides $259 million, up $33 million from fiscal year 2005 levels and up $104 million from fiscal year 2004. Since DOE has failed to adopt a 5-year budget outlook as the NNSA has, it is unclear how much funding is necessary to develop hydrogen fuel as a competitive domestic energy resource in the future. What can you tell me about the budget for the Hydrogen Fuel Initiatives over the next 5 years?

Answer. The President announced the Hydrogen Fuel Initiative (HFI) with a budget of $1.2 billion over the 5-year period from fiscal year 2004 through fiscal year 2008. The Office of Management and Budget maintains a funding profile for the HFI through fiscal year 2008 that meets this commitment. To date, $381 million has been appropriated by Congress for fiscal year 2004 ($156 million) and fiscal year 2005 ($225 million). The fiscal year 2006 budget request is $260 million, and similar increases are planned for fiscal year 2007 and 2008 budgets. Funding beyond fiscal year 2008 will be required to meet the HFI goal of developing the technologies to enable an industry commercialization decision by 2015.

HYDROGEN RESEARCH

Question. Mr. Garman, the budget supports funding for Hydrogen research from renewable resources, nuclear energy and fossil energy. Which fuel do you believe shows the most promise in producing hydrogen in a cost-effective fashion?

Answer. Currently, the most cost-effective and mature technology for producing hydrogen is the reforming of natural gas. Distributed production of hydrogen from natural gas will likely be the predominant approach during the initial transition to a hydrogen infrastructure. Research is underway to make other promising approaches cost-effective to ensure that the large quantities of hydrogen needed in the longer term are produced from diverse, domestic resources with near-zero greenhouse gas emissions. These approaches include the use of coal with carbon sequestration; renewables such as biomass, wind, and solar; and nuclear. The ultimate mix of resources and technologies that will be utilized for hydrogen production will depend on the degree of technical advancements and relative costs of the various options over the next decade.

HYDROGEN PRODUCTION

Question. Mr. Garman, what other factors other than economics should be considered in producing hydrogen?

Answer. The key drivers for the President's Hydrogen Fuel Initiative are energy security and environmental quality. It is important to ensure that when large quantities of hydrogen are produced, it is produced from domestic resources with tech-

nologies that result in near-zero net greenhouse gas emissions. "Well-to-wheels" energy efficiency, the measure of the energy efficiency of the complete energy chain from the production of hydrogen from basic feedstocks to its consumption in the vehicle, is also a consideration.

HYDROGEN TECHNOLOGY DEVELOPMENT

Question. Mr. Garman, which technologies show the most promise, and which office within DOE will be responsible for supporting hydrogen technology development?

Answer. Currently, the lowest cost option for hydrogen production is natural gas reformation. Using "well-to-wheels" analysis, this option results in a 60 percent reduction in greenhouse gas emissions when utilized in a fuel cell vehicle compared with a conventional gasoline internal combustion engine vehicle.

Promising approaches for the production of the large quantities of hydrogen needed to power a hydrogen economy with near-zero greenhouse gas emissions include coal-based production with carbon sequestration, supported by the Office of Fossil Energy (FE); nuclear-based production, supported by the Office of Nuclear Energy, Science and Technology (NE); and renewable-based production such as biomass, wind, and solar, supported by the Office of Energy Efficiency and Renewable Energy (EERE). In addition, the Office of Science (SC) supports basic research addressing the more long-term methods of photoelectrochemical and biological hydrogen production. All of these approaches show at least some promise. It's too early to tell which is the "most promising." Indeed, depending on R&D advances and region-specific economics, more than one approach may ultimately be used for commercial-scale hydrogen production.

The DOE Hydrogen Program Manager, located in EERE, is responsible for coordinating all the Department's hydrogen activities, including the FE, NE, and SC work.

SOLID STATE LIGHTING

Question. Mr. Garman, it is my understanding that you have an active technology program for solid state lighting with the Energy Conservation, building technologies account. Can you please explain why this program is important for the U.S. lighting industry and what impact this may have on our Nation's energy security?

Answer. The Department emphasizes the importance of efficiency, cost and lifetime of solid state lighting (SSL) technologies in its work, enhancing the value to consumers and the lighting industry. SSL sources have already replaced conventional technologies in niche applications such as traffic lights, exit signs, and airplane taxiway edge-lights. Further technology advances will drive the development of "white-light" sources that could ultimately replace incandescent and fluorescent lamps used for general illumination. Cost-effective "white-light" has the potential to significantly affect the baseload requirement for electricity generation. SSL technology can improve the Nation's energy security by reducing demand for natural gas, imports of which the Energy Information Administration (EIA) projects will increase over time.

INDUSTRIAL TECHNOLOGIES

Question. The President's funding request for Industrial Technologies is $56.5 million, a reduction of $18.3 million from fiscal year 2005. The Industrial Technologies Program seeks to reduce the energy intensity of the U.S. industrial sector through research, development, validation, and deployment of energy efficient technologies and operating practices. The current budget proposes to focus less on specific energy intensive industries—such as forest and paper products, metals, glass, and chemicals—than it has in recent years. Why does the Department propose to decrease energy efficiency efforts in specific, key industries that provide basic materials?

Answer. Industries, particularly our core domestic energy-intensive industries, are succeeding in their attempts to be more energy efficient, in part because of the past successes of the Industrial Technologies Program and because of the obvious economic incentives they face to cut energy costs. Continuing activities in the Industries of the Future (Specific) program that you reference will focus on bringing existing projects to successful commercialization and evaluating opportunities for greater performance in fiscal year 2006.

CONSERVATION EFFORTS

Question. Aren't these the industries that should be emphasized in energy conservation efforts, to maximize the return on our Federal investment?

Answer. Because industry is less likely to invest in R&D toward long-term energy-savings technologies, our Industrial Technologies Program is focusing on a fewer number of higher-risk, higher-reward technologies, and our budget reflects that. Fortunately, the industrial sector of the economy is already quite energy efficient, since it has an economic incentive and the financial means to reduce energy use as a component of its overall cost of production.

FREEDOMCAR INITIATIVE

Question. Mr. Garman, it is my understanding that vehicles account for 54 percent of total oil usage. The FreedomCAR initiative and the Vehicle Technologies accounts support R&D efforts to improve gas mileage, create cleaner burning fuels, and improve materials to safety without impacting mileage. The budget provides $166 million to support research and development to improve engine technology, increase efficiency and lower emissions. Can you please update the subcommittee on the FreedomCAR initiative and the results your office achieved to increase efficiency and reduce our dependence on foreign oil?

Answer. The Department's FreedomCAR activities, representing 61 percent of the Vehicle Technologies Program budget, are on track to meet their 2010 and 2015 technology goals. The goals of FreedomCAR are to develop the component and infrastructure technologies necessary to enable significant improvements to the energy efficiency of the full range of affordable cars and light trucks.

FreedomCAR has already been instrumental in developing and transferring to the automotive industry a range of technologies that can help achieve higher energy efficiencies. Examples of these successes include the development of: nickel metal hydride battery technologies used in all commercially-available hybrid electric vehicles; the super plastic forming of metals, a process used by General Motors to manufacture body parts at lower cost and with lighter materials; and the technical foundation for low sulfur fuels, enabling a new generation of high efficiency diesel engines to enter the market with potential large oil savings within the United States.

Cost-competitive advances in batteries, power electronics, electric motors, lightweight materials, renewable fuels and advanced combustion that are supported by FreedomCAR could contribute to future vehicles being significantly more efficient than those sold today. However, it is important to note that technological advances we develop with industry will not necessarily translate into a more fuel efficient fleet. For this reason, the administration supports incentives to help accelerate the large-scale introduction of more efficient hybrid and advanced combustion technologies.

BIOMASS FUNDING PROGRAM

Question. Mr. Garman, I have noticed that the Biomass funding within the Energy Supply account has dropped and you have recalibrated your program to support the improvement of existing technology, as opposed to using funds to support new ideas or the thermo-chemical platform. What is the rationale behind these reductions, and how much funding is required to support thermo-chemical platform research efforts in order for the Department to begin considering next generation biomass technology?

Answer. Since fiscal year 2002, the Biomass Program has experienced a significant increase in Congressionally-directed activities that has limited the program's ability to focus on a full biomass R&D portfolio, including thermochemical platform research. Due to this reduction, the Office of Energy Efficiency and Renewable Energy (EERE) has focused its biomass efforts to meet its top priority, reducing our dependence on foreign oil, and funded those efforts most likely to increase alternative fuels production. We are leveraging Federal dollars to lower the technical and financial risks of developing new biorefineries along with the chemicals and products needed for cost-effective and efficient biorefineries.

ENERGY CONSERVATION PROGRAM DIRECTION

Question. Contained in the fiscal year 2006 budget request is $2.9 million to improve budget transparency and accuracy within the Energy Efficiency budget. Please explain how you intend to use this funding and if you intend to use a portion of this funding to determine how you can merge the various activities, functions and offices that have been separate as a result of the dual committee jurisdiction.

Answer. The $2.9 million funds the Office of Energy Efficiency and Renewable Energy's (EERE) cross-cutting planning, analysis and evaluation activities in support of renewable energy programs. EERE's Office of Planning, Budget and Analysis has traditionally conducted these activities in the past and will continue to do so. No merging of functions or offices is planned. Funding for these activities, however, will

now be requested at the corporate level, rather than funded through the budgets of individual renewable energy programs as was done in the past. Explicitly budgeting for these cross-cutting activities will provide increased transparency and more accurate organizational alignment. In addition, the merging of activities funded by the Energy and Water Development and the Interior and Related Agencies Appropriations should result in more consistent funding allocations for these cross-cutting activities.

FOSSIL ENERGY PROGRAMS

Question. In the administration's budget request, we see an important new effort within the Solid State Energy Conversion Alliance (SECA) fuel cells program to develop megawatt-scale SECA Hybrid Systems. As I understand this, the program envisions combining a fuel cell with a turbine in a hybrid system that will achieve new levels of electric power generation efficiency with low emissions. What activities in this area do you envision in fiscal year 2006, and what is the Department's plan for this program beyond fiscal year 2006?

Answer. The SECA program is aimed at developing advanced enabling fuel cell technology at relatively small modules (3 to 10 kilowatts), which can be used as the building blocks for larger fuel cell systems. In fiscal year 2006, the program will continue developing SECA core technology R&D to resolve crosscutting technical issues and to enhance individual subsystem components and overall system performance, with small and large-scale applications to independent modules and integrated "hybrid" systems.

In fiscal year 2006, the SECA program will also continue MW-scale SECA fuel cell and fuel cell hybrids work in support of coal-derived gas-based systems. The hybrid program is focused on translating the SECA results into large scale systems for use in central coal plants, like FutureGen. The hybrid activities in fiscal year 2006 will include continuation of work under the recent solicitation for Fuel Cell Coal-Based Systems, addresses large (>100 MWe) fuel cell power systems that can contribute to systems that produce affordable, efficient and environmentally-friendly electrical power at greater than 50 percent overall efficiency (HHV) from coal to ac-power, including CO_2 separation preparatory to sequestration.

Beyond fiscal year 2006, the Department plans to continue research on a cost-shared basis with its industry partners on core technologies for distributed generation applications and on fuel cell hybrids. Potential areas of research on fuel cell hybrids could include stack scale-up, pressurization, aggregation, selection of reforming technology, development of control/operating strategy, coupling air flow to fuel cell with turbine, elimination of components like air blower, simplifying operation and cost reduction, assessing tradeoffs among all subsystems, simplifying operation and cost reduction, and addressing the turbine development needs for hybrid use. The hybrid part of the SECA program is targeted to providing proof-of-concept fuel cell hybrid systems beginning in 2012 in concert with FutureGen.

Question. The administration's budget request for Distributed Generation—Fuel Cells provides that funding in the Solid State Energy Conversion Alliance (SECA) program will be used to "continue MW-scale SECA fuel cell and fuel cell hybrids work." What activities in this area do you envision in fiscal year 2006, and what is the Department's plan for this program beyond fiscal year 2006?

Answer. The SECA program is aimed at developing advanced enabling fuel cell technology at relatively small modules (3 to 10 kilowatts), which can be used as the building blocks for larger fuel cell systems. In fiscal year 2006, the program will continue developing SECA core technology R&D to resolve crosscutting technical issues and to enhance individual subsystem components and overall system performance, with small and large-scale applications to independent modules and integrated "hybrid" systems.

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Question. Integrated Gasification Combined Cycle (IGCC) technology is a key to enabling the nationwide use of our abundant coal resources for electric power generation. One challenge to the deployment of IGCC technology on a large commercial scale is the need for engineering for first of a kind plant designs and technology integration. Unique engineering challenges must be resolved if this technology is to be capable of using all ranks of coal. What do you see as the Department of Energy's role in addressing these engineering challenges?

Answer. The Department's role in addressing these engineering challenges is to conduct research, development and demonstration in a cost-shared partnership with industry to improve the performance and cost of IGCC. That research will be aimed at subsystem and component improvements that enhance the overall system's environmental performance, improve the reliability and the cost-competitiveness, and to provide concepts that will allow for the adaptation of these systems to carbon dioxide capture as the foundation for essentially zero emission coal based gasification plants for the future. This research includes the development of low-cost, longer life refractory materials for the gasifier that can improve reliability and also be used for different ranks of coal; advanced oxygen membrane technology to lower cost and improve efficiency; low-cost, ultra-clean gas stream cleanup systems; development of more efficient, low-cost gasifiers that can run on low rank coals; advanced catalysts for shift reactions to produce hydrogen and synthesis gas for use in advanced turbines; advanced combustion turbines that can run on high hydrogen content while producing ultra-low levels of nitrogen oxides (less than 3 parts per million). Also, innovative design configurations that include advanced sensors and controls will provide the basis for follow-on generations of lower-cost, more efficient, and higher reliability IGCCs. Finally, component integration and system scaling issues can be addressed, along with over system viability, by integrating system demonstration under the Clean Coal Power Initiative, including the FutureGen project.

Question. There is renewed and growing interest in all regions of the country in the use of coal for baseload electricity generation. DOE programs in the mid-1990's demonstrated the technical feasibility of Integrated Gasification Combined Cycle (IGCC) technology, but not the commercial viability of the technology using all ranks of coal. The Department has a number of coal programs that focus on long term, high risk technologies for coal utilization. At the same time that the Department is addressing the development of new technologies for coal-based power generation through FutureGen and the Clean Coal Power Initiative, shouldn't we also be taking steps to assure that the nearest term technology—IGCC—is deployed as rapidly as possible?

Answer. We agree that we should and we are taking steps to conduct research, development, and demonstration that will foster deployment of IGCC technology. The primary impediment to early deployment of IGCC is its higher cost compared to conventional power plants, somewhat lower reliability (which is true of all new technologies until they mature) and the historic absence of a utility system supplier prepared to provide a "wrap-around" warranty for IGCC performance. In this context, the Department is pursuing the development of technology that would drive down the costs of IGCC and improve the reliability of initial systems. In addition, the Department greatly accelerates IGCC deployment by providing up to 50 percent of the cost for new IGCC plants proposed under the Clean Coal Power Initiative (CCPI). Two such IGCC plants demonstrated under the Clean Coal Demonstration Program have entered commercial service (and are the only two commercially operating IGCCs in the Nation). Two more IGCCs were selected to be demonstrated under the CCPI Program and will enter commercial service upon completion of their demonstration phase. With regard to "wrap-around" warranties, one U.S. equipment supplier has informally indicated plans to do so shortly. Considerable progress is being made across the board.

In the R&D Program, the Department, working with its industrial partners, is developing new materials (e.g., refractory liners, high temperature measurement and control instrumentation) that will lower operating and maintenance costs and improve equipment reliability, and plant availability, which are key steps for improving today's IGCC technology. Additionally, the Department is actively engaged with the gasification industry to develop new technologies to significantly reduce the cost and improve the operational effectiveness and thermal efficiency of future plants.

Question. What role can DOE play in getting IGCC technology that is commercially ready now into operation at a number of sites across the country?

Answer. In addition to the DOE actions already taken and discussed in the answer above, there are several possibilities, which include:

—*Share information*.—We can make available relevant non-proprietary information on IGCC in a useful structure and summarize the information in formats useful to various decision-makers that play a role power plant approval, or other important decisions regarding IGCC. These decision-makers would include Public Utility Commissions, State Legislators, media organizations, and permitting authorities.

—*Work with regulators*.—We have been meeting for several months with EPA on ways we can facilitate permitting of new IGCCs.

Question. The Office of Fossil Energy will have spent $324 million on fuel cell research and development (R&D) over the past 5 years (including the fiscal year 2006 request of $65 million—fiscal year 2006 Congressional Budget page 103). The fuel cell "SECA" R&D effort has six participants, many of whom are not meeting programmatically imposed technical and financial metrics. When will there be a significant down-select of partners?

Answer. The SECA program is structured with three phases. Each phase has progressive goals to ensure that appropriate progress is made before approval to continue to the next phase. At this time SECA is entering a critical evaluation period for the first phase. All teams that qualify will be permitted to continue, subject to the availability of funds.

The SECA teams are pursuing various designs for stationary and auxiliary power market applications. Having multiple teams significantly reduces the overall risk of the government's investment, creates competitions among the teams for early market entry, increases the potential range of products and public benefits associated with those products, and should create competitive pricing that will make fuel cells affordable to consumers.

The development efforts of each team are described below:

General Electric (GE) is developing a compact natural gas 5-kW, planar, 700° C to 800° C, anode-supported solid oxide fuel cell (SOFC) unit for residential power markets. GE is evaluating several stack designs, and is especially interested in extending planar SOFCs to large hybrid systems. GE has achieved 307 mW/cm^2 in a radial planar, 21-cell 800°C stack. GE has already achieved over 400 mW/cm^2 in a single cell exceeding its Phase I SECA targets for stack power density and utilization. Prototype testing will occur in 2005.

Delphi, in partnership with Battelle/PNNL, is developing a compact 5-kW, planar, 700° C to 800° C, anode-supported SOFC unit for the distributed generation and auxiliary power unit (APU) markets. Delphi is working on a third generation design that has achieved 420 mW/cm^2 in two 30-cell stacks. Delphi is expert at system integration and high-volume manufacturing and cost reduction. They are focused on making a very compact and light-weight system suitable for auxiliary power in transportation applications. Prototype testing will occur in 2005.

Cummins is the world's largest manufacturer of generators to the recreational vehicle market. Cummins and SOFCo EFS are developing a 10-kW product for recreational vehicles that would run on natural gas, diesel and propane using a catalytic partial oxidation reformer. The team has produced a conceptual design for a multilayer electrolyte-supported SOFC stack assembled from low-cost building block components. The basic cell is a thin electrolyte layer (70 to 120 microns), fabricated by tape casting. Anode ink is screen-printed onto one side of the electrolyte tape, and cathode ink onto the other. The printed cell is sandwiched between layers of dense ceramic that will accommodate reactant gas flow and electrical conduction. The assembly is then co-fired to form a single repeat unit.

Siemens Westinghouse Power Corporation (SWPC) is developing 5- to 10-kW products to satisfy multiple markets. SWPC has developed a new tube design for their 5-kW units that use flattened oval, high power density, cathode-supported tubes. This allows for a shorter tube length with twice the power output, compared to their current cylindrical tube. The SWPC flattened high power density tubes have achieved a 300 mW/cm^2 at 85 percent fuel utilization at 1,000° C.

Acumentrics uses a micro-tubular anode-supported design, and is already offering early units for field testing. They are interested in the information technology applications and uninterruptible power supply markets, and have conducted over a dozen early unit field tests. The advantages of smaller diameter tubes are higher volumetric power density and rapid start-up because they are less susceptible to thermal shock. Acumentrics units have already achieved 63 thermal cycles.

FuelCell Energy Inc., (FCE) has brought its history of successful fuel cell development to a team that includes Gas Technology Institute (GTI) and Versa Power Sys-

tems. The acquisition of Canada's Global Thermoelectric, provided a 5 MW per year manufacturing facility and over 25,000 hours of testing experience on their RP–2, 2 kW units. At the beginning of fiscal year 2005, FCE combined its Canadian SOFC operations, into its lead product development sub-contractor, Versa Power Systems. This consolidation provides a greater opportunity to commercialize SOFC products under SECA.

Question. The Office of Fossil Energy has requested an $11 million increase over fiscal year 2005 for its Innovative System Concepts Subactivity ("Hybrid Program") (fiscal year 2006 request is $64.3 million—fiscal year 2006 Congressional Budget page 104 and 105). This program's goal for fiscal year 2006 is the issuance of a competitive solicitation to advance megawatt-scale fuel cell hybrids. However, according to the Fuel Cell Power Association and meetings with a number of Fortune 500 stakeholders, we've learned that the upcoming solicitation is once again focusing on and requiring work on basic "cell and stack". Why after investing 5 years and $324 million through the fuel cell program does the Innovative System Concepts activity (Hybrid Program) need to spend more time and another $64.3 million on basic "cell and stack" R&D?

Answer. The focus on cell and stack research is the key to providing fuel cell systems, whether as SECA fuel cells or in a hybrid system, that can achieve the power and durability performance at a cost target of $400 per kilowatt. This continues to be the most challenging part of the fuel cells program, and the industry is making substantial progress towards that goal. In fiscal year 2006, the program will continue developing SECA core technology R&D to resolve crosscutting technical issues and to enhance individual subsystem components and overall system performance, with small and large-scale applications to independent modules and integrated "hybrid" systems. The recent solicitation for Fuel Cell Coal-Based Systems, is focused on the development of large (>100 MWe) fuel cell power systems that will produce affordable, efficient and environmentally-friendly electrical power at greater than 50 percent overall efficiency (HHV) from coal to AC power, including CO_2 separation preparatory to sequestration.

The large scale, low cost fuel cell systems subprogram element is developing technologies for fuel cells that utilize coal gases to produce electricity for applications that are currently serviced by natural gas fueled gas turbines and diesel generators, but with significantly lower emissions.

This subprogram element will address stack scale-up, pressurization, aggregation, selection of reforming technology, development of control/operating strategy, coupling air flow to fuel cell with turbine, elimination of components like air blower, assessing tradeoffs among all subsystems, and addressing the turbine development needs for hybrid use.

The overall goals of this subprogram element are to simplify operation and lower cost by pursuing a systems approach that iteratively explores tradeoffs between system and subsystem. Subsystem development is done with the objective of determining operating parameters and development goals for each subsystem that optimize the entire system in cost/performance.

OFFICE OF SCIENCE PROGRAMS

HYDROGEN RESEARCH—OFFICE OF SCIENCE

Question. Dr. Orbach, the President's budget provides $259 million in total funding for the Hydrogen Fuel Initiative. Much of the basic research to support the hydrogen program is done through the Basic Energy Sciences (BES) program within the Office of Science. The budget proposes $32.5 million for BES research to support the Hydrogen Fuel initiative. Enormous gaps remain between our capabilities in hydrogen production and storage, and the capabilities required for a competitive hydrogen economy. Given the need for basic research to generate breakthroughs, does the President's budget provide sufficient funding for basic research?

Answer. Yes, the fiscal year 2006 request provides sufficient funding for basic research in hydrogen. The Department believes, as does the National Research Council, that a continuum of basic science, applied research, development, and "learning" demonstrations is necessary for the successful transition to a hydrogen economy. Applied research and technology demonstrations are critical to meeting the technology milestones leading to the 2015 industry commercialization decision and to begin the transition to a hydrogen economy. Basic research is critical to understanding the underlying science that will lead to more economical production, greatly improved storage, and improvements in fuel cell technology in the near-term and potentially "breakthroughs" in the long-term. The President's Budget Request for fiscal year 2006 puts forward a balanced portfolio of basic science, applied research,

development, and demonstrations that seeks to address both the short-term showstoppers and the long-term grand challenges.

LOW DOSE RADIATION RESEARCH

Question. Dr. Orbach, last week I received an update on the progress of the low dose radiation research your office has been conducting over the past 3 years. I proposed this study because I believe policy makers were setting radiation standards based on poor quality data, especially when it came to low dose radiation. The Linear No-Threshold model became the basis for policy decisions since scientists knew very little about the effects of low-dose radiation on the human body. That model assumes that every unit of radiation exposure will result in an incremental increase in damage. Many experts believed this model to be flawed, but didn't have enough data to support their conclusions. In order to fill in the gaps, I initiated the low-dose research program in 1998. What are the significant findings of the DOE Low Dose Radiation Program and how do these finds affect the Linear No-Threshold Model?

Answer. Low dose radiation studies have traditionally been conducted on isolated cells, the majority of which have been conducted by the DOE Low Dose Radiation Research Program. The responses of those cells were then used to estimate low dose radiation effects in tissues and whole organisms. DOE-funded research has shown that cells in tissues respond very differently to radiation than isolated cells. These differences are greatest for very low dose radiation exposures or for very low dose rate exposures where most cells in a tissue are not irradiated at all and the few irradiated and potentially-damaged cells are generally surrounded and outnumbered by unirradiated/undamaged cells. We now know that tissues can "protect" themselves from abnormal cells, such as radiation damaged cells, by stimulating defective cells to undergo "altruistic suicide." If cell "suicide" occurs after tissue irradiation, the effect of that radiation would be less than predicted from simply knowing the number of irradiated cells and the biological effect of radiation on isolated cells.

The DOE Low Dose Radiation research program is beginning to use these whole system or tissue concepts to understand and interpret radiation induced biological effects such as bystander effects, adaptive response, and genomic instability. The program has shown that bystander effects result from communication between irradiated and unirradiated cells. Bystander effects are an early biological response that seems to be programmed into tissues as tissues attempt to re-establish homeostasis and eliminate abnormal cells. The program has also shown that adaptive response and radiation-induced genomic instability appear to result from persistent perturbations of normal regulatory networks that control cell and tissue behavior following radiation exposures. Using genome-based technologies we are now learning how cells communicate with each other in tissues in response to radiation, what causes cells and tissue to undergo different biological responses to radiation at different times, and how some people may be more sensitive to radiation while others are relatively resistant.

Emerging data from the DOE Low Dose Radiation research program suggest that for low dose radiation exposures it is the networked, multicellular responses, rather than the damage to the individual cells per se, that dictate whether homeostasis is restored or if pathology ensues. High dose exposures may corrupt normal signaling and moderate doses of chronic irradiation may persistently alter cell phenotypes, compromising the surveillance of abnormal cells and enabling aberrant cells to accumulate and proliferate. Taken together, these new data are no longer consistent with the Linear No-Threshold (LNT) Model for cancer risk for low doses and dose rates of radiation.

Question. If the Linear No-Threshold model is inaccurate, when will we have enough information from the new biological studies to confidently set radiation protection standards?

Answer. This new paradigm for understanding radiation response, based on systems biology principles of interconnectivity and the cell microenvironment, is founded on the research currently supported by the DOE Low Dose Radiation Research Program. These critical new studies are rapidly evolving, stimulating new research as well as the new concepts for developing computational models of the effects of low doses of radiation on biological systems. We anticipate that scientific advances during the next 5 years will enable regulators to critically re-evaluate and, if appropriate, begin to modify current radiation protection standards.

GENOMES TO LIFE PROGRAM

Question. Dr. Orbach, It is my understanding that one of the results of the Human Genome Program was the creation of the Genomes to Life project. One goal

of the program is to develop biotechnology-based solutions to aid in the cleanup of the Department of Energy environmental legacy. What are your scientists working on, and will these microbe solutions be safer than current environmental cleanup methods so that risks to workers and the public are reduced?

Answer. Common approaches to environmental remediation involve the excavation, transport and disposal of contaminated media in an engineered structure. This approach is safe, effective, relatively inexpensive and has regulatory acceptance for small areas of high level contamination. However, there are many areas for which such an approach is not practical for financial or engineering reasons, including large areas of low-level contamination and inaccessible areas such as underground aquifers and deep subsurface sediments. Currently, such areas are managed through access controls or via expensive active technologies such as pump and treat. Microbial-based solutions are particularly attractive for such areas because they offer the possibility of remediating contaminants in place in otherwise intractable settings. Microbes naturally found in the subsurface possess a diverse set of metabolic capabilities which include the capability to degrade organic contaminants and to transform many inorganic contaminants to insoluble forms. Understanding the biomolecular processes that control such microbial activities promises the ability to take advantage of such capabilities in a given environment or to introduce such capabilities where they do not otherwise exist. As such, microbial-based solutions may offer remediation solutions where none currently exists, thereby reducing otherwise unmanageable risks to workers and the public. Anticipated microbe-based solutions would involve the conversion of contaminants from toxic forms or mobile forms that can move into groundwater supplies to nontoxic forms or immobile forms that stay in place and do not move into ground water supplies. These remediation approaches would reduce risks of human and environmental exposure that result from digging up, and thus disturbing, contaminants. However, the overall safety and desirability of these microbe-based remediation strategies will need to be independently investigated as part of the Ethical, Legal, and Societal Issues (ELSI) research component of the Genomics: GTL research program.

INTERNATIONAL THERMONUCLEAR REACTOR (ITER)

Question. Dr. Orbach, the administration continues to support ITER, but at the expense of the U.S. Fusion research program. Funding for the international partnership to build a large-scale fusion reactor is $46 million fiscal year 2006. By prioritizing funding for ITER, it will delay the completion of Princeton University's fusion facility, reduce facility run-time to just 17 weeks a year and eliminate materials research funding—a critical component when dealing with the intense heat from fusion energy. For the past 2 years the six ITER partners have been unable to break the 3-to-3 tie vote to locate ITER in either Japan or France. Based on the current delays and tight budgets, I don't believe this is the best time to send our initial U.S. investment to the ITER project. Can you give us a status of the ITER project and the rationale for cutting the underlying domestic fusion research and education program to funding a project with no site location?

Answer. Regarding the status of the ITER project, all six Parties are proceeding with technical preparations for the project in the areas of design, R&D and qualification of industrial vendors. The negotiations on the site selection have been delayed; however, recently the two principal Parties involved, the European Union and Japan, have agreed that their views are converging towards a common position and that they will aim at reaching an international agreement involving all six Parties on the ITER site issue before the G–8 summit in early July 2005. As of May 5, the European Union and Japan have agreed on a common statement of the roles of the Host and Non-Host, defining the terms of a win-win solution for both of them. Now, each side will consider these terms and prepare for a political decision on who is Host and Non-Host by the end of June, as agreed earlier by Prime Minister Koizumi and President Chirac.

In the fiscal year 2006 President's Budget we are beginning the transition of the domestic fusion program around a central focus on burning plasma physics (i.e., full U.S. participation in ITER as the major fusion research facility world-wide), which is a change repeatedly endorsed by the National Academy of Science. In making this transition, we have chosen to preserve the critical program areas so that we will be prepared to participate in ITER when it operates.

OFFICE OF SCIENCE FUNDING

Question. Dr. Orbach, I am disappointed to see the President's budget would decrease funding to the Office of Science by nearly 4 percent. The Office of Science is the largest source of government support for research in the physical sciences.

Although we are clearly in a period of budget constraints, I question whether cuts in physical science research are in the long-term interests of the United States. The Office of Science budget request also reflects a higher priority placed on operating funds for scientific user facilities than on grants to researchers. In fact, the Office of Science budget proposes a 10 percent cut for research grant funding overall. What are the reasons for the larger cuts in research grant programs relative to user facility operating funds?

Answer. In this overall budget climate, we are continuing to position the Office of Science for the future, with investments in new facilities needed to stay at the forefront of science. However, these investments in facilities and their operations have short-term consequences affecting our ability to fund research. Facility operations are not reduced as much as research in fiscal year 2006 primarily because we have several new facilities coming on line. The Spallation Neutron Source at Oak Ridge National Laboratory will begin operations in fiscal year 2006, as will 4 of the 5 Nanoscale Science Research Centers: the Center for Nanophase Materials Sciences at Oak Ridge National Laboratory, the Center for Integrated Nanotechnologies at Sandia and Los Alamos National Laboratories, the Molecular Foundry at Lawrence Berkeley National Laboratory, and the Center for Nanoscale Materials at Argonne National Laboratory. The Spallation Neutron Source will provide the most intense, by an order of magnitude, neutron beam in the world for cutting-edge research, while the Nanoscale Science Research Centers will provide tools found nowhere else in the world for exploration at the atomic level, offering huge potential for the discovery of entirely new ways to build materials.

Question. Do you expect this trend to continue in future years?

Answer. Over the next several years, we will work to ensure that an appropriate balance between research and facility operations is maintained.

JOINT DARK ENERGY MISSION

Question. Dr. Orbach, I am very interested to learn more about the Department's commitment to the Joint Dark Energy Mission (JDEM). This committee has articulated its support for this program in our past three appropriations bills recognizing that JDEM will help scientists answer the most fundamental question of the day—what is the universe made of. Although multi-agency collaborations are wonderful when they work properly, they can be disastrous when the agencies don't cooperate, when funding levels are not appropriately matched and when the commitment of one agency doesn't match the commitment of the other. Is DOE serious about seeing this program succeed?

Answer. Yes. The Department is very much dedicated to the science of the JDEM experiment. Determining the nature of dark energy is one of the most exciting areas of particle physics today. The Department plans to spend $3 million in fiscal year 2006 on R&D for the SuperNova/Acceleration Probe, or SNAP as it is called, which will be one of the proposals for the dark energy science investigation for JDEM. These funds will be used to finalize the SNAP R&D for technology needed to provide a mission concept. The DOE needs NASA as a partner for critical financial, intellectual, and technical reasons; in particular, DOE needs NASA's expertise in the development of space-flight qualified hardware. It is our understanding that NASA plans to continue to support ongoing planning efforts for the project, including appropriate research and development, technology development, and mission concept studies.

Question. What is your strategy to ensure that both DOE and NASA move forward to make this project happen in a timely manner?

Answer. With the help and guidance of the White House Office of Science and Technology Policy, NASA and DOE are continuing a dialogue on this subject. At a recent meeting with NASA to discuss their strategic plan development, we emphasized the importance of JDEM to DOE and our commitment to the project. NASA assured us that JDEM is very important to them as well. We will continue discussions with NASA aimed at bringing this very important science project to fruition.

Question. As described in the fiscal year 2005 Energy and Water bill, this program has organized a tremendous team of talented scientists and engineers; failure to move forward quickly may endanger this dynamic group. Does DOE intend to move forward aggressively to ensure this program does not wither on the vine?

Answer. Yes. DOE plans to continue to provide R&D funds for SNAP, and we continue to pursue discussions with NASA about this exciting program.

SOLID STATE LIGHTING

Question. Dr. Orbach, you had a very important workshop last March on the "Nanoscience Research for Energy Needs", and you know that one of Nanoscience Research Centers is located in New Mexico. Can you please explain the importance

of solid state lighting as a nanoscience thrust area from this workshop and these Nanoscience Research Centers?

Answer. "Solid state lighting at 50 percent of the present power consumption" emerged from this interagency workshop as one of nine research targets in energy-related research in which nanoscience is expected to play a key role. At present, electricity use accounts for about one-third of total energy consumption in the United States. Of that, about 20 percent of all electricity consumed goes for lighting. However, today's lighting is remarkably inefficient. For incandescent lighting, only about 5 percent of the electrical energy is converted to visible light; for fluorescent lighting, this increases to 25 percent. By comparison, building heating is typically 70 percent efficient, and electrical motors typically 85–95 percent efficient. Lighting therefore represents a large target for improved energy efficiency. Cutting the amount of electricity needed for lighting in half would result in a savings roughly equivalent to the annual energy production of 50 nuclear reactors. The use of semiconductor-based light emitting diodes (LEDs) for general illumination is a rapidly developing technology that offers the potential of immense energy savings to the Nation and the world within a decade or two. For colored lighting, LED's have already replaced over one third of the traffic lights in the United States, resulting in a savings of about $1,000 per intersection per year. However, a number of science and technology obstacles must be overcome in order for solid-state lighting to reach its potential. The research target now is to bring this new technology to the general white-lighting applications where the potential impacts are tremendous. However, before new devices can be made commercially available, improvements are required, particularly involving materials designed at the nanoscale and integrated into real-world devices. We expect one or more of our Nanoscale Science Research Centers to become actively involved in this energy challenge.

NUCLEAR PHYSICS

Question. Dr. Orbach, the Office of Science 20-year facilities plan, released in November 2003, ranks the Rare Isotope Accelerator B called RIA B as one of its highest priorities. Yet the Department recently removed the draft RFP for RIA from its website. What is your timeline for proceeding with RIA?

Answer. The Department published a draft Request for Proposal (RFP) for RIA and comments from potential offerors have been incorporated into a final version. However, a Request for Proposals will not be issued at this time.

As you know funding for domestic programs will be constrained in the future and the decision to proceed with RIA must be made in the context of competing priorities and the needs of the Nation. Before proceeding with a project like RIA that requires a significant investment by the U.S. Government, the funding to construct and operate the proposed facility needs to be identified and the decision to proceed must be made in the context of other Departmental and national needs and priorities. Under the fiscal year 2006 request, necessary research and development work will continue on the RIA project. The Nuclear Science Advisory Committee has been asked to examine the future of RIA in the context of constrained budgets and competing priorities. Their report is due in the summer of 2005.

STRATEGY ON ADVANCED COMPUTING

Question. Dr. Orbach, the Department has made a significant investment in both NNSA's and the Office of Science's efforts to improve speed, efficiency and capacity in advanced computing. Can you give us your strategy for the Civilian Computing Program, and what is your plan for reaching a 100 teraflop machine for non-weapons related research?

Answer. The Office of Science strategy for advanced computing is focused on delivering the best science for the United States. This strategy is built on four principal elements:

—(1) The Office of Science's world leading research program in applied mathematics and the computer science of high performance computers. These efforts have resulted in most of the mathematical algorithms and software that underpin high performance computing for science. The improvements in scientific computing that have resulted from these efforts have yielded an increase in capability over the past 2 decades that equals all of the increases due to Moore's law for microprocessors.

—(2) Our investments across the Office of Science in the Scientific Discovery through Advanced Computing (SciDAC) effort. This effort, which we initiated in fiscal year 2001, ensures that we transfer the results of our research in applied mathematics and computer science to the other scientific disciplines as quickly and effectively as possible. This effort has resulted in significant improvements

to many scientific applications, in fields that range from astrophysics to magnetic fusion to global change. For example, in one astrophysics code the time to solution was reduced by 75 percent. We are expanding SciDAC in fiscal year 2006 with a competition for SciDAC institutes that can be high performance computing software centers.

—(3) Significant enhancements to our high performance capacity computing at NERSC and our connectivity to the research community through ESnet. We expect to nearly double the capacity available for scientific discovery at NERSC by the end of fiscal year 2006.

—(4) Finally, we have established the Leadership Computing Facility (LCF) at Oak Ridge National Laboratory, which will field a 20 Tflop Cray X1e and a 20 Tflop Cray Red Storm (now called XT3) computer as resources for science. These computers will each support a small number of competitively selected teams that are poised to use these resources for breakthrough science.

Our programs balance all of these elements to deliver the most and best science for the country; therefore, we are not focused on achieving a specific level of peak performance. We hope to be able to increase the capability of the LCF in future years as improved computers that can deliver their performance on scientific applications become available; however, we believe that these increases must be part of a balanced program to deliver the mathematical, software and computer hardware tools that computational scientists will need.

QUESTIONS SUBMITTED BY SENATOR THAD COCHRAN

BIOMASS RESEARCH AND DEVELOPMENT

Question. Mr. Garman, it is important to implement a regional approach to biomass research because of the diversity in the United States. Biomass sources and techniques in Mississippi are much different than the biomass opportunities available in the Midwest. How do you perceive the Department's role in facilitating a regional approach to research and development?

Answer. The Department strongly supports State and regional partnerships to advance our biomass research. In looking at developing our domestic energy resources from a national perspective, the Department can help to identify and support State and regional efforts that contribute to meeting our national energy needs. State-regional partnerships are currently conducting work in many areas of biomass research, including bio-renewable fuels, bio-based lubricants, and bio-chemicals. Such partnerships will continue to be critically important to our efforts to develop technologies that will enable a robust biomass-based industry.

BUILDING NEW NUCLEAR POWER PLANTS

Question. Mr. Magwood, Mississippi is home to the Grand Gulf Nuclear Station. What do you see as the main issues facing U.S. generating companies who might wish to build new nuclear plants? Do you believe Congress can help the Department of Energy to build new nuclear plants?

Answer. We believe that the main issues facing U.S. generating companies are:

—*Permanent Nuclear Waste Disposition*.—Orders of new nuclear plants are dependent upon steady progress toward a clear disposition path for spent nuclear fuel;

—*Price-Anderson Indemnification*.—Although plants currently operating continue to be indemnified through the terms of their licenses, coverage is not currently available for any new nuclear power plant licensed after December 31, 2003;

—*Regulatory Uncertainty*.—Power companies lack confidence that the new licensing processes specified in 10 CFR Part 52 will prevent unnecessary and excessive delays in the construction and commissioning of new plants; and,

—*Economic Uncertainty*.—Although power companies' confidence in the estimated cost of new nuclear power plants is growing, no new nuclear plant has been ordered and built in the United States for over 30 years.

With your continued support, the Department's Nuclear Power 2010 program is making progress in addressing some of the regulatory and economic uncertainties.

QUESTIONS SUBMITTED BY SENATOR LARRY E. CRAIG

NEXT GENERATION NUCLEAR PLANT (NGNP) AT IDAHO NATIONAL LABORATORY

Question. Mr. Magwood, in recent testimony, Secretary Bodman has expressed concern about the cost of building the Next Generation Nuclear Plant at the Idaho

National Laboratory. As you know, Senator Domenici and I view the NGNP as the cornerstone of the U.S. effort to remain a leader in innovative nuclear technologies for the future. I know the NGNP plan you have developed includes significant cost sharing with private industry. Can you help explain for the subcommittee how you would like the private sector to help share in the cost of building NGNP and why you think they would do it?

Answer. Before any private sector investment can be contemplated, we must complete the viability research and development anticipated by our Generation IV program. Our primary focus at this time is to assure that the Generation IV research program is able to answer the basic viability questions regarding this advanced technology. We will continue research and development on various Generation IV reactor designs to determine their compatibility with the desired goals of sustainability, economics, and proliferation resistance. This includes work on materials performance as well as evaluating the waste products associated with various reactor designs. As these questions are answered, we can consider additional steps in the future. If the Department ultimately decides to proceed with a demonstration of a nuclear reactor technology, we would look to consult with the private sector.

IDAHO NATIONAL LABORATORY

Question. Mr. Garman, I know this is a little out of your area but as the former acting Under Secretary at DOE you have been engaged in this issue. Yesterday, I was informed that the Department of Energy would miss the self-imposed March 15 deadline to award the Idaho Cleanup Project contract. DOE will apparently miss the deadline even though the Idaho delegation urged DOE to expedite the contract award and Secretary Bodman assured us DOE would meet or beat the deadline. Can you tell me why the deadline has been missed and when DOE will make the contract award?

Answer. The Idaho Cleanup Project contract award was officially announced on March 23, 2005. Although the Department had every intention of meeting the earlier March deadline, the additional delay was necessary to allow for the completion of administrative requirements that will ensure the integrity of the procurement process and ensure the execution of a sound contract, given its magnitude and scope.

IDAHO NATIONAL LABORATORY

Question. Mr. Magwood, congratulations on a successful transition at the Idaho National Lab. I think the Battelle Energy Alliance is off to a good start and I want to work with you, Secretary Bodman, Clay Sell, Dave Garman and others to make sure we continue to make progress at the lab. Can you identify areas where you think we need to focus our attention to make sure the INL becomes the world class nuclear energy lab we want?

Answer. The laboratory will consolidate operations and the site's footprint this fiscal year, a key step in enabling a successful transformation. In concert with the consolidation, the Battelle Energy Alliance (BEA) seeks to make changes in areas that will support the laboratory within a fiscally responsible budget envelope. Areas in which the BEA could direct its attention include: attracting the best scientists and engineers to participate in the laboratory's research initiatives; building extensive international and national partnerships and robust synergistic programs in areas such as homeland security and national security; and continuing research on breakthrough nuclear technologies. In addition, the laboratory seeks to modernize and align its infrastructure with the laboratory's research portfolio and potentially invest in nuclear science and technology education. Investments in the infrastructure will be prioritized and developed in concert with the Department's budget formulation process.

Question. Mr. Magwood, I know your office has put together a 10-year site plan that assesses the infrastructure needs at the INL. Do you think future budgets will be adequate to recapitalize the infrastructure at the INL or will we need options like third party financing to get where we need to go?

Answer. Future budgets will be determined by using the Department's annual budget formulation process. This process will be used to prioritize recapitalization projects at INL and to reduce the maintenance backlog. As we develop future budgets, we will continue to update the plan to carefully prioritize the allocation of funding to the most important infrastructure projects. In addition, if appropriate, the Department may consider using third party financing.

CELLULOSIC ETHANOL COMMERCIALIZATION

Question. Mr. Garman, I believe that you are aware that a company called Iogen has developed a technology that enables them to produce ethanol from agricultural wastes such as wheat, straw, and corn stalks. They have demonstrated their technology in a 50,000 gallon facility that is producing ethanol for sale every day. Now Iogen wants to start building commercial-scale ethanol plants that will produce 50 million gallons of ethanol per year. Those plants will provide $15 or $20 of additional revenue per acre for farmers who are selling them wheat straw, and create hundreds of quality jobs in rural America. The ethanol from those plants will reduce our dependence on foreign oil and reduce our emissions of greenhouse gas. The USDA has estimated that existing residues from farming activities would support hundreds of such plants, and could offset 10 percent or more of our foreign oil consumption. You also know Iogen has gotten substantial financial backing from a multinational oil company—Shell Oil—to develop this technology. Despite this, it can not get a commercial loan for the project because lenders will not go near new technology. Like some others, this technology is trapped in the "valley of death"—the time when it is past the research and development phase—but not yet commercially proven. In the "valley of death", government grants are useless, and commercial loans are out of reach. How can the U.S. Government step up its commitment and accelerate the advent of this incredibly important new technology?

Answer. The Biomass Program within our Office of Energy Efficiency and Renewable Energy is working with commercial lending institutions to determine the additional requirements needed to turn demonstrated technology into financially viable projects. As appropriate, the Department funds cost-shared competitive solicitations aimed at demonstrating technologies to the satisfaction of commercial lenders.

Question. How can we bring this well-demonstrated technology out of the "valley of death" and into the marketplace now—and not wait 2 or 3 or 4 years?

Answer. The Department is not convinced that this technology is commercially viable at this time and therefore is unwilling to commit to accelerated deployment activities.

QUESTIONS SUBMITTED BY SENATOR PATTY MURRAY

REPLACEMENT FACILITIES AT PACIFIC NORTHWEST NATIONAL LABORATORY

Question. Dr. Orbach, for the past 2 years, Pacific Northwest National Laboratory (PNNL) has been working with the Department of Energy (DOE) Office of Science, NNSA, and DHS to prevent the loss of important R&D capabilities at risk because of accelerated cleanup of the 300 Area of the Hanford Reservation. There has been progress: in September 2004, DOE, with input from NNSA and DHS, confirmed the critical need for the capabilities housed in 300 Area through approval of Critical Decision 0 (CD–0). The Department has also requested funds in the fiscal year 2006 administration request. I want to thank you, Dr. Orbach, for your support and leadership on this critical effort. That said, the amount of funding requested is not sufficient to allow PNNL to meet the aggressive exit schedule required by the River Corridor Cleanup contract, which is still expected to be released this spring, and will require shutdown of work in the 300 Area by 2009. Can you detail the Department's plan and schedule for constructing the replacement facilities needed at PNNL?

Answer. The Office of Science fiscal year 2006 requested funding of $3 million is to complete its share of the funding of the Project Engineering and Design (PED) for the potential PNNL replacement facilities. The amount would be consistent with the overall plan for constructing the facilities by the September 2009 deadline. NNSA is also requesting $5 million of PED in fiscal year 2006 to support the project. A summary table of funding to date is shown below.

PNNL REPLACEMENT FACILITY FUNDING

[Budget authority in thousands of dollars]

	Fiscal Year 2004 Approp.	Fiscal Year 2005 Approp.	Fiscal Year 2006 Request
Office of Science	986	4,960	3,000
NNSA	600	5,000	5,000
Total, DOE	1,586	9,960	8,000

It is too early in the formal DOE project management process (i.e., the Critical Decision 1 review is scheduled for this summer) to fully address your question about the future schedule for this facility, though we are quite confident about our ability to deliver a potential replacement facility by end of fiscal year 2009 if necessary.

ENVIRONMENTAL MOLECULAR SCIENCE LABORATORY FUNDING

Question. Dr. Orbach, the Environmental Molecular Science Laboratory (EMSL), a national scientific user facility operated for the DOE and located at Pacific Northwest National Laboratory, has been operating for 7 years. Over that time, EMSL has a sustained growth rate of about 25 percent per year, and is currently fully subscribed. In 2004, more than 2,100 scientists from all 50 States and around the world utilized EMSL's extraordinary capabilities. Unfortunately, since its inception, the EMSL operations budget has remained flat except for one increase to replace its super computer. With inflation and increased space and labor costs, the "buying power" of the EMSL operations budget is now less than 84 percent of what it was in fiscal year 1998. There is thus no remaining flexibility in the operations budget, and without at least modest increases, user time and experiments will almost certainly be curtailed. How do you plan to address shortfalls in user facility funding such as those faced by EMSL?

Answer. The Biological and Environmental Research (BER) program recognizes the value that EMSL brings to scientific users engaged in molecular level research, and that the ever increasing number of users reflects that value. As a result of this recognition, the BER program has scheduled an expert peer review of EMSL's operations and funding by a subcommittee of the BER Advisory Committee in mid-May 2005. One of the purposes of this upcoming review is to examine EMSL's current capabilities and areas of scientific expertise and to make recommendations to refine the focus of molecular-level research, identify the most important capabilities to maintain and to examine opportunities to increase the efficiency of operations.

Question. Can you commit that you will support efforts in Congress to provide additional funds for Office of Science user facilities, including EMSL?

Answer. We fully support the fiscal year 2006 President's Budget request for the Office of Science.

DOE SUPPORT FOR TRAINING RADIOCHEMISTS

Question. Mr. Magwood, all of the DOE's national laboratories are projecting the need for hiring chemists with expertise in nuclear science and nuclear applications, e.g. radiochemists. These radiochemists are needed by the national laboratories to address problems such as advance nuclear fuel cycles, nuclear forensics for proliferation detection and prevention, resolving legacy environmental issues from the Cold War, etc. At the same time, most universities have allowed their programs in radiochemistry to end due to perceived limited long-term funding opportunities in the area, especially in comparison to other Federal agencies. Because of this decline in academic radiochemistry programs, universities in the United States will likely not be able to produce enough radiochemists to meet DOE's work force needs without assistance from DOE. Mr. Magwood, what plans are being made by DOE to support our Nation's universities that are currently training radiochemists and to enable those universities to significantly increase the number of students they are training?

Answer. The Department's Office of Nuclear Energy, Science and Technology initiated a grant program designed to arrest the decline in the radiochemistry discipline at U.S. universities in fiscal year 1999. We are continuing this program and expect to make awards to three or four schools in 2005. We have allocated $300,000 per year for this program. These funds will be used for recruiting and retaining graduate and post-graduate students and for the support of faculty and radiochemistry research. Our radiochemistry program continues to strengthen the discipline in the United States.

Question. Mr. Magwood, what is DOE's plan to invest in research programs at these universities and to assist these institutions in upgrading their laboratories for hands-on work with radioactive materials?

Answer. Our plans for fiscal years 2005/2006 are to continue the support of the Nuclear Engineering Research and Education (NEER) program at about $5.0 million with the number of awards varying between 15–26 each year to the Nation's universities. We will continue to upgrade facilities, including laboratories and research reactors to enable students and faculty to conduct research at universities through the Innovations in Nuclear Infrastructure and Education (INIE), involving 33 institutions in six distinct research consortia. INIE has provided and will continue to provide the means for universities to cooperate with each other in achieving research

that benefits not one university but many. In addition, the University Reactor Instrumentation program will provide funding for equipment upgrades at university reactors and associated facilities as well as for the purchase of security equipment to ensure increased facility security. All of these programs are designed to provide students the opportunities to have hands-on research throughout their academic careers.

Question. Mr. Magwood, our university research reactors in the United States are playing a vital role in supporting essential nuclear infrastructure for our country. For example, some are used by scientists in the national laboratories for nuclear security purposes, by other industries for various commercial applications, and by medical communities to develop new technologies for the diagnosis and treatment of diseases. Most of the Nation's university research reactors benefit significantly from the regional university reactor consortia described above, but some do not, especially when they are not associated with a nuclear engineering program. The facility at Washington State University serves our Nation very effectively, especially in detecting nuclear proliferation, but benefits only marginally from the Western States University reactor consortium because WSU does not have a nuclear engineering program. Mr. Magwood, what plans are being made by DOE to assist such university programs in the maintenance of this critical infrastructure for the Nation while also providing nuclear science education in areas such as radiochemistry?

Answer. The DOE Office of Nuclear Energy, Science and Technology (NE) University Programs effort is designed to support a wide variety of universities including those with radiochemistry, health physics and nuclear engineering programs. In addition, there are approximately 12 schools receiving support from NE that do not possess a nuclear engineering program. These schools, either through the Innovations in Nuclear Infrastructure and Education (INIE) program or other educational programs, are receiving funding to support students, faculty and research. We consider these institutions to be vital to the scientific infrastructure of our universities and the Nation.

SUBCOMMITTEE RECESS

Senator DOMENICI. With that, thanks for your efforts, and for your testimony, and we stand in recess.

[Whereupon, at 3:08 p.m., Tuesday, March 15, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER, AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 2006

THURSDAY, APRIL 7, 2005

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

The subcommittee met at 2 p.m., in room SD–138, Dirksen Senate Office Building, Hon. Christopher S. Bond, presiding.

Present: Senators Burns, Craig, Bond, Allard, Murray, Dorgan, and Johnson.

DEPARTMENT OF DEFENSE—CIVIL

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS—CIVIL

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

ACCOMPANIED BY:

LIEUTENANT GENERAL CARL STROCK, CHIEF OF ENGINEERS

MAJOR GENERAL DON RILEY, DIRECTOR, CIVIL WORKS

ROB VINING, CHIEF, CIVIL WORKS PROGRAMS, INTEGRATION DIVISION

OPENING STATEMENT OF SENATOR CHRISTOPHER S. BOND

Senator BOND. Good afternoon. The hearing of the Subcommittee on Energy and Water, and Related Agencies, the Committee on Appropriations, will come to order. The chairman has gone with the delegation to Rome, and he was kind enough to ask if I would be willing to sit in for him. It's a great honor because of my interest in this area. I had the opportunity to deliver a full statement on the floor today, in support of our reauthorization. I will not bore you with it again this afternoon. For the three or four of you who may be interested it should be in the Congressional Record.

Today the subcommittee will take testimony on the Fiscal Year 2006 Budget request for the U.S. Army Corps of Engineers and the Bureau of Reclamation. Our hearing will be in two panels. The first panel will consist of witnesses from the Corps of Engineers. Testifying for them will be John Paul Woodley, Principal Deputy Assistant Secretary of the Army for Civil Works and Lieutenant Carl Strock, Chief of Engineers for the U.S. Army Corps of Engineers.

The second panel will consist of witnesses from the Bureau of Reclamation.

ADDITIONAL PREPARED STATEMENTS

I will ask unanimous consent to place the entire opening statements of the Chairman Senator Domenici and Senators Cochran and Landrieu into the record.

[The statements follow:]

PREPARED STATEMENT OF SENATOR PETE V. DOMENICI

Good afternoon—the hearing will come to order.

Today, the subcommittee will take testimony on the fiscal year 2006 budget request for the U.S. Army Corps of Engineers and the Bureau of Reclamation.

Our hearing today is broken into 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.

The second panel will consist of witnesses from the Bureau of Reclamation.

Testifying for them will be: Mr. R. Thomas Weimer, Acting Assistant Secretary for Water and Science, Bureau of Reclamation, and Mr. John W. Keys, III, Commissioner, Bureau of Reclamation.

I want to thank all the witnesses for appearing today.

As you are aware, the President has made deficit reduction a top priority and as a result budgets are tight.

THE CORPS OF ENGINEERS

The President's budget for the Corps of Engineers proposes $4.3 billion, down nearly 8 percent ($336 million) from the current year appropriation.

The Corps has taken an unfair, radical approach to developing a budget that rewards large and urban projects and punishes more rural projects and those closer to completion. By applying a one-size-fits-all formula for funding prioritization, the Corps will end up focusing on a few projects while allowing others to be terminated.

Several of the highlights for fiscal year 2006 budget include:

—General Investigations is funded at $95 million, down 33 percent ($48 million) from the current year.

—Construction, General is funded at $1.637 billion, a decrease of 9 percent ($145 million) from the current year which certainly doesn't help to reduce the more than $40 billion backlog in unconstructed projects.

—Mississippi River and Tributaries is funded at $270 million, a decrease of 17 percent ($51.9 million) from the current year.

—Operation and Maintenance, General is funded at $1.979 billion, an increase of about 2 percent ($35.6 million) which is essentially flat and does nothing to reduce the maintenance backlog that has grown to more than $1 billion.

REMAINING BENEFITS TO REMAINING COSTS RATIO (RBRCR)

As I mentioned earlier, this is your first budget assembled by business lines (navigation, flood control, environmental restoration) and prioritized by the use of the remaining benefit to remaining cost ratio (RBRCR). Based on my review of the budget, I believe you should choose another budgeting model for the fiscal year 2007 budget cycle.

Thirty-one projects that you budgeted for in fiscal year 2005 were not budgeted in fiscal year 2006 because they did not meet your formula. However, you budgeted $80 million to suspend these 31 projects. It is my understanding that had you included another $120 million, you could have budgeted for all 31 of the projects.

The appalling part of this budgetary decision is that six of these unbudgeted projects could be completed in fiscal year 2006. Yet you chose to schedule them for termination. I am amazed that you thought this was either reasonable or prudent.

This budget relies heavily on a one-size-fits-all formula. My understanding of your criteria is that you have disregarded sunk costs and are only comparing the remaining project costs to the remaining project benefits and using solely that criteria to determine where funding should be spent. However, in a few cases, projects that didn't meet your criteria that you wanted to fund anyway were included in your budget. Further, if one looks at the distribution of projects in the budget proposal,

the only conclusion that can be drawn is that the budget favors urban areas over rural areas.

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 assumed $181 million in hydropower revenues from the Power Marketing Administrations will be available to the Corps to for maintenance of hydropower facilities at Corps' projects. Once again, we will be forced to find funding to cover this proposal. We have tried several times to enact this proposal without success. Yet you continue to propose it annually.

The budget has proposed the elimination of continuing contracts after fiscal year 2005 in favor of multiple year contracting. As I understand it, adoption of this proposal would severely limit your flexibility to manage the Corps' program. Not only is the use of continuing contracts mandated in law, we believe the use of continuing contracts along with reprogramming of project funds allows the Corps to efficiently utilize scarce funding and effectively manage a national program.

The budget proposes a modification of the fiscal year 2005 beach policy that was rejected by the Congress. I think it is safe to assume that the modified policy will also be rejected.

One other interesting proposal in the budget is that $200 million would be available only if the Secretary of the Army determines that the overall funding allocation among projects is substantially consistent with the performance budgeting guidelines set forth in the President's budget. How does the Corps plan to enforce this?

BALANCE OF CORPS MISSIONS AND WORKFORCE

Over the last 30 years, Congress has always attempted to balance the Corps program, not only among all of its competing missions but geographically as well.

The value to the Nation of the Corps of Engineers' Civil Works water resource program has been debated for more than 150 years, however, the consensus has always been that the Civil Works program not only contributes to our national economy and it adds to our national defense.

More than 3,000 Corps civilian employees have volunteered to serve in Iraq and Afghanistan in order to help with rebuilding efforts in those two countries. Most of the 200 or so uniformed services within the Corps have also served.

This ability to project this type of expertise is what makes the Corps of Engineers unique and valuable among Federal Agencies.

THE BUREAU OF RECLAMATION

The two major project accounts for the Bureau of Reclamation budget request are the Central Utah Completion Act Account and the Water and Related Resources Account.

THE CENTRAL UTAH PROJECT

The Central Utah Project Completion Account is funded at $32.6 million for fiscal year 2006, a decrease of 29 percent ($13.3 million) from the current year.

BUREAU OF RECLAMATION, WATER AND RELATED RESOURCES

The Water and Related Resources account is funded at $916.7 million, a decrease of 5.5 percent ($52.8 million) from the current year.

This account includes:

—$128 million for the Central Valley Project;
—$52.2 million for the Central Valley Project Restoration Fund;
—$35 million for the California Bay-Delta Restoration;
—$52 million for the Animas-La Plata project; and,
—$30 million for the Water 2025 account.

ISSUES FOR FISCAL YEAR 2006

The fiscal year 2006 budget proposes direct funding of routine Operations and Maintenance from the Power Marketing Administrations for the Bureau of Reclamation as well. Enabling legislation would be required to obtain this $30 million in revenues. If enacted on the E&W Bill, it would score against this subcommittee's allocation. As such, this is $30 million that will have to be accommodated within our allocation.

Funding for rural water projects that are closer to completion are funded at average levels for fiscal year 2006. Rural water projects that were initiated within the last 3 years are not funded. This budget will further drag out completion of these projects and the delivery of fresh water to these communities.

Two areas of your budget that I believe you have again seriously underfunded are Advanced Water Treatment technologies and water reclamation and reuse.

Under Water 2025 you have included $2 million for advanced water treatment technologies. Perhaps under some of your challenge grants you anticipate work in this area as well. However, I believe that research and development on desalination and other advanced water treatment concepts is an important part of the West's future water supply.

Likewise, 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.

The tight fiscal constraints under which we will be working this year will make it especially hard to find additional funds for both the Corps and Reclamation. We will do the best that we can.

PREPARED STATEMENT OF SENATOR THAD COCHRAN

Mr. Chairman, I join you in welcoming the witnesses to this hearing.

I appreciate the good work the Corps of Engineers does in the State of Mississippi. I do, however, have some serious concerns with the Corps' ability to continue to carry out its responsibilities due to declining levels of funding. The Civil Works program appears to be funded at a level that is insufficient.

Locks and dams are deteriorating, and the Corps doesn't have the resources needed to dredge the waterways that carry commercial cargo, such as the Mississippi River, not to mention many other waterways. The maintenance backlog also continues to grow and become more serious.

In addition, we are not adequately constructing or maintaining important flood control structures that are needed in any areas.

Another area of concern is the recent change in the way the Corps of Engineers approaches reprogramming guidelines that were provided in the fiscal year 2005 Omnibus Appropriations bill. As you know, I signed a letter yesterday with Chairman Domenici and Ranking Member Reid expressing my concerns over the sudden change in this program and the change in the way you use the continuing contract clause. I look forward to hearing your explanation regarding these new policies.

I appreciate the efforts of the Corps of Engineers but worry about inadequate funding of your important missions. The Corps is charged with improving safety and security for our Nation's citizens, and I hope that this committee will provide the resources necessary complete these missions.

PREPARED STATEMENT OF SENATOR MARY L. LANDRIEU

Mr. Chairman, thank you for calling this hearing to review the President's budget for the Army Corps of Engineers and the Bureau of Reclamation.

Before I comment on any specific budget matters, I wish to express my appreciation for being a member of this subcommittee. Its jurisdiction over both energy and water are matters of monumental concern to my State of Louisiana and our Nation. For these reasons and because of the relationships which we have built, I sincerely look forward to working with all of you.

For many years, Congress has provided more funding for the Civil Works program of the Army Corps of Engineers than requested by the administration. In recent years, Congress has appropriated approximately 10 percent more funding; however, last year Congress enacted 14 percent more than requested. Once again, the administration has requested less funding for fiscal year 2006 for the Corps than was provided by Congress for the current fiscal year.

The impact of the administration's inadequate Corps funding requests are felt throughout the Nation on vital projects causing a delay in their completion and resulting benefits. Many of these projects are physically located in Louisiana but greatly impact the entire Nation. The most notable project is the coastal restoration effort in Louisiana to save America's Wetland.

The Louisiana Coastal Area comprises one of the Nation's largest expanses of coastal wetlands. As an environmental treasure, it supports a diverse collection of

migratory birds, fish, and other species. As a productive natural asset, the Louisiana Coastal Area supports an extensive energy infrastructure network responsible for an estimated 20 percent of our Nation's energy and provides over 20 percent of the seafood consumed in the United States. Additionally, offshore oil and gas production off of Louisiana's coast is one of the U.S. Treasury's largest revenue sources. In 2001, this production contributed approximately $5.1 billion to the Federal Government.

Despite these significant national contributions made by the Louisiana Coastal Area and its resulting standing as America's Wetland, it accounts for 90 percent of the Nation's total coastal marsh loss. This destruction puts all of its national benefits at risks. Accordingly, the Corps along with the State of Louisiana has been engaged in the development of a comprehensive coastal restoration plan. Hopefully, implementation of this plan will begin soon, and this Congress will provide the Corps with the funding necessary to do the job. I will continue to work with all of you toward achieving this vital goal.

Another example of a project physically located in Louisiana having national implications is the Inner Harbor Navigation Canal (IHNC) lock project. This project at the Port of New Orleans was improperly zeroed out in the President's budget, even though its "Remaining Benefits to Remaining Costs" ratio meets and exceeds the threshold established by the administration for projects such as this to be included in the budget. Congress first authorized the replacement of this lock in 1956! It is a project of national significance that impacts trade in over 25 States on a daily basis. In fact, over 16 million tons of cargo move through this lock each year. I understand from the Corps that the fiscal year 2006 capability for this project is $25 million. I look forward to working with the chairman to fund this lock project at the best possible level in this year's Energy and Water bill.

Another Louisiana project of major significance is the Southeast Louisiana Flood Control Project, otherwise known as the SELA project. It is only funded at $10.49 million in the President's budget request, even though the Corps' stated capability for this project is $63 million. Mr. Chairman, you will remember from your visit to Louisiana in the past few years the importance of this project to the safety and well-being of literally millions of people in my State. Over 30 percent of the population of my State reside in the flood prone areas of south Louisiana. Only last year, we all watched with horror as four separate hurricanes battered the Gulf South, including, of course, Louisiana. That experience reminded us all of the urgent need to complete the SELA project as soon as possible. Thanks to your support, Mr. Chairman, this project has been a priority of this subcommittee for many years. I am again looking forward to working with you and your staff to ensure that the SELA project is funded at the highest possible level in this year's bill.

Besides these and many other ongoing Corps construction projects in Louisiana, the Corps is presently engaged in two studies involving non-traditional ports in Louisiana known as the Port of Iberia and the Port of Morgan City. These non-traditional ports serve as the host sites for fabrication of large offshore oil and gas platforms but do not move cargo as traditional ports do. Because of existing channel limitations, these fabrication ports are unable to deliver the large offshore structures that are currently needed in the deep waters of the Outer Continental Shelf. Consequently, the fabrication contracts for these structures are being lost to foreign ports. To protect the Nation's energy supply and these regional economies, these studies must be completed on time.

Another Louisiana port that is vital to the Nation's energy supply is Port Fourchon. This port is the intermodal support base for over 75 percent of the Gulf of Mexico's deepwater hydrocarbon development. Essentially, Port Fourchon serves as the jumping off point for personnel and supplies to operate offshore oil and gas platforms as well as a gateway for much of the oil and gas that is produced.

Port Fourchon is serviced by the Leon Theriot Floodgate. In 1996, the Corps was asked to study the conversion of this gate into a lock to eliminate traffic interruptions during flood events. Because of the importance of this project and delays in the completion of the study, Congress provided the authority to the Secretary in WRDA 1999 to construct the conversion project upon his determination of its justification. Although the study has been favorably completed, the Secretary has not acted to make the justification determination so that the project can move forward. Accordingly, I encourage the Secretary to act on this vital project.

In closing, Mr. Chairman, I thank you for your continued leadership on the Nation's water issues. I look forward to the testimony of our witnesses and would like to submit some questions for the record when appropriate.

Senator BOND. Mr. Woodley, this is the second time in as many days, welcome. And General Strock, thank you for appearing before

us. The programs administered by the U.S. Army Corps of Engineers are invaluable to this Nation, and provide drinking water, electric power, production, river transportation, environmental protection and restoration, protection from floods, emergency response and recreation.

Few agencies in the Federal Government touch so many citizens with so few people who appreciate what they do, and they do it on a relatively small budget. In my State we have the high honor of working with five Corps Districts in three Divisions. In a water State like Missouri, we see the Corps as an indispensable partner in providing safety and economic development. The budget is ugly but this is not the only agency where cuts are proposed and Chairman Domenici and Senator Reid will do the best they can under the difficult circumstances and they will have broad bipartisan support in doing so. Your full statement will be included in the record. So I would ask you to summarize briefly your statements. And I would call on Senator Craig to see if he has an opening statement.

STATEMENT OF SENATOR LARRY CRAIG

Senator CRAIG. Mr. Chairman, what I would do, is I have an opening statement that is tied to a series of questions I would like to ask. So why don't we take their opening testimony and then we can proceed into questions, if you don't mind?

Senator BOND. Thank you very much. Now we will turn to Mr. Woodley.

STATEMENT OF JOHN PAUL WOODLEY, JR.

Mr. WOODLEY. Mr. Chairman, members of the subcommittee, I appreciate the opportunity to testify before you today. I'm delighted to be accompanied this morning by Lieutenant General Carl Strock, the very distinguished Chief of Engineers, by Major General Don Riley, the Director of Civil Works for the Army Corps of Engineers, and Rob Vining, Chief of the Civil Works Programs, Integration Division.

The fiscal year 2006 Budget for the Army Civil Works Program includes about $4.5 billion in Federal funding. My complete statement includes a breakout of this funding by Corps mission area, or business program as defined in the Civil Works Strategic Plan. In addition to the budget justification materials already provided, we plan to provide a 5-year budget plan later this month. This budget plan will help with long-range planning for this program.

The allocations from fiscal year 2006 Budget for planning, design and construction reflect a focus on those studies and projects with the highest expected returns in the Corps' primary mission areas, commercial navigation, flood and storm damage reduction, and aquatic ecosystem restoration.

The budget sets priorities for construction using seven performance-based guidelines. A copy of the guidelines is attached to my complete statement.

For the 105 projects that are funded, the budget bases the level of funding on relative performance. For 35 lower performing, previously budgeted projects that will have ongoing contracts, the budget has funding to either complete or terminate each contract,

depending on the Corps of Engineers assessment of the relative cost of completion versus termination of that contract.

The budget also proposes to place existing authority to award continuing contracts with new authority to award multi-year contracts, to gain greater control over future costs.

The Corps regulatory program to protect the aquatic resources receives $160 million, an increase of $10 million from the fiscal year 2005 Budget, and an increase of $15 million from the fiscal year 2005 enacted appropriations. This funding will enable more effective protection for water and wetlands and more timely permit evaluations.

The funding in the budget for other business programs such as recreation and emergency management is based on recent assessments of effectiveness.

PREPARED STATEMENT

In summary Mr. Chairman, this budget and the forthcoming 5-year plan incorporate performance budgeting principles. Many high performing activities would be well funded and it is true that many other activities, although highly justified and worthy, would be deferred, at least for the time being. In all, the budget moves ahead with many important investments that will yield enormous returns for the Nation's citizens. Thank you Mr. Chairman.

[The statement follows:]

PREPARED STATEMENT OF JOHN PAUL WOODLEY, JR.

Mr. Chairman and distinguished members of the subcommittee, thank you for the opportunity to testify before the Subcommittee on Energy and Water Development of the Appropriations Committee and to present the President's budget for the Civil Works program of the Army Corps of Engineers for fiscal year 2006.

OVERVIEW OF FISCAL YEAR 2006 ARMY CIVIL WORKS BUDGET

The fiscal year 2006 budget for Army Civil Works provides funding to continue development and restoration of the Nation's water and related resources, operation and maintenance of existing navigation, flood damage reduction, and multiple-purpose projects, protection of the Nation's regulated waters and wetlands, and cleanup of sites contaminated as a result of the Nation's early efforts to develop atomic weapons.

The budget continues the administration's focus on those activities within the Corps main mission areas that have high expected net economic and environmental returns. Building upon the administration's Principles for Improving Program Performance in the Civil Works program, which were announced in the fiscal year 2004 budget, the fiscal year 2006 budget uses performance criteria to allocate funding within each program area, in order to achieve a greater overall net return to the Nation from the total to be invested in fiscal year 2006.

The budget emphasizes ongoing studies, projects and programs within the three main missions of the Civil Works program, namely, commercial navigation, flood and coastal storm damage reduction, and aquatic ecosystem restoration. As in the past, to be supported in the budget, a study or project must also meet current economic and environmental performance standards and be otherwise consistent with established policies.

The budget provides funding for other activities as well, including regulatory protection of waters and wetlands, cleanup of sites contaminated by the Nation's early atomic weapons program, and the management of natural resources and provision of hydroelectric power and recreation services at Federally operated Civil Works projects. However, it does not include funding for work that should be the responsibility of non-Federal interests or other Federal agencies, such as wastewater treatment, irrigation water supply, and municipal and industrial water supply treatment and distribution.

The budget includes new discretionary funding of $4.513 billion. This includes $200 million for the Construction account that is over and above the amount in last year's budget and that would be available if the overall allocation of funding among projects under the enacted legislation is substantially consistent with the performance budgeting guidelines proposed in the budget. The estimate for associated outlays is $4.643 billion.

The budget also includes proposed appropriations language to reclassify certain receipts collected by three of the Federal power marketing administrations. The appropriations language, if enacted, would enable the power marketing administrations to directly fund the operation and maintenance costs associated with the power functions of the Civil Works projects that generate the power that these agencies sell. The budget proposes to make available $181 million in offsetting collections in fiscal year 2006 for this purpose, reducing the total discretionary funding request for the Civil Works program to $4.332 billion.

The first attachment to this testimony displays the current estimate for the distribution of the discretionary funding request by appropriation account, business program, and source.

PERFORMANCE-BASED BUDGETING

Budget and Performance Integration, one of the initiatives of the President's Management Agenda, is central to the preparation of the fiscal year 2006 Army Civil Works budget. The budget targets funding to studies and projects with high returns, and incorporates performance planning into budget planning by program area.

Targeting Funding to Water Resources Studies and Projects with High Returns

For many years, there have been too many projects authorized and initiated without funding for timely completion, which has led to protracted construction schedules and the deferral of benefits for the most worthy projects. Consequently, the overall performance of the Civil Works program has suffered. The budget addresses this problem by allocations for planning, design, and construction that reflect a focus on those studies and construction projects with the highest expected returns in the Corps' primary mission areas, which are commercial navigation, flood and storm damage reduction, and aquatic ecosystem restoration. The budget also targets funding for operation and maintenance to the highest-return activities. These considerations are discussed below.

Studies and Design.—The fiscal year 2006 budget supports funding for the most promising studies and preconstruction engineering and design (PED) activities.

For the navigation and flood and storm damage reduction studies, performance was assessed based primarily on potential economic benefits and costs. For PED activities for such projects, the estimated ratio of remaining benefits to remaining costs is known, and PED activities for projects with ratios of 3.0 to 1 or greater at a 7 percent discount rate were funded. For aquatic ecosystem restoration studies and PED activities, performance was assessed based on relative cost-effectiveness in solving regional and national aquatic ecosystem problems. In all cases, the likelihood of implementation also was considered, including the existence of an executed cost sharing or concurrent financing agreement. The fiscal year 2006 budget concentrates funding on the 142 most promising studies and PED activities. This compares to 272 studies and PED activities that were funded in the fiscal year 2005 budget.

The budget for the General Investigations account is $95 million. Of this amount, $55 million is for studies, $6 million is for PED activities, and $34 million is for planning coordination, technical assistance, and research and development. In addition, the Flood Control, Mississippi and Tributaries (MR&T) account includes about $1 million for studies and $720,000 for the collection and study of basic data.

The budget provides a total of $20 million to continue planning and design work under the very high priority Louisiana Coastal Area study, which is needed to address the continuing loss of wetlands along the Louisiana coast. This increase of $12 million over the budget allocation for fiscal year 2005 reflects the progress that the Corps has been making in working with the State to establish priorities for implementation of restoration and related science and technology efforts over a 10-year period.

The budget also includes funding to initiate four reconnaissance studies that competed successfully with the highest performing of the ongoing studies. Three of these studies are funded in the General Investigations account: Coyote Creek, California; Neches River, Texas; and St. Louis, Missouri. The fourth is funded in the MR&T account: a high priority study of opportunities to reduce flood damages and restore the aquatic ecosystem through the further acquisition of real property interests in the Atchafalaya Basin.

One of my priorities is to improve analytical tools to support water resource planning and decision-making. The budget addresses this, for instance, by increasing funding for research and development on modeling and forecasting tools, including $2.4 million for the Navigation Economic Technologies research program funded in the General Investigations account.

Construction.—The budget uses seven performance budgeting guidelines to allocate funds among projects in the Construction account, in order to achieve greater value to the Nation from the construction program. In conjunction, the budget proposes the repeal of existing continuing contract authorities and their replacement with modern, multi-year contracting authorities, as discussed in the section on "Proposals for Programmatic Changes."

The performance guidelines are spelled out in the Appendix to the President's fiscal year 2006 budget and are provided as the second attachment to this testimony. Under the performance guidelines, construction projects are ranked and funded based on their estimated economic and environmental returns. The net effect is to redirect funding away from the lowest priority projects to accelerate completion of the highest priority projects. The guidelines are based on sound financial management principles similar to those used by private industry to rank and select investments.

The budget provides $1.637 billion dollars for the Construction account, including $200 million that would be available only if the overall funding allocation among projects under the enacted appropriations legislation is substantially consistent with the seven proposed performance guidelines. The budget also provides $111 million dollars for construction activities in the MR&T account after a reduction for anticipated savings and slippages. The total of $1.748 billion is the highest amount ever included for construction in a Civil Works budget. In all, the budget provides funding for 105 specifically authorized projects in the two accounts.

Under the performance guidelines, all construction projects are ranked within their program area by their remaining benefits relative to their remaining costs, or, in the case of aquatic ecosystem restoration projects, by the extent to which they cost-effectively address a significant national or regional aquatic ecological problem. However, dam safety, seepage correction, and static instability correction projects are given the highest priority without regard to these rankings. The budget provides 100 percent of the maximum that the Corps can use to carry out work efficiently on 14 dam safety, seepage correction, and static instability correction projects.

Based on these performance rankings, the budget identifies a total of 47 high priority projects. Among the 47 high priority projects are nine projects that the administration views as a national priority and 38 other projects that have a high ratio of remaining benefits to remaining costs, or that are very cost effective in addressing a significant regional or national aquatic ecosystem restoration problem. To accelerate completion of the high priority projects, the guidelines provide that the budget must allocate at least 80 percent of the maximum that the Corps could use to carry out work on these projects efficiently. The Corps provided the estimates for the maximum that the Corps could use to carry out work on these projects efficiently in mid-January, 2005.

The national priority projects include eight that the administration previously has identified: Columbia River Fish Recovery; South Florida Everglades Ecosystem Restoration; Missouri River Fish and Wildlife Recovery; New York and New Jersey Harbor; Olmsted Locks and Dam; Sims Bayou, Texas; Upper Mississippi River Restoration; and West Bank and Vicinity, Louisiana. In addition, for the first time, Oakland Harbor, California, is included as a national priority.

The budget includes $137 million for the Corps contribution to the Everglades restoration effort. Of this amount, $35 million is for the Corps to participate financially in the Modified Water Delivery project, along with the National Park Service. The administration has proposed appropriations language in the Construction account and companion appropriations language for the National Park Service to clarify that both agencies would be contributing financially to the Modified Water Delivery project. In addition, the budget proposes funding of the pilot projects program for the Comprehensive Everglades Restoration Plan (CERP) component of the Everglades program as part of design for the CERP features because the need to prove these technologies is central to the success of this restoration effort.

The budget proposes funding to initiate construction of the Washington, DC and Vicinity flood damage reduction project, which is one of the highest-return projects in the Nation. The initiation of this project is necessary to reduce the risk of flood damage to the museums on the National Mall, the Franklin Delano Roosevelt Memorial, and the World War II Memorial.

The budget also includes funding for an additional 44 construction projects. The funding is to continue work on contracts awarded before fiscal year 2006, and to ini-

tiate contracts in the instances of several beach nourishment projects to mitigate sand loss impacts due to the operation and maintenance of Federal navigation projects.

The amount budgeted for the construction and major rehabilitation of inland waterway projects, $353 million, is the highest amount ever included in a Civil Works budget. This funding will help ensure the continued efficiency and reliability of the major locks and dams on the inland waterways system.

The budget proposes that 35 previously budgeted construction projects with lower returns be examined for possible suspension. The budget provides a suspension fund of $80 million in the Construction account and a suspension fund of $8 million in the MR&T account for these projects. Where it would be less costly to complete an ongoing contract, that course would be pursued. Otherwise, the contract would not be funded, and the suspension fund would be used to pay the Federal share of settled claims. Construction of the suspended projects could be restarted in the future, to the extent that they compete successfully for future funding based on their relative economic and environmental returns.

Operation and Maintenance.—The budget for operation and maintenance emphasizes essential operation and maintenance activities at key Corps facilities, including maintenance dredging and structural repairs. The program areas of navigation, flood control, hydropower, recreation, and natural resources management receive operation and maintenance funding. The overall budget for the Operation and Maintenance account is $1.979 billion, the highest ever included in a Civil Works budget. The budget provides an additional $157 million for operation and maintenance activities in the MR&T account, after a reduction for anticipated savings and slippages.

In general, the budget provides funding for "must-have" operation and maintenance activities at Civil Works facilities. These include operations and time-sensitive maintenance necessary for meeting performance objectives at important facilities, plus efforts to comply with Federal environmental and other mandates.

The budget continues the policy of establishing priorities for funding navigation maintenance based primarily on the extent to which a channel and harbor project or waterway segment supports high volumes of commercial traffic. The budget also funds channel and harbor projects that have low commercial traffic but support significant commercial fishing, subsistence, or public transportation benefits. Navigation operation and maintenance at other facilities is funded to support surveys and other caretaker activities.

The budget includes funding for an assessment of the economics and long-term policy options for navigation facilities with relatively low levels of commercial traffic. The study will identify the universe of Federal channel and harbor projects and inland waterways segments that support lower levels of commercial use, classify these projects based on the kinds of contributions that they make, develop methods to quantify the differences in their attributes, and examine possible criteria for determining when a continued investment in operation and maintenance would produce a significant net return to the Nation. The study also will formulate a range of possible long-term options for the funding and management of navigation projects with lower levels of commercial use, evaluate these options, and examine their applicability to the various types of such projects.

Since the events of September 11, 2001, the Civil Works program has received appropriations of $362 million to provide facility protection measures that have recurring costs (such as guards), to perform assessments of threats and consequences at critical facilities, and to design and implement the appropriate "hard" protection at those critical facilities. The administration is continuing its commitment to facility protection in fiscal year 2006, with an allocation of $72 million for facility protection in the Operation and Maintenance account. Of the $72 million, about $30 million is for recurring costs, about $30 million is hard protection at operating projects, and $12 million is included as a "remaining item" in the Operation and Maintenance account for recurring costs and hard protection at laboratory, administrative, and other facilities.

The budget includes $20 million for an emergency maintenance reserve fund, from which the Assistant Secretary of the Army (Civil Works) would make allocations to meet high-priority, unexpected, and urgent maintenance needs at key facilities. When an unexpected emergency occurs under current practice, it is sometimes difficult to find the needed funds on a timely basis. The new arrangement will enable the Civil Works program to respond to these situations promptly, without interfering with other program commitments.

Incorporating Performance Planning by Program Area

The findings and recommendations of program evaluations using the Program Assessment Rating Tool (PART) informed budget decisions. To the extent that performance data were available, the Corps used this information during the budget development process to allocate funding.

The Corps also uses the PART to evaluate the performance of its program areas and determine whether they are achieving the desired results, and to improve the overall effectiveness and efficiency of these program areas. This year the recreation, storm damage reduction, and coastal channels and harbors program areas were assessed, and the hydropower program area was reassessed.

On March 22, 2004, the then-Chief of Engineers and I provided the Civil Works Strategic Plan to the committees and subcommittees of Congress responsible for water development authorizations and appropriations, including this subcommittee. That plan included an effort to suggest some program-specific goals, objectives, and performance measures, as well as some that are crosscutting.

Both the Civil Works Strategic Plan and the PART-based program evaluations are works in progress. As Civil Works programs are newly assessed and reassessed, the resulting findings will be addressed and recommendations implemented. Further, as new performance measures are identified and existing measures refined through the PART process, these changes will be reflected in the Strategic Plan through periodic updates.

To illustrate how the fiscal year 2006 budget for Civil Works reflects performance planning, I would like next to discuss the Regulatory Program and the Emergency Management program.

Regulatory Program.—The activities funded in the budget include permit evaluation, enforcement, oversight of mitigation efforts, administrative appeals, watershed studies, special area management plans, and environmental impact statements.

The recent performance assessment for this program concluded that it is moderately effective. Better efforts are needed to ensure compliance with permit conditions and mitigation requirements. The volume of permits is growing, and billions of dollars of investments are affected by permit processing times. One of my priorities for the Civil Works program is to improve the effectiveness of aquatic resource protection and the efficiency of permit reviews and decision-making.

For the regulatory program, the performance measures reflect a strong linkage between funding decisions and performance. The budget provides $160 million, which is $10 million more than included in the fiscal year 2005 budget, $16 million more than the enacted amount for fiscal year 2005, and more than has been budgeted for the regulatory program ever before. This increase is needed and will enable the Army to improve protection of aquatic resources and reduce permit evaluation times.

Emergency Management.—The Emergency Management program includes work funded in the Flood Control and Coastal Emergencies (FCCE) account and the National Emergency Preparedness program, with FCCE comprising the bulk of the program. The FCCE account finances response and recovery activities for flood, storm, and hurricane events, preparedness for natural events, and preparedness to support to the Federal Emergency Management Agency through the Federal Response Plan.

The recent performance assessment of FCCE activities concluded that they are moderately effective, and should be funded at the average annual cost of doing business so as to improve program management and reduce the likelihood of having to borrow from other accounts or obtain supplemental appropriations when disaster events occur. Accordingly, the fiscal year 2006 budget includes $70 million, which is approximately the amount that the Corps has spent in a typical year on flood and coastal storm emergency preparedness, response, and recovery activities.

FOUR PROPOSALS FOR PROGRAMMATIC CHANGES

Programmatic changes proposed in the budget include the following: the funding of beach nourishment and renourishment to address the impacts of navigation projects; replacement of continuing contracts with multi-year contracts; direct funding of hydropower operation and maintenance costs; and raising additional revenues to finance recreation modernization.

Beach Renourishment

This year the coastal storm damage reduction program area of the Army Corps of Engineers (Corps) was evaluated using the Program Assessment Rating Tool (PART). That evaluation addressed concerns with having a long-term Federal involvement in periodic beach renourishment, which ties up out-year funds that in

many instances could be invested in other projects that yield a greater return to the Nation. This finding supports a policy of not providing Federal funding for the costs of renourishment to replace sand lost due to ordinary, expected natural erosion. Therefore, the administration's view remains that non-Federal interests should be responsible for those costs once the initial nourishment has been accomplished, just as they operate and maintain other types of projects once the installation is complete.

The administration continues to support Federal participation in the initial phase of authorized beach nourishment projects for storm damage reduction and ecosystem restoration.

The budget also includes funding for beach nourishment and renourishment to mitigate sand loss impacts to shorelines due to the operation and maintenance of Federal navigation projects. The budget proposes that both the initial nourishment and renourishment phases be funded by Civil Works 100 percent, but only to the extent that they address the impacts of Federal navigation operation and maintenance. The budget also proposes that this Civil Works funding be derived from the Harbor Maintenance Trust Fund. The budget recommends enacting this proposal through appropriations language for the Construction account.

The Army will continue to participate financially in other coastal activities. These include the following: planning and design of coastal storm damage reduction and ecosystem restoration projects; deposition of dredged material from navigation projects on the adjacent shores when it is the least-cost, environmentally acceptable disposal method; one-time placements of dredged material for the beneficial use of storm damage reduction; and regional sediment management research.

The budget also provides funding to continue renourishment-related activities for the Westhampton Shores area of the Fire Island Inlet to Montauk Point, New York, project, as called for by a court order in the settlement of the case of *Rapf et al.* vs. *Suffolk County of New York et al*.

Construction Contracting

The budget proposes to replace the special continuing contract authorities of the Civil Works program with the authority to issue standard multi-year contracts, as are used elsewhere in the Federal Government. This change to multi-year contracting is needed to increase control over future contract costs, make more funding available in the out-years to complete Civil Works projects that have a high net return to the Nation, and subject contracting in the Civil Works program to the same rules and oversight that apply in other Federal agencies. The budget recommends enacting this proposal through an appropriations general provision.

Continuing contracts involve unfunded obligations that sometimes can be large. This long-term commitment to fund projects regardless of their relative performance has reduced the overall performance of the Civil Works program. In addition, under continuing contracts, contractors may accelerate their earnings, which increases the immediate cost to the government of the accelerated work performed and could lead to contract termination, inefficient progress on remaining work, or the deferral or slowdown of important work on other projects.

Direct Financing of Hydropower Operation and Maintenance Costs

In the past, the Congress generally has financed the operation and maintenance costs of Civil Works hydroelectric facilities from the General Fund, and the Federal power marketing agencies have repaid the Treasury for these costs from the revenues provided by ratepayers. The exception has been in the Pacific Northwest where, under section 2406 of the National Energy Policy Act of 1992, Public Law 102–486, the Bonneville Power Administration (BPA) has directly financed the costs of operating and maintaining the Corps' hydroelectric facilities from which it receives power. BPA funds have been used in this manner since fiscal year 1999.

Each year, Corps facilities experience unplanned outages around 3 percent of the time. In 1999, the General Accounting Office found that the Corps' hydropower facilities are more likely to experience unplanned outages as private sector facilities, because the Corps does not always have sufficient funds appropriated from the General Fund to schedule the needed preventive maintenance. To address this problem, the budget proposes that the Southeastern Power Administration, the Southwestern Power Administration, and the Western Area Power Administration finance hydropower operation and maintenance costs directly, in a manner similar to the mechanism used by Bonneville. The budget contemplates that these power marketing administrations, in consultation with the Corps, would make more funding available for hydropower operation and maintenance in order to provide economical, reliable power to their customers. Unplanned outages would be expected to decline over time.

The budget recommends enacting this proposal through appropriations language for the Operation and Maintenance account. The proposal, if enacted, would reclassify certain receipts collected by the power marketing agencies, and use the receipts to directly fund a category of expenses now being paid out of the General Fund.

Recreation Modernization

The fiscal year 2006 budget proposes a recreation modernization initiative for Civil Works recreation facilities, based on a promising model now used by other major Federal recreation providers such as the National Park Service and the Forest Service. The goal of the modernization initiative is to ensure that quality public outdoor recreation opportunities may be provided on Corps lands into the future.

The administration will propose legislation to allow the Corps to use additional fees and other revenues to upgrade and modernize recreation facilities at the sites where this money is collected. The legislation will include authority for the Corps to charge entrance fees and other types of user fees where appropriate.

Specifically, the Corps would use the additional collections above a $37 million per year baseline to improve the Corps recreation program. This will give the Corps staff who manage Civil Works recreation facilities a stronger incentive to collect fees and develop other sources of revenue. I would expect that the people who enjoy recreation at Corps facilities will support this proposal as well, since they will know that the additional money would be used to improve the program.

In conjunction with the proposed legislation, the Corps will focus on the following areas of interest: adjustments to fees and user charges under existing authority; new planning, financing, and management partnerships with local units of government such as Lake Improvement Districts; and expanded cooperation with local volunteers, other stakeholders, and interest groups. Demonstration projects in urban areas will be investigated, and the six demonstration projects initiated in fiscal year 2005 will be continued.

MANAGEMENT AND OVERSIGHT

The Assistant Secretary of the Army (Civil Works) oversees Civil Works budget and policy. Corps executive direction and management of the Civil Works program are funded from the General Expenses account. The President's Management Agenda is the centerpiece of the Army's and the Corps' efforts to improve the effectiveness of program management.

Office of the Assistant Secretary of the Army for Civil Works

Congress funded the Assistant Secretary's office from Energy and Water Development appropriations for the first time in fiscal year 2005. The budget proposes that the Assistant Secretary's office be funded from the Operation and Maintenance, Army account in defense appropriations, as had been the custom until fiscal year 2005. The reasons are that the Assistant Secretary, as an advisor to the Secretary of the Army, has some oversight responsibilities outside the purview of the Subcommittee on Energy and Water Development, and the Assistant Secretary's office is a part of the Army headquarters, where many expenses are centrally funded and managed.

General Expenses

Funding budgeted for the General Expenses account is $162 million. These funds will be used for executive direction and management activities of the Corps headquarters, the Corps division offices, and related support organizations that pertain to Civil Works.

Audit activities will be financed by the Revolving Fund rather than under General Expenses. The fiscal year 2005 budget and enacted amount of $167 million includes $7 million for an audit of the Civil Works financial statements by the Department of Defense Inspector General. Financial audit activities formerly were carried out by the Army Audit Agency (AAA) using its own funding, but under new General Accounting Office auditing standards the AAA is not sufficiently independent of the Corps to conduct this audit. The balance statement audit being performed in fiscal year 2005 includes extensive review of historical data to remedy findings of the Inspector General. This type of review is appropriate for funding from the General Expenses account and is expected to be completed with the fiscal year 2005 funds. The costs of annual audits beginning in fiscal year 2006 will be considered normal costs of doing business and, as such, will be financed from the Revolving Fund and appropriately distributed to the appropriation accounts.

President's Management Agenda

The Civil Works program is making progress on the President's Management Agenda. Like many agencies, the Corps of Engineers started out in 2002 with "red" ratings across the board.

The Civil Works program is striving to attain "green" or "yellow" status scores for most initiatives by July 2005. For the human capital initiative, significant progress is expected in reducing hiring time lags and integrating the accountability system into decisions. For competitive sourcing, the Corps has two ongoing competitions and is conducting preliminary planning for three more. For financial management, no change in status is expected until audit issues have been resolved and historical data have been collected. For e-government, efforts are underway to establish an effective Enterprise Architecture, adhere to cost and schedule goals, secure currently unsecured information technology systems, and implement applicable e-government initiatives. For integration of budget and performance, efforts are under way to prepare additional program assessments and reassessments, to improve performance measures, and to begin to use performance information in short-range decision processes. For real property asset management, the goal is to develop and obtain approval of an asset management plan, an accurate and current asset inventory, and real property performance measures.

I am confident that this work on the President's initiatives will yield greater program efficiency and effectiveness in the years to come.

CONCLUSION

In his State of the Union Address of February 2, 2005, the President underscored the need to restrain spending in order to sustain our economic prosperity. As part of this restraint, it is important that total discretionary and non-security spending be held to levels proposed in the fiscal year 2006 budget. The budget savings and reforms in the budget are important components of achieving the President's goal of cutting the budget deficit in half by 2009, and we urge Congress to support these reforms. The fiscal year 2006 budget includes more than 150 reductions, reforms, and terminations in non-defense discretionary programs, one of which affects the Civil Works program, specifically, the Civil Works construction program: the adoption of performance guidelines and reduction in funding compared to fiscal year 2005 enacted amounts. The Army wants to work with the Congress to achieve these savings.

The fiscal year 2006 budget for the Army Civil Works program was developed using the modern management concept of performance-based budgeting, in line with the President's management principles.

At $4.513 billion, this is the highest Civil Works budget in history. Specifically, the amounts for construction, operation and maintenance, and the Regulatory Program are the highest ever submitted to Congress.

Nonetheless, the budget reflects explicit choices based on performance, particularly insofar as funding is targeted for high performing studies, design, and construction, and for areas where additional funding can make a real difference such as in the emergency management program and the regulatory program.

As I have testified before, I have three priorities in mind for the Civil Works program. One priority is to develop the Civil Works budget and manage the program based on objective performance measures. My second priority is to improve the analytical tools that we use for water resources planning and decision-making, and my third priority is to improve the effectiveness and efficiency of the regulatory program. This budget contributes to the advancement of all three goals.

The Army Civil Works budget for fiscal year 2006 will enable the Civil Works program to move ahead with many important investments that will yield good returns for the Nation in the future.

Thank you, Mr. Chairman and members of the subcommittee, for this opportunity to testify on the President's fiscal year 2006 budget for the Civil Works program of the Army Corps of Engineers.

ATTACHMENT 1

DEPARTMENT OF THE ARMY—CORPS OF ENGINEERS—CIVIL WORKS BUDGET, FISCAL YEAR 2006

	Amount
Requested New Appropriations by Account:	
General Investigations	$95,000,000
Construction	1,637,000,000

DEPARTMENT OF THE ARMY—CORPS OF ENGINEERS—CIVIL WORKS BUDGET, FISCAL YEAR 2006—Continued

	Amount
Operation and Maintenance	1,979,000,000
Regulatory Program	160,000,000
Flood Control, Mississippi River and Tributaries	270,000,000
General Expenses	162,000,000
Flood Control and Coastal Emergencies	70,000,000
Formerly Utilized Sites Remedial Action Program	140,000,000
TOTAL	4,513,000,000
Requested New Appropriations by Business Program:	
Commercial Navigation	1,796,000,000
Channels and Harbors	(882,000,000)
Inland Waterways	(914,000,000)
Flood and Coastal Storm Damage Reduction	1,085,000,000
(Flood Damage Reduction)	(998,000,000)
(Coastal Storm Damage Reduction)	(87,000,000)
Environment	716,000,000
(Aquatic Ecosystem Restoration)	(483,000,000)
(FUSRAP)	(140,000,000)
(Natural Resources)	(93,000,000)
Hydropower	249,000,000
Recreation	268,000,000
Water Supply	2,000,000
Emergency Management	75,000,000
Regulatory Program	160,000,000
Executive Direction and Management	162,000,000
TOTAL	4,513,000,000
Sources of New Appropriations:	
General Fund	3,436,000,000
Harbor Maintenance Trust Fund	674,000,000
Inland Waterways Trust Fund	184,000,000
Special Recreation User Fees	37,000,000
Disposal Facilities User Fees	1,000,000
Power Marketing Administration Direct Funding	181,000,000
TOTAL	4,513,000,000
Additional New Resources:	
Rivers and Harbors Contributed Funds	445,000,000
Coastal Wetlands Restoration Trust Fund	61,000,000
Permanent Appropriations	18,000,000
TOTAL	524,000,000
Total New Program Funding	5,037,000,000

ATTACHMENT 2.—DEPARTMENT OF THE ARMY—CORPS OF ENGINEERS—CIVIL WORKS BUDGET, FISCAL YEAR 2006

PERFORMANCE BUDGETING GUIDELINES FOR CIVIL WORKS CONSTRUCTION

1. Funding distribution and project ranking.—(a) All ongoing construction projects, including those not previously funded in the budget, will be classified as being primarily in one of the following program-based categories: Coastal Navigation; Inland Navigation; Flood Damage Reduction; Storm Damage Reduction; Aquatic Ecosystem Restoration; or All Other (including the major rehabilitation of existing commercial navigation, flood damage reduction, and hydropower facilities). (b) At least 70 percent of the construction budget will be allocated to projects in the first four of these categories. At least 5 percent of the construction budget will be allocated to "all other" work. The funding allocated for the construction of aquatic ecosystem restoration projects will not exceed 25 percent of the budget in the construc-

tion program. Changes to these percentages are, however, permitted under the seventh guideline. (c) Projects in all categories except aquatic ecosystem restoration will be ranked by their remaining benefits divided by their remaining costs (RBRC). All RBRCs will be calculated using a 7 percent real discount rate, reflect the benefits and costs estimated in the most recent Corps design document, and account for the benefits already realized by partially completed projects. Aquatic ecosystem restoration projects will be ranked primarily based on the extent to which they cost-effectively address a significant regional or national aquatic ecological problem. (d) Dam safety, seepage, and static instability projects will be treated separately. They will receive the maximum level of funding that the Corps can spend efficiently in each fiscal year, including work that requires executing new contracts.

2. Projects with very high RBRCs.—The budget will provide funds to accelerate work on the projects with the highest RBRCs within each category (or the most cost-effectiveness in addressing a significant regional or national aquatic ecological problem, for aquatic ecosystem restoration). Each of these projects will receive not less than 80 percent or the maximum level of funding that the Corps can spend efficiently in each fiscal year, including work that requires executing new contracts.

3. New starts and resumptions.—The budget will provide funds to start new construction projects, and to resume work on projects on which the Corps has not performed any physical construction work during the past 3 consecutive fiscal years, only if the project would be ranked in the top 20 percent of the ongoing construction projects in its category that year and appears likely to continue to qualify for funding as a project with very high RBRC under the second guideline thereafter.

4. Continuing contracts.—Except for projects considered for deferral, the budget will continue to support work under continuing contracts executed prior to 2006. From 2006 onward, the Corps will issue contracts based only on the kinds of authorities that are available to other Federal agencies. All new contracts will include clauses to minimize termination penalties, cap cancellation fees, and ensure that the Corps is able to limit the amount of work performed under each contract each year to stay within the overall funding provided for the project during the fiscal year. The Corps will also reduce out-year funding commitments by using contracts whose duration is limited to the period needed to achieve a substantial reduction in costs on the margin.

5. Lower priority projects.—All projects with an RBRC below 3.0 will be considered for deferral, except for aquatic ecosystem restoration projects. Aquatic ecosystem restoration projects that do not primarily address a significant regional or national aquatic ecological problem and are less than 50 percent complete will be considered for deferral, except for those that are highly cost-effective in addressing such problems. Where a project considered for deferral was previously funded, the budget will cover the cost of terminating or completing each ongoing contract, whichever is less.

6. Redirection of funding.—Any budget year and all future year savings from the suspension of ongoing construction projects, after covering the cost of termination or completing ongoing contracts, will be used to accelerate projects with high RBRCs. The savings will be allocated to the projects with the highest RBRCs and the highest environmental returns in the construction program.

7. Ten percent rule.—The budget may allocate up to a total of 10 percent of the available funding to ongoing construction projects regardless of the requirements stated above. However, this may not be used to start or resume any new projects.

Senator BOND. Thank you Mr. Woodley. Lieutenant General Strock.

STATEMENT OF LIEUTENANT GENERAL CARL STROCK

General STROCK. Mr. Chairman and distinguished members of the committee. I too am honored to testify here before you today, along with Mr. Woodley and my colleagues from the U.S. Army Corps of Engineers on the President's fiscal year 2006 Budget for the Army Civil Works Program.

This budget is a performance-based budget that reflects the realities of the national budget supporting the global war on terror. This budget focuses construction funding on 47 projects that will provide the highest returns on the Nation's investment, plus 14 dam safety projects.

Funds will be used for critical water resources infrastructure that improves the quality of our citizens' lives and provides a foundation for national economic growth and development. The budget incorporates performance-based metrics for continued efficient operation of the Nation's waterborne navigation, flood protection, and other water resource management infrastructure, fair regulation of wetlands, and restoration of important environmental resources, such as the Florida Everglades, the Upper Mississippi River, and Coastal Louisiana. It also improves the quality of recreation services through stronger partnerships and modernization.

This budget provides approximately $48.9 million to complete 13 projects by the end of 2006. And as part of a comprehensive strategy to reduce the construction backlog, the fiscal year 2006 budget funds 44 other projects that provide high returns and are consistent with current policies.

In all, 105 projects are funded so that we can provide benefits to the Nation sooner. The fiscal year 2006 budget includes $2.142 billion for the Operations and Maintenance program. And I can assure you that I will continue to do all I can to make these programs as cost effective as possible.

The Corps is undergoing sweeping transformational changes as a result of our customer and stakeholder input. We have implemented USACE 2012 within the Corps, becoming a major team, and our business processes are now focused on eight Corps regional business centers to more efficiently serve the public and the armed forces.

We continue to strengthen our management of resources, streamline our planning processes, and invite the involvement of other Federal, State, tribal, and local agencies sponsors, and interested organizations to participate early in the planning process to ensure concerns are addressed up front rather than at the end of the process.

The Corps continues to strengthen its regulatory program, to ensure that Wetland mitigation is effective in retaining the quantity, quality and functions of those critical resources. We also look to continue the use of external independent review on major Corps project studies to help ensure those studies sufficiently address national economic and environmental concerns.

Domestically, more than 2000 USACE volunteers from around the Nation responded to the call to help their fellow citizens when four hurricanes struck the southeast last fall, and again after this winter's heavy rains across the Nation. Corps dams, levees and reservoirs provided billions of dollars in flood damage reduction to protect lives, homes and businesses. The Corps has played an integral part in the global effort to provide relief to the victims of the massive tsunamis triggered by the December 26 earthquake off the coast of Indonesia.

Corps engineers from the Engineering Research and Development Center in Vicksburg, Mississippi, three Forward Engineering Support Teams from Japan, Alaska and Arkansas, and the Corps 249th Prime Power Battalion were sent to help in the area's recovery and we're presently supporting the U.S. Agency for International Developments and their continuing recovery efforts.

Finally the Corps' Civil Works experience is proving invaluable as soldiers and civilians with the Corps of Engineers help to rebuild infrastructure in Iraq and Afghanistan. Approximately 600 civilian members are currently serving in Afghanistan and Iraq, sharing their knowledge and expertise with local engineers and other professions. To date over 3,000 Corps civilians have volunteered and served in the theater of operations, sharing the dangers and hardships of the soldiers that they support.

PREPARED STATEMENT

Almost as important, we're using technology in support of our deployed team members with the full capability of our organization.

So in closing, the Corps is committed to selflessly serving the Nation. I truly appreciate your continued support to this end. Thank you Mr. Chairman, members of the committee; this concludes my statement.

[The statement follows:]

PREPARED STATEMENT OF LIEUTENANT GENERAL CARL STROCK

INTRODUCTION

Mr. Chairman and distinguished members of the subcommittee, I am honored to be testifying before your subcommittee today, along with the Principal Deputy Assistant Secretary of the Army (Civil Works), the Honorable John Paul Woodley, Jr., on the President's fiscal year 2006 budget for the United States Army Corps of Engineers' Civil Works Program.

My statement covers the following 5 topics:

—Summary of fiscal year 2006 Program Budget,
—Civil Works Construction Backlog,
—Civil Works Program Transformation,
—Value of the Civil Works Program to the Nation's Economy, and
—Value of the Civil Works Program to the Nation's Defense.

SUMMARY OF FISCAL YEAR 2006 PROGRAM BUDGET

Introduction

The Fiscal Year 2006 Civil Works Budget is a performance-based budget that reflects the realities of a national budget supporting the war on terror while cutting the deficit in half. The Corps used performance based criteria in developing this budget, which resulted in a focus on the projects and activities that provide the highest-net economic and environmental returns on the Nation's investment. The Civil Works Program, including the Direct and Reimbursed programs, is expected to approach $6.037 billion.

Direct Program funding, including discretionary and mandatory funding appropriated directly to the Corps, totals $5.037 billion. Discretionary funding, plus the direct funding of hydropower operation and maintenance expenses totals $4.513 billion; additional mandatory funding totals $524 million.

Reimbursed Program funding is projected to be $1 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 incorporates performance-based metrics for continued efficient operation of the Nation's navigation, flood protection, and other water resource management infrastructure, fair regulation of the Nation's wetlands, and restoration of the Nation's important environmental resources, such as the Florida Everglades, the Upper Mississippi River, and Coastal Louisiana. It also improves the quality of recreation services through stronger partnerships and modernization.

The budget emphasizes funding for 61 projects including 14 dam safety, seepage correction, and static instability projects. Funding for 47 projects will provide the highest-net economic and environmental returns on the Nation's investment. Nine of the 47 projects are identified as national priorities. The 47 projects include a new construction start, Washington DC and Vicinity, to reduce the risk of flood damages

to the museums on the National Mall, the Franklin Delano Roosevelt Memorial, and the World War II Memorial. There are also 3 new studies under the General Investigations (GI) program and 1 under the Mississippi River and Tributaries (MR&T) program.

Reimbursed Program

Through the Interagency and Intergovernmental Support Program we help non-DOD Federal agencies, State, 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 fully funded 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 2006 is projected to be $1 billion. The largest share—nearly $388 million—is expected from the Federal Emergency Management Agency (FEMA) for hurricane disaster relief. These numbers represent and update to the President's Budget using the Corps internal Consolidated Civil Automated Budget accounting system.

CIVIL WORKS CONSTRUCTION BACKLOG

The budget addresses the construction backlog primarily by proposing that the administration and the Congress use objective performance measures—the ratio of remaining benefits to remaining costs or, for aquatic ecosystem restoration projects, the extent to which the project cost-effectively addresses a significant regional or national ecological problem—to establish priorities among projects including potential new starts, and through a change in Corps contract authorities that would increase control over future costs. While up to 10 percent of the available funds could be allocated to any project under construction regardless of performance, a greater proportion of the resources would be allocated to the projects that the Corps estimates will yield the highest returns. Over time, this approach would significantly improve the benefits to the Nation from the Civil Works construction program.

This Budget includes $48.9 million to complete 13 projects (including 1 MR&T project) by the end of 2006. The figures are an update to the President's Budget contained in the main volume. This investment will enable each of these projects to begin delivering benefits. In all, 105 projects are funded. There are 47 projects that provide the highest-net economic and environmental returns on the Nation's investment, 14 dam safety, seepage correction, and static instability correction projects, and 44 ongoing construction projects.

We believe that narrowing the focus on funding and completing a smaller, more beneficial set of projects will bring higher net benefits to the Nation sooner. That is why the Budget proposes only one new, high priority construction start and accelerates completion of the highest-return projects in each program area.

Maintenance Program

Water and related land resource management facilities of the Civil Works Program are aging. As stewards of this infrastructure, we are working to ensure that it continues 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 program supports the operation, maintenance and security of existing river and harbor, flood and storm damage reduction and, aquatic ecosystem restoration, owned and operated by, or on behalf of, the Corps of Engineers, including administrative buildings and laboratories. Funds are also included for surveys and charting of northern and northwestern lakes and connecting waters, clearing and straightening channels, and removal of obstructions to navigation. Work to be accomplished includes dredging, repair, and operation of structures and other facilities, as authorized in the various River and Harbor, Flood Control, and Water Resources Development Acts. Related activities include aquatic plant control, monitoring of completed coastal projects and, removal of sunken vessels.

In both the Operation and Maintenance and the Mississippi River and Tributaries accounts the fiscal year 2006 budget includes a total of $2.142 billion for operation and maintenance. To improve the efficiency of the investment in operation and maintenance, we will give priority to key features of our infrastructure and determine an appropriate level of service for others, considering the benefits to the Nation and the funding needed to support that level of service. Furthermore, we are

searching for ways to reduce costs and thereby accomplish more with available resources.

CIVIL WORKS PROGRAM TRANSFORMATION

Throughout its long history, the Civil Works Program has continually changed in response to advances in science, methods, and processes, changing public values and priorities, and laws. For our program to remain a viable contributor to national welfare, we must remain sensitive to such factors, and continue to reorient, rescope, and refocus the program in light of them. To that end, I am committed to reforming the Civil Works Program to meet the Nation's current water and related land resource management needs.

The recently implemented USACE 2012 creates a team of teams within the organization. Our business processes are now being led by a business center within each of the eight Corps regions, in order to more efficiently serve the public and the armed forces. Our processes are more open and more collaborative. We are working to revitalize our planning capabilities to become more efficient, more centralized, with one planning center for each of our eight divisions.

We continue to strengthen and streamline our planning processes, and to invite the involvement of other Federal, tribal, State and local agencies, sponsors, and interested parties to participate early in the planning process to ensure concerns are addressed up front rather than at the end of a plan.

The Corps Regulatory Program is working to achieve our goal of "no net loss of wetlands", through measures that avoid and minimize impacts and by requiring effective mitigation to replace the functions of these critical resources, while making timely permit decisions.

We also look to continue the use of external independent review on major Corps project studies where appropriate, to help ensure they are technically sound and properly address national economic and environmental concerns.

Let me tell you about some of the major steps we took last year:

—We are continuing to spread the spirit and the word of the Corps' Environmental Operating Principles—a clear commitment to accomplishing our work in environmentally sustainable ways—with the express purpose of instilling the principles as individual values in all members of the Corps team.

—The Corps of Engineers and the Office of the Assistant Secretary of the Army for Civil Works have allocated additional resources to strengthen our internal review capabilities, and are considering other measures to further improve such capability. With our restructuring under USACE 2012, we have created an Office of Water Project Review in our Headquarters which effectively doubled the size of our policy compliance review staff. The goal is to have our economists, plan formulation specialists, and environmental reviewers focus on early involvement in study development to assure compliance with established policy as projects are being developed. I am committed to working with field commanders to provide training, lessons learned and other tools to strengthen the policy compliance quality control/quality assurance process.

—We completed a Civil Works Strategic Plan that emphasizes the sustainable development, management and protection of our Nation's water and related land resources. This Strategic Plan is a work in progress, and will be updated as performance measures and objectives are developed and refined.

—We established five national planning centers of expertise staffed with some of our top engineers and scientists—a step that is essential for successfully addressing the issues that increasingly arise in planning a water resources project, especially those that are costly, complex, or controversial, or which otherwise require very specialized planning work.

—I believe we have made progress on the President's Management Agenda this year, particularly in the area of Budget and Performance Integration. Specifically, we used objective criteria to establish priorities for allocating funds among projects in order to increase the overall net economic and environmental return to the Nation from our construction and general investigations programs.

We are committed to change that leads to open and transparent modernization of the Civil Works Program. To this end, we are committed to continuing the dialogue with you and your staff. I have issued communication principles to ensure open, effective, and timely two-way communication with the entire community of water resources interests. We know well that we must continue to listen and communicate effectively in order to remain an effective origination.

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

Water resources management infrastructure has improved the quality of our citizens' lives and supported the economic growth and development of this country. Our systems for navigation, flood and storm damage reduction projects, and efforts to restore aquatic ecosystems contribute to our national welfare.

Domestically, more than 2,000 USACE volunteers from around the Nation responded to the call to help their fellow citizens when four hurricanes struck Florida and the rest of the Southeast this last fall.

Similarly, during this winter's heavy rains across parts of the Nation—Corps dams, levees and reservoirs operated as designed to flood damages and protect lives, homes and businesses.

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

The Civil Works Program is a valuable asset in support of Homeland Security in that it helps to maintain a trained engineering workforce, with world-class expertise, capable of responding to a variety of situations across the spectrum of our operations. This force is familiar with the Army culture and responsive to the chain of command. Skills developed in managing large water and land resource management projects transfer to most tactical engineering-related operations. As a byproduct, Army Engineer officers assigned to the Civil Works Program receive valuable training, in managing large projects.

The Corps of Engineers continues to contribute to the ongoing global war on terror, as our civil works experience proves invaluable in restoring and rebuilding the infrastructure of Iraq and Afghanistan. More than 3,000 civilians have voluntarily deployed and approximately 600 are currently serving along with soldiers to provide engineering expertise and quality construction management in these nations.

In Iraq, the Gulf Region Division has overseen the initiation of more than 2,000 reconstruction projects valued at over $4 billion. More than 500 projects are complete. 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.

The Corps has also played an integral part in the global effort to provide relief to the victims of the massive tsunamis triggered by the Dec. 26 earthquake off the coast of Indonesia. Corps engineers from the Engineering Research and Development Center in Vicksburg, Mississippi, three Forward Engineering Support Teams from Japan, Alaska, and Arkansas, and the Corps 249th Primary Power Battalion were sent to help in the area's recovery.

Homeland Security

In addition to playing an important role in supporting the global war on terror, we are providing security for physical infrastructure owned or operated by the Corps throughout the Nation, based on risk assessment at each of our critical facilities. The Corps is also a member of the National Response Plan team with proven experience in support of disaster response.

The Civil Works Program has completed over 300 security reviews and assessments of our inventory of locks, dams, hydropower projects and other facilities. We have improved our security engineering capability and prioritized infrastructure and are currently implementing recommended features at the highest priority security improvement projects.

For fiscal year 2006, $72 million is targeted for recurring security costs and security enhancements at key Corps facilities. Facility security systems can include cameras, lighting, fencing, structure hardening, and access control devices designed to improve detection and delay at each facility.

CONCLUSION

The Corps of Engineers is committed to staying at the leading edge in service to the Nation. In support of that, we are working with others to transform our Civil Works Program. We're committed to change that leads to open, transparent modernization, and a performance-based Civil Works Program.

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

Senator BOND. Thank you very much General Strock. Do we have a timing device available? Well I will try to be judicious. First Mr. Woodley, I would be interested in knowing how the Corps budget was formulated this year. And I'm aware of the President, without getting yourselves in trouble. Can you generally explain the challenges you face in the field because of tight budgets in recent years, Mr. Woodley, first?

Mr. WOODLEY. Absolutely, yes, sir, Mr. Chairman. The budget this year was a continuation of our efforts of the past 2. That began really with the submission for the Fiscal Year 2005 budget to inaugurate, or incorporate, performance based principles based on the business lines within our program. Those are the broad mission areas, such as navigation, flood control and the like. The test that was used—what we set for those—was a set of performance metrics. In the construction arena, for example, that was based largely on our analysis of the benefit-cost ratio for each ongoing construction activity.

Now, that of course does not apply in the area of ecosystem improvement and restoration. So we were unable to take that to one side, but in the other areas in which we were able to do cost-benefit analysis we wanted to fund those best performing projects. What we had found in the past had been that we had numerous projects ongoing, and insufficient funding to continue all of our projects at an efficient level. And so what we had was a constant effort to keep a large number of projects going at a very inefficient level, constantly pushing the time of their completion out into the out-years and therefore delaying the reaping of the benefits for the public. Instead of doing that, we asked this year that the constructions funds be strictly prioritized by remaining cost to remaining benefit, and that is a measure that takes into account the benefits that are yet to be gained from the project compared to the remaining costs that are needed to be invested to reap those benefits. So the idea is, we want the best bang for the buck, in each individual project.

Now our difficulty there, of course, is that when we fund those projects that are best performing at efficient levels, we have to necessarily suspend, or in some cases terminate, some worthy and fully justified and good projects, Mr. Chairman. We have to leave them on the table.

Senator BOND. Are there penalties assessed with those cancellations and deferments?

Mr. WOODLEY. In many cases there would be. Although we would seek to manage the draw down of those and the wind down of those, to certainly minimize those penalties as much as we possibly can. You're exactly right, Mr. Chairman. You put your finger right on it.

Senator BOND. Are there reprogramming restrictions that are not sufficiently flexible that may cause some problems? I would ask

both of you to comment very briefly on that. Do you need more flexibility in reprogramming?

Mr. WOODLEY. I would say that the way our program—or the way that construction in the construction arena and also in the operations and maintenance arena—that reprogramming flexibility is a very important part of our ability to manage day to day. And I would certainly ask the Chief to chime in on that.

Senator BOND. General, do you have any comment on that?

General STROCK. Yes sir. It certainly is very important for us to be able to move the resources available around and to be able to manage this as a national program. Sir, I feel the guidance in last year's budget was sufficient; it is clear and we're complying with that guidance and we're not having any problems with that, sir.

Senator BOND. Yesterday gentlemen, the nominee to be Deputy Secretary of Agriculture testified before the Agriculture Committee, where Senator Talent asked him if he would be an advocate in the administration for modernizing our Mississippi and Illinois river lots. His response was—this is from the to-be-confirmed Deputy Secretary. He said, I will. It is not just important Senator it is absolutely essential. If we flat out have to get our agriculture commodities out of the Midwest down to New Orleans to a point of export, where we're absolutely dead in the water. So I will be an advocate of that within the administration, I assure you.

When we get him confirmed you should have a partner, and I trust they will use him. If he doesn't meet that commitment I will be calling him, and I will be calling you, if I make myself clear. At this point I will turn under the Early Bird Rule to Senator Craig.

Senator CRAIG. Mr. Chairman thank you. And gentlemen thank you very much for being with us today. There are several issues that I would like to take up with you, especially with you Secretary Woodley today.

The first issue is one that I pursued for over a year with your agency. It is the issue of energy infrastructure reform. As I made clear to the Corps the last time we met in this room there is a growing concern about the natural gas infrastructure in the country. The market for natural gas has grown considerably. Its pricing is creating substantial dislocation in our economy at this moment. And that is particularly true in the northeast. This is a western Senator but senior member on the Energy Committee. Clearly, new pipeline construction is critical no matter where it is proposed.

FERC is the agency jurisdictionally responsible for reviewing and approving natural gas pipeline construction in the United States. As we expressed to you last year Mr. Secretary, the pipeline construction process that FERC—at FERC is complicated. It has become even more so because other agencies like the Corps are also involved in the pipeline construction process, and bringing their own understanding of purpose and need for the project.

One example used to portray the dysfunction of the current process is the extraordinary length of time it has taken to get a Corps Section 404 permit for the Islander East project in the northeast. FERC issued the certificate of construction for the line over 2 years ago, and today still, no permit has been issued by the Corps. Under any set of facts, that in my opinion is simply unacceptable. And there are other examples. But frankly, I don't have to describe

them today, because of something you most recently did and I want to thank you very much for that action Mr. Secretary, though it has taken too long to get there.

Mr. Secretary I do believe that what you've issued on April 14 moves us in right direction, and I'm speaking to the 2005 memorandum for Director of Civil Works. And I want to thank you again for taking that action. Let me just for a moment ask you a question about a statement in the memo.

The memo states first that the Federal lead NEPA agency has the authority for, and the responsibility to define the purpose and need under NEPA. And second that the Corps will defer to the maximum extent allowable by law to the project purpose, project need and project alternatives that FERC determines to be appropriate for the project. Can you envision any instance where the Corps would not accept the determination by FERC, an agency that possesses energy expertise of what the need and the purpose of the project would be and the appropriate alternatives?

Mr. WOODLEY. Senator, it would be difficult for me to imagine such a thing. That language is in there because advisedly, because I have on my staff numerous and very capable and learned attorneys—and I speak as one myself—whose imaginations are far more fertile than mine has been able to be in this area. So they wrestled me to the ground and made me put that language in there. I can't imagine it—how it would get—how you get the thing from FERC that was the agency responsible for Federal energy policy and that it would not adequately and appropriately state the purpose and need in line with the Nation's energy needs in this arena.

Senator CRAIG. Well, let's work on that a little bit.

Mr. WOODLEY. I don't know how I would go about imagining it.

Senator CRAIG. If so, and I'm talking about what those fertile minds might conceive, what do you think would dictate those circumstances? And if not, what would keep the Corps from developing an MOU with FERC, deferring to FERC in these areas?

Mr. WOODLEY. Senator I can say that we have been working with FERC on an MOU since shortly after we met in this room last year. I called Chairman Wood—we had an excellent conversation about the parameters of the problem and the things that needed to be brought to bear in this area, and why some of the actions of some of our District offices were taken, were causing impediments in the development in the Nation's energy resources and infrastructure.

I began with him at that time a process that has led to the exchange of drafts. His group that does this would do a draft, my group would do a draft. We said why don't we do it this way, why don't we do it that way. There were some delays in meetings between each draft. They had their preferred approach, we had ours. I can only say that I expect an MOU is in our future. My feeling was that an MOU is an excellent thing. We have MOU's with FERC in other arenas. We have some that, I think, would even be useful in this arena, but my thought was that the time had come to state as a matter of Corps regulatory policy what the appropriate rule should be, and that is what I did in the memorandum that you have.

Senator CRAIG. Well I guess in looking at all of this and trying to grab the totality of it, if there's any reason that you may not be able to meet the time frames that FERC needs in authorizing energy infrastructure when they have the entire project to consider and you have the aspect of the project, like wetlands, I can't understand why you all can't come to an understanding that divides up that authority. You have responsibility, I don't dispute that. But I can't in anyway possibly imagine why it takes you 2+ years, to do something that they did in substantially less time.

Mr. WOODLEY. In the case you described I believe that we were not following the concept that I've laid out in the memorandum.

Senator CRAIG. I believe that's correct.

Mr. WOODLEY. And I believe that was the particular sticking point. I certainly agree with you that that is not acceptable and that our regulatory process needs should dovetail with the FERC's process, and that is our goal. And that is what I have discussed with Chairman Wood.

Senator CRAIG. I have some more questions. But for the sake of time and fairness, we have a crew here.

Senator BOND. Thank you Senator Craig, we have a good turnout for this day and we want to move on, and we would call on Senator Johnson, after I congratulate him on winning the March of Dimes Gourmet Gala competition last night, even though he beat out one of my favorite recipes. I won't hold it against you, much.

Senator Johnson.

Senator JOHNSON. Thank you Mr. Chairman, and I would like to claim great credit for my wife's work on South Dakota buffalo chili. I would have to concede that the best of show award however is due to her work and not mine. I helped to dish it out and that is about the extent of my effort.

I have only one question that I in particular want to ask in this hearing, in this case Mr. Woodley. We have, as Mr. Woodley knows we have an absolute crisis in South Dakota right now, particularly affecting the Cheyenne River Indian Reservation and some 14,000 individuals in that region. The looming crisis we have has to do with the Mni Waste drinking water intake in the Oahe reservoir, and the Oahe reservoir being of course one of the impoundments of the Missouri River that flows adjacent to the Cheyenne River Indian Reservation.

As you know the entire basin is in severe drought, the mountain snow pack and precipitation less than 50 percent of normal. In August the water level elevation in the Oahe reservoirs is projected to be at an all time record low. The low water level poses an extraordinary threat to the Mni Waste water intake at Eagle Butte South Dakota.

Members of this reservation and surrounding communities receive virtually all of their drinking water from that water intake. The Corps of Engineers is completing a PIR to identify solutions should water levels continue to fall, and that report as I understand it is due to be complete on April 18 and we will need approval then from the Corps Headquarters in Washington, DC.

There's a great deal in jeopardy here, not only the literal access to water for thousands of citizens, but the proposed housing and construction of a hospital in Eagle Butte which has long been on

the books and the funding is now available to go forward with those projects. Though without water, it simply is not possible to proceed. So you have some of the poorest of the poor in all of America under an extraordinarily difficult circumstance and Mr. Woodley can you ensure this subcommittee that the PIR will receive absolutely the utmost attention by Headquarters? And also can you assure the subcommittee that the Corps will provide the necessary funding to ensure the continued operation of the intake? Clearly long term we simply need to replace the entire water system for the Cheyenne River Reservation is going to be a costly and long-term project that is going to have to be done. That's not today's issue. But right now, the urgency of this water intake problem is just extraordinary. There are 14,000 people or more, who literally will not have water in their taps, in their schools, in their health clinics, in their senior citizen facilities, at all if something isn't done very very soon. Mr. Woodley.

Mr. WOODLEY. Yes sir. The PIR will receive the absolute top priority in the Corps Headquarters and in my office. We have been briefed on this. The District Engineer at Omaha is in daily contact with this issue—in daily contact with the Tribe and with the other agencies that are concerned, and will do everything—we will first of all give that top priority and there will not be any slippage on the time. I have today been briefed by the Division Engineer, as well as the Chief himself, on this crisis. Having done that, we will commit to do everything within our power to achieve the—to put together the resources necessary to implement whatever recommendation of the PIR, which will identify alternatives—the recommendation that is selected by the tribe and the other authorities involved. We will do everything in our power to achieve the resources to undertake that recommendation, and to ensure that the viability of that intake now and in the future.

Senator JOHNSON. Well thank you Mr. Woodley we will be in close communication with you, and as you can imagine there really is no plan B here. Trying to truck water to 14,000 people or more, over an enormous expansive land would be just an almost impossible endeavor.

We simply have got to have that intake in a place where it will work. And hopefully that emergency intake will dovetail with the longer term strategy for a new water system in that area, and hopefully we won't have to replicate, although I would appreciate that the first goal is simply to make sure these people get water as quickly as they can under an emergency circumstance. But thank you Mr. Woodley, Mr. Chairman.

Senator BOND. Thank you very much, Senator Johnson. Now I turn to my ranking member on the THUD committee, Senator Murray.

Senator MURRAY. Thank you Mr. Chairman, thank all of you for being here today. General Strock, the administration's budget has $15 million for the Columbia River Channel improvement project in it. And I really appreciate the inclusion of that money. Many of the folks out there tell us that it would move ahead much more effectively if $40 million were provided for that project. I just wanted to ask you today, can you confirm for me, that the Corps could ac-

tually spend $40 million on the Columbia River deepening in fiscal year 2006, if those funds were provided.

General STROCK. Yes ma'am. The Division Commander reported that they have the capability of $41 million in fiscal year 2006.

Senator MURRAY. Well let me also ask you, in addition to that $15 million for the Columbia River deepening, there's $11 million a year for ongoing yearly dredging. Both of those projects are up river of the mouth of the Columbia River, and it concerns me that while the budget provides funding for those dredging activities which I agree with and support, it doesn't provide any funding for the repair of the jetties that are at the mouth of the Columbia River. And I understand that there's real concern on the south jettie, in particular two areas that could fail. And it's pretty obvious to me that deepening the channel and channel dredging will be all for naught, if those jetties, can you talk to me about why money for repairing those jetties was not in the budget?

General STROCK. Well ma'am we certainly share your concerns and we do understand that this must be operated as a system, that without the jetties the deep channel does not function. Those jetties are in a very poor state of repair and we have an ongoing study now to do some interim upgrades to those jetties and have the capability to do that if we're provided funding, but we have not included a request for that in this year's budget.

Senator MURRAY. Well that is very concerning to me, because if those jetties fail, all the money that we've put into channel deepening and other projects are not going to be worth it. So I will continue to work with this committee and with you on that. General you also know that we marked up the supplemental, emergency supplemental yesterday. It didn't include any money for the $30 million that is needed, $30 million I understand for the Fern Ridge Dam that is in Oregon. Not in my State Mr. Chairman, but I am concerned about it, because I am told that this is an active state of failure. And if the Corps doesn't get the money, it's going to have to take it from all of the other active projects that are out there to fund that because it is an emergency, and so can you tell me General how much funding is needed to the Fern Ridge Dam in Oregon.

General STROCK. I might have to answer that for that record ma'am. We are, and want to make sure that you understand, that while we do describe that as an active state of failure we are taking measures in the operation of the reservoir to make sure that it is safe and the public is not in danger as a result.

Senator MURRAY. I understand, but my point of that, to this Fern Project, is that is going to come out of all of the Corps projects in order to fund that, because it is failing?

General STROCK. That is correct. I am notified that we're going to reprogram about $31 million this year.

Senator MURRAY. So, $31 million will be reprogrammed. Mr. Chairman, that's why I am—have discussed with Senator Cochran yesterday at the committee markup about getting an emergency supplemental for that, otherwise all the rest of us will see our money gone for projects that we think is going to be there, because it's failing.

One last question General Strock. Do budget cuts, about third of the operation and maintenance funding for the Lake Washington ship canal. Can you explain to us how that project is going to be operated and maintained at this reduced funding level, and will that mean that the hours of operation of the locks themselves will be reduced?

General STROCK. Ma'am, we're looking at alternatives to address this inability to fund, to fully fund the operation of those locks, and we are considering alternatives such as limited operations, potentially user fees and that sort of thing.

Senator MURRAY. User fees?

General STROCK. Yes ma'am.

Senator MURRAY. Okay. I will tell you this is a huge issue out there. As you know, the locks are absolutely critical for a lot of shipping within the Puget Sound region and I want to hear from you more if you can in writing please, on what you're considering for funding that.

General STROCK. Ma'am we have committed to about $6.5 million that would be required to keep those locks in 24 hour operations.

Senator MURRAY. Thank you.

Senator BOND. Thank you very much, Senator Murray. Senator Allard.

PREPARED STATEMENT

Senator ALLARD. Thank you Mr. Chairman, I look forward to working with the committee and the Army Corps of Engineers on a number of projects important to the State of Colorado. Just to start off with, I have a prepared statement I would like to make a part of the record.

Senator BOND. Without objection.

[The statement follows:]

PREPARED STATEMENT OF SENATOR WAYNE ALLARD

Mr. Chairman, I want to thank you for holding this important hearing today.

The Army Corps of Engineers and the Bureau of Reclamation are both important to Colorado.

Throughout the West, water is one of our most important resources; this makes the role of the Bureau of Reclamation and the Army Corps of Engineers vital. When dealing with water I have a simple theory with several key principles that I keep in mind. These principles are: the Federal Government should ultimately defer to the States and their water rights, when the Federal Government does become involved it should be as a conduit of funding, and strategic water conservation and storage is necessary. The individuals here today each play a role in this theory, especially the final two points, and I thank them for appearing before us.

As a conduit of funding, the Corps of Engineers plays a role as an important resource for communities to access funding and technical expertise for local projects. Through Civil Works Projects and The Continuing Authorities Program funding is made available to States and local communities to fund water projects. There are many of these projects currently underway in Colorado, including one in the Colorado Springs area, The Fountain Creek Tributaries project. I wanted to take a moment to thank you for the attention you have paid to this project, it is very important to me. Several years ago severe thunderstorms caused Fountain Creek to flood which caused a significant amount of damage to roads, homes, and business. My constituents in this area and I greatly appreciate the efforts taken on their behalf. And I would ask that the Corps continue to move forward with the local community on this project.

Both organizations act as a tool for water storage and conservation and there is a good example of this in Colorado. The Bureau of Reclamation has an important project in Durango Colorado, the Animas-La Plata Project. In the past this com-

mittee has held hearings on The Animas-La Plata Project where concerns for discrepancies in the programs projected cost were raised. I am of the understanding that much has been done to address these concerns; I ask that the Bureau maintain diligence on this project.

There is another project in Colorado which I would like to briefly mention. I look forward to working with all of you on the Arkansas Valley Conduit. I have appreciated the Corps willingness to work with us to this project. This same enthusiasm is not shared by the Bureau, but I hope to soon convince you otherwise.

There are many examples of good Bureau and Corps leadership in Colorado—I look forward to a cooperative relationship with all of you.

Again, thank you Mr. Chairman for holding this hearing and thank you gentlemen for appearing before us today.

Senator ALLARD. Just to summarize what I said in the statement—first of all I want to let you know what a pleasure it is for me to be on this committee, because water is really important and a precious commodity as far as the State of Colorado is concerned, and our water law dates back to the late 1800's. The doctrine of prior appropriation, which basically stated that the Federal Government defers to the States on the management of the water, and the Federal Government works to help provide funding and work with the States in meeting whatever the needs are within the State. That's important to the State of Colorado, in the fact that we have some seven bases in the State, and four Districts in our State, I will follow-up with that on my questions a little bit later.

We have some projects that are ongoing right now. I want to thank the Corps for working with our office in the past and I know you've worked with Senator Campbell's office on some of these projects. I'll mention a few, the Fountain Creek Tributaries project, which is on bank stabilization. Some local communities are impacted as a result of a flood we had in Colorado. I want to thank you for working on that project, and we'll continue to follow the progress on that. The Animas-La Plata project, I understand has had some problems with cost overruns; there have been hearings on that in this committee. It is just my feeling that it requires a lot of diligence and a lot of oversight. We would like to work with the Corps as that project moves forward to make sure that we have adequate oversight there to keep our costs down. My understanding is that they've worked and taken care of some of their problems and we just have to make sure that those policies are carried forward.

Another thing that I'm working on is the Arkansas Valley Conduit, which you have not been particularly excited about, but is something that we're working, and something we think might be essential for the Arkansas Valley so we'll continue to stay in touch and work with the Corps on that particular issue. Related to whole Arkansas River, we have a number of issues down below there, and I would talk to you about those.

And then on my questions, I think you've done some things according to my briefings that have improved communications between the four Districts within Colorado. There was a problem, I think, with communication between the four of those in some cases. There is a problem with my constituents communicating with the various offices. My understanding is that it has improved. But we continue to get some concerns raised, from my constituents, about communicating with the various offices. And so my question is, while you seem to have done a pretty good job of improving com-

munication between the offices, the problem remains between my constituents and the offices. What have you done there to make sure that their concerns get heard? I think a lot of their offices are outside of the State of Colorado, so they're not particularly handy for my constituents. I would like to hear any comments you might have in that regard.

Mr. WOODLEY. Senator, this is something that, you will recall, that you raised with me at least 2 years ago when we discussed the needs of Colorado, vis-a-vis the Corps of Engineers, at that time. And inspired by that leadership, once I took office and began to work in this arena, I went to Denver and met with many of the people concerned—people in aggregates, and development, and people with environmental concerns, just a considerable cross section. And what I learned was that there was an office in Omaha, and one in Albuquerque and another in—I'm getting to Sacramento, but another in Arizona I guess—and then Sacramento. And they asked me, Mr. Woodley, do you have any idea where Sacramento is located, and naturally I said, well it's out here someplace, isn't it. And they said sir, you are now almost as far from Sacramento as you are from Washington, DC. That's about right. And so that was a real epiphany for this young easterner. And so I got back to town and got to work on putting together the concept of having a lead District. Now the Corps—what happens, the way that happens is the Corps is divided by watershed and that's a good thing. I'm not opposed to that, it's a good thing, and we get enormous benefits from that. But Sacramento's a long way from Denver nonetheless, and so you have to try and craft a solution that maintains the benefit so we can work on a watershed basis, we can understand the needs of each separate area, and so that we can have—also have at the same time a powerful liaison and link up with the State Government and the State leadership in environmental and watershed, water related issues. And have consistency across the State. Because the people, your constituents, talk to one another, and the regulated community they talk to one another. If they get a deal in one part of the State, if they get a deal in Boulder that they can't get in Colorado Springs, then we hear about it. And so we established that assignment to Albuquerque, returned to Denver, and made that announcement there at the capital with the State regulatory authorities, and it was very very well received, I thought. We just began the year, so I'm confident that we have not reaped all the benefits we're going to reap. But I'm absolutely committed to improve our communication across the board with the regulated, with the land owners, essentially in this area, businesses, people that are concerned about preserving wetlands, and getting effective permits done on a consistent and a timely—consistent and predictable manner.

Senator ALLARD. I appreciate your efforts, and I want to recognize what you've done. The chairman is showing me his wristwatch here so I know my time is up, but I do want to wrap it up here. As we run across specific instances I may share those with you, because I think you've made some strides. We just have to identify specifics, as I run across those I will bring them to you in a friendly manner, because we want to provide good services.

Mr. WOODLEY. Senator, you know we're always at your disposal.

Senator BOND. Thank you very much Senator Allard. Senator Burns.

Senator BURNS. Thank you Mr. Chairman, I don't have a lot of questions for the Corps other than the Missouri River. We are learning now in our eighth year of drought, that whiskey is for drinking and water is for fighting, and we've got a real problem upstream as you well know. We've got three main reservoirs upstream that are imperilment areas, that we're going to have to look at a different management module or something because we cannot have a healthy river unless we have healthy reservoirs. And right now we don't have healthy reservoirs as you well know. And so we've got Oahe Garrison and PET that are the major focus right now, and we've got about a 60 percent snow pack. We know that your runoff this year is not going to be what we had hoped for this year, even though we're getting moisture now, we might get rain, we may get a little snow, but that's all going to go underground, there's not going to be any runoff this year, that river is going to stay low all year. And I would tell you right now, I appreciate the cooperation and the communications we've got with the Corps right now, I feel very good that we can solve some of these problems up there. But it's going to be tough on everybody on that Missouri River. Now, I was raised on one end of it, I'll probably die on the other, and I've traveled that river up and down, and I know a little bit about it, and the issues that surround it. We're very fortunate to have a great river like that in the center of our continent because as that sustains a lot of life and does a lot of great things for this great Nation. So I just came here today to say, thank you. Now we know we've got our little differences and all that, but we're trying to communicate them, we're trying to fix them. And as long as we keep talking I think we can get it done, but you've got all the way from Three Forks, Montana to Lake Oahe, South Dakota, we have a problem. And we'll never get it solved if we just kind of keep beating on one another and I would open up these communications and do some things that should have been done quite a while ago. So I appreciate the lines of communications and everything that we are trying to do to make that a healthy river. And there ain't nothing you can do on that river, except water.

We've got to have a snow pack. And if we don't have it, then we've all got to work together to make the impact the same all the way to St. Louis. So I thank you, and I just want to continue to work with you and our State, and especially those three reservoirs. I'm concerned about those three reservoirs because they mean so much for the upper Midwest and the high plains. And I thank the chairman. Do you want to react to that, or General Strock?

General STROCK. Sir, I would just like to thank you, as you know I served on the Missouri River for a number of years, and I'm delighted to know that we're moving in the right direction. It is a tough problem. We put our best minds on it I know and the best minds of the States involved have also been at this and will continue to work very hard. But sir, thank you very much.

Senator BURNS. I think our lines of communication are as probably open now as they've ever been, so we just appreciate that, and we continue to work on it.

General STROCK. Thank you sir.

Senator BOND. Thank you very much, Senator Burns. Having gotten the 50 percent increase in the minimum level I can see why you're expressing appreciation. We have had a slight difference but I would remind you that the difference is not just down to St. Louis that water flows into something called the Mississippi, and that shuts down when the river shuts down. And I will join you in praying for more rain, but I'm going to pray on one knee because last we did it was 1993 and we got the 100-year floods in 1993. But we've got to be careful what we pray for. Along that line I would like to call on Senator Dorgan.

Senator DORGAN. Mr. Chairman, thank you. I was surprised to see you in the chair when I came in the room. Not pleasantly surprised, but surprised nonetheless.

I was thinking, we will discuss the Missouri River and you and I and Senator Burns have had long, tortured discussions about that.

But, at any rate welcome to the chairmanship today. I guess I've had less sugar today than my colleague from Montana. I'm not prepared to thank anybody. And I remain enormously frustrated, as do my constituents about the Missouri. I share the statements that my colleague from Montana made. We're short of water, we're going to have less runoff, and our reservoir in North Dakota is down 30 feet. And what I would like to do is just run you through a couple of questions if I might, just before making a conclusion and asking you to comment. At this time of the year if we were not in a drought condition, and we're in repeated years of drought, what would we expect? What kind of quantity of water would we expect in the Missouri River system this time of year generally? I'm told it's about 50 million acre-feet.

Mr. WOODLEY. I would have said between 54 and 58 million acre-feet, Senator.

Senator DORGAN. And what quantity of water exists in the Missouri water system now?

Mr. WOODLEY. Less than 35 million acre-feet.

Senator DORGAN. So normally we would have 58 million acre-feet, and now there are less than 35 million acre-feet. My colleague from Missouri just referred to a change in the drought conservation level. It went from 21 to 31 million acre-feet, which is a 50 percent increase. The 31 million acre-feet is largely an irrelevancy, to me anyway. That change from 21 to 31 million acre-feet was that change a result of legislation, or a result of a determination through the master manual rewrite without legislation?

Mr. WOODLEY. That was not determined by legislation, Senator, that was a master manual.

Senator DORGAN. So the judgment in the master manual that drought conservation should be employed in the Missouri River system is not a function of the Congress, it's a function of the Corps and the people who live along the river, and who are involved the process to make these decisions, is that correct?

Mr. WOODLEY. Yes, sir.

Senator DORGAN. And so at this point, for a river that would have 58 million acre-feet normally, we're at 34 million acre-feet roughly, it sounds like less than 35 million acre-feet and we don't have drought conservation measures yet, because it hasn't trig-

gered the 31 million acre-feet. You might see why I'm not very thankful about the 21 to 31, I think it's irrelevant at this moment for the people in Montana and North Dakota who see nothing where they expect to see water. And I would just like to ask the question in the construct of the master manual, did you determine the net economic benefit of the barge industry on this river?

Mr. WOODLEY. I believe that we did, yes.

Senator DORGAN. Can you tell me what that was?

Mr. WOODLEY. I believe that the net economic benefit figure was in the neighborhood of between $7 million and $8 million on an annual basis.

Senator DORGAN. The net economic benefit of the barge industry is between $7 million and $8 million?

Mr. WOODLEY. As we define that within the guidelines we're given under the Principles and Guidelines.

Senator DORGAN. And for that we've written and rewritten the master manual that establishes that a level below 31 million is the first time we would employ drought conservation measures, why? To protect an enterprise, down-stream with a net economic benefit of $8 million a year? That's unbelievable to me.

Mr. WOODLEY. Senator, I will say that if—I certainly am not seeking to minimize the difficulty, nor seeking to justify the unjustifiable. But I am saying, and would like to suggest, that under the new master manual many drought conservation measures are employed well before the storage arrives at the navigation preclude level of 31 million acre-feet.

One example of that is a reduction in the level of navigation support that is given in terms of the depth of channel that is supported from Sioux City to St. Louis. Another is that—and we are now at the minimum level for that. Another is that we began to shorten the length of the navigation season, the length of time during which navigation is supported on an annual basis. A full year would allow navigation support from April 1 to December 1. Last year it was curtailed and this year it will again be curtailed.

Senator DORGAN. I understand all of that.

Mr. WOODLEY. So I don't want to leave the impression that no conservation measures are taken prior to the 31 million acre-feet.

Senator DORGAN. I wasn't alleging that. My point is during the navigation season that does exist, about one-third of the water that is flushed from the upper reservoirs is for the support of an industry that has an net economic benefit of $8 million a year. Is that a signal?

Senator BOND. Well your time is up, but go ahead, because I want to answer a little bit.

Senator DORGAN. I understand that. Let me just make this point. I believe very strongly that the State of Missouri, all of the economic interests on the river, including the up-stream and downstream States would have been benefited, had we during all of the years of this drought been storing water, rather than using it for an industry that has a net economic benefit of $8 million a year. And I'm not suggesting that that economic benefit should have been ignored. You could have doubled it, in simply payments to them and still been far ahead for everybody on that river including the citizens of Missouri. Now I have a great respect for my col-

league. We have a disagreement on this. I don't intend in anyway to be personal. But I feel very strongly as do many of the up-stream States that we're systematically cheated, Mother Nature is part of this, I understand it. But the management of the river is another part of it, and we're tired of it and it needs to be solved.

Mr. WOODLEY. And I'm deeply sympathetic with your views, Senator. The support for navigation is a statutorily created and Congressionally mandated project purpose, which within—as we formulate a master manual, as the Corps of Engineers formulates a master manual—they are absolutely required to consider and support. And they arrive at a balance that seems good at the time, but are certainly not—anxious not to consider any given balance as the final balance, and to await and to receive further instructions from the Congress and from the leaders of the basin, the Governors, the tribes, the agriculture people who earn their living on the land in agriculture and elsewhere. And certainly those who earn their living on the water in the great recreational industries that are supported on the lakes and reservoirs.

Senator BOND. Thank you very much Mr. Woodley. Thank you, Senator Dorgan. I would point out Mr. Woodley, that the Eighth Circuit confirmed that one of the two purposes was to maintain river transportation. I think your statement about $7 million to $8 million being the impact on transportation is wildly out of whack. You well know, as I know, that 65 percent of the flow of the Mississippi River at St. Louis comes from the Missouri River and that when the flow was shut off on the Missouri River 2 years ago, barge—all transportation in the mid-Mississippi was shut off as well.

Furthermore I think you overlooked the fact that a study of the impact on barge traffic and the ability to get ship commodities by barge traffic means a $200 million saving for Missouri and Midwest farmers exporting to the world market. Because the exporters who are one of the few who actually provide a budget surplus, a trade balance surplus for us, depends upon the river to keep the rail costs from going through the ceiling which they have, because there's been adequate rail service.

So water, water transportation saves $200 million. There are many other industries that depend upon getting inputs up the river, and I've got to believe that $7 million to $8 million doesn't even touch it. You also should probably think about what almost happened in 19—or 2003 when the river was shut down, it came within 36 hours of shutting down power production on four major electric generating facilities. Three on the Missouri and one on the Mississippi River, and if you don't think there's going to be a cost to shutting down power cooling by shutting down the river then you've got another thing coming.

We are already as you pointed out in drought conservations situations, have minimum loads on the Missouri River, shortening it, shortening the season by 2 months and I think that the situation is very serious on both the up-stream and the down-stream States.

And I personally think, going from 21 million acre-feet to 31 million acre-feet was unwarranted. You made that decision, so it stands. But there's going to a significant hardship all the way to New Orleans if we hit that 31 million acre-feet.

I would ask General Strock about one possible solution that might be helpful to up- and down-stream States, and that is the flow to target regime. That could have saved a million acre-feet of water last year, so that during the abbreviated season you release no more than necessary. You keep more water in the reservoirs. I would ask that you raise this as a real possibility when we're facing this catastrophic drought effecting the up-stream and the down-stream States that you raise this with the Fish and Wildlife Service who seem to be the ones who object to it. While many human activities, on both ends of the area are suffering. General Strock, would you like to comment on that?

General STROCK. Sir, at risk of exceeding my memory here, we are considering the flow to target and we do think that this year if the conditions are the same as last summer, that we could possibly save between 0.5 and 1 million acre-feet of water using flow to target. But our ability to do that is dependant upon our ability to meet the ESA restrictions on the support of—nesting. But it's certainly something that we will continue to examine and consider.

Senator BOND. Thank you very much General Strock. Now we'll start back for a second round to Senator Craig.

Senator CRAIG. Thank you very much Mr. Chairman, I know we're all struggling with lack of water, that is true in the Snake River and the Columbia River basins as it is on both sides of the Continental Divide and it is a very real management problem. Mr. Secretary let me go back to the line of questioning I was pursuing with you earlier as it relates to Section 404 permits. Section 404 permits, the Section 404 permit program at the Corps as it relates to the policies addressing canals, drains, and other irrigations works. I'm going to focus on the Corps treatment of those water facilities as effecting navigable waters, or waters of the United States for the purpose of the Clean Water Act, and jurisdiction under Section 404. At the national level, has the Corps adopted any written policies on this matter?

Mr. WOODLEY. No Senator, not specific to—not specific to canals, drains and the irrigation structures. I believe that the documents that we have are—express themselves in more general terms.

Senator CRAIG. Isn't this jurisdiction only an issue properly addressed within the context of a proposed rule making?

Mr. WOODLEY. I would say that a proposed rule making is certainly one of the possibilities. I don't think it's necessarily, Senator, the only possibility that can be effective administratively.

Senator CRAIG. Well, if so I guess my question then is, why hasn't the Corps commenced that process, and let me go beyond that because you partially answered that. The Corps withdrew a notice of proposed rule making regarding waters of the United States in December of 2003; perhaps it is time that that effort be looked at again. Until this issue is resolved through rule making or other direction from the national level, what is the direction being provided in individual Districts?

Mr. WOODLEY. The individual Districts are not given any more specific guidance than is in the general guidance that is in the existing rule. We have underway—we are very concerned about the issue of consistency and the appropriate scope of our jurisdiction in the aftermath of the Supreme Court's decision in the Solid Waste

Authority of Northern Cook County. And we have subsequent to that received—as you know, we've had the effort that was initiated or inaugurated with the proposed rule making announcement. And we said that, after looking at the wide variety of comments that we had received on that, we decided that there was just not enough support behind any given approach to how to resolve the question to make rule making a useful endeavor at this time. The alternative—subsequent to that, we have received a study from the Government Accountability Office that indicated to us that there appeared to be a difficulty with consistency across our program.

I confess I was not profoundly surprised by that finding, given that the rule that we were undertaking to enforce had several terms in it that appeared to me to need greater clarity and definition. Our thought at that time was that the appropriate thing for us to do would be to conduct a full scale study across the board of all of the professionals and experts that we have in the field conducting these determinations day by day. That would determine a level of those areas at which we had consistency. We could see then, those areas where we needed greater consistency. We would be able to develop that based upon the best practices from the people in the field.

Senator CRAIG. Why don't we continue to pursue this and here's why I'm pursuing it. I think that you might receive assurances that activities and canals and drains can be covered under normal operation and maintenance exemptions. For ditches in Section 404 however, there does not seem to be routine nature to this, and my question is one you probably can't answer but we will pursue it, why is the Walla Walla District which covers Idaho, so aggressively asserting jurisdiction over irrigation delivery systems in the absence of a national direction. Now some believe, and I tend to be in that group that this is a result of a Ninth Circuit Court March 12, 2001 decision in the Talent irrigation District case. However that case was very fact-specific. Also the so-called rule from that case is not being applied evenly across the Ninth Circuit for example. The focus seems to be in Idaho, and Washington. Washington the latter, pursuant to a court settlement by a Seattle Court which doesn't have jurisdiction over Idaho. I think this begs for some Headquarter guidance. It appears to be sporadic. One size should fit all in this situation and it doesn't appear to be that. And you're causing confusion and chaos in Idaho in many instances at this moment because what appears to be a rather arbitrary approach to decision-making based on what the broader sense of a Ninth Circuit Court decision was, versus the specifics of that case. And uniformity is important here for our operators in our large irrigation Districts and systems to understand that. It isn't an issue they won't comply; it is an issue of consistency of operation, and direction. And I'll continue to pursue this with you, because I think it is important, General and Mr. Secretary, that we get some uniformity here. And I do think it is appropriate that rule-making go forward in this area.

Senator BOND. Thank you very much Senator Craig. Senator Allard.

Senator ALLARD. Mr. Chairman, I don't have anything further for this panel.

Senator BOND. Okay. Senator Dorgan, anything further?

Senator DORGAN. Mr. Chairman, let me ask, I would like to submit some questions for General Strock on the issue of contracting in Iraq, sole source and other questions and I'll just submit those in writing relating to some issues that I raised yesterday.

Let me say this, although I feel very strongly about the management of the Missouri River, I'm angry about it, and frustrated. I do want to say that we have had some help outside of the management of the river itself. We've had some good assistance from the Corps on some boat ramp issues, and other related issues that have been helpful to some local folks to deal with the consequences of the drought.

So I don't want my angst to tarnish all the work of everybody in the Corps, but neither do I want to sound reasonable, and let you believe that I'm leaving the room completely satisfied with the Corps. This is a big, big, big problem. It's not going to go away, it's going to get worse this year, and how it's dealt with is critically important to my constituents. I understand the chairman has his constituents who are very concerned as well. But this conversation will last much longer than this hearing, Mr. Chairman, as you know. And I appreciate the conversation that we will continue to have about it.

I would like to also ask, and send if I might, to submit some questions for the Bureau of Reclamation on the next panel.

Senator BOND. Thank you very much Senator Dorgan. I've only been involved in these discussions now for 32 years. And I unfortunately if future generations come along I think they will probably continue to discuss them. But perhaps a little bit of help we can find in things like Flow to Target, which could provide some relief to both sides.

Senator CRAIG. Mr. Chairman, can we just appropriate money to buy some rain, governments can do everything, can't they?

Senator BOND. By unanimous consent in the Senate, we would make it rain without appropriating, but I don't want to try it.

ADDITIONAL COMMITTEE QUESTIONS

I would like to thank our first panel. Gentlemen we will be continuing this discussion, you will be having some questions from us, as well as other members. The record will be open for questions to be submitted.

As always, we appreciate your prompt response and then we will be calling you as always. Thank you very much Gentlemen.

[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 PETE V. DOMENICI

Question. Can you tell us how the Corps budget was formulated this year?

Mr. WOODLEY. The Corps developed its fiscal year 2006 budget by program area and then disaggregated the projects to the existing account structure. Studies and Preconstruction Engineering and Design (PED) were funded based on the likelihood they will result in high-performing projects. For construction, the budget used seven performance guidelines to allocate funds among projects in order to achieve greater value to the Nation overall from the construction program. Under the performance guidelines, construction projects were ranked and funded based on their estimated economic and environmental returns. The effect is to redirect funding away from the

lowest return projects to accelerate completion of the highest performing projects. For operation and maintenance work, the budget emphasizes essential operation and maintenance activities at key Corps facilities, including maintenance dredging and structural repairs that are necessary to keep projects operational in fiscal year 2006.

Question. Can you explain a little about the methodology?

Mr. WOODLEY. Studies and Preconstruction Engineering and Design (PED) efforts are funded based on the likelihood that they will result in high-performing projects. This involves consideration of two factors: (1) The likelihood that the study or PED would result in a project. This is largely determined by whether there is a willing cost sharing sponsor for the study or PED who will have signed a cost sharing agreement by the end of fiscal year 2005. (2) The expected relative performance of the project. For PEDs producing economic outputs, remaining benefit-remaining cost ratios (RBRCR's) are available. For aquatic ecosystem restoration PEDs, cost effectiveness in addressing significant regional or national ecosystem problems is considered. For studies, the Divisions were asked to identify the highest-performing projects.

Studies and PEDs that are less likely to result in a high-performing project are suspended or deferred. In particular, PEDs with remaining benefit to remaining cost ratios (RBRCRs) of less then 3 to 1 are not funded in the budget.

Construction projects producing economic benefits competed based on their RBRCRs. Those with RBRCRs below 3 to 1 would be considered for contract suspension. Aquatic ecosystem restoration projects compete based on their relative cost effectiveness in addressing significant regional or national ecosystem problems. Those that are not relatively cost effective, are limited in scope, and do not address relatively significant problems would be considered for suspension.

A "suspension fund" of $80 million would be created in the Construction account for the projects considered for suspension, and a suspension fund of $8 million would be created in the Flood Control, Mississippi River and Tributaries account. If it would be less costly to continue or complete a contract than to pay claims, the contract would receive funding from the suspension fund. For other contracts, settled claims would be paid from the suspension fund.

All projects that are individually funded (i.e. are not suspended) receive enough to pay earnings on ongoing contracts awarded before fiscal year 2006, plus associated in-house costs.

Projects compete against each other within each mission area. Those projects that are the highest performing in each mission area receive at least 80 percent of the amount that could be expended efficiently on the project in fiscal year 2006. (In some cases the projects already are receiving at least 80 percent to fund earnings on already-awarded contracts, whereas in others the projects receive additional funding under this "80 percent rule" and can award additional contracts.)

The highest performing projects include 14 dam safety projects, 9 national priority projects, and 38 other projects.

New projects or resumptions (projects not under physical construction for 3 years) are eligible for funding only if their estimated return is on par with the top 20 percent of other projects in their mission area. One such new start is in the fiscal year 2006 budget: Washington, DC and Vicinity, a flood damage reduction project that is one of the highest-return projects in the Nation. The initiation of this project is necessary to reduce the risk of flood damage to the museums on the National Mall, the Franklin Delano Roosevelt Memorial, and the World War II Memorial.

Under the performance guidelines, at least 70 percent of the funding in the construction account should be allocated for navigation and damage reduction, at least 5 percent for major rehabilitations, and no more than 25 percent for aquatic ecosystem restoration.

Up to 10 percent of the funding in the account may be allocated to projects that do not meet the above performance criteria and allocation guidelines, but which, for extenuating reasons, warrant funding in the budget. However, none of the "ten percent" funds may be used for new starts and resumptions.

The budget funds the highest performing operation and maintenance work.

In general, "must have" operation and maintenance costs are funded. These are the costs that must be incurred to keep projects operational in fiscal year 2006. Any work that must be performed in fiscal year 2006 to meet a legal mandate would be carried out. In addition, all facility protection needs in fiscal year 2006 will be met. These include funding for completion of work to establish baseline security conditions at over 200 key projects, for recurring anti-terrorism costs at water resources projects, and for continued protection of administration buildings and laboratories.

The budget continues the policy of establishing priorities for funding navigation maintenance primarily on the extent to which a channel, harbor or waterway seg-

ment supports high volumes of commercial traffic. The budget also funds channel and harbor projects that have low commercial traffic but support significant commercial fishing, subsistence or public transportation benefits.

The budget also includes funding for an assessment of the economics and long-term policy options for navigation facilities with relatively low levels of commercial traffic. The study will identify the universe of Federal channel and harbor projects and inland waterways segments that support lower levels of commercial use, classify these projects based on the kinds of contributions that they make, develop methods to quantify the differences in their attributes and examine possible criteria for determining when a continued investment in operation and maintenance would produce a significant net return to the Nation. The study will also formulate a range of possible long-term options for the funding and management of navigation projects with lower levels of commercial use, evaluate these options, and examine their applicability to the various types of such projects.

An emergency reserve would be funded so that, if high-priority, unexpected, and urgent maintenance needs arise at key facilities, those needs can be met without disrupting other work.

The hydropower operation and maintenance work that is programmed for fiscal year 2006 is the operation and maintenance work that the Federal power marketing administrations are willing to finance under the administration's proposal for direct funding of hydropower. The willingness of the party receiving the power to pay for some operation and maintenance activities and not others is a market-based performance test.

Question. What do you believe is the traditional mission of the Corps of Engineers Civil Works program?

General STROCK. Army involvement in works of a civil nature goes back to 1824. Over the years, as the Nation's needs have changed, so have the Army's Civil Works missions. The Corps Civil Works program has three main missions: (1) facilitating commercial navigation; (2) reducing damages caused by floods and storms; and (3) restoring aquatic ecosystems. The Corps also performs related work through the emergency management and regulatory programs, and by providing hydropower and water supply from Corps multi-purpose reservoirs.

Question. Would you agree that part of that mission includes having a trained, geographically dispersed workforce?

General STROCK. Yes, Sir. However, their current distribution is not necessarily optimal. We need to periodically assess whether our workforce is distributed in the best way to carry out the current and expected workload.

Question. Are you aware that the Congress has directed that all of the Corps field offices be maintained?

General STROCK. Yes, Sir.

Question. Do you feel that the methodology that you used to formulate the budget allows you to meet this mandate?

General STROCK. Yes, Sir.

Question. How?

General STROCK. While some Districts are adversely impacted, the Regional Business Center concept enables cross-leveling of effort among districts and regions to optimize the use of expertise, wherever located.

Question. It appears to me that a number of your field offices would not have enough work to maintain their workforce if this budget were implemented. What is your view?

General STROCK. We recognize that the budget could impact workload among the Districts. As I mentioned, however, we feel that through the use of the Regional Business Centers we will be able to manage any potential decline in FTEs and minimize the impacts of imbalances on particular districts.

Question. Assuming you were aware that your budget assumptions would cause imbalances in your workforce, did you prepare accompanying plans for reductions in force or management directed employee moves to accompany the budget request? Why not?

General STROCK. The divisions and districts will do workforce analyses over the next few months. We would not finalize our plans until Congress has acted on fiscal year 2006 appropriations.

Question. How did you plan to address these imbalances?

General STROCK. As stated earlier, our divisions will address geographic shifts in workload through the cross-level efforts of our Regional Business Centers.

Question. In the fiscal year 2005 Omnibus Appropriations Act, we directed you to provide your Report on any action on which the Chief of Engineers has reported. Instead, you provided the Chief of Engineers Report. Why didn't you provide your report?

Mr. WOODLEY. First let me say, without equivocation, that as a matter of principle and practice, I am fully committed to complying with all Federal laws. As a member of the Executive Branch, I am also compelled to execute my obligations, duties, and responsibilities in accordance with all authorized directions and orders from the President. As I believe you are aware, Executive Order 12322 requires that I coordinate my draft report on water resources projects with OMB prior to submitting my report and recommendations to Congress, ensuring that a proposed water resources project is consistent with the policies and programs of the administration. Within the time period provided, however, I could only inform the Committees, consistent with Section 113 of the Omnibus Act, Public Law 108–77, that the administration's review of the applicable reports of the Chief of Engineers is still pending.

Question. I believe the law as signed by the President, requires that you send us your Report. I would recommend that you comply with the law.

Mr. WOODLEY. Sir, for a number of the projects in question, I did not have a report as of March 8, 2005.

Question. In fiscal year 2005, we provided you comprehensive guidance as to how reprogramming actions should be undertaken for implementing the fiscal year 2005 program. I believe this was the first time that we had addressed reprogramming on a comprehensive basis. Has the new guidance affected the Corps' ability to efficiently and effectively manage the Civil Works program?

General STROCK. No, Sir.

Question. It is my understanding that for fiscal year 2005, the Headquarters office of the Corps has taken a more active role in construction contract execution. Can you explain the traditional process that had been used and the changes you have implemented for fiscal year 2005?

General STROCK. The traditional process requires the contractor to develop a schedule and update it regularly through contract completion. These schedules are usually used by the District to compute a contractor's expected earnings per fiscal year and these earnings estimates are used by Headquarters in developing the annual budget requests for the project.

For fiscal year 2005 we are requiring submittal of proposed new continuing contracts to HQ for review and approval prior to award. These submittals must address whether alternate contract options have been explored, the budgetability of the project, and reasonableness of out-year funding availability to meet those contract funding requirements. We also are notifying the appropriations committees prior to award of such contracts.

Question. Have you recently made any changes to this process? Why?

General STROCK. Yes, Sir, prior to the award of new continuing contracts we are requiring HQ approval and we are notifying the appropriations committees. We are taking these steps to ensure that, in the aggregate, the out-year tails on continuing contracts are affordable.

QUESTIONS SUBMITTED BY SENATOR MITCH MCCONNELL

Question. The U.S. Army Corps of Engineers has been working to construct an additional chamber at the Kentucky Lock facility since fiscal year 1998 and has spent over $165 million to date. The administration, however, did not recommend funding for this project in its fiscal year 2006 budget proposal.

The administration's lack of proposed funding for fiscal year 2006 impacts the ability of the U.S. Army Corps of Engineers to execute fiscal year 2005 funds. The award of critical construction contracts, in particular, likely will be delayed.

What is the estimated economic impact of such delays expected to occur in fiscal year 2005?

General STROCK. Compared to the capability level of funding, any funding level could be viewed as causing "delays." However, the Civil Works program has not received the maximum amount that it could efficiently spend in any recent fiscal year. In the administration's view, devoting the capability level of funding to the Corps would not produce the best return for the Nation, considering the potential alternative uses of funds. The overall Budget allocation for the Civil Works program as well as the performance-based allocations for construction projects reflects, in the administration's view, the best way to realize overall net benefits for the Nation. If the award of contracts is delayed, there would be a corresponding deferral of benefits achieved from the project's completion.

Question. What is the potential impact on the completion date of the project caused by a delay in awarding the "critical path" contract for the superstructure in 2005?

General STROCK. Any delay to a contract such as the Bridge Superstructure will have a corresponding direct delay to the completion date of the project.

Question. How quickly can the contract for the superstructure be awarded to ensure that as much of the fiscal year 2005 appropriation for Kentucky Lock is utilized fully in a manner that contributes to the completion of this project sooner rather than later?

General STROCK. The earliest that the superstructure contract could be awarded is the middle of August, 2005. We would expect the fiscal year 2005 earnings for this contract to be no more than $2 million, subject to the usual qualifications on capability estimates.

Question. What is the estimated economic impact of terminating construction of the Kentucky Lock Addition project in fiscal year 2006?

General STROCK. The Budget has not proposed termination of the project. Instead, the Budget proposed that this and other relatively lower-performing projects be considered for possible suspension at this time in order to direct available resources to projects producing higher benefits. If project construction were terminated in fiscal year 2006, some portion of the project's total average annual benefits, estimated at $71 million (October 2003 prices), would be deferred to future years, assuming the project later resumed construction.

Question. What is the estimated economic benefit of continuing to construct the Kentucky Lock Addition project in fiscal year 2006 and beyond on a funding schedule of expenditure levels equal to the average of actual expenditures over the course of the past 5 years?

General STROCK. In 4 of the last 5 fiscal years, an average of $30 million per year has been appropriated to the project. If project funding remains in this range, then the project completion date would be 2022. Continued funding on this level would realize some portion of the $71 million in average annual benefits estimated in the Corps report on the project.

Question. What is the estimated economic benefit of continuing to construct the Kentucky Lock Addition project in fiscal year 2006 and beyond on an efficient funding schedule?

General STROCK. Subject to the usual qualifications on capability estimates, if the Corps were to receive the maximum amount that it could efficiently spend in every fiscal year, the earliest possible completion date would be 2012. Based on the Corps' analysis of the economic impacts of the project and assuming an unconstrained funding schedule, about $71 million in navigation benefits could be realized by the project's completion.

QUESTIONS SUBMITTED BY SENATOR MARY L. LANDRIEU

Question. When will the Secretary determine whether the lock conversion for the Larose to Golden Meadow, Louisiana project is justified pursuant to Sec. 325 of Public Law 106–53 (WRDA 1999)?

Mr. WOODLEY. The Leon Theriot Lock evaluation report is at the Office of the Assistant Secretary of the Army for Civil Works for review. The review is expected to be completed in June 2005.

Question. The Corps owns and operates four hopper dredges which are to be used for urgent and emergency dredging and for national defense purposes. Do we really need four government hoppers in light of the current private hopper dredge capacity that exists?

General STROCK. The Corps of Engineers does own four hopper dredges, however, the WHEELER is maintained in a ready reserve status, and is not scheduled for work unless industry is fully engaged and is unable to respond. Industry has increased its capacity, and we are currently evaluating the need for the remaining three hopper dredges and the appropriate configuration of the Corps hopper dredge fleet.

Question. I am told that the Corps is preparing a report to Congress to address use of its minimum dredge fleet. Can you tell me what progress you are making and when Congress can expect to receive that report? Will it arrive on the Hill in time to have an impact on this year's legislation?

Mr. WOODLEY. The Corps is currently finalizing the report, which I expect to complete and, upon final clearance, forward to Congress in a timely manner.

Question. I understand that since the Dredge Wheeler has been in ready reserve, you have improved the nationwide management of all hopper dredges through a public-private partnership with industry. Does the Corps view the partnership favorably, and what does it mean with regard to the number of dredges the Government must continue to operate?

General STROCK. The Corps and the hopper dredge industry have established a partnership called the Industry-Corps Hopper Dredge Management Group (ICHDMG). This partnership has effectively developed a process for managing the combined Corps and industry hopper dredges in a manner that ensures reliable service to ports and waterways requiring hopper dredging. The effectiveness of the partnership is being considered with regard to the report's recommendations for the final configuration of the Corps hopper dredge fleet.

Question. I am told that $8 million is needed to keep the Wheeler in ready reserve. Is that correct? And, is it cost effective in terms of private investment in hopper dredges it has engendered?

General STROCK. Yes, $8 million is the estimated amount that is required to keep the WHEELER in ready reserve. The cost effectiveness and resultant industry investments are being considered in the evaluation and recommendations of the Corps future hopper dredge configuration.

DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

STATEMENTS OF:

R. THOMAS WEIMER, ACTING ASSISTANT SECRETARY FOR WATER AND SCIENCE, DEPARTMENT OF THE INTERIOR

JOHN W. KEYS, III, COMMISSIONER

ACCOMPANIED BY:

BOB WOLF, DIRECTOR, PROGRAM AND BUDGET, BUREAU OF RECLAMATION, DEPARTMENT OF THE INTERIOR

JOHN TREZISE, DIRECTOR, BUDGET, DEPARTMENT OF INTERIOR

J. RONALD JOHNSTON, PROGRAM DIRECTOR, CENTRAL UTAH PROJECT COMPLETION ACT OFFICE

Senator BOND. Now we would like to call forward our second panel. All right. If everyone will take their seats, we will begin panel two to take testimony on fiscal year 2006 budget requests for the Bureau of Reclamation. Testifying on behalf of the budget of the Bureau will be Mr. R. Thomas Weimer, Acting Assistant Secretary for Water and Science, U.S. Department of the Interior, and Mr. John W. Keys III, Commissioner of the Bureau of Reclamation.

Gentlemen, we welcome both of you, your full statements will be included in the record, and we would ask that you summarize briefly your statements, and with that Mr. Weimer.

Mr. WEIMER. Thank you, good afternoon Mr. Chairman, and members of the subcommittee. I'm very pleased to be here today on behalf of Secretary Norton to introduce the Interior Department's 2006 Budget to you, and specifically those portions related to the Bureau of Reclamation and the Central Utah Project. As you noted, I'm joined by John Keys the Commissioner of the Bureau of Reclamation. May I also introduce Bob Wolf, to John's right. He is the Director of Budget for the Bureau and behind me, John Trezise, who is Director of Budget for the Department of the Interior. We also have Ron Johnston, again behind me, who is the Program Director of the Central Utah Project, and he's available for any questions on that project that you may have.

DEPARTMENT OF THE INTERIOR'S FISCAL YEAR 2006 BUDGET REQUEST

To briefly summarize, the Department's overall 2006 request for programs funded by the Energy and Water Development Subcommittee is $981 million. This is $32 million below the 2005 enacted level. This includes $947 million for the Bureau of Reclamation, and $34 million for the Central Utah Project. In crafting the budget, four overarching principles were used to shape both the Department's budget, the Bureau's budget, and Central Utah Project's budgets. First is the power of partnerships to leverage resources and achieve results. Second is the imperative for fiscal restraint to maintain a dynamic economy. Our budget is consistent

with the President's goal to cut the Federal deficit in half by 2009. Third is an emphasis on investments that will help Interior work smarter, more efficiently, and more effectively. Fourth is the importance of funding activities and programs linked to core Departmental and Bureau responsibilities. I want to briefly highlight just one of the Secretary's priority efforts that is underway in the Department, and that is the Water 2025 initiative. With the support of the subcommittee, we're able to report on the early successes, with funding provided last year. We're promoting conservation efforts through grant and cost sharing programs that emphasize local initiatives and partnerships. The overarching goal of Water 2025 is to reduce crises and conflicts over water. The 2006 budget includes $30 million for Water 2025, an increase of $11 million. We feel that this increase is due to the very positive response to the challenge grant program that we have seen last year, and this year, we think that that increase of support validates the success of the partnership approach that the Secretary has initiated. I will briefly mention the Central Utah Project budget request of $34 million, a decrease of $13 million below the 2005 enacted level. The decrease is for the Mitigation Commission and is primarily due to the transfer of budget authority from the Department to the Western Area Power Administration. Due to projected carryover balances in the Commission's account, we believe the work of the Mitigation Commission will not be adversely affected.

MANAGEMENT INITIATIVES

Before closing, let me just mention that throughout the Department's and Bureau's budgets are a number of management initiatives. As public demands for Interior services increased, from Indian children who need schools, to water districts that depend on the water delivered by Reclamation, Interior must continue to find ways to enhance service and spend dollars wisely. Behind all of our programs, out of the limelight, rests the management foundation through which we strive to improve program efficiency and effectiveness.

PREPARED STATEMENT

Mr. Chairman, that concludes my opening remarks. I'm available to the subcommittee for any questions you may have.

[The statement follows:]

PREPARED STATEMENT OF R. THOMAS WEIMER

Good afternoon. On behalf of the Secretary of the Interior, I am pleased to be here today before the Subcommittee on Energy and Water Development to discuss the fiscal year 2006 budget for the Department of the Interior. I appreciate the opportunity to highlight our priorities and key goals.

The Department of the Interior's mission is complex and multifaceted. Our 70,000 employees contribute to the Nation's environmental quality, economic vitality, and the well being of communities. Our mission encompasses resource protection, resource use, recreation, and scientific, educational, and other services to communities.

The Department's geographically dispersed responsibilities are inspiring and sometimes challenging. Through our programs, we have close connections to America's lands and people. We protect some of the Nation's most significant cultural, historic, and natural places. We provide access to resources to help meet the Nation's energy and water needs, while protecting natural and cultural resources. We provide recreation opportunities to over 477 million people annually at our parks,

refuges, and the public lands we manage. In addition, we fulfill trust and other responsibilities to American Indians, Alaska natives, and the Nation's affiliated island communities.

Four principles shape our 2006 budget. First is the power of partnerships to leverage resources and achieve results. Second is the imperative of fiscal constraint. Third is an emphasis on investments that will help Interior work smarter, more efficiently, and more effectively. Fourth is the importance of funding activities and programs linked to core Departmental responsibilities.

BUDGET OVERVIEW

Performance lies at the center of the President's 2006 budget request. The President's proposal also demonstrates the fiscal restraint necessary to halve the deficit by 2009 and maintain the Nation's dynamic economy.

The 2006 budget request for current appropriations is $10.8 billion. Permanent funding that becomes available as a result of existing legislation without further action by the Congress will provide an additional $4.2 billion, for a total 2006 Interior budget of $15 billion. We estimate that the Department will collect $13.8 billion in receipts.

Our budget includes $981.1 million for programs funded in the Energy and Water Development Appropriations Act, a reduction of $31.5 million or 3.1 percent below the 2005 enacted level.

The 2006 Bureau of Reclamation request for current appropriations is $946.7 million, a net decrease of $18.2 million below the 2005 enacted level. The request for current appropriations is offset by discretionary receipts in the Central Valley Project Restoration Fund and by a proposal to offset $30.0 million through direct funding of certain hydropower operations and maintenance activities, resulting in a net discretionary request of $872.8 million, a decrease of $45.8 million below the 2005 enacted level. This decrease is primarily due to the 2006 hydropower direct funding proposal. The request for permanent appropriations in 2006 totals $80.0 million.

Our budget also includes $9.8 billion for programs funded in the Interior and Related Agencies Appropriations Act, a decrease of $69.7 million or 0.7 percent from the 2005 level.

In his February 2 State of the Union Address, the President underscored the need to restrain spending in order to sustain our economic prosperity. As part of this restraint, it is important that total discretionary and non-security spending be held to levels proposed in the 2006 budget. The budget savings and reforms in the budget are important components of achieving the President's goal of cutting the budget deficit in half by 2009 and we urge the Congress to support these reforms. The Department will continually work with the Congress to achieve these savings.

CENTRAL UTAH PROJECT COMPLETION ACT

The 2006 request for the Central Utah Project Completion Account provides $34.4 million for use by the District, the Commission, and the Department to implement Titles II–IV of the Act, which is $13.3 million less than the 2005 enacted level. A substantial portion of this decrease is due to a transfer of budgetary authority and responsibility from the Department of the Interior to the Western Area Power Administration (WAPA). WAPA is requesting $6.7 million for this purpose, and will transfer it to the Department of the Interior for use on the CUP. Of those funds, some will go to administrative expenses for the Mitigation Commission, and the balance will be added to the corpus of the Utah Reclamation Mitigation and Conservation Account, which is projected to have a balance of $150 million by the end of fiscal year 2006. The reduced request for the Mitigation Commission reflects the Commission's substantial carryover balances from prior year appropriations.

The funds requested for the District ($31.3 million) will be used to fund the balance of the Federal share of the completed Diamond Fork System ($14.6 million); to continue construction on Uinta Basin Replacement Project ($12.2 million); and to implement water conservation measures, local development projects, and continue planning and NEPA compliance for the Utah Lake System ($4.5 million).

RECLAMATION

The Bureau of Reclamation is the largest supplier of water in the 17 western States. It maintains 471 dams and 348 reservoirs with the capacity to store 245 million acre-feet of water. These facilities deliver water to one in every five western farmers covering about 10 million acres of irrigated land and provides water to over 31 million people for municipal, and industrial uses. Reclamation is also the Nation's second largest producer of hydroelectric power, generating 42 billion kilowatt

hours of energy each year from 58 power plants. In addition, Reclamation's facilities provide substantial flood control, as well as many recreation and fish and wildlife benefits.

Since its establishment in 1902, Reclamation has developed water supply facilities that have contributed to sustained economic growth and an enhanced quality of life in the western States. Lands and communities served by Reclamation projects have been developed to meet agricultural, tribal, urban, and industrial needs. Reclamation continues to develop authorized facilities to store and convey new water supplies.

The 2006 request for Water and Related Resources, Reclamation's principal operating account is $801.6 million, which is $51.0 million below the enacted amount for fiscal year 2005. The account total includes an undistributed underfinancing reduction of $30.2 million in anticipation of delays in construction schedules and other planned activities.

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 addressing contemporary water resource issues. During development of Reclamation's budget request, funding for every project is reviewed based on Departmental and Bureau priorities and for compliance with the strategic plan.

The 2006 budget request for Water and Related Resources provides a total of $391.7 million for facility operations, maintenance, and rehabilitation. Providing adequate funding for these activities continues to be one of Reclamation's highest priorities. The Bureau continues to work closely with its water customers and other stakeholders to ensure these funds are used to allow the timely and effective delivery of project benefits; ensure the reliability and operational readiness of Reclamation's facilities; identify, plan, and implement dam safety corrective actions and site security improvements; and undertake work to enhance environmental values.

A total of $69.9 million is requested for the safety of dams program, an increase of $6.4 million. This funding includes $44.6 million to initiate safety of dams corrective actions and $18.5 million for safety evaluations of existing dams.

The 2006 request for Water and Related Resources also includes a total of $440.1 million for resource management and development activities.

WATER 2025—PREVENTING CRISES AND CONFLICT IN THE WEST

Meeting water needs is one of the most pressing resource challenges in some of the fastest growing areas of the Nation. In the West, demands for water for cities, Tribes, farms, and the environment exceed the available supply in many basins even under normal water supply conditions, as currently managed. Severe drought conditions over the past several years in the West have amplified water supply and management challenges. Without improved water management, conflicts and crises surrounding water supplies will likely increase.

The overarching goal of Water 2025 is to meet the challenge of reducing crises and conflict over water. To minimize or avoid these water crises and enhance water delivery, Water 2025 advances three basic concepts in the 2006 budget request:

—The implementation of water monitoring, measuring, conservation, and management technologies will provide some of the most cost-effective gains in the ability to meet the demand for water in the future.

—The attainment of economic, social, and environmental goals relating to water supply requires long-term stability that is more likely to be provided by collaborative solutions than by litigation.

—Market-based tools that rely on willing buyer/willing seller transactions are far more likely to provide stability and avoid conflict than are regulatory or litigation-based alternatives for meeting unmet and emerging needs for water.

Solutions developed through Water 2025 must be based on and recognize interstate compacts and U.S. Supreme Court decrees that allocate water among States, water rights established under State and Federal law, tribal water rights, and contracts for the use of water.

The 2006 budget requests $30.0 million for Water 2025, an increase of $10.5 million above the 2005 enacted level. The request includes funds for system optimization reviews, the Water 2025 challenge grant program, and improved technology.

CALFED IMPLEMENTATION

The Sacramento-San Joaquin Delta serves as the hub of the State's water management system. The Sacramento and San Joaquin Rivers and their tributaries, 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 Delta its tributaries and downstream service areas also provide habitat for 750 plant and animal species, some listed as threatened or endangered.

Established in May 1995, the California-Federal Bay-Delta Program (CALFED) is a comprehensive program to address the complex and interrelated problems in the Bay-Delta system, the watersheds that feed it, and the areas served by waters diverted out of it. A consortium of Federal and State agencies fund and participate in the CALFED program, focusing on ecosystem improvements and improving water management and supplies. In addition, CALFED addresses issues related to flood control, levees, water quality and watersheds.

After preparation of environmental documentation, the CALFED parties, including Interior, signed a record of decision formally approving a long-term programmatic plan for restoring ecosystem values and improving water management in the solution area. Approximately $68 million was specifically provided to Reclamation in 2001 through 2005 within various authorized programs of the Central Valley Project for activities that support the goals of the CALFED program. Beyond these funds, Reclamation and the other Federal agencies participating in the CALFED program fund numerous other programs and activities that are closely aligned with the CALFED program.

On October 25, 2004, the President signed into law the Calfed Bay-Delta Authorization Act. The legislation provides a 6-year Federal authorization to implement the collaborative plan for restoration and enhancement of the San Francisco Bay/Sacramento-San Joaquin Delta estuary.

The 2006 budget includes $35.0 million for Reclamation to implement CALFED activities.

OTHER BUREAU OF RECLAMATION PROJECT REQUESTS

The $128.0 million request for the Central Valley Project includes a $3.1 million increase for the CVP replacements, additions, and maintenance program. Maintaining strong funding for these activities is critical to maintaining the long-term integrity of Reclamation's infrastructure. The 2006 request includes $16.6 million for the Colorado-Big Thompson project, an increase of $5.6 million.

A total of $50.0 million is requested for site security to ensure the safety and security of facilities, an increase of $6.8 million. The 2006 budget proposes that the operation and maintenance-related security costs for Reclamation facilities be reimbursed by project beneficiaries, consistent with the practice for other operation and maintenance expenses.

The budget includes $52.0 million for the Animas-La Plata project to continue implementation of the Colorado Ute Settlement Act. This will provide for continued construction of the Ridges Basin Dam and the Durango pumping plant.

The request funds rural water supply projects at $57.5 million, $29.5 million below the 2005 enacted level. Funding is requested for the Mni Wiconi, Garrison, and Lewis and Clark projects. The overall reduction is due, in part, to a decrease of $17.0 million resulting from the projected completion of the Mid-Dakota rural water project in 2005. The balance of the reduction results from a decision to focus primarily on ongoing rural water projects until establishment of a formal Reclamation rural water program, as recommended in earlier PART and common measures evaluations. The administration submitted legislation to the 108th Congress to establish such a program, and looks forward to working with the 109th Congress to create a program that addresses the present programmatic problems.

The budget proposes to re-allocate repayment of capital costs of the Pick-Sloan Missouri Basin program. Power customers would be responsible for repayment of all construction from which they benefit, whereas to date they have only been responsible for a portion of the costs. This change would increase reimbursements from power customers by $33.0 million in 2006, and declining amounts in future years. Rate increases for power customers could be phased in over time. Authorizing legislation will be submitted.

MANAGEMENT EXCELLENCE

As public demands for Interior services increase—from Indian children who need schools to visitors who seek more outdoor recreational opportunities on our public

lands—Interior must continue to enhance service and spend dollars wisely. Behind all our programs, out of the limelight, rests a management foundation through which we strive to improve program efficiency and effectiveness. The Departments and its bureaus continue to implement performance improvements.

Reclamation and the Central Utah Project continue to strive for excellence in the President's management initiatives, which include competitive sourcing, strategic work force management, improved financial performance, expanded electronic government, and integrated budget and performance. The Bureau of Reclamation is committed to the administration's management reform agenda and has developed road maps for getting green ratings on its scorecards. Reclamation's use of activity-based cost management data, together with modifications to Reclamation's field-driven budget formulation process, will integrate performance and budget in Reclamation's decision-making process.

As part of its 2006 budget development process, Reclamation and OMB evaluated the recreation program and the water management/supply planning and construction program using the Program Assessment Rating Tool process. The recreation program was rated adequate. The water management/supply planning and construction program was rated results not demonstrated, pending development of performance measures and base line data that assess progress toward bureau and strategic plan goals. The operations and maintenance portion of the water management/supply program, the site security program, the safety of dams program, and the Central Utah Project will be evaluated by PART during the development of the 2007 budget.

The National Academies' National Research Council is reviewing Reclamation's organizational infrastructure as it relates to its core mission of delivering water and power. The NRC held its first committee meeting February 28 to March 1, 2005, and should conclude its report during 2005.

Our 2006 budget also includes investments in tools to enable our employees to do their jobs more efficiently and generate cost savings by implementing standardized systems.

The Department currently uses 26 different financial management systems and over 100 different property systems. Employees must enter procurement transactions multiple times in different systems so that the data are captured in real property inventories, financial systems, and acquisition systems. This fractured approach is both costly and burdensome to manage. We have underway an integration of our financial and business management systems to streamline and modernize basic administrative activities.

The Department's budget request includes an increase of $9.5 million to support continued implementation of the Financial and Business Management System, which is integrating financial management, procurement, property management and other systems and will be the basis for reengineered administrative processes throughout the Department. As FBMS becomes fully operational, over 80 legacy systems will be retired and their functionality replaced by standardized business processes within FBMS. In 2006, the National Park Service and Fish and Wildlife Service are scheduled to transition to FBMS. The Bureau of Reclamation will transition to FBMS in 2007.

The 2006 Department budget also includes an increase of $7.0 million to continue implementation of the Enterprise Services Network. ESN leverages the existing BIA Trustnet, expanding it Department-wide, to provide secure, state-of-the-art internet and intranet connections and a fully functional operational center for data communications. In addition to providing better services for many Interior offices, the system will provide a uniformly secure environment, standardized and efficient 24-hour/7-day operations, and improved technical support. The Reclamation budget includes $1.1 million for ESN.

ADDRESSING OTHER DEPARTMENTAL CHALLENGES

Over the past 4 years, the Interior Department has encouraged cooperative conservation through various grant programs, administrative actions, and policies. These efforts emphasize innovation, local action, and private stewardship. Water 2025 is an excellent example. They achieve conservation goals while maintaining private and local land ownership. They foster species protection through land management and cooperative, on-the-ground habitat improvements, complementing traditional funding of ESA regulatory programs.

Two proposals in the Interior Appropriations Act are of particular relevance to this subcommittee—Klamath River Basin and Everglades, which demonstrate our ability to work across the landscape cooperatively to accomplish our goals.

Klamath River Basin.—The 2006 budget commits $62.9 million toward addressing water issues in the Klamath Basin and proposes an 8.4 percent increase for Interior

Department programs in the basin. In the short-term, water-supply conditions will continue to present challenges. As of mid-February, the snow pack in the upper Klamath River basin was 47 percent below average. With depleted groundwater supplies and expected continued drought conditions, the risks to endangered and threatened fish in the basin persist. We also anticipate impacts to the people and communities dependent on the river, including upper basin irrigators and downstream Indian and commercial fishermen. Federal efforts in the basin will continue to focus on long-term solutions to resolving conflicts between the many competing uses for scarce water.

Everglades Restoration.—Interior is also continuing its work with the Corps of Engineers and the State of Florida to complete the Modified Water Deliveries Project (Mod Water), a key to restoring natural flows in the Everglades. The Mod Water project includes water control structures to restore more natural hydrologic conditions within the Park as well as a flood mitigation system to protect adjacent residential and agricultural areas. The ability to deliver adequate supplies of clean water at the right time of the year is critical to the restoration of the Park's natural resources. Once completed, this project will provide much needed flexibility to water managers and serve as a strong foundation for future benefits under the Comprehensive Everglades Restoration Plan (CERP).

Under a new agreement between the Department and the Corps of Engineers, the cost to complete the project will be shared by NPS and the Corps. Within the 2006 request for NPS construction is $25.0 million. The NPS contribution consists of $8.0 million in new funding and $17.0 million redirected from unobligated balances for Everglades land acquisition not currently needed for high-priority acquisitions. The 2006 budget for the Corps includes $35.0 million for the project. Over the period 2007 to 2009, the Corps will contribute an estimated additional $88.0 million and the NPS an additional $41.0 million.

Other Cooperative Conservation Programs.—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 2006 budget includes $381.3 million for the Department's cooperative conservation programs. These programs leverage limited 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.

Our budget proposes funding for the Landowner Incentive and Private Stewardship programs at a total of $50.0 million, an increase of $21.4 million from 2005. Through these programs, our agencies work with States, Tribes, communities, and landowners to provide incentives to conserve sensitive habitats in concert with traditional land management practices such as farming and ranching, thus maintaining the social and economic fabric of local communities.

Our budget proposes to fund challenge cost-share programs in BLM, FWS and NPS at $44.8 million. These cost-share programs better enable Interior's land management agencies to work together and with adjacent communities, landowners, and other citizens to achieve common conservation goals. The 2006 proposal represents an increase of $25.7 million.

The challenge cost-share program includes $21.5 million for projects that are targeted to natural resource conservation. In 2004, the Congress provided $21.2 million for these cost-share grants. Leveraged with matching funds this provided a total of $52 million for on-the-ground projects including more than $19 million for projects to eradicate and control invasive species and weeds.

For example, in New Mexico, the Bosque del Apache refuge is working with the local community to restore riparian habitat along the Rio Grande River by eliminating tamarisk on over 1,100 acres.

We also propose level or increased funding for a suite of other FWS cooperative programs: the Partners for Fish and Wildlife program, the Coastal program, the Migratory Bird Joint Ventures program, the North American Wetlands Conservation Fund, the State and Tribal Wildlife grants program, and the Cooperative Endangered Species Conservation Fund. These programs support a cooperative approach to conservation that emphasizes voluntary partnerships with private landowners, local governments, Tribes, and community organizations.

CONCLUSION

The budget plays a key role in advancing our vision of healthy lands, thriving communities, and dynamic economies. Behind these numbers lie people, places, and partnerships. Our goals become reality through the energy and creativity efforts of

our employees, volunteers, and partners. They provide the foundation for achieving the goals highlighted in our 2006 budget.

This concludes my overview of the 2006 budget proposal for the Department of the Interior and my written statement. I will be happy to answer any questions that you may have.

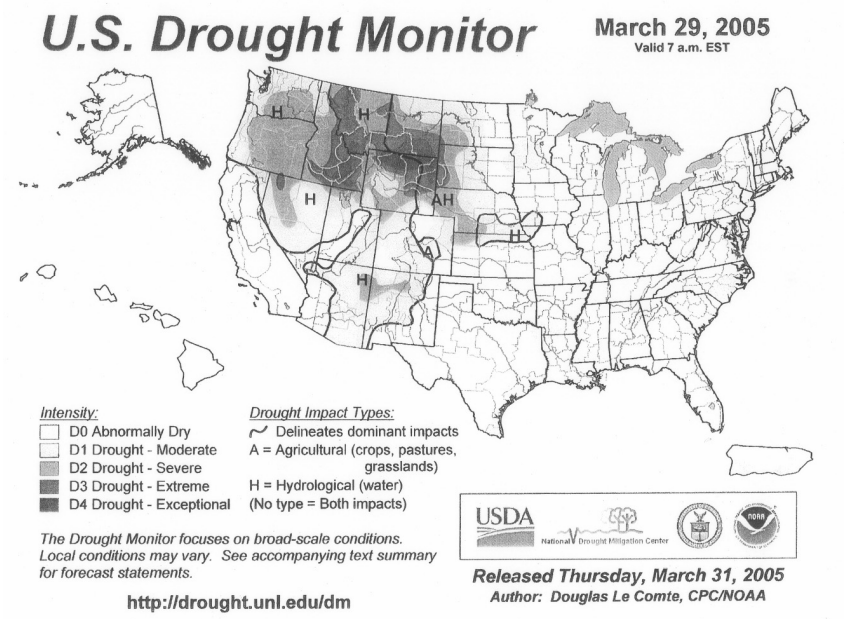
Senator BOND. Thank you. Mr. Keys.

STATEMENT OF JOHN W. KEYS, III

Mr. KEYS. Mr. Chairman, it's my pleasure to be here this afternoon, and we do appreciate the opportunity to come and talk to you about our fiscal year 2006 budget. As Tom said, with me today is Bob Wolf, my Director of Program and Budget. Before I go ahead with the statement, let me tell you how much we appreciate working with your committee staff and the committee members. They have been very understanding of what we tried to do and how we tried to do it. Before I get into the 2006 budget discussion, I would just like to take a minute to update you on water supply conditions in the West.

DROUGHT

We put out these charts for you before we got started. Unfortunately, the drought continues this year, and we are extremely concerned about it.



The chart that you have there—shows the typical El Niño setup for the western United States, rain in the southwest and almost nothing across the northern tier. For example, the Columbia River basin expects about 60 percent of normal runoff. In Eastern Oregon, Western Idaho, and parts of Montana, it's about 50 percent. Some parts of Montana and Wyoming are even less than 50 per-

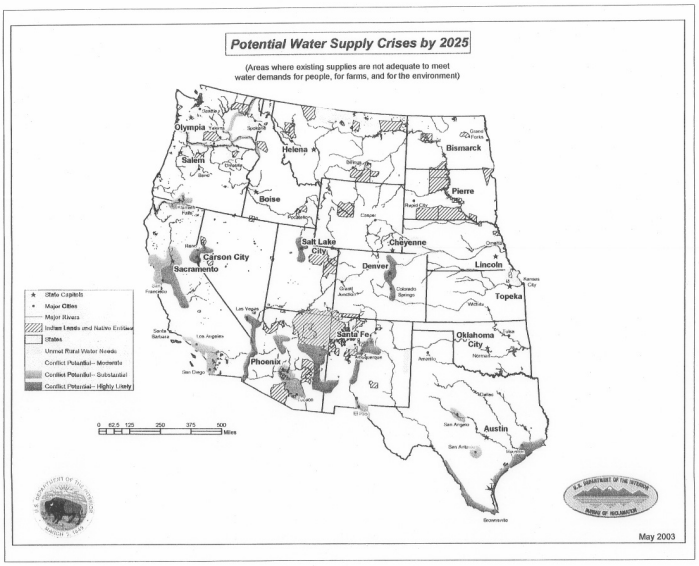
cent, and the Yakima basin, in the middle of the chart, is about 35 percent.

Those are just some of the typical numbers that we're working with, and the drought continues in that part of the country. Now, I'd like to turn to the fiscal year 2006 budget. The overall Reclamation request totals about $947 million in current authority and is offset by discretionary receipts: for the Central Valley Project restoration fund of about $44 million, and Hydropower direct financing is about $30 million. The request continues to emphasize the operation and maintenance of Reclamation facilities in a safe, efficient, economic, and reliable manner, while sustaining the health and integrity of ecosystems that address the water needs of a growing population in the West. As part of this emphasis, $65 million is requested for our Safety of Dams program. Our fiscal year 2006 request has been designed to support Reclamation's mission of delivering water and generating hydropower consistent with the applicable State and Federal law in an environmentally responsible and cost efficient manner.

HIGHLIGHTS OF THE FISCAL YEAR 2006 BUDGET REQUEST

Some highlights of this budget proposal: Water 2025 request $30 million for fiscal year 2006. It builds off of the fiscal year 2005 Water 2025 effort that we feel has been very successful. It is a high priority in Reclamation, both financial and technical, and it has focused resources into those areas of the West where conflict and crisis over water exists now or could be predicted in the near future.

The hotspot map that we also passed out for you, shows some of those areas in the West that are most likely to experience water supply crisis. These potentially water-short areas are the focus of the Water 2025 effort.



In the Klamath project in Oregon and California, we're asking for $22 million. The fiscal year 2006 request continues and increases funding for our efforts in the Klamath basin that will improve water supplies to meet competing demands for water in the basin and ensure continued delivery of water to our project. The 2005 water supply forecast to date shows that 2005 will be a challenging year for irrigators and resource managers. These early forecasts depict snow packs at about 47 percent of normal. We're currently anticipating a dry water year operation and a dry water year in the Klamath River.

For the Middle Rio Grande project in New Mexico, we're requesting $19 million. The 2006 request continues support of endangered species, through participation in the collaborative program. These efforts support the protection and recovery of the Rio Grande Silvery Minnow and the Southwestern Willow Flycatcher, and it requests funding for supplemental water channel maintenance, and government-to-government consultations with Pueblos and tribes.

On the Animas-La Plata project in Colorado and New Mexico, we're asking for $52 million. The Animas-La Plata project is almost 21 percent complete and resolves, through authorizing legislation passed by the Congress in 2000, longstanding Indian water rights claims in the basin.

In our rural water program we're asking for $57.5 million. The 2006 funding for rural water projects emphasizes a commitment to completing ongoing municipal, rural and industrial systems. Funding is included for the Mni Wiconi, Garrison, and Lewis and Clark projects. The administration submitted a proposal to Congress last year to authorize a formal rural water program, and while it did not pass in the last Congress, we're working closely with the authorizing committees to move this forward. Until such legislation

is enacted, funding is only requested for ongoing rural water projects.

For the CALFED Bay-Delta program, we're asking $35 million. President Bush signed the historic legislation on October 25, 2004, authorizing the CALFED Bay-Delta program. The funding is intended for the following areas: $10 million for environmental water account, $10 million for the storage program, $3 million for water conveyance, $4 million for water use efficiency, $4 million for ecosystem restoration, and $4 million for program and management, and Reclamation's oversight.

PREPARED STATEMENT

Mr. Chairman, in conclusion I want to strongly reiterate that the fiscal year 2006 budget request demonstrates Reclamation's commitment in meeting the water and power needs of the West in a fiscally responsible manner. Thanks again for your continued support, and we would certainly try to answer any questions you might have.

[The statement follows:]

PREPARED STATEMENT OF JOHN W. KEYS, III

Thank you, Mr. Chairman, Mr. Reid, and members of the subcommittee, for the opportunity to appear before you today to support the President's fiscal year 2006 budget request for the Bureau of Reclamation. With me today is Bob Wolf, Director of Program and Budget.

Our fiscal year 2006 request has been designed to support Reclamation's mission of delivering water and generating hydropower, consistent with applicable State and Federal law, in an environmentally responsible and cost efficient manner.

Funding is proposed for key projects 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 promote water conservation and sound water resource management, and help prevent conflict and crises over water in the west.

The fiscal year 2006 request for Reclamation totals $946.7 million and is offset by discretionary receipts in the Central Valley Project Restoration Fund of $43.9 million and proposed hydropower direct financing of $30.0 million. In addition, Reclamation's program includes permanent authority of $80.0 million. The total program, after offsets to current authority and the inclusion of permanent authority, is $952.8 million.

WATER AND RELATED RESOURCES

The fiscal year 2006 request for the Water and Related Resources account is $801.6 million. The request provides funding for five major program activities: Water and Energy Management and Development ($320.8 million); Land Management and Development ($35.3 million); Fish and Wildlife Management and Development ($84.0 million); Facility Operations ($206.5 million); and Facility Maintenance and Rehabilitation ($185.2 million). The request is partially offset by an undistributed reduction of $30.2 million, commonly referred to as underfinancing, in anticipation of delays in construction schedules and other planned activities.

The request continues to emphasize the operation and maintenance of Reclamation facilities in a safe, efficient, economic, and reliable manner, while meeting our requirements to sustain the health and integrity of ecosystems that are connected to those operations. It will also assist the States, Tribes, and local entities in solving contemporary water resource issues in advance of crises over water.

Highlights of the fiscal year 2006 request for Water and Related Resources include:

Water 2025 ($30 million).—Water 2025 allows Reclamation to continue playing an important role in working with State and local communities to develop solutions that will help meet the increased demands for limited water resources in the West, and avoid water conflicts in areas particularly susceptible to an imbalance between supply and demand. As in fiscal year 2004 and fiscal year 2005, funding will be di-

rected to on-the-ground projects selected through a competitive challenge grant program with a 50:50 match.

Klamath Project in Oregon and California ($22.0 million).—The fiscal year 2006 funding request continues on-the-ground initiatives to improve water supplies to meet agricultural, tribal, wildlife refuge, and environmental needs in the Klamath Basin and to improve fish passage and habitat. This is part of a $62.9 million Department of the Interior request that includes the collaborative efforts of several bureaus. The initiative is focused on achieving immediate on-the-ground benefits. The 2005 water supply forecasts show that 2005 will be a challenging year for irrigators and resource managers. These early forecasts depict snow pack at 47 percent below average. We are currently anticipating a dry water year in the lake and in the river.

Lower Colorado River Operations Program ($17.9 million).—The fiscal year 2006 request will provide funding to continue work on development and anticipated implementation of the Lower Colorado River Multi-Species Conservation Program (MSCP). The MSCP will provide Endangered Species Act compliance for operations and maintenance activities associated with the Colorado River from the upper end of Lake Mead to the southern border with Mexico for 50 years. The Secretary of Interior, acting through the Bureau of Reclamation, has the unique role of "water master" for the lower Colorado River. LCROP includes river operations, water service contracting and repayment, decree accounting, oversight of hydropower activities, and fulfilling the requirements of the Secretary's role as water master.

Middle Rio Grande ($19.0 million).—The fiscal year 2006 request continues funding in support of the Endangered Species Collaborative Program. In addition, the request continues funding for acquiring supplemental water, channel maintenance, and pursuing government-to-government consultations with Pueblos and Tribes. Finally, the funding will continue efforts that support the protection and contribute to the recovery of the Rio Grande silvery minnow and southwestern willow flycatcher. One effort that may assist the silvery minnow is a proposed sanctuary that will support all life stages of the minnow. Reclamation, the U.S. Fish and Wildlife Service, and the Middle Rio Grande Conservancy District are cooperating in the planning of a sanctuary, and design is continuing. A site has been selected and is undergoing detailed evaluation for suitability.

Animas-La Plata in Colorado and New Mexico ($52.0 million).—The fiscal year 2006 request includes $52.0 million for the continued construction of Ridges Basin Dam and Durango Pumping Plant and project support activities.

Columbia/Snake River Salmon Recovery in Idaho, Oregon, Montana, and Washington ($17.5 million).—This program addresses the implementation of Reasonable and Prudent Alternatives (RPAs) included in two Biological Opinions issued in December 2000. The fiscal year 2006 funding will address significantly increased regional coordination, off-site mitigation activities in selected sub-basins to offset hydrosystem impacts, and continue research, monitoring and evaluation efforts.

Site Security ($50.0 million).—Since September 11, 2001, Reclamation has maintained heightened security at its facilities to protect the public, its employees, and infrastructure.

The funding in fiscal year 2006 is necessary to cover the costs of site security activities including:

—Surveillance and law enforcement;
—Anti-terrorism activities that include monitoring of information, personnel security, and threat management; and
—Physical security upgrades, with a primary focus on our National Critical Infrastructure facilities.

The fiscal year 2006 budget request proposes that annual costs associated with activities for guarding Reclamation facilities be treated as project O&M costs and be subject to reimbursement based upon project cost allocations. A report with a breakout of planned reimbursable and non-reimbursable costs by project, by region, will be provided to the subcommittee by May 1, 2005.

Rural Water ($57.5 million).—The fiscal year 2006 funding for rural water projects emphasizes a commitment to completing ongoing municipal, rural, and industrial systems that were previously included in the President's Budget. Funding is included for the Mni Wiconi, Garrison and Lewis and Clark projects. The administration submitted a proposal to Congress last year to authorize a formal rural water program in Reclamation and while it did not pass in the last Congress, we are working closely with the authorizing committees to again move this forward; and until such legislation is enacted, funding is only requested for on-going rural water projects.

Hydropower Direct Financing ($30.0 million).—The fiscal year 2006 budget proposes to finance the costs of operation and maintenance of certain Reclamation hydropower facilities directly from receipts collected by the Western Area Power Ad-

ministration (WAPA) from the sale of electricity. Under this reclassification proposal, WAPA would transfer an agreed upon amount to the Bureau of Reclamation for deposit in its Water and Related Resources account. The transferred funds would be treated as an offsetting collection. A direct funding arrangement is already in place for the Bonneville Power Administration and some Western Area Power Administration facilities.

Safety of Dams ($69.9 million).—The safety and reliability of Reclamation dams is one of Reclamation's highest priorities. Approximately 50 percent of Reclamation's dams were built between 1900 and 1950, and 90 percent of those dams were built before the advent of current state-of-the-art foundation treatment, and before filter techniques were incorporated in embankment dams to control seepage. Safe performance of Reclamation's dams continues to be of great concern and requires a greater emphasis on the risk management activities provided by the program. The fiscal year 2006 request of $69.9 million for the Safety of Dams Program will reduce risks to public safety at Reclamation dams. The increase from the fiscal year 2005 level is for the purpose of initiating three Safety of Dams corrective actions.

POLICY AND ADMINISTRATION

The request for Policy and Administration is $57.9 million. These funds are used to develop and implement Reclamation-wide policies, rules and regulations and to perform functions which, by statute, cannot be charged to specific project or program activities covered by separate funding authority. These funds support general administrative and management functions.

CENTRAL VALLEY PROJECT RESTORATION FUND

The fiscal year 2006 Reclamation budget includes a request for the CVP Restoration Fund of $52.2 million, and is expected to be offset by discretionary receipts totaling $43.9 million collected from project beneficiaries under provisions of Section 3407(d) of the Act. 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. This fund was established by the Central Valley Project Improvement Act, Title 34 of Public Law 102–575, October 30, 1992. The funding request is calculated based on a 3-year rolling average of collections. The net amount requested for fiscal year 2006, after the offset, is the same as fiscal year 2005.

CALIFORNIA BAY-DELTA RESTORATION (CALFED)

CALFED legislation was signed into law on October 25, 2004, and the activities authorized in the legislation include water storage investigation, conveyance program activities, continuation of the environmental water account, levee construction activities, and oversight and coordination of the program. A total of $35.0 million is requested for California Bay-Delta Restoration in the following areas: $10.0 million for the environmental water account; $10.0 million for the storage program; $3.0 million for water conveyance; $4.0 million for water use efficiency; $4.0 million for ecosystem restoration; and $4.0 million for program and management and Reclamation's oversight function.

PROGRAM ASSESSMENT RATING TOOL (PART)

As part of the fiscal year 2006 budget, Reclamation's Water Management/Supply—Planning and Construction and Recreation and Concessions programs were evaluated by the PART. The entire Water Management/Supply program has been separated into three components that will be reviewed over 3 years. The 3 components include: (1) Planning and Construction, fiscal year 2006; (2) Operations and Maintenance, fiscal year 2007; and (3) Environmental Protection and Mitigation, fiscal year 2008. In addition, Reclamation intends to PART the Site Security and Safety of Dams programs in fiscal year 2007.

PRESIDENT'S MANAGEMENT AGENDA

E-Government.—Reclamation continues to support Federal and Departmental E-Gov and Web initiatives, and anticipates increased coordination as we adopt the Department's E-Gov Strategy and scorecard for rating progress in this area. This support includes participation in planning groups, such as the Web Council, e-Authentication and E-Gov teams, as well as implementation and integration of content. Some specific initiatives requiring Reclamation involvement are the Department's Financial and Business Management System, Recreation.gov, and the Geospatial One-stop efforts. In addition, Reclamation has partnerships with numerous local,

State, and Federal organizations to share water management information and facilitate coordination using E-Gov technology.

Financial Management Improvement.—To support the President's Management Agenda on improving financial performance, Reclamation will continue to:

—Provide management with accurate and timely financial information to support operating, budget, and policy decisions;
—Improve financial and performance information integration;
—Ensure our financial information is fairly stated to achieve "unqualified" opinions from auditors; and
—Ensure our financial management systems fully comply with Federal financial system requirements and accounting standards.

Reclamation will continue to work closely with the Department of the Interior to improve financial processes and help consolidate information. To continue to achieve the President's and the Department's objectives for increased accountability, we will enhance our financial policies and procedures in support of the Department's Transformation of Interior Financial Management. This integrated business management plan, which is designed to achieve a consistent approach that will provide managers and employees with financial, performance, budget, and cost data that is timely and reliable, has many facets, including:

—The Financial and Business Management System (FBMS) which will combine various business management systems into one overall system linking planning and budget data to information performance and results;
—New processes and procedures that will allow monthly, quarterly, and annual reporting, analysis, and auditing to meet the November 15 report and audit date;
—Improving the process for issuing financial policies and procedures to help ensure consistency throughout the Department; and
—Performance measures and quality control procedures to provide standards for evaluating our processes.

Reclamation has made significant progress addressing financial management issues, including:

—Meeting OMB's accelerated November 15 deadline for completion of Reclamation's financial statements and receiving an unqualified opinion on the statements;
—Meeting and/or exceeding the Department's financial performance standards;
—Actively participating in the Department's FBMS initiative to include the functional design requirements and project management support;
—Completing 11 of 12 financial statement audit findings;
—Successfully implementing the Department's Activity Based Costing (ABC) initiative in an effort to improve budget and performance integration; and
—Completing an erroneous payment risk assessment as required by the Improper Payments Information Act of 2002.

Reclamation has received an "unqualified" opinion on all reports issued, which demonstrates our strong commitment to accurate and timely reporting. We will continue providing timely and useful information for management, the administration, and Congress to forge effective decision-making and providing reliable and accurate information for our publics and partners to forge effective relationships.

Reclamation has been actively involved in the Department's FBMS initiative to replace its existing legacy systems with an integrated financial and business management system, and has committed staff on a full-time basis to assist the Department with the implementation of FBMS in all bureaus over the next 4 years. Reclamation staff has also participated in the Department's fiscal year 2004 Blueprint effort to determine how to best design the functionality of the new enterprise system on a Department-wide basis. Reclamation will implement FBMS in a deployment to take place at the beginning of fiscal year 2008, and will use fiscal year 2007 to plan and prepare for the implementation.

Competitive Sourcing.—Reclamation continues to comply with the Federal Activities Inventory Reform Act and OMB competitive sourcing requirement needs, e.g., training, contractor support and employee related competitive sourcing support costs. Under the revised OMB Circular A–76, Performance of Commercial Activities, all A–76 studies must now focus on either standard or streamlined competition, thus eliminating previously used direct conversion studies. Reclamation developed a "Green Plan" for fiscal year 2005–2008 to guide future efforts.

Human Capital.—In support of the President's Management Agenda, Human Capital Initiative and the Department's Strategic Human Capital Management Plan (fiscal year 2003–2007), the Strategic Human Capital Management Implementation Plan (December 12, 2002), and Reclamation's Workforce Plan (2004 to 2008), numerous action items have been developed that identify implementation plans and ex-

pected results. Reclamation will dedicate staff and align human resources strategically in support of efforts necessary to close mission-critical competency gaps. It will do so by: successfully competing for talent and developing an accountability system to ensure that human capital management is merit based, effective, efficient and supportive of Reclamation's mission accomplishment.

Reclamation is implementing a new performance management system in 2005 that applies to all non-SES employees and provides for a five-level system in contrast to the previous two-level system of pass/fail. It gives management the tools to reward exceptional performance and the ability to address performance problems. This system also assures the linkage of individual accomplishments with organizational goals. SES managers converted to this goal in 2004.

In addition, there are plans to fully implement QuickHire, an automated staffing program by fiscal year 2006. Funding will also be directed to support additional e-Gov initiatives such as the Learning Management System for training and development.

Performance and Budget Integration.—Reclamation continues to make strides in its budget and performance integration initiative. This progress includes strengthening its performance based budgeting framework through the use of integrated cost, budget and performance data to support decisionmaking. During the initial stages of budget development, budget and performance guidance are integrated and distributed to regional and area offices. The guidance sets forth requirements for integrating budget and performance on a project by project and/or program basis.

Performance targets are set during the preliminary phase of budget development, and regions are required to link all funding requests to the Department's Strategic Plan and its associated goals and measures. Throughout the 2006 budget process, performance targets are adjusted for increases/decreases in funding and analysis of project/program impacts.

During the 2006 budget development process, ABC data was used for the first time to help establish funding baselines. Implemented in 2003 in conjunction with Department's system, Reclamation has refined its ABC activities and processes over the past year, and completed a trial run of ABC reporting. During the 2007 budget development process, cost data will be further refined, analyzed and presented to Reclamation leadership with recommendations for its use in the decision making process.

FISCAL YEAR 2006 PLANNED ACTIVITIES

In fiscal year 2006, Reclamation plans to continue striving for excellence in the President's management initiatives, which include competitive sourcing, strategic work force management, improved financial performance, expanded electronic government, and integrated budget and performance and asset management. The Bureau of Reclamation is committed to the administration's management reform agenda.

Reclamation's use of activity-based cost management data, together with modifications to making the required deliveries of water under Reclamation contracts; optimize hydropower generation, consistent with other project purposes, agreements, and the President's energy policy; and incorporate environmental, recreational, land management, fish and wildlife management and enhancement, water quality control, cultural resources management, and other concerns into the water supply and power generation actions of Reclamation, are one example. Reclamation also plans to identify water supply needs for consumptive and non-consumptive purposes in Reclamation States in the next 25 years that are likely to be unmet with existing resources.

The fiscal year 2006 budget proposes to re-allocate repayment of capital costs of the Pick-Sloan Missouri Basin program. Power customers would be responsible for repayment of all construction from which they benefit, whereas to date they have only been responsible for a portion of the costs. This change would increase reimbursements from power customers by $33.0 million in 2006, and declining amounts in future years. Rate increases for power customers could be phased in over time. Authorizing legislation will be submitted.

The fiscal year 2006 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. In cooperation and consultation with the State, tribal, and local governments, along with other stakeholders and the public at large, Reclamation offers workable solutions regarding water and power resource issues that are consistent with the demands for power and water. With the need to pursue cost effective and environmentally sound approaches, Reclamation's strategy is to con-

tinue to use the Secretary's four "C's:" "Conservation through Cooperation, Communication, and Consultation". These principles provide Reclamation an opportunity, in consultation with our stakeholders, to use decision support tools, including risk analyses, in order to develop the most efficient and cost-effective solutions to the complex challenges that we face.

Moreover, Reclamation's request reflects the need to address an aging infrastructure and the rising costs and management challenges associated with scarce water resources. As our infrastructure ages, we must direct increasing resources toward technological upgrades, new science and technologies; and preventative maintenance to ensure reliability; which will increase output, and improve safety.

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 you may have at this time.

PREPARED STATEMENT OF J. RONALD JOHNSTON

Senator BOND. Thank you very much Mr. Keys. Ronald Johnston has submitted a statement which will be included in the record as well.

[The statement follows:]

PREPARED STATEMENT OF RONALD JOHNSTON

My name is Ronald Johnston. 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 2006 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 her 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 Commission, and the Ute Indian Tribe, and to assist in administering the responsibilities of the Secretary under the Act.

The 2006 request for the Central Utah Project Completion Account provides $34.4 million for use by the District, the Commission, and the Department to implement Titles II–IV of the Act, which is $13.3 million less than the 2005 enacted level. A substantial portion of this decrease is due to a transfer of budgetary authority and responsibility from the Department of the Interior to the Western Area Power Administration (WAPA). WAPA is requesting $6.7 million for this purpose, and will transfer it to the Department of the Interior for use on the CUP. Of those funds, some will go to administrative expenses for the Mitigation Commission, and the balance will be added to the corpus of the Utah Reclamation Mitigation and Conservation Account, which is projected to have a balance of $150 million by the end of fiscal year 2006.

The funds requested for the District ($31.3 million) will be used to fund the balance of the Federal share of the completed Diamond Fork System ($14.6 million); to continue construction on Uinta Basin Replacement Project ($12.2 million); and to implement water conservation measures, local development projects, and continue planning and NEPA compliance for the Utah Lake System ($4.5 million).

The funds requested for the Mitigation Commission ($946,000) will be used to implement the fish, wildlife, and recreation mitigation and conservation projects authorized in Title III ($475,000); to implement the fish and wildlife activities associated with the Uinta Basin Replacement Project ($210,000); and to complete mitigation measures committed to in pre-1992 Bureau of Reclamation planning documents ($261,000). We note that the Mitigation Commission has approximately $19 million in prior year carryover balances that will make it possible to carry out a wide array of scheduled activities in 2006.

Finally, the request includes $2.1 million for the Program Office. This includes $1.7 million for program administration, and $397,000 for mitigation and conservation projects outside the State of Utah and for operation and maintenance costs associated with instream flows and fish hatchery facilities.

In conclusion, we appreciate the opportunity to testify before the committee and would be happy to respond to any questions.

WATER 2025

Senator BOND. I would ask you how you respond to claims made by environmental groups that Water 2025 does not do enough to restore rivers and is therefore a missed opportunity, and that the initiative is merely a repackaging of previous Bureau activities.

Mr. KEYS. Well, Mr. Chairman, that's a good question. The approach that we've taken is to look throughout the western United States to find those areas where there are crises looming on the horizon, if they're not there already, because of exploding populations, because of new water requirements for industry or the Endangered Species Act or other recreational needs. They're hotspots on our map in that people could be short of water within the next 20 to 25 years.

What we're trying to do there is through water conservation, use of new technologies, other cooperative agreements, and the infusion of seed money for projects encourage those people to stretch the existing water supplies much further than they have been doing. So to say that it's repackaging, let me just give you an example from the fiscal year 2004 program. We had $4.5 million for challenge grant programs that money was leveraged in projects that exceeded $30 million in total cost. So the monies we put into it were leveraged in excess of seven times to address water conservation. So I would certainly not see that as repackaging of old ideas.

Mr. WEIMER. Mr. Chairman, may I add to that?

Senator BOND. Please.

Mr. WEIMER. When we worked with Secretary Norton to craft this program, we targeted it, and we have been criticized for doing that. We've been criticized by environmentalists for not including in the program some of the things that they thought were important. We've also been criticized by people on the water supply side for not including in our grants new substantial water storage. We had to target it because it was a small program, a growing program that we wanted to have an impact. As Commissioner Keys said, we believe that through leveraging, we are beginning to see that impact now that we're in the third year of the program.

WATER STORAGE

Senator BOND. Thank you. A general question on the administration's 2006 budget proposal, how does it address the ever increasing water needs in the West, particularly the need for increased water storage, and what is the administration's position, I think you mentioned to it, and alternative funding mechanism such as allowing guarantee program or water trust fund?

Mr. KEYS. Mr. Chairman, we have a number of efforts underway. Looking at new storage in the CALFED bill we talked about, there's $10 million for new storage studies. There are four main projects there: the raising of Shasta Dam, the enlarging of Los Vaqueros reservoir, working with the State on Sites Reservoir, and

looking at new storage in the San Joaquin basin and the Temperance Flats area. We're working in the State of Washington in the Yakima basin on a storage study for that basin. We're building a new project in Southwestern Colorado, the Animas-La Plata Project, so there are studies of storage going on there.

I would certainly say that we are looking in those areas where we might need new storage. The water conservation efforts that we have underway at sometime will point to where we need new storage.

Senator BOND. Alternative funding?

Mr. KEYS. I'm sorry, I almost forgot. Thank you for reminding me. One of the things that we're trying to see is how we can keep our aging infrastructure functioning for years to come. Over the years in Reclamation, we lost those funding mechanisms we had: the Small Reclamation Project Loan, the Rehabilitation and Loan Program, and Drainage and Minor Construction Program. We're trying to look at a guaranteed loan program that we will work with the Department of Agriculture to implement the program would give us and our water users funding mechanisms to address maintenance work that may be overdue on some of their projects and to look at new storage.

I was asked the other day, what a dam in the future might look like, or a reservoir. I think if you look at the physical structure, it will be almost the same, but if you look at the funding mechanism behind it and the storage in the reservoir, it will probably be much different because of the cooperative agreements between the Federal Government and the States, the counties, municipalities, and other groups that fund the project and have water in there to operate. Certainly the challenge grant program would fit very well into that.

Senator BOND. Thank you very much gentlemen, I have a 3:30 compelling appointment that is set up, so I'm going to turn the gavel over to Senator Allard, a distinguished member of the committee and I would ask him to continue as long as he feels it's necessary and then to conclude the hearing. And I thank you very much for your testimony, thank you Senator Allard.

Senator ALLARD [presiding]. Thank you, Mr. Chairman. I want to start off with a question that's a little bit astray. But you do, the Bureau of Reclamation, control water releases from Lake Powell, is that correct?

Mr. KEYS. That is correct.

LAKE POWELL

Senator ALLARD. Then you're familiar with the 8.23 release requirement—8.23 million release requirement there at Lake Powell?

Mr. WEIMER. Yes, we are.

Senator ALLARD. Apparently there's an argument going on as to whether you have the authority or not to, in some cases not to release that water. The water interest in Colorado think you have the authority to hold the water to restore levels in Lake Powell up to where they're adequate, and apparently there are some other interests that are arguing otherwise. I just want to know what you feel about that particular issue. Because everybody on our side is in agreement that you should be holding that so we don't get a

draw that breaks the Colorado River compact agreement in Colorado. I'd like to hear your comments on that, if you would, please.

COLORADO RIVER

Mr. WEIMER. Senator Allard, we are spending a substantial amount of time looking at this issue right now. In fact, John and I were both on a teleconference call with the seven basin States yesterday, monitoring their progress and discussions on how to handle a shortage on the Colorado River.

The Secretary has committed this month, April, to conducting a mid-year review of the annual operating plan for the Colorado River. One of the key elements of that is how much water should go through Glen Canyon Dam. We have been working with her, with the seven States in trying to identify what the options are. Clearly, if the drought were to deepen and continue, Lake Powell will continue to go down and you could lose the ability to generate power there within a couple of years. There's a little bit of good news in that this year, the April 1 runoff reports we just received for both the upper and lower basins indicate that we have a better-than-normal year. We will be getting some more inflows into Powell and the lake is projected now to come up about 45 feet.

Senator ALLARD. Southern Colorado has had their snow fall at about 200 percent of normal, northern Colorado I think we're at normal, maybe just a little bit below normal. This is an important issue to the State. So I wanted to get that question out there on the record and let you know that I'm concerned about it.

Mr. WEIMER. Yesterday, we offered to meet with the States in the lower and upper basins, and the seven individual States throughout this month, and we're beginning to set those meetings up to have those discussions.

COST OVERRUNS

Senator ALLARD. Very good, thank you. Now the other question I have is, at a recent Energy Committee meeting on water, the Family Farm Alliance stated that a number of its members had dealt with situations where cost estimates for work that would be done by the Bureau substantially were over the cost of having had the work done, if it had been done by consultants. This is part of the public record apparently in the committee, I didn't happen to be there at the time. Are there situations where you feel it can be done better in the private sector, and what is your reaction to that comment?

Mr. WEIMER. Let me start, if I may Senator, and then invite Commissioner Keys to respond. We're well aware of those criticisms, and some of them are valid. We have commissioned a study by the National Research Council, National Academy of Sciences, which began last month and which we hope to have finished before the end of the year, looking at this very issue, which is the future organization of the Construction Management components of the Bureau of Reclamation. We've certainly heard criticisms over the last several years, that's one of the reasons we went to the Secretary and said we really think we need to get an independent study. That is what we're doing this year.

Senator ALLARD. So your plan right now is that you're going to have a study and see what that shows, and if that shows some validity to it, then you move forward?

Mr. WEIMER. That's correct, although we have had some internal studies as well, and I might invite Commissioner Keys to comment on those.

Mr. KEYS. Mr. Chairman, the management of costs estimates is one of the most tricky things that an engineer has to do because the first thing when you talk to a water user they want to know is how much it's going to cost. Of course, we try to accommodate and give them a cost estimate. Typically, it takes several years to get the project up to where it's going, and you reiterate the design several times, and we end up having different cost estimates at the end.

The construction industry is pretty much "on its ear" right now, with the cost of materials around the world. The steel industry, the cement industry, and the diesel fuel costs are just "out of the roof" these days. China has had a severe impact on the supply of both cement and steel. That's a good excuse for a portion of it, but it's not all of it. That is why we're looking for the results of this study.

PERFORMANCE-BASED CONTRACTING

Senator ALLARD. Do you look at performance-based contracting on some of this? We've had some big projects in Colorado, they're cleanup projects, one is transportation—it is a combination of roads and mass transit, and another one is the cleanup of Rocky Flats. These projects had performance-based contracts and it helps them be more forthright on their bidding. Once they get the bid there are incentives in there to do better than what the bid provides for. Do you look at using that kind of mechanism?

Mr. KEYS. Mr. Chairman, we do use performance-based contracts. We use another process even before we even get to the contract, and it's called a value engineering process where we take the cost estimate and the final design, and with a peer group from outside, look at it and see if there's a better way to do it. That has helped some. We're looking at a number of things that we do contract out. There was a requirement by this committee in fiscal year 2003 that we use private contractors for 10 percent of our engineering service, and 2004, 20 percent, 2005, 30 percent, and in 2006, 40 percent, and we are honoring that requirement that was put by this committee.

PERMITTING PROCESS

Senator ALLARD. Thank you, just one more question and I'll let you go. In the permitting process, there was one reservoir project that took 18 years to get going on the project; what recommendations does Reclamation have to streamline the permitting process so that water projects don't dry up on the vine, before they go through the entire process of permitting?

Mr. KEYS. Mr. Chairman, I'm not familiar with the permit you're talking about, because Reclamation doesn't give permits to build reservoirs. We work with a project sponsor to see what they want in a project. Then that project sponsor comes to the Congress and gets it authorized, and then we build it. So I don't know about the

permitting process other than we have to do permits with the Fish and Wildlife Service, with NOAA Fisheries, with—for all of the endangered species, and so forth.

Senator ALLARD. My understanding is the 18 years started after initial authorization by the Congress. I mean it ran from the point of authorization by Congress, until we finally got the permitting.

Mr. KEYS. Mr. Chairman, if you'll give me the name of that one, I would certainly get the details for you, I will tell you over the past few years that we have taken a number of steps to try and streamline this process. We've reorganized several times, and I would say that these days, that 18 years would be out of the norm.

ADDITIONAL COMMITTEE QUESTIONS

Senator ALLARD. Okay. We will get that specific project to you, and we will have some discussion between my staff and your staff, and see what's there. Okay. Thank you very much. I want to thank you for your testimony. And do we leave the record open for comment for a period of time? Okay. The subcommittee will leave the record open for a week, for additional comments and questions and if you get any comments or questions from the Missouri Committee I would ask that you respond expeditiously if you would please.

[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 PETE V. DOMENICI

MIDDLE RIO GRANDE

Question. The Reasonable and Prudent Alternatives specified in the 2003 Fish and Wildlife 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 been working with the BOR Albuquerque Area Office to construct a minnow sanctuary. While the BOR has undertaken some pre-construction activities, there has been some question if the BOR had adequate authority to undertake construction of the sanctuary. I am pursuing legislation in Congress that would provide the authority necessary to construct the project. What is the status of the pre-construction activities underway?

Mr. KEYS. Reclamation is closely cooperating with the U.S. Fish and Wildlife Service and the Middle Rio Grande Conservancy District on the sanctuary project. Reclamation issued a contract order on March 7 for assistance in development of the appraisal level sanctuary conceptual design and preliminary environmental compliance requirements. With the passage of Public Law 109–13 on May 11, Reclamation now has authority to begin actual design work and environmental compliance, now scheduled to be completed by September 2005, with construction to begin as soon as possible thereafter.

Question. Assuming authorizing legislation is passed by Congress, how long following passage will it take to begin construction and ultimately complete the project?

Mr. KEYS. Planning activities are scheduled to be completed so that construction of the project could begin as early as October 2005 if appropriate authority and funding are in place. Construction of the project is expected to take 6 to 9 months.

Question. What do you anticipate will be the total cost for construction and operations of this facility?

Mr. KEYS. Preliminary cost estimates range from $2 million to $10 million for planning, design, and construction of the pilot phase of the sanctuary. Rights-of-way, land and water acquisition, and operation and maintenance expenses were not included in these estimates. Refined cost estimates will become available over the next few months as the design details of the sanctuary are solidified.

Question. Despite encouraging run-off forecasts, there remains a paucity of water in storage in the Rio Grande Basin. The BOR is tasked with meeting compact deliveries and complying with the Fish and Wildlife Service 2003 Biological Opinion.

Meeting the Biological Opinion requires providing water to meet minimum flow requirements.

Over the past 4 years, Congress has provided funding to assure that BOR can meet these obligations. It concerns me that the President's budget proposes an $8 million cut in funding for Middle Rio Grande projects.

Question. How will the BOR meet its statutory and court-ordered obligations with such a greatly decreased budget?

Mr. KEYS. Our challenge is integrating requirements associated with the March 17, 2003, Biological Opinion, the Collaborative Program, and the Recovery Plan currently being developed in the Fish and Wildlife Service. We believe the fiscal year 2006 budget request, which is $1 million more than the fiscal year 2005 request, is sufficient to meet the requirements of the Biological Opinion for fiscal 2006.

Question. Where does the BOR anticipate it will get water from this year in order to meet the regulatory requirements?

Mr. KEYS. Reclamation currently has in storage about 30,000 acre feet of water to meet the minimum water flows required by the 2003 Biological Opinion for the endangered Rio Grande silvery minnow and Southwestern willow flycatcher. With the above-average precipitation in the Rio Grande Basin, the water in storage should be enough to meet these requirements during 2005. In addition Reclamation will pursue leasing additional water from San Juan-Chama contractors.

Question. Pursuant to the 1982 agreement between the MRGCD and the six Middle Rio Grande Pueblos, the BOR is responsible for delivering water to meet the Pueblos "prior and paramount" rights. The BIA was also given authority to ensure that these obligations were met. The signatory Pueblos rely upon the BOR to deliver the water that they hold rights to in order to irrigate over 8,000 acres of land. The Pueblos question if the BOR is delivering water consistent with the 1982 agreement and has questioned if the BIA is fulfilling its trust responsibility. Furthermore, the Pueblos rely on the BOR for irrigation infrastructure which has fallen into a state of disrepair and needs to be upgraded. How does your department plan to resolve the conflict that has arisen between the BIA, BOR, and Pueblos?

Mr. WEIMER. The Department of the Interior established a technical team consisting of representatives from Reclamation, the U.S. Geological Survey, and the Bureau of Indian Affairs to evaluate potential differences regarding the interpretation of the 1981 Agreements in "prior and paramount" storage calculation procedures and to provide recommendations. This review, as well as further discussions with the Pueblos and others should help resolve any remaining issues regarding "prior and paramount" storage.

Question. Does the department have any plans to quantify Indian rights?

Mr. WEIMER. No adjudication of water rights, including Pueblo water rights, has been instituted on the Middle Rio Grande.

Question. How does the BOR plan to upgrade and maintain the Pueblo water delivery infrastructure?

Mr. KEYS. Portions of the six Middle Rio Grande Pueblos irrigation infrastructure fall within the boundaries of the Middle Rio Grande Project and can be served by Reclamation. There are two types of facilities that deliver water to Pueblo lands: Middle Rio Grande Project facilities that deliver water to a Pueblo as a whole and facilities which are tribal-owned that deliver water to individual farms. Reclamation works with the Middle Rio Grande Conservancy District to ensure that Middle Rio Grande Project facilities are maintained, including those which deliver water to the Pueblos. Reclamation has no legal authority to rehabilitate Pueblo on-farm ditches. Rather, the Bureau of Indian Affairs has responsibility and authority to work on non-Reclamation Project systems on Pueblo lands.

Question. Is funding available for these purposes through Water 2025 or other grants?

Mr. WEIMER. Congress has specified that the Middle Rio Grande Conservancy District receive about $3 million under Water 2025 for water conservation and infrastructure improvements. A Water 2025 contract has been awarded to the District for specific work activities on four of the six Pueblo facilities within the Middle Rio Grande Project. The completed work will benefit all six Pueblos with improved water delivery, management, and efficiency.

In addition, Reclamation has authority to expend general planning and technical assistance funds, as well as funding from its Native American Affairs Program to assist tribal governments with plans to protect, manage, and develop water and related resources.

Question. How do you plan to meet these trust responsibilities?

Mr. KEYS. The Bureau of Reclamation has taken and will continue to take actions authorized under Reclamation law which benefit Indian tribes. To the extent that

Reclamation can act pursuant to law to protect trust assets of Indian tribes and provide them water resource assistance, Reclamation will do so.

ANIMAS-LA PLATA

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 $52 million for the project in fiscal year 2006. However, some of the project beneficiaries claim that the project requires $75 million in fiscal year 2006 to keep it on schedule. This project is of great importance to the communities of northern New Mexico and southern Colorado. Do you believe that the $52 million requested by the administration is adequate to keep the project on schedule?

Mr. KEYS. The amount requested by the administration is adequate to maintain the current schedule.

Question. What precautions are being taken to ensure that there are not further cost overruns with the project?

Mr. KEYS. We have made several significant changes in one approach to management of Animas-La Plata construction and coordination with sponsors. We have made changes to streamline reporting on accountability within Reclamation for the ALP. The ALP 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. Additional 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 monthly basis.

Question. How is the BOR addressing recent environmental challenges?

Mr. KEYS. Funding for the completion of the cultural and environmental mitigation features of the project has been given a high priority within the ALP project budget. Although construction of project facilities has been faced with many environmental challenges, ranging from controlling extreme flood events to protection of nesting golden eagles, these challenges have been resolved in a timely fashion. All environmental compliance and mitigation obligations are currently either being met or are on schedule to be completed concurrent with project facility construction.

WATER TECHNOLOGY R&D

Question. Recent drought and population growth in the western United States requires that we make more efficient use of water and develop technologies to make use of previously impaired or unusable water. During the 1960's, the Federal Government funded extensive research in water technology which resulted in reverse osmosis—the desalination technique most widely used today.

I believe that the Federal Government should renew its investment in water treatment technology. Toward this end, I have funded construction of a Tularosa Basin Desalination Research and Development center in New Mexico. Also, I plan to introduce legislation this year that would create a program to develop the next generation of water treatment technologies. What do you believe is the Federal Government's role in water technology research?

Mr. WEIMER. The administration is currently evaluating Federal research and development efforts in desalination, to clearly establish long-term goals and ensure that our efforts are carried out in accordance with the administration's Research and Development Investment Criteria, and that these efforts represent the best investment of Federal resources.

Question. As you are aware, the authority for the BOR's Water Desalination Research and Development Act of 1996 expires this year. Do you believe that this program should be reauthorized and with what changes?

Mr. WEIMER. Yes. Public Law 104–298, the Water Desalination Research and Development Act of 1996 (the Act), authorizes the award of desalination research grants and contracts. Extended authority would enable Presidential requests and Congressional appropriations for these purposes to continue under this Public Law. We do not recommend changes to the program at this time.

RURAL WATER LEGISLATION

Question. As you are aware, my staff has been working with the BOR and the minority staff to develop legislation to aid small and rural communities to meet their often extensive water needs. Many western communities rely on aquifers for water that will be depleted within the next decade. This fact makes the situation especially desperate.

There are also rural water programs within several other agencies. However, they are not as broad is scope and not of the scale that would allow many communities to make use of them.

Furthermore, it is my belief that the BOR has the technical expertise to undertake such a project. Is a rural water program a new authority that you feel would be appropriate for the BOR to undertake?

Mr. KEYS. Yes, we believe that legislation to establish a rural water program would enable the Secretary, through the Bureau of Reclamation, to set priorities and establish clear criteria and guidelines for the rural water supply projects authorized by Congress for Reclamation's involvement. Although the administration supports establishing a formal rural water program within the Bureau of Reclamation, the President's fiscal year 2006 Budget states that a recommendation regarding potential consolidation and re-alignment of the Federal rural water programs will be forwarded to a proposed "Results Commission." The administration will purse both options simultaneously.

Since the early 1980's, Congress has directed Reclamation to develop 13 independently authorized, single-purpose municipal and industrial water supply projects for rural communities throughout the West. In the course of developing the 2004 budget, Reclamation participated in two performance assessments—the Program Assessment Rating Tool (PART) and a review to develop a set of common performance measures for all Federal agencies that play a role in delivering water to rural areas. Both assessments found shortcomings in Reclamation's involvement in rural water projects, mainly due to the lack of a formal rural water program. Consistent with the assessments' recommendations, legislation was introduced in the 108th Congress that would allow the Department of the Interior to set priorities and establish a Reclamation rural water program with adequate controls and clear guidelines for project development. We are continuing to work with the Committee staff on this effort in the 109th Congress.

Question. What form do you see this program taking?

Mr. KEYS. During the 108th Congress, the administration submitted legislation (S. 2218), to establish a rural water program within the Bureau of Reclamation. While there was a hearing before the Senate Committee on Energy and Natural Resources in March, 2004, no further action was taken on this bill, or on the two other proposals (S. 1732 and S. 1085) that were introduced by Chairman Domenici and Senator Bingaman respectively before the 108th Congress adjourned. Since the beginning of the 109th Congress, we have been working very closely with the Senate Energy Committee staff from both the majority and minority sides to brainstorm solutions to address the complicated issues we are facing and we believe that we have narrowed issues that require more work. As you may be aware, Chairman Domenici and Ranking Member Bingaman, along with several other committee members have introduced S. 895 to establish a rural water program within the Bureau of Reclamation. It has been a pleasure to be a part of this bi-partisan process which we hope very much will culminate in enactment of a rural water program that meets the fair expectations of rural communities and U.S. taxpayers. The fact that there is but a single rural water bill before the committee in this Congress reflects the positive spirit of consultation and collaboration among this committee's bi-partisan leadership and the Department. We look forward to continuing the effort to work through the remaining issues and move ahead with this proposal on a bi-partisan basis.

Question. Do you feel that a loan guarantee program is a viable mechanism to aid rural communities?

Mr. KEYS. A loan guarantee program could offer many mechanisms for providing assistance to communities to develop rural water projects. One concern is the capability of rural communities to pay off these interest-bearing loans when they would also be paying 100 percent of the annual operation, maintenance and replacement costs for these water facilities. We are currently evaluating budgetary, programmatic, and staffing implications for the Bureau.

WATER 2025

Question. The Bureau of Reclamation has advocated for the new Water 2025 program for 2 years and the administration has now proposed $30 million for fiscal year 2006 to carry on these activities. The administration has been articulate about the tools used to implement this program to include cooperation, new water treatment technology and so forth, but the actual goals of the program are not clear. Can you re-articulate the concrete goals of the Water 2025 program and provide us with an assessment of how these goals are being met with the first 2 years of investment?

Mr. KEYS. The overarching goal of Water 2025 is to help prevent crises and conflict over water in the West. Water 2025 can reach this goal by using the most effective low-cost options for increasing water supplies that are available, including: (1) Conservation, Efficiency, and Markets, (2) Collaboration, (3) Improved Technology, and (4) Remove Institutional Barriers and Increase Interagency Cooperation. In an effort to strengthen and further focus Water 2025, the program is currently developing measurable program goals and performance measures to track progress toward those goals.

In the 2 short years since Water 2025 was initiated, the program is already making progress towards preventing crisis and conflict over water in the West. We are very pleased with the enthusiastic response to the fiscal year 2005 Challenge Grant Request for Proposals, having again received over 100 proposals for Challenge Grant funding for the second year in a row.

The fiscal year 2004 Challenge Grant Program demonstrated how leveraging the Federal investment can provide tremendous benefits. For the $4 million available for the fiscal year 2004 Challenge Grant Program, 19 projects were selected in 10 different States. These projects represent a total of almost $40 million in on-the-ground water delivery system improvements, including Reclamation's contribution of $4 million and a non-Federal contribution of approximately $36 million. This represents a 10 percent investment from the Federal side. These projects broke ground in 2004 and will be completed by the fall of 2006.

While not all of the 19 projects have been completed, significant progress is being made. For example, the Mancos Water Conservancy District in Colorado has already installed five different types of canal lining materials along five sections of their inlet canal which are now being tested to determine which technique is most effective. Durability, application methods, and repair methods will be documented during the test, and the District will use the results to determine the best way to line the entire canal. The San Juan Dineh Water Users Association (Association), which serves water users in the Navajo Nation near Shiprock, New Mexico, is using its Challenge Grant to replace three unlined canal laterals with underground pipelines, potentially saving 5,500 acre feet per year for the Association's water users. The Association has nearly completed work on one of the laterals and will begin construction on the other two this fall. This project will decrease demand on the San Juan River, which will benefit endangered fish, and will ensure equitable distribution of water among the Association's water users, helping to preserve Native American farming methods.

The deadline for submittals to the fiscal year 2005 Challenge Grant Program was January 21, 2005. For the $10 million available in fiscal year 2005, we received 117 proposals requesting $35.5 million in Federal assistance $10 million more than was requested in fiscal year 2004. The 117 proposals represent $115 million in water delivery system improvements across the West, with $79.5 million proposed to come from non-Federal matching funds. Reclamation just announced the 43 projects in 13 States selected for funding. The $9.9 million in Federal grants awarded equates to more than $27 million in improvements.

In fiscal year 2004, Reclamation also entered into a cooperative agreement with the Middle Rio Grande Conservancy District (District) through the Water 2025 Program for water conveyance system improvements. This project will improve and modernize irrigation water conveyance facilities to increase efficiency, reduce system losses due to seepage and evaporation, and improve water management in the Middle Rio Grande Valley. System improvements include replacement of turnouts and old gates, concrete lining of canals, telemetry and measuring devices, automation and a computer system able to manage hundreds of gates with information published on the internet for improved management of the flows of the Rio Grande River. These improvements are intended to reduce diversions by the District, so that it can retain more water in upstream storage to meet future demands. Work on these improvements is currently underway and is anticipated to be completed by December 2007.

TULAROSA BASIN DESALINATION FACILITY

Question. The Bureau of Reclamation has led the development of the Tularosa Desalination Demonstration test facility in New Mexico for 3 years. I enjoyed my recent visit to the site accompanied by Representative Pearce of New Mexico. The demonstration of the Office of Naval Research's expeditionary unit was well done. The partnership between the BOR, the Office of Naval Research and the Department of Energy represented by Sandia National Laboratories is a priority for me and I am anxious to have the facility completed and serving its intended purpose.

Is the BOR committed to complete this project and use it to its fullest extent possible?

Mr. KEYS. Yes, Reclamation is committed to getting the facility up and running as soon as possible. Reclamation, its contractor, and the designer are working closely to reduce overall costs and ensure that the construction schedule can rapidly execute completion of the facility as construction funding is made available.

Although the building is not yet completed, our strategic approach to construction allowed demonstration testing of the Navy's expeditionary unit to get underway at the end of April 2005. Under current funding and scheduling scenarios, the earliest the building will be available and able to offer the full scope of capabilities is 2006.

The facility is designed to attract researchers from the private sector, universities, cities, States, other Federal agencies, and interested international entities. Testing on improvements and cost reductions for inland brackish desalination processes will be carried out through research studies, pilot plant testing, and small demonstration testing. Currently, it is envisioned that the research areas will focus on the unique attributes of the facility to support studies on improved brackish desalination technologies, concentrate disposal, renewable energy driven processes, new innovative processes for brackish desalination, and small rural systems.

Many companies, universities, and government partners have expressed interest in the availability of the facility. Every effort will be made to involve these potential partners in the research work at the facility.

Question. What is the BOR doing to plan for this future and what are those plans?

Mr. KEYS. A business plan is being developed. A draft will be available at the end of fiscal year 2005. The business plan will identify the organizational structure, a more refined estimate of operation and maintenance costs, potential revenue sources, and an identification of research opportunities based on their alignment with the Administration's Research and Development Investment Criteria.

Research will be carried out through several different vehicles, (e.g. intramural, cooperative agreements, Cooperative Research and Development Agreements (CRADAs), and interagency partnerships with the Navy, Army, EPA, Sandia, and others). The business plan will identify future opportunities for external input by interested parties.

Question. What has the BOR done to strengthen and expand the interagency relationships so critical to the success of our national efforts?

Mr. KEYS. Efforts to strengthen and expand interagency relationships have been undertaken by Reclamation. In 1992, the Interagency Consortium for Desalination and Membrane Separations Research was created to leverage Federal Government resources. The consortium has been a grassroots organization which has been able to share expertise across government agencies such as the Army, Navy, EPA, Reclamation, National Institute for Standards and Technology and others. The best known outcome from this relationship has been the partnering among the Navy, Reclamation, and the Army on the Expeditionary Unit for Water Purification currently under testing at the Tularosa Facility. In an effort to expand the consortium's reach, the national laboratories were invited to the fiscal year 2004 annual consortium meeting to make presentations on their missions and programs.

Reclamation has also engaged in a successful collaboration with Sandia National Laboratories in the development of both the Tularosa facility and the desalination research roadmap. The roadmapping process currently involves other agencies in an effort to coordinate mission specific needs and to address national priorities in a timely and systematic manner.

NEW MEXICO PROJECT OPERATIONS IMPROVEMENTS

Question. Both the contractors for the San Juan Project and the contractors for the San Juan Chama Projects in New Mexico have contacted the BOR about their desire to discuss optimization of the operations of the facilities in those projects. They feel that the Bureau has been slow to respond to their requests for consultation. Will the BOR commit to consultations with these contractors to evaluate proposals for modification to the operations of these projects seeking to improve the yield of the projects?

Mr. KEYS. We believe this question refers to Santa Fe's request for carryover storage in Heron Reservoir. Reclamation has discussed this request with the contractor and will continue to do so. At this time, Reclamation believes it has no authority for carryover storage. However, Reclamation is involved in the Upper Rio Grande Water Operations EIS, which is attempting to optimize water operations under existing authorities.

Question. Will you include our office in the discussions?

Mr. KEYS. Yes, your office will be included in the discussions.

MIDDLE RIO GRANDE ESA COLLABORATIVE PROGRAM

Question. The Middle Rio Grande area in central New Mexico has been in turmoil over addressing requirements of the Endangered Species Act for the Rio Grande Silvery Minnow and the Southwest Willow Flycatcher. Since 2001 the Middle Rio Grande Collaborative Program has attempted to use collaborative efforts to address these issues and avoid unproductive litigation. The program has made great progress in development of a long-term plan and to implement projects consistent with the 2003 Biological Opinion's Reasonable and Prudent Alternatives. However, the decision and administrative structure of this program has yet to function efficiently. It is my goal to finalize the organization of this program and to introduce authorizing legislation to fully implement it. Will your two agencies (Army Corps of Engineers and Reclamation) commit to working with my staff in developing a final organization and moving this program forward in a positive manner?

Mr. KEYS. Yes. We are committed to working with your staff and the Corps in developing the final organizational structure and moving the program forward.

The Collaborative Program is currently developing a governance structure with anticipated completion within the next few weeks. Reclamation is providing input into this process. Reclamation's Albuquerque Area Manager met with members of your staff on April 12, 2005, to discuss Reclamation's organizational proposal for the Collaborative Program.

Question. Will the BOR commit to streamlining and providing the full administrative and contracting resources needed to implement this program and thus overcome current and historical problems?

Mr. KEYS. Yes. Reclamation will support the administrative and contracting needs of the Program while seeking opportunities to streamline processes.

Question. Will BOR commit to increasing the engagement of the Executive Committee?

Mr. KEYS. Yes. Reclamation will work with the Program's signatories towards increasing the engagement of the Executive Committee.

TRINITY RIVER

Question. As you know, the Federal Court of Appeals recently upheld the Trinity Record of Decision. As a result, Trinity River flows will now vary between 369,000 and 815,000 acre-feet per year (excluding safety of dam releases). This represents an average flow increase of approximately 260,000 acre-feet per year.

Water diverted from the Trinity River to the Sacramento River flows through three different power plants, generating 1,100 kWh for every acre foot of water. With this water no longer being diverted to the Sacramento River, the output of the Central Valley Project power system will be reduced by almost 10 percent.

According to the public power customers in Northern California, they will incur $15 million to $22 million in costs per year to replace that power. Does the Department agree with that assessment?

Mr. KEYS. The Department's power value estimate was based on a consultant's forecast of energy prices and these are comparably lower than that claimed by some Northern California power customers. The Environmental Impact Statement/Report and the Supplemental Environmental Impact Statement provided detailed analysis of the potential impacts associated with increased flows in the Trinity River and resulting associated decrease in Central Valley Project generation. The amount of foregone generation (kilowatt-hours) is generally agreed upon but the value of that generation is where differences often occur. For instance, based on the Record of Decision flows, the value of foregone CVP generation forecast by the Department's consultants is $7.2 million to $21.2 million depending on the water year type. It is also noted that the CVP is operated as an integrated project incorporating several major rivers. Focusing on perceived Trinity River flow changes alone does not represent an entirely accurate assessment of CVP-wide impacts. As an illustration, reducing Trinity River diversions to the Sacramento River will likely require additional releases from Shasta Dam in order to meet those same Sacramento River flows previously augmented by the Trinity diversions. This means higher Shasta generation would then be produced and such generation will, in effect, offset some of the lower Trinity generation.

Question. Since the allocation of costs is supposed to track the distribution of benefits, does the Bureau intend to reallocate costs associated with the Trinity Project to reflect this operational change?

Mr. KEYS. The Region currently is developing a formal response to a request that has been received from CVP water and power customers. A forecast schedule for performing the cost-allocation process as well as a budget estimate of its cost is being prepared and will be reviewed with these customers within the next few

weeks. Any such cost-allocation process would include operating conditions in place and expected to be in place in the foreseeable future. As the CVP is operated as in an integrated project, the cost allocation would be CVP-wide and not just focus on the Trinity Project.

Question. If so, when do you expect to have this change in place?

Mr. KEYS. The CVP is an expansive, multi-purpose project with a capital cost allocation base of $3,359 million as of September 30, 2004. The method that has been used to allocate the capital costs of the CVP in the past and the one that would be used to allocate the capital costs of the CVP is known as separable costs-remaining benefits. This method requires estimating not only project benefits but also the costs of "single-purpose alternatives" that would generate the same level of benefits and the costs of project facilities with each project purpose removed.

The two most time consuming and costly tasks in a new allocation would be water and power operation studies and facilities design and cost estimates. Water and power operation studies would need to be performed in order to estimate the power and water supply benefits of the project. This would involve developing basic assumptions, validating them, developing a matrix for computer model runs, performing the runs, and presenting the results. It has been estimated that this process would require at least 4 years to complete and cost at least $4 million.

Appraisal-level cost estimates for at least 50 facilities with multiple operational scenarios and multiple features for each facility would have to be made. This process itself would cost more than $3 million and require 3 years to complete.

Necessary changes to the Trinity River flows have been implemented and will continue to be implemented as required.

O&M COSTS FOR SECURITY

Question. The administration has requested $50 million for site security efforts, an increase of $6.8 million from fiscal year 2005 levels. The budget further proposes that the O&M related security costs will be reimbursable from project beneficiaries. Can the Department make such a change administratively or does legislation need to be enacted?

Mr. KEYS. The proposal is consistent with existing law. Reclamation has the administrative discretion to determine the circumstances in which additional security measures are reimbursable, and proposes that annual costs associated with activities for guarding our facilities be treated as project O&M costs subject to reimburseability based upon project cost allocations. Funding for capital improvements, including physical security upgrades, will remain non-reimbursable.

Question. The Reclamation Project Act of 1939 (53 Stat. 1187) which authorizes Reclamation to enter into contracts to furnish water from its projects provides at Section 9(e): "Each such contract shall be . . . at such rates as in the Secretary's judgment will produce revenues at least sufficient to cover an appropriate share of the annual O&M cost and an appropriate share of such fixed charges as the Secretary deems proper." How does the Department plan to deal with any O&M costs that are related to meeting its Trust responsibilities for Indian Tribes?

Mr. KEYS. Reclamation will allocate O&M costs based on project cost allocations pursuant to individual project authorizations. Where those allocations are reimbursable, the costs will be reimbursed from other sources, including Indian Tribes. Where those allocations are non reimbursable, the cost will not be reimbursed from other sources.

Question. The proposal notes that the "project beneficiaries" will be responsible for these O&M related security costs. Does this include M&I users or will the Department only target power customers?

Mr. KEYS. Reclamation will allocate costs to all authorized project functions which could include in any one project the following types of functions: irrigation, M&I, power, recreation, flood control, fish and wildlife. Although cost will be allocated to all authorized project functions, costs will not be recovered from those functions that are non-reimbursable, i.e. recreation, flood control, and fish and wildlife.

Question. Will the Department consider only the primary purposes of the project or will it consider secondary purposes as well?

Mr. WEIMER. Unauthorized secondary functions have no allocations and therefore, costs will not be reimbursable to those functions.

DROUGHT

Question. The Southwestern United States has been experiencing drought conditions since 2000. The Pacific Northwest is also experiencing water supply shortages and the current snow pack is almost 50 percent below average.

It is my understanding that in your role as Water Master for the Colorado River, you are working with the basin States to develop a voluntary protocol to deal with water shortages. What is the status of the protocol?

Mr. WEIMER. Interior asked the Basin States in the spring of 2004 to provide consensus-based recommendations concerning mitigating the effects of the drought in the Colorado River Basin, for both the short-term, 1 to 2 years, and long-term, more than 2 years. Because of the need to improve coordinated management of the Colorado River reservoirs due to the current and future droughts, Interior held a Work Group meeting on May 26, 2005, in Henderson, Nevada.

Based on input received from the Work Group, the Bureau of Reclamation published "Notice to Solicit Comments and Hold Public Meetings on the Development of Management Strategies for Lake Powell and Mead, Including Lower Basin Shortage Guidelines, Under Low Reservoir Conditions" in the Federal Register on June 15, 2005. To date, the States have submitted one recommendation, asking that the Department of the Interior begin a process with the State Department to engage the Republic of Mexico in shortage discussions.

Question. When will it be completed?

Mr. WEIMER. The public process to adopt shortage guidelines for the Lower Basin would not be completed for at least 2 years. At a minimum, Interior expects to complete the consultation process by December 2007.

Question. Are the States willingly engaged in this effort?

Mr. WEIMER. Yes. In May 2004, Interior asked Reclamation to provide technical assistance to the States with regard to studies that might help them recommend consensus-based measures. The Basin States formed a technical "work group", and have enlisted Reclamation's assistance in studying the effects of various measures, primarily potential water conservation and shortage strategies for the Lower Basin. Reclamation also provides "outreach" to other stakeholders to keep them informed of the issues being considered.

Several workshops and meetings have been held by the technical work group, as well as by the principal decision-makers representing each State.

Question. How are the Department, and the administration as a whole, dealing with the drought situation?

Mr. KEYS. The Reclamation States Emergency Drought Relief Act of 1991 (Public Law 102–250) as amended (Drought Act) authorizes the Bureau of Reclamation to undertake drought relief measures through emergency assistance (Title I) and planning activities (Title II).

Title I provides authority for construction, management, and conservation measures to alleviate the adverse impacts of drought. Only temporary construction activities are authorized, except for the construction of permanent wells. Title I also authorizes temporary contracts to make available project and nonproject water and to allow for the use of Reclamation facilities for water storage and conveyance. The 17 Reclamation States and Hawaii, as well as tribes within those States, are eligible for this assistance. In fiscal year 2006, the request for drought assistance is $500,000.

Over the years, much of the funding appropriated under the Drought Act has been used to reduce effects from drought in several river basins, including the Rio Grande and Pecos River. Also, significant funding has been used to construct wells on tribal lands and for smaller towns and counties. 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 addition to utilizing the Drought Act authority, the Department of the Interior developed Water 2025 to focus Reclamation's financial and technical resources on areas in the West where conflict over water either currently exists or is likely to occur in the next 25 years, even in non-drought conditions. The Water 2025 program identified Hot Spots, geographic problem areas where there are competing demands for water, which are exacerbated by drought. The program proactively seeks to stretch water supplies through conservation, efficiency, and markets, particularly in the Hot Spots. Water 2025 provides additional tools that help minimize drought impacts.

Reclamation's Water Conservation Field Services Program also addresses drought conditions on a proactive basis, providing technical advice and cost-share financing for water management and conservation improvements before a drought hits. Finally, Reclamation Project reservoirs continue to protect against water shortages due to drought conditions. These reservoirs are doing what they were designed to do, and Reclamation programs such as Safety of Dams Program and the O&M Program maintain these facilities to meet the challenges of drought in the West.

Question. If there are multi-agencies engaged in this effort, how are you coordinating them?

Mr. WEIMER. The activities funded by Reclamation through the provisions of the Drought Act are unique to that Act and do not require partnership arrangements. However, through its Water 2025 program, the Department of the Interior is working with local entities and States to improve water management through conservation, efficiency, and markets, and to improve advanced water purification technologies.

Reclamation is also working closely with other Federal agencies, associations and water users both at the Reclamation project level and at the agency level to improve the management, efficiency and conservation of water in the West. These efforts help to stretch otherwise limited water supplies and protect water users in the event of drought. Through the Water 2025 tool of improving interagency cooperation, Reclamation has established MOU's with the Army Corps of Engineers, the "Bridging the Headgates" partners, and is working with the Department of Agriculture to establish an MOU that would initiate cooperation on water management programs and activities of mutual benefit. Reclamation is also working with the USDA to deploy drought action teams in drought stricken areas of the West to coordinate the communication and delivery of drought-relief resources to affected users.

In operating our facilities, we work closely with other agencies (Corps of Engineers, NOAA, State and local governments, irrigation districts, etc.) to monitor and share data that pertain to water conditions. We coordinate water management activities (releases and timing) with those entities to help minimize effects of the drought on communities and citizens of the West. Water rights have previously been adjudicated in the upper Sprague River Valley, west side of the Wood River valley, and the Lost River basin; additionally there are abundant post-1909 certificated water rights upstream of Upper Klamath Lake. If funded, interest from willing sellers would be solicited and offers evaluated in terms of price, transferability, and yield. It is also expected that substantial information would be gained in exercising the Oregon State water-right transfer mechanisms since they have not previously been used in this basin. Such information would also be of interest to Klamath Project Irrigators who may want to acquire senior upstream water rights. Appropriations language was included with the administration's budget request for this pilot program to assure that if lands or other interests in lands were acquired along with the water rights that they would have to be sold back into the private market.

KLAMATH RIVER BASIN

Question. In a time when many programs are experiencing significant cuts, the administration's fiscal year 2006 Budget requests $62.9 million for the Klamath River Basin. This represents an 8.4 percent increase from the fiscal year 2005 funding levels. Why did the administration prioritize funding for the Klamath River basin?

Mr. WEIMER. The administration chose to prioritize the funding for the Klamath River Basin due to the problems encountered from several consecutive years of drought, and the high level of controversies in the basin over Interior's responsibilities. The fish species are tribal trust resources, as well as being listed under the Endangered Species Act. Efforts to provide increased lake levels and river flows for the fish have also had a large and lasting effect on the agricultural economy of the Klamath Basin and commercial and sports fishing downstream. Efforts to restore habitat, improve water management, investigate the development of potential new storage options and sources of water will contribute to stabilizing the cultural and economic well being of the basin. The Department is developing and implementing long-term solutions to the water problems in the Klamath Basin.

Question. The Budget notes that Interior is in the process of putting together a water bank of approximately 100,000 acre-feet to help meet the water needs for coho salmon. Please explain this effort.

Mr. KEYS. In 2001, Reclamation conducted a 1-year pilot demand reduction program which provided a payment to irrigators in lieu of applying surface water to land previously irrigated. In 2002, 2003, and 2004, a pilot water bank program was implemented to assist in meeting National Oceanic and Atmospheric Administration Fisheries (NOAA) Biological Opinion (BO) requirements for threatened salmon in the Klamath River. The pilot water bank consists of compensating agricultural water users to either forebear use of water, substitute groundwater for surface water, or pump ground water to increase the supply. The results of the pilot water bank program for the various years have been or are being reviewed by Cal Poly-San Luis Obispo and the U.S. Geological Survey. Reclamation refines the water

bank program each year, changing its selection process, contracting process, and program rules based on what was learned in previous years to meet its increasing obligations. For example, in 2002 Reclamation paid a flat fee per acre foot of water. Since then they have instituted a new process where landowners offer to enroll their lands in the water bank by bid. The least expensive, highest yield lands receive priority.

Question. Is this supported by the Klamath River stakeholders, including the environmentalists?

Mr. KEYS. The stakeholders support the Water Bank generally as a short-term solution, but not for the long-term. The water bank has been successful in that large numbers of irrigators have voluntarily signed up for it, and it has allowed Reclamation to meet the requirements in the NOAA Fisheries and Fish and Wildlife Service biological opinions and provide sufficient water to meet the need of contracts for irrigation. The high annual cost of the water bank is problematic, and the water bank is viewed as a temporary solution while long-term solutions are developed. Water users are seeking assurance of a water supply which the water bank does not provide, and are concerned that idling land will negatively affect agribusiness in the basin. The environmental community and the tribes support the concept of a water bank; however, they believe 100,000 acre feet annually is insufficient and that lands should be permanently retired.

Question. I would also like to know more about the $500,000 requested for a Fish and Wildlife Service prototype program to acquire and transfer water rights to the wetlands in the Klamath Basin refuges. Will the Department buy or lease these water rights?

Mr. KEYS. The intent is to buy the water rights.

Question. Have you identified people who would be willing to let the Department acquire their water rights?

Mr. WEIMER. The administration's request to fund the FWS water rights acquisition pilot program is designed to test the market for water right acquisitions and the Oregon water right transfer procedures for transferring water rights to the FWS refuges. Currently, Lower Klamath Lake and Tule Lake refuges are mostly dependent on tailwater from irrigated lands for their water supply, and the refuges are disproportionally hard hit during dry years. A substantial amount of water-righted land is always on the market in the basin, but no specific water rights for the program have been pre-identified. Water rights have previously been adjudicated in the upper Sprague River Valley, west side of the Wood River valley, and the Lost River basin; additionally there are abundant post-1909 certificated water rights upstream of Upper Klamath Lake. If funded, interest from willing sellers would be solicited and offers evaluated in terms of price, transferability, and yield. It is also expected that substantial information would be gained in exercising the Oregon State water-right transfer mechanisms since they have not previously been used in this basin. Such information would also be of interest to Klamath Project Irrigators who may want to acquire senior upstream water rights. Appropriations language was included with the administration's budget request for this pilot program to assure that if lands or other interests in lands were acquired along with the water rights that they would have to be sold back into the private market.

O&M COSTS FOR SECURITY

Question. With regard to the treatment of security costs for Reclamation facilities following the events of 9/11/01, what consideration have you given to a "risk of loss" assessment in developing an equitable allocation of costs to all of the multiple purposes and beneficiaries of the facilities?

Mr. KEYS. Reclamation has conducted comprehensive security risk assessments at all critical facilities, evaluating vulnerabilities, threats and consequences (including loss of mission, loss of life, and public safety). Based on these assessments, Reclamation has developed risk management strategies to protect the public, its employees, and the facilities and their mission. Reclamation does not allocate project costs based on "risk of loss" but allocates costs based on the project benefits portion of operations and maintenance costs in accordance with established Reclamation law and policies.

Question. What steps has Reclamation taken to mitigate the level of security costs for guards and surveillance?

Mr. KEYS. Reclamation has taken several steps to mitigate the level of security costs for guards and surveillance. In July 2004, Reclamation revised its Threat Condition Protective Measures to eliminate the across-the-board requirement for random patrols at yellow and orange National threat levels for specific classes of facilities. The need for increased patrols and surveillance due to changes in threat condi-

tion is now determined based on local conditions, such as local or regional threats, existing electronic surveillance systems, and the presence of on-site operations and maintenance staff.

Reclamation also eliminated across-the-board patrol requirements for dams when the water surface elevation is reasonably low, for example during drought conditions. Reclamation has also reviewed the need for guards and surveillance at several facilities and has examined alternatives such as modifying contracts from routine daily patrols to "as needed" contracts that are only exercised under certain conditions.

Question. Has Reclamation considered a user fee program, which could significantly defray the costs of guards?

Mr. KEYS. Reclamation has not investigated user fee programs.

Question. Has Reclamation requested co-funding from the National Park Service for jointly used facilities?

Mr. KEYS. Reclamation has not requested co-funding from the National Park Service. Reclamation and National Park Service work together to find the most efficient and effective ways to protect facilities.

Question. Commissioner Keys, how much has the Bureau requested and received for increased security costs at its multi-purpose dams in the wake of the attacks of September 11, 2001?

Mr. KEYS. Between September 11, 2001 and September 30, 2005, Reclamation will spend $169 million in non-reimbursable anti-terrorism dollars, which include guard and surveillance activities.

Question. Please break those numbers down by fiscal year.

Mr. KEYS.

[In millions of dollars]

	Amount
Fiscal Year 2002 Actual	35.6
Fiscal Year 2003 Actual	53.2
Fiscal Year 2004 Actual	36.9
Fiscal Year 2005 Enacted	43.2
Fiscal Year 2006 Request	50.0

Question. Who has paid for that increased security?

Mr. KEYS. Reclamation has paid for 100 percent of increased security costs since 9/11/01.

Question. How much does the Bureau anticipate it will request from increased security measures in fiscal years 2007 through 2012?

Mr. KEYS. Reclamation will continue budgeting for guard and surveillance needs as appropriate and anticipates outyear budget requests will be maintained at a level similar to recent budget requests. The annual number will vary based on programmatic priorities and long-term goals for meeting security needs.

Question. Who will pay the anticipated costs?

Mr. KEYS. Annual costs associated with facility guard and patrol activities will be treated as project O&M costs subject to reimbursability based upon project cost allocations. Reclamation will continue to fund the costs of facility hardening and program management on a non-reimbursable basis.

Question. How does the Bureau determine which part of the costs of increased security should be reimbursable and which part should be non-reimbursable?

Mr. KEYS. Reclamation considers the ongoing costs of guards and patrol to clearly fall within the definition of project operation and maintenance (O&M) costs. Therefore, those costs are subject to reimbursement based on project cost allocations. Like equipment maintenance, routine facility security activities such as guards and patrol are critical in ensuring the uninterrupted supply of Reclamation water and power. The determination to treat guard and patrol costs as reimbursable project O&M is within Reclamation's authority under Federal reclamation law, in particular the Reclamation Project Act of 1939, and is consistent with longstanding policy and practice.

Following the terrorist attacks of September 11, 2001, expenditures for security enhancements on Bureau of Reclamation facilities increased rapidly and dramatically through emergency supplemental appropriations. Although Reclamation's practice at that time provided for the ongoing costs of security-related activities (including guards and patrol) on Reclamation facilities to be a project cost subject to reimbursement by project beneficiaries, it was decided that initially, the post-9/11 facility security-related cost increases should be borne by the United States.

The rationale for making guard and patrol cost increases temporarily nonreimbursable was that it would have been a significant hardship for the project beneficiaries to bear the entire burden of the urgent, dramatic, and unplanned cost escalation.

Question. Once the Bureau determines which costs should be reimbursed by project beneficiaries, how does it allocate those costs among beneficiaries?

Mr. KEYS. The capital costs of a Reclamation project are allocated to all authorized project functions by percentage of the total construction costs attributable to each function. The beneficiaries of the functions of irrigation, power, and municipal and industrial water supply reimburse the Federal Government for the percentage of project capital costs allocated to their particular function. Functions such as flood control, fish and wildlife, recreation, water conservation, and land resource management are considered to benefit the general public and thus are nonreimbursable. Annual operation and maintenance (O&M) costs for a project are reimbursed in accordance with the same allocated percentages as the capital costs. Reimbursable O&M costs are billed to and recovered from the project beneficiaries in the year in which they are incurred.

Question. Are all classes of project beneficiaries allocated a portion of the costs the Bureau determines should be reimbursed?

Mr. KEYS. Irrigation, M&I water supply, and hydroelectric power generation are categorized as reimbursable; O&M costs allocated to the functions of flood control, fish and wildlife, water control/conservation, recreation, and land resource management, all of which are considered beneficial to the general public, are nonreimbursable. Reimbursable costs are billed to and recovered from the beneficiaries; nonreimbursable costs are not and are instead borne by the Federal Government.

Question. What kind of benchmarking does the Bureau use to determine which proposed security enhancements are appropriate?

Mr. KEYS. Upon the completion of vulnerability risk assessments, many of which were conducted through contracts with security experts, Reclamation employs a Security Advisory Team review process and a decision making process to critically evaluate all recommendations made in the risk assessment report. Reclamation includes outside experts in this process.

Reclamation also is an active member of the Interagency Forum on Infrastructure Protection (IFIP), which meets regularly to discuss issues, methodologies, and best practices. IFIP members include Reclamation, the Army Corps of Engineers, Tennessee Valley Authority, Bonneville Power Administration, Western Area Power Administration, Federal Emergency Management Agency, Federal Energy Regulatory Commission, Sandia National Laboratory, the Association of State Dam Safety Officials, and others.

Question. Does the Bureau use any kind of risk analysis when proposing increased security measures?

Mr. KEYS. Yes. Reclamation uses a comprehensive security risk assessment process to determine the risk at each critical infrastructure facility. The assessment methodology examines the threats, vulnerabilities, consequences, and existing security measures at each facility. The risk analysis process includes a review of proposed risk reductions by peer reviewers and external security experts to validate each recommendation in relation to risk reduction strategy.

Question. Does the Bureau use any cost-effectiveness analysis when proposing increased security measures?

Mr. KEYS. Yes. Reclamation conducts cost-effectiveness analysis in the areas of the cost of a proposed recommendation relative to the projected reduction in risk that the recommendation provides. Reclamation also performs front-end cost effectiveness analysis of security guard functions at its National Critical Infrastructure facilities.

UPPER COLORADO REGION

Question. In the event that minimum power generation level is reached in the Colorado River Storage Project (CRSP) as a result of drought conditions, what precautions is the Bureau taking to avoid laying the burden of financing non-power program—such as the Glen Canyon Adaptive Management Program, the Salinity Control Program, and the Endangered Fish Recovery Program—on CRSP power customers?

Mr. KEYS. Funding from power revenues for the non-power programs, such as the Glen Canyon Adaptive Management Program, the Salinity Control Program, and the Endangered Fish Recovery Program, is provided by Federal legislation. Reclamation is meeting with both the Western Area Power Administration and the Colorado River Energy Distributors Association to discuss issues related to the CRSP

and the drought. Discussions have dealt with how these programs can continue to be funded if Lake Powell approaches the minimum power generation level.

The Legislation for the Endangered Fish Recovery Program addresses funding through the Basin Fund with provision for appropriations. That is, if ". . . the Western Area Power Administration and the Bureau of Reclamation determine that the funds in the Colorado River Basin Fund will not be sufficient to meet the obligations of section 5(c)(1) of the Colorado River Storage Project Act for a 3-year period, the Western and Reclamation shall request appropriations to meet base funding obligations."

Question. Is the Bureau considering an appropriations request to Congress in order to cover such an eventuality?

Mr. KEYS. Based on the legislation, we must determine that funding will not be available for a 3-year period. That determination has not been made at this point in time.

The legislation for the Adaptive Management Program and the Salinity Control Program does not address funding through appropriations. The current process for funding operation and maintenance activities and non-power programs is to look at all program items and request funding for work based on the priority of each item. Such programs as these would be considered in this process.

QUESTIONS SUBMITTED BY SENATOR DANIEL K. INOUYE

HAWAII WATER RESOURCES

Question. In fiscal year 2004, funds were provided to the Bureau of Reclamation to initiate activities on water recycling opportunities. Such activities are critical to Hawaii since water use rates in Hawaii are increasing and groundwater recharge rates are declining. What is the current status of the Bureau's work on this issue?

Mr. KEYS. Last June, Reclamation retained a contractor to complete an appraisal study of potential opportunities for storm-water collection, treatment, and reuse. In cooperation with State and local agencies, the contractor has identified such opportunities and is currently completing their analysis. A final report is due by the end of June 2005.

Question. What recommendations does the Bureau have for future actions in Hawaii pertaining to water recycling, in general, and storm-water capture and reuse, in particular?

Mr. KEYS. The potential for storm-water collection and reuse will not be known until the on-going study is complete, but early indications are that small, local projects may present opportunities to increase water supply as well as provide other benefits. Hawaii recognizes the value of water reclamation and reuse as part of a broad strategy for developing new water sources to serve increasing needs. This is particularly relevant on the islands of Oahu and Maui because reuse opportunities are being identified and evaluated. Given Reclamation's limited resources and current needs for existing Reclamation Projects, a future role for Reclamation is difficult to envision for Hawaiian recycling projects.

SUBCOMMITTEE RECESS

Senator ALLARD. Having said that, we'll go ahead and recess the subcommittee meeting.

[Whereupon, at 3:40 p.m., Thursday, April 7, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER, AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 2006

THURSDAY, APRIL 14, 2005

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

The subcommittee met at 2:07 p.m., in room SD–124, Dirksen Senate Office Building, Hon. Pete V. Domenici (chairman) presiding.

Present: Senators Domenici, Allard, and Feinstein.

DEPARTMENT OF ENERGY

NATIONAL NUCLEAR SECURITY ADMINISTRATION

STATEMENT OF AMBASSADOR LINTON F. BROOKS, UNDER SECRETARY AND ADMINISTRATOR, NUCLEAR SECURITY

ACCOMPANIED BY:

ADMIRAL KIRKLAND DONALD, DEPUTY ADMINISTRATOR, NAVAL REACTORS

DR. EVERET BECKNER, DEPUTY ADMINISTRATOR, DEFENSE PROGRAMS

KENNETH BAKER, PRINCIPAL DEPUTY ADMINISTRATOR, DEFENSE NUCLEAR NONPROLIFERATION

OPENING STATEMENT OF SENATOR PETE V. DOMENICI

Senator DOMENICI. The hearing will please come to order. The subcommittee is going to take testimony on the fiscal year 2006 budget request from the National Nuclear Security Administration. I changed the process from the previous hearing so we'll be able to have more opportunity to ask questions.

For this hearing, we'll take testimony from the Administrator, Ambassador Linton Brooks. Ambassador Brooks is joined by his deputies, who can respond to questions, and they are Deputy Administrator for Naval Reactors, Admiral Kirkland Donald—thank you very much——

Admiral DONALD. Yes, sir.

Senator DOMENICI [continuing]. Deputy Administrator for Defense Programs, Dr. Everet Beckner; and Ken Baker—good to see you here—Principal Deputy Administrator for Defense Nuclear Nonproliferation. Thank you very much.

Admiral Donald, this is your first visit to the subcommittee. I want you to know that we appreciate your willingness to participate, and it's always a pleasure to have you here.

Dr. Beckner, I understand that you have announced your retirement, effective at the end of the month. Obviously, that day had to come, but, for everybody that knows what you've done, it's a good day for you and your wife, but not a good day for us. Between 1962 and 1990, you served in a variety of senior leadership positions at Sandia Laboratories; and, since leaving the lab, you've worked at Lockheed Martin, served at two positions in the Department of Energy; and, between 1991 and 1995, you served as Principal Deputy Assistant Secretary for Defense Programs. And since 2002 you've served as Deputy Administrator for Defense Programs at NNSA. So, I understand that it's time for you to leave, and certainly I understand that, if I have it right, that you probably are going to return to New Mexico for your retirement.

Dr. BECKNER. That's correct.

Senator DOMENICI. And then I would think it's fair to say that, at that point, I will be representing you.

Dr. BECKNER. That's correct.

Senator DOMENICI. I don't know, maybe you voted, absentee before.

In any event, you may be having a chance to vote for me in person. Who knows? But I want to thank you for that 40 years of service, which I think has been exemplary.

FISCAL YEAR 2006 BUDGET REQUEST

Now, the fiscal year 2006 budget, the President has requested $9.4 billion, for an increase of 2.5 percent from the current-year funding level of $9.1 billion. So, while that's not a lot as a percentage, this is a considerable increase above the 2 percent cut in discretionary funding for the Department of Energy, as a whole.

The President's budget reflects an increase of 15 percent, or $215 million, for the Office of Nuclear Nonproliferation, which offsets a slight decrease, Admiral, in the Naval Reactor Program——

Admiral DONALD. Yes, sir.

Senator DOMENICI [continuing]. Of 1.9 percent, as I understand it.

Admiral DONALD. Yes, sir.

Senator DOMENICI. And the Office of the Administrator, 3.7 percent, negative—no, that's the Administrator's weapons—your weapons activity. And, let's see, the weapons activity has received a 0.7 percent increase, I'm sorry; and the Office of the Administrator is −3.7.

The administration has made a number of policy decisions in this bill that I would like to address, just quickly, but individually. I have spoken to you, Mr. Ambassador, about some of them.

FUTURE OF THE WEAPONS PROGRAM

First, this budget proposes a significant cut to NNSA over the next 5 years, as compared with the 2005 request. The majority of the cuts seem to come from the weapons program—they're mostly in the out years, so I say "seem to"; they're not binding at this point—which is a $3 billion reduction. This is the third annual De-

fense program budget, and the budget also cuts facilities, the recapitalization, for $750 million. I should have said the $3 billion reduction is a third of the annual Defense budget. The $3 billion reduction in the NNSA program is unsustainable, in my opinion, with the current NNSA complex. Now, that doesn't mean that my assumption is a necessity, but it's unclear as to where the cuts will be applied, and I am deeply concerned that scientific capability of the laboratories, which is sometimes overlooked, will be significantly affected, on the negative side.

Ambassador Brooks, I read a number of press articles about your testimony before the Armed Services Committee regarding your vision of the weapons program out into the future. I think your comments before the committee are more informative about NNSA's budget priorities than the testimony that you've submitted here today, but I would be glad for you to explain that, later on. I would ask that your statement of April 4 be made a part of the record, so everybody will have it.

This vision that you've laid out is going to require a substantial investment in NNSA's capability and infrastructure. Simply put, your vision is not supported by the future budgets. Seems like they run into each other, and one goes up and the other comes down.

The long-term impacts of the proposed budget will leave your complex with a very shallow scientific capability, housed in old facilities, which we've just gone to some great lengths to try to make current. And you've been part of helping with that. I would agree they haven't been done in a overall plan, but clearly the most uninhabitable buildings have been replaced, and that's because we insisted, up here, and you all were willing to do that.

So, I don't see how we can maintain the existing capability and reinvent the weapons program to design, build, and deploy weapons in—by 2012 and 2015—that are described in your testimony, that you can elaborate upon here today.

RELIABLE REPLACEMENT WARHEADS

The testimony you gave before the Committee of Armed Services laid out a plan. In my opinion, it exceeds the political support here on Capitol Hill, unless the reports of what you said are not what you mean. Your comments that I've identified indicate that DOD has identified, and I quote, "no requirements for such weapons." Your testimony made broad assumptions about the Reliable Replacement Warheads. That's called RRW. That initiative is—at least there's an indication that it is there to develop new weapons. And I hope you will dispel that today. And I see your testimony does that; I just want to go over that more than one time.

The RRW—and I say to my friend, the new member from Colorado, this Reliable Replacement Warhead actually came from this committee. It was not a request from the administration. We were asked by those who were involved in science-based stockpile stewardship, as it pertains to ingredients that make up the nuclear weapons—they asked us to put in something that would give them authority to do research on replacement parts, and—in many respects; so they might be lighter, so they'd be safer, so they'd be more durable. So we—that was put in here to achieve stockpile transformation. Strike that. It wasn't for transformation; it was for

stewardship maintenance. So, we need to make sure that that's clearly understood and that there's no misunderstanding on the part of Senators as to what it meant and what you intend to use it for.

Incidentally, it's not a whole bunch of money, so it surely is not to build a—it's $9 million, so, as you know, Mr. Ambassador, that's got to be a very small amount if we're talking about a very significant change.

ROBUST NUCLEAR EARTH PENETRATOR

Now, the weapon research, the policy decisions that is likely to attract attention will be the Department's commitment to a study of so-called Robust Nuclear Earth Penetrators. The budget provides for $4 million in 2006, and $14 million in 2007. This is, from what I can tell, not part of a planned funding, beyond the completion of the study. So when we get approached on this, we're going to have to have your assurance that you aren't doing this with the idea that a plan to use it for building a new weapon is part of this. That's a separate issue for the Department and the Congress, later on.

NATIONAL IGNITION FACILITY

Now, there's one monster program, in terms of dollars, that we might as well talk about, and that's NIF, the National Ignition Facility, that you operate out in California at the nuclear laboratory there. I notice that you have refocused efforts on NIF, with the goal of achieving final results by 2010. Is that correct?

Dr. BECKNER. Yes, sir.

Senator DOMENICI. This budget cuts a lot of relevant stewardship research, while NASA wages what I consider almost a crusade to move on with NIF. Now, we've eliminated, entirely, the funding for inertial fusion technology; that's $33 million. That supports the development of lasers and Z pinches that could be used in stewardship programs that I have great confidence in, and I think many other scientists do. It just happened to come a year or 2 too late, and we had already committed to the plan for NIF. I was shocked to learn that the budget doesn't even support a full single shift at the Z machine. And if I don't get a chance to ask you about it, I hope you will answer that.

[The information follows:]

NATIONAL IGNITION FACILITY

Senator Domenici, I appreciate the opportunity to respond to your remarks. You have raised a number of issues that I will address in turn.

First, we have maintained a focus on the goal of ignition at NIF despite reductions to the Inertial Confinement Fusion Ignition and High Yield Campaign. The budget submission supports the execution of the first ignition experiments at NIF in fiscal year 2010. This is an important goal for the stewardship program and the Nation. Ignition is a unique capability that will allow the stewardship program to address weapon performance issues related to thermonuclear burn. You and your committee have supported that important goal, and we appreciate your support.

As you may recall, the fiscal year 2005 appropriation reduced the funding for the NIF Demonstration Program, an essential piece of the NIF Project. In response to the fiscal year 2005 appropriation and the modified NNSA 5-year budget, a new plan to complete the NIF Project has been developed. This plan supports the Ignition 2010 goal. We have recently concluded a major external review of this new NIF Project plan that found the Project was proceeding well and performing in accord-

ance with its baseline prior to the fiscal year 2005 reduction. The review team also found that the proposed plan for completing the Project is executable and recommended NNSA accept a change proposal reflecting this plan. However, they caution that the NIF Project is tightly constrained with respect to budget and should be protected against further reductions. NNSA will submit revised plans for the NIF Project and the ignition program to the Congress by June 30, 2005. The achievement of the ignition goal will require continued strong commitment from both the Congress and the NNSA.

Second, you raised a concern regarding the funding for inertial fusion technology. (By "inertial fusion technology," we mean development of high repetition rate laser and pulsed-power drivers and other activities primarily directed at the development of inertial fusion as an electrical power source; this is distinct from stockpile stewardship activities conducted at NNSA inertial fusion facilities.) The Congress has funded this via "add-ons" in the past, and it is true that such activities are not funded in the current budget. As you point out, this work is of high quality, but the energy-related inertial fusion technology activities have never appeared in the NNSA submission, as they are lower priority than other stewardship needs and largely motivated by the inertial fusion energy mission, which does not reside in NNSA. I would also point out that NNSA does support a number of important technology development activities relevant to weapons applications of inertial fusion, including high-energy petawatt lasers and advanced ignition concepts. As a final point, from both the defense and energy perspectives, the demonstration of ignition is the highest priority inertial fusion activity NNSA and the Nation can undertake.

Third, you raised a concern regarding funding for the Z machine. The Z machine has returned outstanding results and continues to be an important resource for NNSA. In fact, in the face of a difficult budget we have maintained a reasonable program at Z in fiscal year 2006, including full funding for the Z-refurbishment project. Because of constrained budgets, we are planning to operate the Z Facility at 90 percent of the full single shift rate through April 2006. At the end of April 2006, the Z-facility will be shut down for refurbishment and installation of hardware, per the Z-refurbishment project plan. Thus, overall we will reduce the number of shots on Z by a modest amount while keeping the Z-refurbishment project on schedule.

NIF is important to the NNSA, stockpile stewardship, and the Nation. It will provide critical information for the stewardship program and open major new scientific frontiers. The demonstration of ignition will be a major scientific achievement for stockpile stewardship; in particular, it is critical to the validation of the advanced simulation codes produced by the Advanced Simulation and Computing Program. NIF is now 80 percent complete, and we believe the most effective path financially and technically is to complete the NIF Project and commence ignition experiments as expeditiously as possible.

Thank you again for your interest and the opportunity to respond.

Senator DOMENICI. Another policy change contained in this budget is a provision to shift the cleanup responsibilities from the Office of Environmental Management to the NNSA. I understand that the Department would like the NNSA to take ownership of its waste streams and include cleanup cost in the lifecycle of future projects.

In theory, I agree with this concept. However, applying environmental cleanup responsibilities to the weapons stewardship program might be a greater challenge than the administration expects. I hope to learn more about this proposal from your testimony, especially the legal basis for such actions.

NUCLEAR NONPROLIFERATION

We all know that a better job is being done on—overall, on cleanup than ever before. Some will disagree. I compliment you on it.

On nonproliferation, huge issue, we appreciate the President's mentioning it in his State of the Union, and then for you to follow through with a significant increase of 15 percent on nonproliferation.

I failed to mention, when we talked about cleanup, with the presence of the Senator from Colorado, that one of the real examples

of achievement, setting timetables and getting them done, is in your State. Rocky Flats. We've had other ones say we can't have a timetable, we never can get finished. Here you came up with one that was terrifically difficult, in terms of pollution, and you got it done.

Nonproliferation research is up. That's good. You include funding for the MOX program. Very exciting. Terrific idea.

The MPCA with Russia has an increase. Eliminating the Russian plutonium production has an increase. That one's all in jeopardy if we don't get the agreement with the Russians, which doesn't have much longer time, because that's got a lot of money tied up in the appropriations that the House may decide to spend if we don't get that agreement. And I'm working very hard with the State Department and your Secretary to see if they can't expedite that.

NAVAL REACTORS

Naval reactors, we don't have to say much. They always excel. We use you as an example, and especially with all your boats at sea——

Admiral DONALD. Yes, sir.

Senator DOMENICI [continuing]. With reactors floating around with spent fuel rods onboard——

Admiral DONALD. Yes, sir.

Senator DOMENICI [continuing]. As examples of why we shouldn't be so frightened about nuclear power and nuclear waste.

Admiral DONALD. Thank you, sir.

Senator DOMENICI. So, in conclusion, there is no doubt about it, the budget will require some tough choices to balance the needs of the Department, but what we must do this year pales in comparison to the challenge we will face if we're expected to cut $3 billion over the next 5 years from the weapons program. I don't think anyone's given much thought—maybe they have, but they certainly hasn't come up with any conclusions that we've accepted in Congress as to how we will achieve those.

So, Mr. Ambassador, sorry for going through all of this, but I think it's important that you know that we know what's going on and that we are very interested in what you have to say.

The Senator from Colorado.

STATEMENT OF SENATOR WAYNE ALLARD

Senator ALLARD. Mr. Chairman, I have a full statement I'd like to put in the record.

Just briefly, this is a new experience for me.

Senator DOMENICI. Yes.

Senator ALLARD. I was on the authorizing side, as Chairman of the Strategic Subcommittee, and viewed many of these issues from the authorizers' point of view, which I don't think is that different from where you come from, Mr. Chairman. I plan on being very supportive of your efforts here on this subcommittee.

You know, I've had an opportunity to work with Ambassador Brooks and Dr. Beckner, both, and I think they do a great job, and I think we will miss them. And, in fact, I took a personal tour with both of them, visited Lawrence Livermore Lab, Los Alamos Lab, Sandia Lab, as well as went over to the Pantex facility there in

Texas, and have had an opportunity, also, Admiral, from being—looking at a nuclear reactor on a ship. So, I do feel that we're doing a good job in many of these areas, and I'm a little bit taken aback by the size of reduction in funding that the administration has suggested on this.

And, Mr. Chairman, you've always taken a special interest in all these programs, in the health and well-being of these laboratories, and I've appreciated that effort. And when I visited those labs, the employees in those labs—and the administration, frankly, looked up to your leadership, and you were spoken of favorably in many instances.

You know, I've been supportive of the study on RNEP, and it's always taken me aback why the other House couldn't at least settle on just studying it, look what our options are and what—the programs happening out there. And I hope that we can continue to push that on this side. And it's somewhat of a problem, I think, in conference committee, and hopefully we can be more successful this year than we have in the past.

And so, I look forward to your testimony, Mr. Brooks. And, Mr. Chairman, I look forward to working with you on many of these very important issues. And thank you for mentioning Rocky Flats, Mr. Chairman. We're 1 year ahead of schedule, and we're under budget. And so, I'm proud of that. And, again, thank you for giving me an opportunity to say a few words.

[The statement follows:]

PREPARED STATEMENT OF SENATOR WAYNE ALLARD

Thank you Mr. Chairman for the opportunity to attend this hearing today. It is a little unusual to be approaching this issue from the appropriations side of the house. As you know, Mr. Chairman, last year I chaired the Senate Armed Services Strategic Forces Subcommittee, which was responsible for authorizing funding and overseeing the Department of Energy National Nuclear Security Agency.

Ambassador Brooks, it is a pleasure to see you again. Your leadership at the National Nuclear Security Agency has been critical over these last couple of years. I want you to know that I support you and that I look forward to working with you this year.

Mr. Chairman, I have been concerned for many years that the United States was not doing enough to ensure the effectiveness and reliability of our nuclear weapons deterrent. Two years ago, I visited all three nuclear weapons labs: Livermore National Laboratory, Sandia National Laboratory, and Los Alamos. I also visited the refurbishment facility at Pantex, Texas.

Mr. Chairman, I know you take a special interest in the health and well-being of these laboratories. Your support for their work has helped diversify and invigorate the activities of the labs. Most if not all of the workers, technicians, and researchers at the labs look up to you and deeply appreciate everything you have done for them.

Given your interest, I believe it is important for you to know that during my visit, I sensed an unusual degree of hesitancy. It seemed to me that though the scientists at the labs were proud of their work, many were apprehensive about discussing it. As I probed, I became aware of the detrimental impact decisions made here in Washington were having on our scientists and researchers. We have put so many laws on the books and have had so many public, highly controversial debates that those at the labs are often left wondering if whether the work that they are doing for our Nation was appropriate, or worse, even legal.

This apprehension introduces an element of uncertainty. As I'm sure you know, uncertainty can be very destabilizing for a scientist and can hinder the scientist's ability to focus on the question at hand. It introduces limiting factors that cloud the scientific process and make it very difficult to approach a problem in a logical, straightforward manner.

Mr. Chairman, I believe the Congress has been sending mixed messages. One moment, the Congress repeals the prohibition on the low yield nuclear weapons. Then,

Congress turns around and cuts the funding for the study of the feasibility of a robust nuclear earth penetrator.

The Congress tells our scientists to be responsive to the requirements of the military commanders and begin to think about how nuclear weapons fit within the Nuclear Posture Review's new triad. Then Congress changes its mind and cuts funding for advanced concepts initiatives, which would have tried to match our military's requirements with potential nuclear capabilities.

Mr. Chairman, I recognize that the problem is not in the Senate. Under your leadership, we have successfully defeated several floor amendments to cut nuclear weapons funding or limit our weapons activities. I know that some in the House have been willing to make significant sacrifices in order to prohibit funding for certain nuclear weapons activities. I want you to know that I will strongly support you both on the floor and in conference on these issues. In my mind, few programs are as important to our country's national security as our nuclear weapons programs.

Thank you Mr. Chairman for the opportunity to speak today. I look forward to the Ambassador Brooke's testimony.

Senator DOMENICI. You're welcome. We welcome you on the committee. You're going to be a terrific asset.

The round will proceed. Mr. Ambassador, your full remarks will be made a part of the record.

Oh, I didn't see you, Senator Feinstein. You walked in—I shouldn't say "snuck in"—you just walked in, and I wasn't looking. So, would you like to have some opening remarks? If you do, please proceed.

STATEMENT OF SENATOR DIANNE FEINSTEIN

Senator FEINSTEIN. Well, I'd be happy to make a couple of opening remarks.

As you know, I have great respect for you and great respect for Ambassador Brooks. I am very opposed to reopening the nuclear door and developing a new generation of nuclear weapons. And this budget contains money to do just that.

Specifically, $4 million in the Energy budget, and $4.5 million for the Department of Defense for the study of the Robust Earth Nuclear Penetrator, $25 million to increase the Nevada Test Site's time to test readiness from the current 24 to 36 months, to 18 months; and $7.7 million for a modern pit facility. And that's a facility then to build 450 new pits, which are the nuclear triggers for nuclear weapons; 450 per year, some of which could be designed for new weapons. You don't really need that much production—we went into this before—unless you're intent on reopening the nuclear door.

I'm pleased that this budget contains no funding for the advanced weapons concept and the development of low-yield tactical nuclear weapons under 5 kilotons, but it does contain $9 million for the Reliable Replacement Warhead program. And I would like to, at the appropriate time, question Ambassador Brooks about his testimony before the Senate—the House Armed Services Committee, because there is concern that this program may be used as another way to develop new nuclear weapons.

I think we made a strong statement last year. I know, Mr. Chairman, respectfully, you don't share my belief here. But the House and some of us on this committee were able to get this money in last year's budget struck entirely for this program. And, as you know, the proposal is for—and also not in this program is the 5-year budget; there's no 5-year budget in this budget. I think it was

$486 million in the last budget we looked at. So, I have a number of questions on this subject.

Thank you very much.

Senator DOMENICI. Thank you, Senator. And I am aware of all those issues; and, from just guessing, I think we might agree on one.

Senator FEINSTEIN. Good. Which one?

Senator DOMENICI. That one will—one of those will be easy to pass—I mean easy to get concurrence on.

Senator FEINSTEIN. Good.

Senator DOMENICI. Mr. Ambassador.

That was what the intent of the RRW program—we can agree on that.

Mr. Ambassador.

STATEMENT OF AMBASSADOR LINTON F. BROOKS

Ambassador BROOKS. Thank you very much, Mr. Chairman.

Because I have submitted a detailed statement for the record, what I'd like to do is not try to summarize that, but simply address a series of very specific issues that the opening statements have made fairly clear are of interest to the committee.

Let me start with nonproliferation. The President, in the State of the Union, made the point about the need to restrain spending. And you see that reflected both in this year's budget and in our projection over 5 years. Therefore, the nonproliferation increase of 15 percent, which also tracks out through the 5-year plan, is an indication of the administration's priorities and, even more so, the fact that it is targeted for those things that are directly relevant to the defense of the homeland: improving the detection of nuclear technologies to deter nuclear proliferation, security upgrades in the MegaPorts program, shutting down the production of plutonium in the former Soviet Union. And all of these things, we believe, are important and we urge the committee to support.

I want to talk, a couple of minutes, about the MOX program. Most of our nonproliferation programs are very similar to last year, and I appreciate the historic support this committee has given. I'd like to update you on our efforts to dispose of surplus weapons-grade plutonium.

We have had, for 2 years now, an ongoing disagreement with Russia regarding liability protection that has delayed the beginning of construction in both the United States and the Russian Federation. I am hopeful that we are about to resolve this. It has the personal attention of the Secretary of State. It has the personal attention of the Secretary of Energy. We have made some new proposals. And I am hoping that within a few weeks we will be able to finally tell you that this is behind us.

I want to be very careful, because we aren't the only ones who have to act; the Russian Federation has to act, and it's sometimes difficult to predict the Russian Federation. Because of the ongoing delay, and because of the funding constraints I referred to in the President's projection, we can no longer complete construction of our facility on the schedule we had earlier provided Congress, which was to be in production by January 1, 2009. We notified the

Congress of that formally in February, and we will, as required by law, have an alternate plan by August.

But I do want to make a point right now. It is easy to assume that because of these delays the money in this budget is not necessary. That is incorrect. This money is necessary. We're going to solve liability, and we need to get on with construction.

Let me turn to the areas on which there's likely to be some greater controversy in the weapons programs, and let me start with the Robust Nuclear Earth Penetrator.

As was noted, overall our weapons program is actually a decrease of about 3.5 percent if you take into account a transfer of money from Defense in last year's budget. The Nuclear Earth Penetrator study, we project $4 million in this year, $14 million in 2007, slightly smaller amounts in the Department of Defense, and nothing else.

After last year's action by the Congress, we asked the Department of Defense to review the continuing need. The Secretary of Defense personally reviewed that, and, at his direct personal request, we have included the money in the budget for this year. He did this, not because he's particularly interested in developing a new weapon, but because there are adversaries who are building deeply-buried facilities, and it is unwise for there to be anything that's beyond the reach of U.S. power. And until we know that we can deal with those conventionally, we need to at least find out what we can do in the nuclear area.

The press reports on this have not always been completely accurate. Nobody believes that you can drive a weapon thousands of feet into the ground and contain the fallout. Nobody believes that you can make a weapon that wouldn't have substantial devastation if it was used. If I may be inelegant, in testimony before another committee I said, "Anybody who thinks you can use a nuclear weapon and not notice is just nuts." But——

Senator FEINSTEIN. Could you——

Senator DOMENICI [continuing]. Mr. Ambassador, I'm very sorry. I was interrupted. Could you go back, just, like, turn the clock back?

Ambassador BROOKS. Yes, sir.

Senator FEINSTEIN. Well, I want him to hear that part, about the fallout.

Ambassador BROOKS. Yes, ma'am.

There have been press reports which have suggested that we believe that the Nuclear Earth Penetrator can bury itself into the ground to the point where the fallout would all be contained. That, I believe, is almost certainly impossible, and it is, in any event, not what we are thinking of doing. We're thinking of putting something that will survive a few meters in the ground, so that the energy will penetrate deeply into the ground in order to destroy, collapse hardened facilities.

Now, I want to make a couple of points, and they go to Senator Feinstein's point. Last year's budget allowed the quite fair, but erroneous, belief that the administration had decided to go ahead and build this thing. And that was because, in the belief that we should show what the implications would be, we had put an out-year wedge for what it would cost to field it. The administration has not

made any such decision. It can't make such a decision without at least two other congressional votes. And so, to ensure that you knew that we understood that, we show nothing beyond the 2007 money. I have no idea, until we complete the study, whether this will prove interesting, whether this will be something we will want to do further research on.

But I do want to stress two points: that we've made no decision to proceed beyond the current phase, there's no funding programmed, except for the current phase, and we've tried to, by focusing only on one of the two candidates we were originally looking at, make the study as limited as possible.

The other area which I'd like to spend a little time on in the weapons program is the Reliable Replacement Warhead. And I want to start out by making two statements, in just the strongest possible terms. The first is, stockpile stewardship is working. The only reason that we are able to consider this kind of research is because stockpile stewardship is working. And, secondly, the implication that this is some backdoor way to build new weapons is wrong. That's not what we intend. I believe the Secretary has sent a letter to that effect to some of the members of this committee.

Now, if we're not going to do new weapons, what are we going to do? In the cold war, we had very tight design to minimize the weight and space of warheads so we could put the maximum number on a missile. We don't do that anymore, because we're reducing. So the question is, if we relax those, could we upgrade and modify our existing warheads by, for example, using components that are less difficult to handle, so that when we take these apart for periodic surveillance, we have fewer problems? Could we modify these by, for example, changing some of the explosive components so that they are insensitive high explosives, so that as we do our surveillance, we reduce both the risk, but also the difficulty? Could we modify these by changing components in a way that we would be less sensitive to aging, and, thus, never need to get to the point where we might think about nuclear testing? And so, the RRW approach will allow us to investigate what the options are.

In the testimony I provided to the Armed Services Committee, I suggested some things that the country might want to do if this approach proves to be as beneficial as we hope. The country might want to say, because these warheads are so reliable, we don't need to keep as many spares as the President's plan now has, and we can further reduce the total stockpile. The country would certainly be able to say it's far less likely that we will be faced with the question of whether or not a nuclear test is needed for a problem if we strengthen and ruggedize these warheads in a way that we're less sensitive to aging. Which of those options will prove to be workable, we don't know, but the idea is to develop new components, which will go in existing warheads that are delivered by existing missiles and aimed at existing targets. There's no new weapons, new targets, new military capabilities being sought here.

Two other areas I want to talk about in the weapons area. One is the National Ignition Facility. And actually, Mr. Chairman, your opening statement pretty much parallels my opening statement. We have, in fact, refocused this program to focus on achieving ignition in 2010. That's not the only important use of this. There are

important stockpile stewardship uses for NIF. In order to do this with the budgetary pressures I referred to, we have reduced inertial confinement for fusion work at other facilities; at Omega Laser, for example. We will be sending a report to the appropriate committees by June 30 on our revised NIF activation plan as we work out the detailed implications. And Dr. Beckner can address this a little more in the questioning, if you want.

Finally, I do want to make a comment about the modern pit facility. We are required by law to hold open all the options that are analyzed in the environmental impact statement, but I think that the odds of us concluding we need 450 pits a year are very small. The farther I can drive down the overall stockpile, the smaller the modern pit facility has to be made. But sooner or later, unless everything we know about the aging of plutonium is wrong, we are going to need to melt down and rework the existing pits for the existing warheads, and we need to build a facility to do that. The Congress, the law, currently prohibits us from selecting a site for that facility, and I urge the committee to lift that prohibition in the coming year so that we can continue an orderly progress.

You mentioned, and I would just note, that Naval Reactors Program supports the 103 operating reactors, 40 percent of the Navy's combat ships. This has been a legend in both technical and managerial excellence for pretty much all of my professional lifetime, and I have no reason to doubt that it'll continue to be.

The final area I want to talk about is safeguards and security. The reason I said that our weapons program had gone down by 8 percent—I mean, by 3.5 percent—and you, Mr. Chairman, mentioned a slight increase—is that we lumped together, in the budget submission, safeguards and security and actual weapons work. What's going up is safeguards and security. We asked for $708 million in this fiscal year, and the projections for the future show growth. And I actually am worried about that. Nonetheless, the situation is that we now know there are people who are willing to die in order to inflict massive damage on the United States, that we have looked carefully at a very elaborate design-basis threat, and that right now while we hope that technology will let us guard against this threat in a less expensive fashion, protecting and preserving the security of nuclear materials is just one of our highest priorities.

I think that we will have a great deal of difficulty in—this time next year, in continuing this progress. I think that we clearly are going to need more money in future years. The budget we've presented to you this year is accurate.

PREPARED STATEMENTS

But no matter how low the probability of an attack, I think that you have to deter our enemies, and that means you have to be visibly able to repel attacks. So I urge the committee to continue its historic strong support for physical security.

Mr. Chairman, that concludes my summary statement, and my colleagues and I are ready for your questions.

[The statements follow:]

PREPARED STATEMENT OF AMBASSADOR LINTON F. BROOKS

Thank you for the opportunity to discuss the fiscal year 2006 Budget Request for the National Nuclear Security Administration (NNSA). This is my third appearance before this Committee as the Under Secretary for Nuclear Security, and I want to thank all of the Members for their strong support for our important national security responsibilities.

OVERVIEW

In the fifth 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 responsibilities for U.S. national security include:

—Stewardship of the Nation's nuclear weapons stockpile;
—Reducing the threat posed by the proliferation of weapons of mass destruction;
—Providing reliable and safe propulsion for the U.S. Navy; and,
—Managing the national nuclear security complex, which includes both security for our facilities and materials to protect our employees and our neighbors, and sustaining the weapons complex infrastructure.

This budget request supports the NNSA's mission.

In his State of the Union Address in February, the President underscored the need to restrain spending in order to sustain our economic prosperity. As part of this restraint, it is important that total discretionary and non-security spending be held to levels proposed in the fiscal year 2006 budget. The budget savings and reforms in the budget are important components of achieving the President's goal of cutting the budget deficit in half by 2009 and we urge the Congress to support these reforms. To support the President's goal, most programs in NNSA's budget of $9.4 billion are funded at levels less than we projected last year.

The major exceptions are those nonproliferation programs that directly affect homeland security. Consistent with the President's priorities, we have increased funding for activities associated with nonproliferation by 15 percent on top of the already significant budgets of last year, for a total request of $1.6 billion. That increase has been targeted for research on proliferation detection technologies, for programs to improve the security of weapons material outside the United States, and to detect such material in transit.

The international community faces a variety of new and emerging threats. As the events of September 11, 2001 made clear, new sub-national threats are emerging that involve hostile groups willing to use or support the use of low-tech weapons of great destructive capability. If these groups come to possess nuclear weapons or other weapons of mass destruction (WMD), they would pose an even greater threat to the United States. Thus, diplomatic, political, and other efforts to prevent the acquisition of nuclear weapons, weapons-usable materials, or chemical or biological weapons, in conjunction with a robust counter-terrorism effort and defenses, are the best means available to address this threat.

The fiscal year 2006 request in our Stockpile Stewardship Program also makes adjustments to ensure that we continue to meet our commitments to the Department of Defense (DOD). In the post-Cold War world, nuclear weapons play a critical but reduced role in the Nation's overall security posture. Nuclear forces—linked with an advanced conventional strike capability and integrated with a responsive infrastructure—continue to be an essential element of national security by strengthening our overall ability to reassure allies of U.S. commitments, dissuade arms competition from potential adversaries, and deter threats to the United States, its overseas forces, allies, and friends.

Key elements of our nuclear posture involve strategies that enable the United States to quickly adapt and respond to unanticipated changes in the international security environment or to unexpected problems or "surprises" in the status of our nuclear forces. As our Nation's nuclear stockpile draws down to levels established in the Treaty of Moscow—between 1,700–2,200 operationally deployed strategic nuclear warheads—the United States will also reduce dramatically the total number of warheads in the stockpile. The June 2004 Report to Congress, "A Revised Nuclear Weapons Stockpile Plan for 2012", lays out our plans to meet this goal by 2012.

A critical strategy to support these reductions is to establish a flexible and responsive nuclear weapons infrastructure to support future defense requirements. A responsive NNSA infrastructure—people and facilities—includes innovative science and technology research and development at the National laboratories and agile production facilities that are able to meet identified needs and are capable of responding to unanticipated problems in the stockpile.

The initiative for NNSA to develop a more responsive infrastructure was first developed in the Nuclear Posture Review submitted to Congress in January 2002.

That Review couples the plan for stockpile reductions, agreed to in the Treaty of Moscow, with the ability to respond quickly to any surprise events in the future, such as an unexpected degradation in certified performance of a U.S. stockpile weapon or, on the world scene, an unanticipated military threat. On that basis, NNSA is now developing its capabilities to employ its weapons infrastructure in the required "responsive" way. This plan is now under development and will begin to be evident when we provide the fiscal year 2007 budget to the Congress, since it is tied directly to the 2012 commitment for 1,700–2,200 operationally deployed strategic warheads.

The NNSA is also evaluating what the weapons complex should look like in the future. A Nuclear Weapons Complex Infrastructure Study, directed by the House Report accompanying the fiscal year 2005 Energy and Water Development Appropriations Act, is underway and is scheduled to be complete by the end of April 2005. The Study is being run as a task force under the Secretary of Energy's Advisory Board.

NNSA's principal mission is to assure that the Nation's nuclear stockpile remains safe, secure, and reliable. A rigorous program enables the Secretaries of Energy and Defense to report each year to the President on the safety, security, and reliability of our nuclear weapons stockpile. Stockpile Stewardship activities are carried out without the use of underground nuclear testing, continuing the U.S. moratorium on testing initiated in the early 1990's. This is made possible by using science-based judgments informed by cutting edge scientific and engineering tools as well as extensive laboratory and flight tests. We are gaining a more complete understanding of the stockpile each year. Computer codes and platforms developed by our Advanced Simulation and Computing (ASC) campaign are now used to address three-dimensional issues in weapons performance.

NNSA also is working, through weapon refurbishment, to ensure that an aging stockpile is ready to meet Department of Defense requirements. The W87 Life Extension Program was completed in September 2004 and the remaining Life Extension Programs are progressing well. A significantly lower number of refurbishments are expected as a result of a reduced stockpile, with savings being realized in the next decade. We are also producing new tritium for the first time since 1988 and the new Tritium Extraction Facility at Savannah River is ahead of schedule and under budget. Los Alamos National Laboratory remains on track to certify a war reserve W88 pit by 2007. As articulated in our January 2005 Report to Congress, we are refining plans for a Modern Pit Facility.

The Nation continues to benefit from advances in science, technology and engineering fostered by the national security program activities, including cutting edge research and development carried out in partnership with many of the Nation's colleges, universities, small businesses and minority educational institutions. The NNSA programs, including three national laboratories, the Nevada Test Site, and the production facilities across the United States employ nearly 2,300 Federal employees and approximately 35,000 contractor employees to carry out this work.

We are also continuing to advance our nonproliferation objectives worldwide. In June 2002, the United States championed a new, comprehensive nonproliferation effort known as the Global Partnership. World leaders committed to provide up to $20 billion over 10 years to fund nonproliferation programs in the former Soviet Union. The NNSA contributes directly to this effort by carrying out programs with the international community to reduce and prevent the proliferation of nuclear weapons, materials and expertise. The security of our Nation and the world are enhanced by NNSA's ongoing work to provide security upgrades for military and civilian nuclear sites and enhanced border security in Russia and the Former Soviet Union. In the past year, we have completed comprehensive materials protection control and accountability upgrades at six Russian Navy and Strategic Rocket Forces nuclear weapon facilities, and we are now beginning efforts to install security upgrades at vulnerable Russian 12th Main Directorate sites.

We are planning a significant increase to the Megaports initiative, an effort to install radiation detection equipment at the world's largest seaports to screen large volumes of container traffic headed for the United States well before it gets to our shores. This is a relatively new program and we already have agreements in place with several countries and are looking for more. With the support of the Congress, we hope to complete installation of detection equipment at 24 ports by 2010. We are reducing the world's stocks of dangerous materials such as plutonium through NNSA-sponsored Fissile Materials Disposition programs in the United States and Russia as well as through elimination of Russian plutonium production. We have also initiated the Global Threat Reduction Initiative (GTRI) to identify, secure, remove, and/or facilitate the disposition of high-risk vulnerable nuclear and radio-

logical materials and equipment around the world that pose a threat to the United States and to the international community.

The Nation benefits from NNSA's work in partnership with the Department of Homeland Security to develop and demonstrate new detection technologies to improve security of our cities and ports. Perhaps the most tangible benefits to the Nation following the 9/11 terrorist attacks are the "first responder teams" of highly specialized scientists and technical personnel from the NNSA sites who are deployed across the Nation to address threats of weapons of mass destruction. These teams work under the direction of the NNSA Office of Emergency Operations, Department of Homeland Security and the Federal Bureau of Investigation to respond to nuclear emergencies in the United States and around the world. In the past year, these teams have provided support to such diverse groups and locations as . . . The teams adapt to changing technologies and evolving challenges associated with combating terrorism and accident/incident scenarios in today's world. Outstanding performance in training, exercises, and real world events continues to justify NNSA's reputation for having one of the world's premier nuclear and radiological technical emergency response capabilities.

The NNSA also works in partnership with the DOD to meet their needs for reliable and militarily effective nuclear propulsion for the U.S. Navy. In the past year, the Naval Reactors Program has completed the reactor plant design for the VIRGINIA-class submarine, and supported "safe steaming" of another 2 million miles by our nuclear-powered ships. They have continued their unsurpassed record of "clean up as you go", including remediating to "green grass" the former S1C prototype Site at Windsor, Connecticut, and completing a successful demonstration of the interim naval spent fuel dry storage capability in Idaho.

FISCAL YEAR 2006 BUDGET REQUEST

The fiscal year 2006 budget request totals $9.4 billion, an increase of $233.3 million or 2.5 percent. We are managing our program activities within a disciplined 5-year budget and planning envelope. We are doing it successfully enough to be able to address emerging new priorities and provide for needed funding increases in some of our programs—notably in Defense Nuclear Nonproliferation—within an overall modest growth rate by reallocating from other activities and projects that are concluded or being rescoped.

NNSA BUDGET SUMMARY

[In millions of dollars]

	Fiscal Year 2004 Comparable Appropriation	Fiscal Year 2005 Original Appropriation	Fiscal Year 2005 Adjustments	Fiscal Year 2005 Comparable Appropriation	Fiscal Year 2006 Request
Office of the Administrator	353	356	+1	357	344
Weapons Activities	6,447	6,226	+357	6,583	6,630
Defense Nuclear Nonproliferation	1,368	1,420	+2	1,422	1,637
Naval Reactors	762	808	−6	801	786
Total, NNSA	8,930	8,811	+353	9,164	9,397

The NNSA budget justification contains outyear budget and performance information as part of a fully integrated budget submission as required by Sec. 3253 of the NNSA Act, as amended (Public Law 106–65). This section, entitled Future-Years Nuclear Security Program, requires NNSA to provide to Congress with each budget request the estimated expenditures necessary to support the programs, projects and activities of the NNSA for a 5-fiscal-year period.

FUTURE YEARS NUCLEAR SECURITY PROGRAM (FYNSP)

[In millions of dollars]

	Fiscal Year 2006	Fiscal Year 2007	Fiscal Year 2008	Fiscal Year 2009	Fiscal Year 2010	Total
Office of the Administrator	344	358	372	387	402	1,863
Weapons Activities	6,630	6,780	6,921	7,077	7,262	34,671
Defense Nuclear Nonproliferation	1,637	1,674	1,711	1,748	1,787	8,556
Naval Reactors	786	803	821	839	857	4,106

FUTURE YEARS NUCLEAR SECURITY PROGRAM (FYNSP)—Continued

[In millions of dollars]

	Fiscal Year 2006	Fiscal Year 2007	Fiscal Year 2008	Fiscal Year 2009	Fiscal Year 2010	Total
Total, NNSA	9,397	9,615	9,825	10,051	10,308	49,196

This year's 5-year projections show a decrease of $496 million over the FYNSP approved for the fiscal year 2005 President's Request. Within this total, there is an increase associated with the transfer of the Environmental Management scope for projects at NNSA sites ($696 million). This increase is offset within the Department's overall budget by a corresponding reduction in the budget of the Environmental Management program. We have also programmed enhanced efforts in several NNSA programs during the 5-year period: Defense Nuclear Nonproliferation increases $1.4 billion; Safeguards and Security increases $979 million; Emergency Response activities increase $154 million; and Office of Administration increases $98 million. These increases are partially offset by reductions in Defense Programs (−$3.0 billion), the Facilities Recapitalization efforts (−$752 million), and Naval Reactors (−$64 million). NNSA plans to rebalance outyear funding during the fiscal year 2007–2011 PPBE process.

DEFENSE NUCLEAR NONPROLIFERATION

The Defense Nuclear Nonproliferation program is one area of the NNSA budget where mission priorities require us to request significant increases in funding for fiscal year 2006. The convergence of heightened terrorist activities and the associated revelations regarding the ease of moving materials, technology and information across borders has made the potential of terrorism involving weapons of mass destruction (WMD) the most serious threat facing the Nation. Preventing WMD from falling into the hands of terrorists is the top national security priority of this administration. The fiscal year 2006 budget request of $1.64 billion for Defense Nuclear Nonproliferation represents an unprecedented effort to protect the homeland and U.S. allies from this threat.

The Defense Nuclear Nonproliferation program goal is to detect, prevent, and reverse the proliferation of Weapons of Mass Destruction (WMD) while mitigating nuclear risk worldwide. Our programs address the danger that hostile nations or terrorist groups may acquire weapons of mass destruction or weapons-usable material, dual-use production or technology, or WMD capabilities, by securing or eliminating vulnerable stockpiles of weapon-usable materials, technology, and expertise in Russia and other countries of concern.

Over the last 4 years the United States, in collaboration with the international community through joint nonproliferation programs, has had much success in preventing the spread of weapons of mass destruction. Some of these successes supported by NNSA's Nuclear Nonproliferation Program include: a 2-year acceleration in securing 600 metric tons of weapons-usable material at 51 sites in Russia and the Newly Independent States; upgrading 13 nuclear facilities in the Newly Independent States in the Baltic region to meet international physical protection guidelines; and establishing the Megaports Initiative that I mentioned earlier.

The administration is requesting $1.64 billion to support activities to reduce the global weapons of mass destruction proliferation threat, about $214 million or a 15 percent increase over comparable fiscal year 2005 activities. The administration has targeted both the demand and supply side of the nuclear terrorism challenge with aggressive nonproliferation programs that have achieved a number of major successes in recent years. Through the Global Partnership with the G–8 nations, the United States is dedicating the necessary resources to combat this complex threat, committing to provide half of the $20 billion for this effort, including $1 billion in fiscal year 2006 in programs through NNSA, DOD and the Department of State.

For fiscal year 2006, $343.4 million is included to support the International Nuclear Materials Protection and Cooperation program to secure nuclear materials in the Former Soviet Union, a 16.6 percent increase over the fiscal year 2005 enacted appropriation. For over a decade, the United States has been working cooperatively with the Russian Federation to enhance the security of facilities containing fissile material and nuclear weapons. The scope of these efforts has been expanded to protect weapons-usable material in countries outside the Former Soviet Union as well. These programs fund critical activities such as installation of intrusion detection and alarm systems, and construction of fences around nuclear sites. Efforts to com-

plete this work and to secure facilities against the possibility of theft or diversion have been accelerated.

A number of major milestones for this cooperative program are on the near horizon and the fiscal year 2006 budget ensures that sufficient funding will be available to meet these milestones. Security upgrades will be completed for Russian Navy nuclear fuel and weapons storage by the end of fiscal year 2006 and for Rosatom facilities by the end of fiscal year 2008—both 2 years ahead of the original schedule. Russian Strategic Rocket Forces sites will be completed in 2007, 1 year ahead of schedule. Additionally, cooperation will begin with the nuclear warhead storage sites of the Russian Ministry of Defense's 12th Main Directorate. By the end of 2006, NNSA will have supported completion of security upgrades at nearly 80 percent of the sites covered by the current bilateral agreement to secure nuclear materials and nuclear warheads in Russia and the Newly Independent States.

Fiscal year 2006 funding for the Megaports initiative, another part of the International Nuclear Materials Protection and Cooperation program, is requested at $74 million, a $59 million increase, to continue to deploy radiation detection equipment at key overseas ports to pre-screen U.S. bound cargo containers for nuclear or radioactive materials. These materials could be concealed in any of the millions of cargo containers in various stages of transit throughout the world's shipping network.

However, the busiest seaports also provide an opportunity for law enforcement officials to pre-screen the bulk of the cargo in the world trade system. Under the Megaports Initiative, DOE cooperates with international partners to deploy and equip key ports with the technical means to detect and deter illicit trafficking in nuclear and other radioactive materials. This effort supports the U.S. Department of Homeland Security's Container Security Initiative. The fiscal year 2006 budget supports the completion of five ports, which will increase to 10 the number of ports equipped through the Megaports Initiative.

Increased resources are being requested for the Nonproliferation and Verification Research and Development program in fiscal year 2006. The budget of $272.2 million supports proliferation detection and nuclear explosion monitoring efforts. The additional $48.3 million above the enacted fiscal year 2005 appropriations will be used to leverage the technical expertise and experience of the National Laboratories and universities to provide a crucial boost to our basic and applied radiation detection and radiochemistry science efforts. This research will develop improved basic radiation detector materials and radiochemistry analytical capabilities, as well as the applied technologies that will enable fielding our advanced technology in support of global nonproliferation missions. We need detectors and capabilities that are more sensitive, smaller, durable, and economical—the increase in basic and applied research will help us to achieve that goal.

Funding for the Elimination of Weapons Grade Plutonium Production (EWGPP) in Russia is requested at $132 million in fiscal year 2006. This program will result in the permanent shutdown of three Russian nuclear reactors, which currently produce weapons-grade plutonium. These reactors, which are the last three reactors in Russia that produce plutonium for military purposes, also provide necessary heat and electricity to two Russian "closed cities" in the Russian nuclear weapons complex. This budget provides the funding needed to shutdown the three reactors through (1) refurbishment of an existing fossil fuel (coal) power plant in Seversk by 2008; and (2) construction of a new fossil-fuel plant at Zheleznogorsk by 2011. This will eliminate the production of 1.2 metric tons annually of weapons-grade plutonium. The program is of critical importance because plutonium that is never created does not have to be accounted for, does not need to be secured, and will not be available to be targeted by terrorists. The EWGPP program has been working with the Army Corps of Engineers (COE) to perform an independent cost review of both projects. The Seversk review has been completed and the COE found the project cost to be valid and reasonable. The Zheleznogorsk study will be completed later in fiscal year 2005.

At $98 million, the Global Threat Reduction Initiative (GTRI) program, a newly created initiative announced in 2004, brings together key activities that support the goal to identify, secure, remove and facilitate the disposition of high-risk, vulnerable nuclear and radiological materials and equipment around the world. Our Nation has begun to reap the benefits of this initiative with the successful completion of two shipments of Russian-origin fresh high-enriched uranium nuclear fuel to Russia from foreign research reactors. These shipments fall under one of several programs geared toward implementing the U.S. highly enriched uranium minimization policy.

The NNSA is requesting $653 million in fiscal year 2006 to continue to support the Fissile Materials Disposition program to dispose of surplus weapons-grade fissile materials under an agreement between the United States and Russia. Both coun-

tries have agreed to dispose of 34 metric tons of plutonium by converting it to a mixed oxide fuel and burning it in electricity-generating nuclear reactors.

We are working to design and build facilities to dispose of these inventories in the United States and are supporting concurrent efforts in Russia to obtain reciprocal disposition of similar materials. One of the key obstacles is an ongoing disagreement with Russia regarding liability protection for plutonium disposition work performed in that country.

This has resulted in a significant delay in the planned start of construction of the MOX Fuel Fabrication facilities and the Pit Disassembly and Conversion Facility. I am cautiously optimistic that we are over the hurdle on this issue but details still need to be negotiated and finalized. Please be assured that we remain committed to building these facilities and to the long-term objectives of the program. We will keep you posted as progress is made. The fiscal year 2006 net increase is primarily for the Off-specification HEU Blend-Down Project with TVA and increased oversight to support major construction of the MOX Fuel Fabrication facility in fiscal year 2006.

WEAPONS ACTIVITIES

The fiscal year 2006 budget request for the programs funded within the Weapons Activities appropriation is $6.63 billion, less than a 1 percent increase over fiscal year 2005. This request emphasizes programs supported by the Nuclear Posture Review, which directed that NNSA maintain a research, development, and manufacturing base that ensures the long-term effectiveness of the Nation's stockpile. This request also supports the facilities and infrastructure that must be responsive to new or emerging threats.

Directed Stockpile Work (DSW) is one of our areas of special emphasis this year with a fiscal year 2006 request of $1.4 billion, an 11 percent increase over fiscal year 2005. The increase is needed to ensure that we continue to meet DOD requirements. Without question, our focus remains on the stockpile, but we are looking ahead. The United States is continuing work to refurbish and extend the life of the warheads in the stockpile though the life extension program. Work on the life extensions are progressing well, with the W87 LEP being completed in September 2004. First Production Units are scheduled for three other systems, the B61, W76 and W80, in the fiscal year 2006–2009 timeframe.

In fiscal year 2006, DSW funding will support resumption of the Robust Nuclear Earth Penetrator (RNEP) feasibility and cost study with $4.0 million requested. Resumption of the RNEP study was requested by the Secretary of Defense after his personal review. I would like to point out that we are only asking for funds to complete a truncated study that began May 1, 2003—one system only, not two as originally proposed, so the costs will be lower. I would also like to emphasize that absolutely no decisions have been reached, there is no engineering development work planned which would require Congressional approval and there is no funding being requested past fiscal year 2007. We have also eliminated the contingency funding for follow-on work shown in last year's FYNSP. I believe the administration and the Congress need to have an important discussion about the need for this capability but it would be best to complete the feasibility and cost study so we can all make an informed decision.

Congress appropriated $9.0 million in fiscal year 2005 for the Reliable Replacement Warhead. We think this is an excellent way to reduce costs and maintain the stockpile and we have requested $9.4 million in fiscal year 2006, about a 4.7 percent increase, to continue this initiative.

Progress in other parts of the Stockpile Stewardship Program continues. The fiscal year 2006 request for Campaigns is $2.1 billion. This request funds a variety of Campaigns, experimental facilities and activities that continue to enhance NNSA's confidence in "science-based" judgments for stockpile stewardship, and provide cutting edge technologies for stockpile certification and maintenance. Without question, our Campaigns are providing immediate and tangible benefits to the stockpile.

While there is no reason to doubt the ability of the Stockpile Stewardship Program to continue to ensure the safety, security, and reliability of the nuclear deterrent, the Nation must maintain the ability to carry out an underground nuclear weapons test in the event of some currently unforeseen problems that cannot be resolved by other means. Consistent with the law, we are improving our readiness posture from the current ability to test within 24 to 36 months to an ability to test within 18 months. The fiscal year 2006 budget request of $25.0 million supports achieving an 18-month readiness posture by September 2006. We will achieve a 24-

month readiness posture in fiscal year 2005. But let me be clear, there are no plans to test.

The National Ignition Facility (NIF) at Lawrence Livermore National Laboratory (LLNL) continues to be an essential component of the Stockpile Stewardship Program. Consistent with the strong views of the Congress, we are continuing towards full commissioning of all 192 beams and focus on the 2010 ignition goal. To do this, however, we have had to accept additional risks and reduce some other inertial confinement fusion work at other sites. The fiscal year 2006 request of $460.4 million for the Inertial Confinement Fusion and High Yield Campaign, a 14 percent reduction from fiscal year 2005, reflects those reductions. Inertial fusion ignition is the greatest technical challenge ever pursued by the Department. Ignition has never been achieved in the laboratory and this scientific advance will benefit several national endeavors.

The Dual-Axis Radiographic Hydrodynamic Test Facility (DARHT) at Los Alamos National Laboratory (LANL) is already producing the highest quality images of simulated primary implosions ever obtained. As you can imagine, this was an area of very high interest during the LANL suspension. The first hydro test in many months is expected in March 2005 to support the W76 LEP. The fiscal year 2006 request of $27.0 million will support repair and commissioning of the second axis to provide time sequence information required for future weapon primary certification.

The Advanced Simulation and Computing (ASC) request for fiscal year 2006 is $660.8 million, a decrease of 4.7 percent from fiscal year 2005. This will fund the current and planned operating platforms and the codes employed by designers and scientists in Stockpile Stewardship Program. In fiscal year 2006, the ASC program will improve physics and materials models to more accurately represent the complex physical phenomena in our weapons systems. For example, incremental improvements in Plutonium Equation of State and materials models will be incorporated into our modern codes. Efforts in Verification and Validation of the simulation tools will lead to improved confidence in simulation as a key component of stockpile assessment. Fiscal year 2006 formal code releases will be provided to the design community for the W76–1 LEP.

The NPR recognized a long-term need for a Modern Pit Facility (MPF) to support the pit manufacturing requirements of the entire stockpile. NNSA's fiscal year 2006 request for MPF is $7.7 million, which is included in the $248.8 million request for the Pit Manufacturing and Certification Campaign. As articulated in our January 2005 Report to Congress, we are refining plans for a Modern Pit Facility. LANL remains on track to certify a war reserve W88 pit by 2007 and we are reestablishing the technology base to manufacture all pit types in the stockpile.

The Readiness Campaign request is $218.8 million in fiscal year 2006, a decrease of about 16 percent. The decrease is attributable mainly to the postponement of lower priority activities such as risk mitigation projects for the Life Extension Programs that are the least likely to impact life extension needs and also major items of equipment.

NNSA's Readiness in Technical Base and Facilities activities operate and maintain current facilities and ensure the long-term vitality of the NNSA complex through a multi-year program of infrastructure construction. About $1.6 billion is requested for these efforts, a decrease of 8.7 percent from fiscal year 2005. Funding for three new construction starts is requested and five candidate projects are in engineering design.

In fiscal year 2006, the budget request is $212.1 million for Secure Transportation Asset, a 6.2 percent increase over fiscal year 2005 levels, for meeting the Department's transportation requirements for nuclear weapons, components, and special nuclear materials shipments. Hiring of additional Federal agents and production of additional SafeGuards Transporters to meet the increased workload and new Design Basis Threat security requirements accounts for the increase.

The remainder of the Weapons Activities appropriation funding is for Nuclear Weapons Incident Response, Facilities and Infrastructure Recapitalization, and Safeguards and Security.

FACILITIES AND INFRASTRUCTURE RECAPITALIZATION

The Facilities and Infrastructure Recapitalization Program (FIRP) is essential to NNSA's ability to continue revitalization of the complex consistent with the Nuclear Posture Review. The program is delivering on its mission to reduce deferred maintenance and restore the condition of facilities and infrastructure across the complex. I consider FIRP to be a true NNSA "success story", and am pleased to note that the National Research Council has commended NNSA's progress and execution of

real property asset management as the most advanced within DOE. The fiscal year 2006 FIRP request of $283.5 million is a decrease of 9.6 percent over fiscal year 2005. For the outyears, we intend to rebalance the FIRP budget profile presented in this President's Budget, within the overall NNSA budget allocation, to ensure the program's ability to accomplish its mission and fulfill its commitment to Congress.

ENVIRONMENTAL MANAGEMENT

Environmental compliance is the focus of another management challenge to us. Let me begin by saying that the NNSA of the Future accepts responsibility for our environmental work at NNSA sites. The fiscal year 2006 budget reflects the functional transfer of scope, funding and the associated Federal staff from the Office of Environmental Management (EM) to the NNSA. These functional transfers align responsibility with accountability, ensure clear accounting of the total cost of ownership, and improve overall effectiveness and efficiency. The transfers resolve existing inefficiencies caused by the duplicate EM/NNSA chain of command that has existed since the inception of the NNSA Act. The NNSA Act precludes EM from providing direction to NNSA employees or contractors—yet EM has direct control of budgeting and funding authority, and is accountable for environmental activities at NNSA sites. The current EM/NNSA management structure results in confused lines of authority that impede cost-effective and timely implementation of the cleanup program at NNSA sites. I would like to highlight that this is a zero sum budget transfer, which results in no increases to the Department's overall funding or staffing. I believe the transfer is essential to the effective and efficient operations of environmental activities at NNSA sites and the only viable alternative for the NNSA.

The transferred mission from EM is included in NNSA's fiscal year 2006 Request of $174.4 million in Environmental Projects and Operations. The environmental transfer activities include environmental restoration, legacy waste management and disposition, and decontamination and decommissioning at sites where NNSA has continuing missions. Specifically, the transfers include: Kansas City Plant; Lawrence Livermore National Laboratory (Main Site and Site 300); Nevada Test Site (including the waste disposal facilities); Pantex Plant; Sandia National Laboratories; and the Separations Process Research Unit. Environmental activities at the Los Alamos National Laboratory and Y–12 National Security Complex are expected to transfer in fiscal year 2007. Additionally, the request in the Readiness in Technical Base and Facilities under operations of facilities includes a total of $47.0 million for newly generated waste at the Lawrence Livermore National Laboratory and the Y–12 National Security Complex (responsibility for newly generated waste at other NNSA sites was previously transferred by prior agreements).

We will manage all environmental activities that transfer within the newly established Environmental Projects and Operations Program, with the exception of newly generated waste, which will be managed by Defense Programs. We plan to use NNSA's successful Facilities and Infrastructure Recapitalization Program (FIRP) as the business model for managing our new environmental responsibilities. This includes strong central management and accountability for results; best-in-class business practices; and transparency in budget and program performance.

During this year of transition, NNSA, both in tandem with EM staff and "on our own", have been meeting with various outside organizations to not only discuss the proposed transfer, but also to gain insight into the ongoing issues and be able to represent NNSA's perspectives as well. We have routinely scheduled meetings with EPA Headquarters and Regions to discuss emerging regulatory issues, proposed rulemaking, and region-specific issues. NNSA staff, with EM, has engaged with regulators, Tribal entities, Citizen's Advisory Boards on cleanup end state definition and other topics pertinent to clean up and environmental compliance at all of the NNSA sites that will be transferring. NNSA staff has met with Tribal entities to entertain dialog on Tribal issues regarding this transfer. I personally addressed the combined intergovernmental meeting in December of the National Governor's Association, Energy Communities Alliance, National Governor's Association, National Association of Attorneys General, and State and Tribal Government Working Group.

NUCLEAR WEAPONS INCIDENT RESPONSE

The Nuclear Weapons Incident Response request of $118.8 million is 9.6 percent above the fiscal year 2005 level. This represents a 7.6 percent program growth to bring first responder capability more into line with their increased responsibilities and operations tempo. It replaces outdated and inoperable equipment, provides qualification training, and develops and fields a communications kit that resolves incompatibility issues. It further provides for development and implementation of a

first responder outreach program and provides a modest increase to the Technology Integration program, thus making the equipment purchase program more effective.

SAFEGUARDS AND SECURITY

Protecting the Nation's assets is one of our highest priorities. The growth of our requests for the Safeguards and Security budget over the last 5 years clearly reflects our commitment to security. In fiscal year 2001, our request for safeguards and security was $406.4 million. In fiscal year 2003, the request grew to $510.0 million—the first fiscal reflection of the more dangerous security environment recognized after 9/11. That funding and the increased amounts received in successive years has been used to further enhance our already strong security posture.

The fiscal year 2006 request for Safeguards and Security is $740.5 million. NNSA sites are on track to implement the requirements contained in the May 2003 Design Basis Threat Policy by the end of fiscal year 2006. Assessment and planning to meet the higher threat delineated in the October 2004 revision to the Design Basis Threat Policy will be completed in the third quarter of this year. The budget request adequately funds our efforts to meet this refinement in fiscal year 2006, but we are facing some shortfalls in subsequent years that we are going to have to deal with.

We have made significant improvements in the readiness of our protective forces and the physical plants they defend at the Los Alamos and Lawrence Livermore National Laboratories, the Y–12 National Security Complex, the Pantex Plant and the Nevada Test Site. Where we have found weaknesses based upon our own reviews or reviews conducted by others, these weaknesses have been fixed. We are moving ahead smartly to ensure the special nuclear materials entrusted to the NNSA are stored in modern secure facilities. To this end, we have begun moving material from the TA–18 site at Los Alamos to the Device Assembly Facility on the Nevada Test Site—one of our most modern facilities designed specifically for security. We have also accelerated the construction of the Highly Enriched Uranium Materials Facility at Y–12 for storage of materials currently located in some of our oldest facilities. We have worked through our difficulties with the security of classified removable electronic media at Los Alamos and have implemented strict policies and procedures to control such data and ensure accountability in the future.

NAVAL REACTORS

The Naval Reactors fiscal year 2006 budget request of $786 million is a decrease of $15.4 million from fiscal year 2005. The majority of funding supports sustaining the Navy's 103 operational nuclear reactors. 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.

Naval Reactors' operations and maintenance budget request is categorized into four areas of technology: Reactor Technology and Analysis; Plant Technology; Materials Development and Verification; and Evaluation and Servicing.

The $213.9 million requested for Reactor Technology and Analysis will support continued work on the design for the new reactor plant for the next generation of aircraft carriers, CVN–21. These efforts also support the design of the Transformational Technology Core (TTC), a new high-energy core that is a direct outgrowth of the Program's advanced reactor technology and materials development and verification work.

Reactor Technology and Analysis also develops and improves the analysis tools which can be used to safely extend service life beyond our previous experience base. 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 $143.8 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. Reactor plant performance, reliability, and safety are maintained through a full understanding of component performance and system condition over the life of each ship. Naval Reactors is developing compo-

nents to address known limitations and to improve reliability of instrumentation and power distribution equipment to replace aging, technologically obsolete equipment. 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 $145.1 million requested for Materials Development and Verification funds 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. More explicitly, materials in the reactor core and reactor plant must perform safely and reliably for the extended life of the ship. Funds in this category also support Naval Reactors' share of work at the Advanced Test Reactor (ATR), a specialized reactor plant materials testing facility operated by the DOE Office of Nuclear Energy, Science, and Technology.

The $183.4 million requested for Evaluation and Servicing sustains the operation, maintenance, and servicing of Naval Reactors' operating prototype reactor plants and the remaining share of Naval Reactors' ATR operations. 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 and the ATR will continue to meet testing needs for at least the next decade.

Evaluation and Servicing funds also support the implementation of a dry spent fuel storage production line that will put naval spent fuel currently stored in water pits at the Idaho Nuclear Technology and Engineering Center 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.

In addition to the budget request for the important technical work discussed above, program direction and facilities funding is required for continued support of the Program's operations and infrastructure. The $52.6 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 $16.9 million requested for construction funds will be used to build a materials development facility and a new office building. This will allow consolidation of work now occurring in several locations across the laboratories. Finally, the $30.3 million requested for program direction will support Naval Reactors' DOE personnel at Headquarters and the Program's field offices, including salaries, benefits, travel, and other expenses.

OFFICE OF THE ADMINISTRATOR

The fiscal year 2006 budget request of $343.9 million is about 3.7 percent below the fiscal year 2005 appropriation. The request reflects the completion the NNSA re-engineering initiative that streamlined support for corporate management and oversight of the nuclear weapons and nonproliferation programs.

Re-engineering resulted in an annual cost avoidance of over $40 million realized by the reduction of NNSA Federal staffing levels. In addition, the funding request is sufficient to support the new program for Historically Black Colleges and Universities, initiated by Congress in fiscal year 2005, through fiscal year 2006.

MANAGEMENT ISSUES

I would like to conclude by discussing some of NNSA's management challenges and successes. This committee is well aware of the problems that beset the Los Alamos National Laboratory during the past year. In July 2004 the Laboratory Director imposed a stand down on essentially all activities at the laboratory because of a series of security and safety problems, especially an inability to locate two classified computer disks. While a thorough investigation revealed that the "missing" disks never existed, it also revealed that there were serious problems with the management of safety and security at Los Alamos. Operations have now resumed and the laboratory is in the process of putting into place long-term corrective actions. I have provided the committee with a copy of the report prepared jointly by the former Deputy Secretary of Energy and myself that outlines the problems in detail. As a result of this action, I imposed a significant reduction in the management fee awarded to the University of California for the operation of Los Alamos.

Of particular concern to me was that the Federal oversight system had recognized the safety-related problems at Los Alamos in advance, but not the security problems. The committee has received an independent assessment of this weakness in oversight. I believe it was caused by leadership failures, inadequate numbers of trained Federal security experts, a local oversight approach that did not provide enough hands-on involvement, and a failure to provide sufficient headquarters supervision of the local Site Office. We are in the process of implementing corrective action in each area. I will keep the committee informed of our progress.

On the "success" side, the NNSA has fully embraced the President's Management Agenda through the completion of the NNSA re-engineering initiative by creating a more robust and effective NNSA organization. Additionally, NNSA's success has been recognized with consistently "Green" ratings, including Budget and Performance Integration. NNSA integrates financial data with its budget and performance information through implementation of its Planning, Programming, Budgeting and Evaluation (PPBE) process that was implemented simultaneously with the standup of the new NNSA organization established by the NNSA Act.

The PPBE process is in its third year of implementation, and seeks to provide a fully integrated cascade of program and resource information throughout the management processes, consistent with expectations in the NNSA Act. The cascade and linkages within NNSA mirror the Headquarters and field organization structures, and are supported by management processes, contracting, funds control and accounting documentation. The cascade and linkages are quite evident in our updated NNSA Strategic Plan, issued last November.

We at NNSA take very seriously the responsibility to manage the resources of the American people effectively and I am glad that our management efforts are achieving such results.

Finally, to provide more effective supervision of high-hazard nuclear operations, I have established a Chief, Defense Nuclear Safety and appointed an experienced safety professional to the position. I believe this will help us balance the need for consistent standards with my stress on the authority and responsibility of the local Site Managers.

CONCLUSION

In conclusion, I am confident that we are headed in the right direction. Our budget request will support continuing our progress in protecting and certifying our nuclear deterrent, 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. Above all, it will meet the national security needs of the United States of the 21st century.

Mr. Chairman, this concludes my statement. A statistical appendix follows that contains the budget figures supporting our request. My colleagues and I would be pleased to answer any questions on the justification for the requested budget.

NATIONAL NUCLEAR SECURITY ADMINISTRATION APPROPRIATION AND PROGRAM SUMMARY

[In millions of dollars]

	Fiscal Year 2004 Comparable Appropriation	Fiscal Year 2005 Original Appropriation	Fiscal Year 2005 Adjustments	Fiscal Year 2005 Comparable Appropriation	Fiscal Year 2006 Request
Office of the Administrator	353	356	+1	357	344
Weapons Activities	6,447	6,226	+357	6,583	6,630
Defense Nuclear Nonproliferation	1,368	1,420	+2	1,422	1,637
Naval Reactors	762	808	−6	801	786
Total, NNSA	8,930	8,811	+353	9,164	9,397

FUTURE YEARS NUCLEAR SECURITY PROGRAM (FYNSP)

[In millions of dollars]

	Fiscal Year 2006	Fiscal Year 2007	Fiscal Year 2008	Fiscal Year 2009	Fiscal Year 2010	Total
Office of the Administrator	344	358	372	387	402	1,863
Weapons Activities	6,630	6,780	6,921	7,077	7,262	34,671

FUTURE YEARS NUCLEAR SECURITY PROGRAM (FYNSP)—Continued

[In millions of dollars]

	Fiscal Year 2006	Fiscal Year 2007	Fiscal Year 2008	Fiscal Year 2009	Fiscal Year 2010	Total
Defense Nuclear Nonproliferation	1,637	1,674	1,711	1,748	1,787	8,556
Naval Reactors	786	803	821	839	857	4,106
Total, NNSA	9,397	9,615	9,825	10,051	10,308	49,196

WEAPONS ACTIVITIES APPROPRIATION

[In thousands of dollars]

	Fiscal Year 2004 Comparable Appropriation [1]	Fiscal Year 2005 Original Appropriation	Fiscal Year 2005 Adjustments [2]	Fiscal Year 2005 Comparable Appropriation	Fiscal Year 2006 Request
Weapons Activities:					
Directed Stockpile Work	1,290,525	1,316,936	−39,782	1,277,154	1,421,031
Science Campaign	258,856	279,462	−3,469	275,993	261,925
Engineering Campaign	265,206	260,830	555	261,385	229,756
Inertial Confinement Fusion and High Yield Campaign	511,767	541,034	−5,130	535,904	460,418
Advanced Simulation and Computing Campaign	715,315	703,760	−7,013	696,747	660,830
Pit Manufacturing and Certification Campaign	262,544	265,671	−2,651	263,020	248,760
Readiness Campaign	294,490	272,627	−11,181	261,446	218,755
Readiness in Technical Base and Facilities	1,649,959	1,670,420	116,033	1,786,453	1,631,386
Secure Transportation Asset	186,452	201,300	−1,591	199,709	212,100
Nuclear Weapons Incident Response	96,197	99,209	9,167	108,376	118,796
Facilities and Infrastructure Recapitalization Program	238,755	273,544	40,178	313,722	283,509
Environmental Projects and Operations	181,652	.....	192,200	192,200	174,389
Safeguards and Security	628,861	757,678	−5,749	751,929	740,478
Subtotal, Weapons Activities	6,580,579	6,642,471	281,567	6,924,038	6,662,133
Use of Prior Year Balances	−104,435	−86,000	72,912	−13,088	.....
Security Charge for Reimbursable Work	−28,985	−30,000	.....	−30,000	−32,000
Transfer from DOD Approprations	.....	−300,000	.....	−300,000	.....
Undistributed Adjustment	.....	.....	2,400	2,400	.....
Total, Weapons Activities	6,447,159	6,226,471	356,879	6,583,350	6,630,133

[1] Fiscal year 2004 reflects distribution of the rescission of $37,007,815 from the Energy and Water Development Appropriations Act for fiscal year 2004, approved reprogrammings, and comparability adjustments. Reference the ''Fiscal Year 2004 Execution'' table for additional details on these adjustments.

[2] The fiscal year 2005 adjustments column reflects distribution of the rescission of $49,811,768 from the Consolidated Appropriations Act, 2005 (Public Law 108–447), transfer of funds pursuant to a letter dated December 9, 2004, from the Chairmen of the Senate and House Appropriation Committees to the Secretary of Energy, and comparability adjustments. Reference the ''Fiscal Year 2005 Execution'' table for additional details on these adjustments.

DEFENSE NUCLEAR NONPROLIFERATION APPROPRIATION

[In thousands of dollars]

	Fiscal Year 2004 Comparable Appropriation [1]	Fiscal Year 2005 Original Appropriation [2]	Fiscal Year 2005 Adjustments [2]	Fiscal Year 2005 Comparable Appropriation	Fiscal Year 2006 Request
Defense Nuclear Nonproliferation:					
Nonproliferation and Verification Research and Development	228,197	225,750	−1,787	223,963	272,218
Nonproliferation and International Security	86,219	154,000	−62,682	91,318	80,173
International Nuclear Materials Protection and Cooperation	228,734	322,000	−27,349	294,651	343,435

DEFENSE NUCLEAR NONPROLIFERATION APPROPRIATION—Continued

[In thousands of dollars]

	Fiscal Year 2004 Comparable Appropriation [1]	Fiscal Year 2005 Original Appropriation [2]	Fiscal Year 2005 Adjustments [2]	Fiscal Year 2005 Comparable Appropriation	Fiscal Year 2006 Request
Global Initiatives for Proliferation Prevention	39,764	41,000	−325	40,675	37,890
HEU Transparency Implementation	17,894	20,950	−166	20,784	20,483
International Nuclear Safety and Cooperation	19,850	.....	.....	.....	.....
Elimination of Weapons-Grade Plutonium Production	81,835	40,097	3,872	43,969	132,000
Fissile Materials Disposition	644,693	624,000	−10,940	613,060	653,065
Offsite Source Recovery Project	.....	7,600	−7,600	.....	.....
Global Threat Reduction Initiative	69,464	.....	93,803	93,803	97,975
Subtotal, Defense Nuclear Nonproliferation	1,416,650	1,435,397	−13,174	1,422,223	1,637,239
Use of Prior Year Balances	−48,941	−15,000	14,880	−120	.....
Total, Defense Nuclear Nonproliferation	1,367,709	1,420,397	1,706	1,422,103	1,637,239

[1] Fiscal year 2004 reflects distribution of the rescission of $7,832,911 from the Energy and Water Development Appropriations Act for fiscal year 2004, approved reprogrammings, and comparability adjustments. Reference the ''fiscal year 2004 Execution'' table for additional details on these adjustments.

[2] The fiscal year 2005 adjustments column reflects distribution of the rescission of $11,363,176 from the Consolidated Appropriations Act, 2005 (Public Law 108–447), transfer of funds pursuant to a letter dated December 9, 2004, from the Chairmen of the Senate and House Appropriation Committees to the Secretary of Energy, and comparability adjustments. Reference the ''fiscal year 2005 Execution'' table for additional details on these adjustments.

NAVAL REACTORS APPROPRIATION

[In thousands of dollars]

	Fiscal Year 2004 Comparable Appropriation	Fiscal Year 2005 Original Appropriation	Fiscal Year 2005 Adjustments	Fiscal Year 2005 Comparable Appropriation	Fiscal Year 2006 Request
Naval Reactors Development (NRD):					
Operations and Maintenance	718,836	771,211	−6,170	765,041	738,800
Program Direction	26,552	29,500	−236	29,264	30,300
Construction	18,490	7,189	−57	7,132	16,900
Subtotal, Naval Reactors Development	763,878	807,900	−6,463	801,437	786,000
Less Use of prior year balances	−2,006	.....	.....	.....	.....
Subtotal Adjustments	.....	.....	.....	.....	.....
Total, Naval Reactors	761,872	807,900	−6,463	801,437	786,000

Public Law Authorization: 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 Authorization Act of 2002'', Title 32, ''National Nuclear Security Administration''; Public Law 108–375, National Defense Authorization Act, fiscal year 2005; Public Law 108–447, The Consolidated Appropriations Act, 2005.

OFFICE OF THE ADMINISTRATOR APPROPRIATION

[In thousands of dollars]

	Fiscal Year 2004 Comparable Appropriation	Fiscal Year 2005 Original Appropriation	Fiscal Year 2005 Adjustments	Fiscal Year 2005 Comparable Appropriation	Fiscal Year 2006 Request
Office of the Administrator Program Direction	352,949	356,200	851	357,051	343,869

FUNDING BY GENERAL GOAL

[Dollars in millions]

	Fiscal Year 2004	Fiscal Year 2005	Fiscal Year 2006	Dollar Change	Percent Change	Fiscal Year 2007	Fiscal Year 2008	Fiscal Year 2009	Fiscal Year 2010
General Goal 1, Nuclear Weapons Stewardship:									
Directed Stockpile Work	$1,291	$1,277	$1,421	+$144	+11.3	$1,459	$1,487	$1,516	$1,545
Science Campaign	259	276	262	−14	−5.1	264	264	264	264
Engineering Campaign	265	261	230	−31	−11.9	172	182	165	165
ICF and High Yield Campaign	512	536	460	−76	−14.2	462	462	462	462
Advanced Simulation and Computing Campaign	715	697	661	−36	−5.2	666	666	666	666
Pit Manufacturing and Certification Campaign	263	263	249	−14	−5.3	251	251	251	251
Readiness Campaign	294	261	219	−42	−16.1	220	220	220	220
Readiness in Technical Base and Facilities	1,650	1,786	1,631	−155	−8.7	1,746	1,817	1,916	2,000
Nuclear Weapons Incident Response	96	108	119	+11	10.2	125	131	138	144
Secure Transportation Asset	186	200	212	+12	6.0	223	234	246	258
Facilities and Infrastructure Recapitalization Program	239	314	284	−30	−9.6	289	296	302	308
Safeguards and Security	629	752	740	−12	−1.6	777	815	855	897
Program Direction	297	302	284	−18	−6.0	296	307	320	332
Offset/PY Balance	−133	−341	−32	+309	−90.6	−33	−34	−35	−36
Total Goal 1, Nuclear Weapons Stewardship	6,563	6,693	6,740	+48	0.7	6,916	7,097	7,285	7,477
General Goal 2, Control of Weapons of Mass Destruction:									
Nonproliferation and Verification Research & Development	228	224	272	+48	21.4	279	288	301	312
Nonproliferation and International Security	86	91	80	−11	−12.1	82	83	85	87
International Nuclear Material Protection and Cooperation	229	295	343	+48	16.3	351	358	366	373
Global Initiatives for Proliferation Prevention	40	41	38	−3	−7.3	39	39	40	41
HEU Transparency Implementation	18	21	20	−1	−4.8	21	21	22	22
International Nuclear Safeguard and Cooperation	20	.....	.....	.....	.....	.....	.....	.....	.....
Elimination of Weapons-Grade Plutonium Production	82	44	132	+88	200	138	137	140	143
Fissile Materials Disposition	645	613	653	+40	6.5	667	680	693	708
Global Threat Reduction Initiative	69	94	98	+4	4.3	98	102	101	101
Program Direction	56	55	60	+5	9.0	62	65	67	70
Offset/PY Balances	−49	−120	.....	120	−100	.....	.....	.....	.....
Total Goal 2, Control of Weapons of Mass Destruction	1,424	1,477	1,697	+220	14.9	1,735	1,775	1,815	1,857
General Goal 3, Defense Nuclear Power (Naval Reactors)	764	801	786	−15	−1.9	803	821	839	857

Use of PY Balances	−2	.....	.....	.....	.....	.....	.....	.....	.....
Total Goal 3, Defense Nuclear Power (Naval Reactors)	762	801	786	−15	−1.9	803	821	839	857
General Goal 6, Environmental Management: Environmental Projects and Operations	182	192	174	−18	−9.4	160	132	113	117
Total Goal 6, Environmental Management	182	192	174	−18	−9.4	160	132	113	117
Total, NNSA	8,929	9,164	9,397	+233	2.5	9,615	9,825	10,051	10,308

Note.—NNSA Program Direction expenditures funded in the Office of the Administrator appropriation have been allocated in support of Goals 1 and 2. Goal 1 allocation includes Federal support for programs funded by the Weapons Activities appropriation, as well as NNSA corporate support, including Federal staffing at the site offices. Goal 2 allocation includes Federal support for all Nuclear Nonproliferation programs. Program Direction expenditures for Naval Reactors, supporting Goal 3, are funded within the Naval Reactors appropriation.

FUNDING SUMMARY BY SITE

[In millions of dollars]

	Fiscal Year 2004	Fiscal Year 2005	Fiscal Year 2006 Office of the Admin	Fiscal Year 2006 Weapon Activities	Fiscal Year 2006 Nuclear Nonprolif	Fiscal Year 2006 Naval React	Total Fiscal Year 2006
Chicago Operations Office:							
Ames Laboratory	0.3	0.3	.....	.....	0.3	.....	0.3
Argonne National Laboratory	22.1	28.7	.....	3.2	33.0	.....	36.2
Brookhaven National Laboratory	34.1	61.1	.....	2.2	58.0	.....	60.2
Chicago Operations Office	488.4	439.8	1.7	33.7	391.0	.....	426.4
New Brunswick Laboratory	1.1	1.1	.....	.....	1.1	.....	1.1
Lawrence Berkeley National Laboratory	3.8	3.0	.....	.....	2.7	.....	2.7
Idaho Operations Office:							
Idaho National Engineering and Environmental Laboratory	65.8	70.5	.....	2.3	2.8	56.4	61.5
Idaho Operations Office	1.7	1.6	.....	1.9	0.7	.....	2.6
Kansas City Site Office:							
Kansas City Plant	428.7	363.5	.....	355.6	1.4	.....	357.0
Kansas City Site Office	6.0	6.0	6.3	.....	.....	.....	6.3
Livermore Site Office:							
Lawrence Livermore National Laboratory	1,208.2	1,170.6	.....	997.5	70.2	.....	1,067.7
Livermore Site Office	17.9	18.4	16.4	2.7	.....	.....	19.1
Los Alamos Site Office:							
Los Alamos National Laboratory	1,487.7	1,555.4	.....	1,351.8	219.2	.....	1,571.0
Los Alamos Site Office	15.6	15.5	15.5	0.9	.....	.....	16.4

FUNDING SUMMARY BY SITE—Continued

[In millions of dollars]

	Fiscal Year 2004	Fiscal Year 2005	Fiscal Year 2006 Office of the Admin	Fiscal Year 2006 Weapon Activities	Fiscal Year 2006 Nuclear Nonprolif	Fiscal Year 2006 Naval React	Total Fiscal Year 2006
NNSA Service Center:							
Atomic Energy of Canada, Ltd.	0.5	.....	.....	.....	.....	.....	.....
General Atomics	14.4	13.2	.....	14.5	.....	.....	14.5
National Renewable Energy Laboratory	1.8	1.8	.....	.....	1.8	.....	1.8
Naval Research Laboratory	25.3	35.6	.....	.....	.....	.....	.....
University of Rochester/LLE	62.4	72.6	.....	45.6	.....	.....	45.6
NNSA Service Center (all other sites)	502.7	442.3	91.1	264.7	201.8	.....	557.6
Nevada Site Office:							
Nevada Site Office	114.9	83.5	18.0	56.4	0.8	.....	75.2
Nevada Test Site	369.3	335.5	.....	376.0	1.3	.....	377.3
Oak Ridge Operations Office:							
Oak Ridge Institute for Science and Engineering	8.4	7.8	.....	7.9	.....	.....	7.9
Oak Ridge National Laboratory	118.1	171.2	.....	8.2	173.7	.....	181.9
Office of Science and Technical Information	0.1	0.1	.....	0.1	.....	.....	0.1
Y–12 Site Office	11.7	12.4	13.1	.....	.....	.....	13.1
Y–12 National Security Complex	761.3	906.0	.....	741.9	43.7	.....	785.6
Pacific Northwest National Laboratory	119.0	107.5	.....	4.0	119.1	.....	123.1
Oak Ridge Operations Office	23.7	27.5	.....	5.9	36.3	.....	42.2
Pantex Site Office:							
Pantex Plant	450.7	514.9	.....	441.8	5.7	.....	447.5
Pantex Site Office	11.5	12.0	12.3	0.1	.....	.....	12.4
Pittsburgh Naval Reactors Office:							
Bettis Atomic Power Laboratory	375.5	391.9	.....	.....	.....	388.2	388.2
Pittsburgh Naval Reactors Office	8.6	9.1	.....	.....	.....	9.4	9.4
Richland Operations Office: Richland Operations Office	0.8	1.3	.....	2.2	.....	.....	2.2
Sandia Site Office:							
Sandia National Laboratories	1,462.5	1,360.2	.....	1,119.5	137.9	.....	1,257.4
Sandia Site Office	14.9	12.9	13.1	0.3	.....	.....	13.4
Savannah River Operations Office:							
Savannah River Operations Office	15.2	11.3	.....	.....	13.0	.....	13.0
Savannah River Site Office	3.0	3.1	3.3	.....	.....	.....	3.3
Savannah River Site	296.2	305.1	.....	212.7	69.5	.....	282.2

Schenectady Naval Reactors Office:							
Knolls Atomic Power Laboratory	301.8	316.8	.....	6.5	.....	308.0	314.5
Schenectady Naval Reactors Office	6.7	6.8	.....	.....	.....	7.0	7.0
Washington DC Headquarters	247.7	602.7	159.8	601.8	52.5	13.9	828.0
Other	3.9	3.1	0.2	.....	.....	3.1	3.3
Subtotal, NNSA	9,114.0	9,503.7	350.8	6,661.9	1,637.5	786.0	9,436.2
Adjustments	−184.4	−340.8	−6.9	−32.0	.....	.....	−38.9
Total, NNSA	8,929.7	9,163.9	343.9	6,630.1	1,637.2	786.0	9,397.2

ATTACHMENT 1

STATEMENT OF AMBASSADOR LINTON F. BROOKS BEFORE THE SUBCOMMITTEE ON STRATEGIC FORCES, SENATE ARMED SERVICES COMMITTEE

INTRODUCTION

Mr. Chairman, thank you for the opportunity to appear before you today to discuss nuclear weapons programs and policies. I look forward to working with you in this new area of responsibility. I also want to thank all of the members for their strong support for critical national security activities. Before I begin my remarks, I want to say how pleased I am to be on this panel today with my colleague, Gen. James E. Cartwright, Commander of United States Strategic Command, who will present the military perspective on these issues.

Today, I will discuss with you the administration's emerging vision for the nuclear weapons enterprise of the future, and the initial steps we will be taking, with your support, to realize that vision. This vision derives from the work of the Nuclear Posture Review (NPR), the August 2003 Conference at Strategic Command, the follow-on NPR Strategic Capabilities Assessment and related work on a responsive nuclear infrastructure—key elements of which are addressed in Acting Assistant Secretary of Defense Mira Ricardel's written statement submitted for the record. The Nuclear Weapons Complex Infrastructure study, currently underway and scheduled to be completed this summer, will further refine this vision. I should add that Gen. Cartwright and the Directors at our three National Laboratories have provided both leadership and creative impetus to this entire effort.

The NPR has resulted in a number of conceptual breakthroughs in our thinking about nuclear forces—breakthroughs that have enabled concrete first steps in the transformation of our nuclear forces and capabilities. The recognition of a more dynamic and uncertain geopolitical threat environment but one in which Russia does not pose an immediate threat, the broad reassessment of the defense goals that we want nuclear forces to serve, and the evolution from a threat-based to a capabilities-based nuclear force have enabled substantial reductions in operationally-deployed strategic warheads through 2012 as reflected in the Moscow Treaty. This has also led to the deep reduction, directed by the President last May, in the total nuclear weapons stockpile required to support operationally-deployed forces. By 2012 the stockpile will be reduced by nearly one-half from the level it was at the time this administration took office resulting in the smallest nuclear stockpile in decades. This represents a factor of 4 reduction in the stockpile since the end of the Cold War.

Very importantly, the NPR articulated the critical role of the defense R&D and manufacturing base, of which a responsive nuclear weapons infrastructure is a key element, in the New Triad of strategic capabilities. We have worked closely with the Department of Defense to identify initial steps on the path to a responsive nuclear infrastructure and are beginning to implement them.

Building on this progress, I want to address the current state of our thinking about the characteristics of the future nuclear weapons stockpile and supporting nuclear infrastructure. Specifically, I will address three key questions:

—What are the limitations of today's stockpile and nuclear infrastructure?

—Where do we want the stockpile and infrastructure to be in 2030?

—What's the path to get there?

In laying out these ideas, the administration hopes to foster a more comprehensive dialog with Congress on the future nuclear posture. I must first emphasize, however, that today stockpile stewardship is working, we are confident that the stockpile is safe and reliable, and there is no requirement at this time for nuclear tests. Indeed, just last month, the Secretary of Energy and Secretary of Defense reaffirmed this judgment in reporting to the President their ninth annual assessment of the safety and reliability of the U.S. nuclear weapons stockpile. Like the eight certifications that preceded it, this year's assessment is based on a collective judgment of the Directors of our National Laboratories and of the Commander, U.S. Strategic Command, the principal steward of our nuclear forces. Our assessment derives from 10 years of experience with science-based stockpile stewardship, from extensive surveillance, from the use of both experiments and computation, and from professional judgment.

WHAT ARE THE LIMITATIONS OF TODAY'S STOCKPILE AND NUCLEAR INFRASTRUCTURE?

Although nuclear weapons issues are usually contentious, I believe that most would agree that if we were starting to build the stockpile from scratch today we would take a much different approach than we took during the Cold War. Indeed,

today's Cold War legacy stockpile is the wrong stockpile from a number of perspectives. Let me explain.

First, today's stockpile is the wrong stockpile technically. Most current warheads were designed to maximize explosive yield with minimum size and weight so that many warheads could be carried on a single delivery vehicle. During the Cold War, this resulted in the most cost effective approach to meet then existing military requirements. As a result, our weapons designers, in managing risk during a period when we used nuclear tests as part of the tool kit to maintain confidence, designed closer to the so-called "cliffs" in performance. If we were designing the stockpile today under a test moratorium and to support an operationally-deployed force in which most delivery systems will carry many fewer warheads than the maximum capacity, we would manage technical risk differently, for example, by "trading" size and weight for increased performance margins, system longevity, and ease of manufacture.

Second, the legacy stockpile was not designed for longevity. During the Cold War we introduced new weapons into the stockpile routinely and "turned over" most of the stockpile every 15–20 years exploiting an enormous production capacity. Today, our weapons are aging and now are being rebuilt in life extension programs that are both difficult and costly. Rebuilding nuclear weapons will never be cheap, but decisions taken during the Cold War forced the use of certain hazardous materials that, in today's health and safety culture, cause warheads to be much more costly to remanufacture. Maintaining the capability to produce these materials causes the supporting infrastructure to be larger and more costly than it might otherwise be.

More broadly, our nuclear warheads were not designed with priority to minimize overall demands on the nuclear weapons enterprise; that is, to minimize DOE and DOD costs over the entire life cycle of the warhead which includes design, development, production, certification, surveillance, deployment, life extension, retirement, and dismantlement.

As a result of these collective decisions, it is becoming more difficult and costly to certify warhead remanufacture. The evolution away from tested designs resulting from the inevitable accumulations of small changes over the extended lifetimes of these systems means that we can count on increasing uncertainty in the long-term certification of warheads in the stockpile. To address this problem, we must evolve our strategy from today's "certify what we build" to tomorrow's "build what we can certify."

The Cold War legacy stockpile may also be the wrong stockpile from a military perspective. The Nuclear Posture Review identified a number of capabilities shortfalls in the existing arsenal that could undermine deterrence in the future. Specifically, the NPR suggested that current explosive yields are too high, that our systems are not capable against hard and deeply buried targets, that they do not lend themselves to reduced collateral damage and that they are unsuited for defeat of biological and chemical munitions. The designs of the past do not make full use of new precision guidance technologies from which our conventional systems have fully benefited, nor are they geared for small-scale strikes or flexibility in command, control and delivery. We do not know when, if ever, we will need to field new capabilities to deal with these shortfalls. Nonetheless, it is vital that we maintain the capability to respond to potential future requirements.

The stockpile we plan for in 2012 is the wrong stockpile politically because it is probably still too large. The President's decision last May to reduce the stockpile significantly was taken in the context of continued progress in creating a responsive nuclear weapons infrastructure as part of the New Triad of strategic capabilities called for in the NPR. But we have a ways to go to get there. Until we achieve this responsive infrastructure, we will need to retain a substantial number of non-deployed warheads to hedge against a technical failure of a critical warhead or delivery system, or against unforeseen geopolitical changes. Because operationally-deployed forces are dominated by two weapons types—the W76 SLBM warhead and the W80 cruise missile warhead—we are particularly sensitive to technical problems involving these systems. We retain "hedge" warheads in large part due to the inability of either today's nuclear infrastructure, or the infrastructure we expect to have when the stockpile reductions are fully implemented in 2012, to manufacture, in a timely way, warheads for replacement or for force augmentation, or to act to correct unexpected technical problems. Establishing a responsive nuclear infrastructure will provide opportunities for additional stockpile reductions because we can rely less on the stockpile and more on infrastructure (i.e., ability to produce or repair warheads in sufficient quantity in a timely way) in responding to technical failures or new or emerging threats.

Finally, today's stockpile is the wrong stockpile from a physical security standpoint. During the Cold War the main security threat to our nuclear forces was from

spies trying to steal our secrets. Today, the threat to classified material remains, but to it has been added a post-9/11 terrorist threat that is difficult and costly to counter. We now must consider the distinct possibility of well-armed and competent terrorist suicide teams seeking to gain access to a warhead in order to detonate it in place. This has driven our site security posture from one of "containment and recovery" of stolen warheads to one of "denial of any access" to warheads. This change has dramatically increased security costs for "gates, guns, guards" at our nuclear weapons sites. If we were designing the stockpile today, we would apply new technologies and approaches to warhead-level use control as a means to reduce physical security costs.

Let me turn to issues of the nuclear weapons infrastructure. By "responsive" nuclear infrastructure 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. The elements of a responsive infrastructure include the people, the science and technology base, and the facilities and equipment needed to support a right-sized nuclear weapons enterprise. But more than that, a responsive infrastructure involves practical and streamlined business practices that will enable us to respond rapidly and flexibly to emerging Department of Defense needs.

Our current infrastructure is by no means responsive. A nearly complete halt in nuclear weapons modernization over the past decade, coupled with past under funding of key elements of our manufacturing complex has taken a toll on our ability to be responsive. For example, we have been unable to produce certain critical parts for nuclear weapons (e.g., plutonium parts) for many years. And today's business practices—for example, the paperwork and procedures by which we authorize potentially hazardous activities at our labs and plants—are unwieldy. But progress is being made. We restored tritium production in Fall 2003 with the irradiation of special fuel rods in a TVA reactor, and anticipate that we will have a tritium extraction facility on-line in time to meet the tritium needs of a reduced stockpile. We are restoring some lost production capabilities, and modernizing others, so that later this decade we can meet the scheduled startups of refurbishment programs to extend the life of three warheads in the legacy stockpile. We are devoting substantial resources to restoring facilities that had suffered from years of deferred maintenance. Finally, we have identified quantitative metrics for "responsiveness," that is, timelines to address stockpile problems or deal with new or emerging threats. These will help guide our program by turning the concept of responsiveness into a measurable reality.

That said, much remains to be done. Among other things, we must achieve the scientific goals of stockpile stewardship, continue facilities and infrastructure recapitalization at NNSA's labs and plants, construct a Modern Pit Facility to restore plutonium pit production, strengthen test readiness, streamline business practices, and transfer knowledge to the next generation of weapons scientists and engineers who will populate this responsive infrastructure. Our challenge is to find ways to carry this out that reduce duplication of effort, support consolidation of facilities and promote more efficient operations complex-wide. I want to stress the importance of a Modern Pit Facility even if the stockpile continues to shrink—sooner or later the effects of plutonium aging will require all our current pits to be remanufactured.

WHERE DO WE WANT THE STOCKPILE AND INFRASTRUCTURE TO BE IN 2030?

Although the legacy stockpile has served us well, it was designed to meet the requirements of the Cold War era, many of which are irrelevant or inadequate today. We need to begin now to transform to the nuclear weapons enterprise of the future—this means transformation to a smaller, less costly, more easily secured, safe and reliable stockpile as well as transformation of the supporting nuclear infrastructure. The two are, of course, intertwined—we see stockpile transformation as "enabling" transformation to a responsive nuclear infrastructure, and a responsive infrastructure as essential to reducing total stockpile numbers and associated costs.

Part of transformation will be to retain the ability to provide new or different military capabilities in response to DOD's emerging needs. Gen. Cartwright will discuss this aspect of transformation in more detail in his testimony.

But transformation involves more than retaining the capability to respond to new military requirements. My main responsibility is to assure the continued safety, security and reliability of the nuclear weapons stockpile. In this regard, even if we never received another DOD requirement for a new military capability for the nuclear stockpile, the concerns raised about our ability to assure the safety, security and reliability of the legacy stockpile over the very long term would still drive the need to transform the stockpile. And the concerns about responsiveness to technical

problems or geopolitical change would still mandate transformation of the weapons complex.

More broadly, we must explore whether there is a better way to sustain existing military capabilities in our stockpile absent nuclear testing. With the support of Congress, we are beginning a program—the Reliable Replacement Warhead (RRW) program—to understand whether, if we relaxed warhead design constraints imposed on Cold War systems (that have typically driven "tight" performance margins in nuclear design) we could provide replacements for existing stockpile weapons that could be more easily manufactured with more readily available and more environmentally benign materials, and whose safety and reliability could be assured with highest confidence, without nuclear testing, for as long as the United States requires nuclear forces. Such warheads would be designed specifically to facilitate less costly remanufacture and ease of certification of safety and reliability, and thus would reduce infrastructure costs needed to support that component of the stockpile. Because they would be designed to be less sensitive to incremental aging effects, they would dramatically reduce the possibility that the United States would ever be faced with a need to conduct a nuclear test in order to diagnose or remedy a reliability problem.

There is another reason why it is critical that we begin now to transform the stockpile. We have not developed and fielded a new warhead in 20 years, nor have we modified a warhead in nearly 10 years. We are losing expertise. We must train the next generation of nuclear weapons designers and engineers before the last generation, who honed its skills on nuclear testing, retires. If such training—and I cannot emphasize this strongly enough—is disconnected from real design work that leads to engineered systems, we will, as one laboratory director put it, "create not a new generation of weapons designers and engineers but a generation of analysts" who may understand the theory, but not the practice, of warhead development. If that happens, it would place at risk our capabilities for stockpile stewardship in the future.

Along these lines, as part of the transformation of the stockpile, we must preserve the ability to produce weapons with new or modified military capabilities if this is required in the future. Currently the DOD has identified no requirements for such weapons, but our experience suggests that we are not always able to predict our future requirements. The chief implication is that we must maintain design capability for efforts like those being carried out in the RRW program but also as a hedge against possible future requirements for new capabilities.

WHAT'S THE PATH TO GET THERE?

Let me briefly describe the broad conceptual approach for stockpile and infrastructure transformation. The "enabler" for such transformation, we believe, is the RRW program. To establish the feasibility of the RRW concept, we will use the funds provided by Congress last year and those requested this year to begin concept and feasibility studies on replacement warheads or warhead components that provide the same or comparable military capabilities as existing warheads in the stockpile. If those studies suggest the RRW concept is technically feasible, and if, as I expect, the Department of Defense establishes a requirement, we should be able to develop and produce by the 2012–2015 timeframe a small build of warheads in order to demonstrate that an RRW system can be manufactured and certified without nuclear testing.

Once that capability is demonstrated, the United States will have the option to:

—truncate or cease some ongoing life extension programs for the legacy stockpile;

—apply the savings from the reduced life extension workload to begin to transform to a stockpile with a substantial RRW component that is both easier and less costly to manufacture and certify; and,

—use stockpile transformation to enable and drive consolidation to a more responsive infrastructure.

We should not underestimate the very complex challenge of transforming the enterprise while it is operating at close to full capacity with on-going warhead life extension programs and potential evolving requirements. As a result, as we proceed down this path, we will look for opportunities to restructure key life extension programs to provide more "head room" for transformation. This could also provide, in the nearer term, opportunities to ensure appropriate diversity in the stockpile, making our nuclear deterrent less sensitive to single-point failure of a particular warhead or delivery system.

Once we establish a responsive infrastructure, and demonstrate that we can produce new (or replacement) warheads on a timescale in which geopolitical threats could emerge, and can respond in a timely way to technical problems in the stock-

pile, then we can go much further in reducing non-deployed warheads and meet the President's vision of the smallest stockpile consistent with our Nation's security.

Success in realizing our vision for transformation will enable us to achieve over the long term a smaller stockpile, one that is safer and more secure, one that offers a reduced likelihood that we will ever need to test again, one that reduces NNSA and DOD ownership costs for nuclear forces, and one that enables a much more responsive nuclear infrastructure. Most importantly, this effort can go far to ensure a credible deterrent for the 21st century that will reduce the likelihood we will ever have to employ our nuclear capabilities in defense of the Nation.

CONCLUSION

The administration is eager to work with the Congress to forge a broad consensus on an approach to stockpile and infrastructure transformation. The vision of our future nuclear weapons posture I have set forth today is based on the collective judgment of the Directors of our National Laboratories and of the Commander, U.S. Strategic Command. It derives from lessons learned from 10 years of experience with science-based stockpile stewardship, from many years of effort in planning for and carrying out the life extension programs for our legacy stockpile, and from coming to grips with national security needs of the 21st century as laid out in the NPR.

I hope that the committee finds our vision both coherent and compelling. But I must emphasize that it is simply that, a long-term vision, nothing more and nothing less. Much of it has not yet begun to be implemented in program planning, or is at the very early stages of development. But we believe it is the right vision to guide our near term planning and to ensure the Nation's long-term security. I ask for the committee's support and leadership as we embark on the path of transformation.

Thank you Mr. Chairman. I will be pleased to answer any questions.

RELIABLE REPLACEMENT WARHEADS

Senator DOMENICI. Very good. I thank you. And I think, based on what we have said, though Senator Feinstein clearly will want to proceed with some further specifics about her points of interest, you've covered most things fairly well.

I want to clarify, once again, so we'll be sure—Senator Feinstein alluded to testimony given by you heretofore before Armed Services Committee. I don't know if it's a House or the Senate——

Senator FEINSTEIN. It was the House.

Ambassador BROOKS. Senate, sir.

Senator FEINSTEIN. Was it——

Senator DOMENICI. House?

Ambassador BROOKS. The Senate. I believe the testimony——

Senator FEINSTEIN. I was——

Ambassador BROOKS [continuing]. You've got the Strategic Forces Subcommittee.

Senator DOMENICI. Okay.

Senator FEINSTEIN [continuing]. Referring to the House.

Senator DOMENICI. You were referring to the House. I'll refer to the Senate.

On, "What's the path to get there?", you commented, near the end of that paragraph, that if those studies suggest that the RRW concept, which we've just explained awhile ago, is technically feasible, and if, as I expect, the Department of Defense establishes a requirement, we should be able to develop and produce, by 2012–2015 time frame, a small build of warheads in order to demonstrate that the RRW system can be manufactured and certified without nuclear testing.

Now, I think that whatever the Senator from California is going to ask you about the House testimony, that we're probably talking about a similar concern, in terms of what is meant. So would you please elaborate? This language, "produce by, date, time frame, a

small build of warheads," we're not talking about building a new——

Ambassador BROOKS. No, sir, we are not.

Senator DOMENICI [continuing]. Nuclear weapon.

Ambassador BROOKS. Here's what will happen if there were no RRW program. We will take the warheads for the W76, the most numerous warhead in the stockpile, and we will put it through a Life Extension Program.

Senator DOMENICI. Right.

Ambassador BROOKS. And, at the end of that Life Extension Program, we will have a large number of warheads, which are identical—and so, subject to common-point failure; if something's wrong, it affects lots of warheads—and are built with all the Cold War constraints that I talked about.

So, what I am suggesting in that testimony is, if the research that we propose to conduct under the RRW program suggests that we can replace components in that warhead in a way that makes it safer to conduct surveillance, that reduces the amount of difficult materials in there, then the Department of Defense could formally say, "That's a good idea." And so, instead of taking the whole W76 force and rebuilding it, as built, we would rebuild some of them using these new concepts. What we would then have is a fraction of our warheads that were less subject to the problems that you inherently get because of the way we designed warheads when the single-most important thing was to put the maximum yield into the smallest weight. And I'm suggesting it might be possible to do that by 2012 or 2015. That's not a decision we've made; we don't know enough to make the decision. We know——

Senator DOMENICI. In any event, when the decision is to be made, the word—the words "a small build" does not mean a small build of new warheads.

Ambassador BROOKS. No, it means——

Senator DOMENICI. In any——

Ambassador BROOKS [continuing]. It means a small number of modified or remanufactured warheads——

Senator DOMENICI. Parts.

Ambassador BROOKS [continuing]. Incorporating——

Senator DOMENICI. Different parts.

Ambassador BROOKS [continuing]. These concepts, yes, sir.

Senator DOMENICI. Because that's being done pursuant to language—it's called "reliable replacement"——

Ambassador BROOKS. Yes, sir.

Senator DOMENICI [continuing]. "Program"——

Ambassador BROOKS. Yes, sir.

Senator DOMENICI [continuing]. Not of the missile, but Reliable Replacement Warhead program.

Ambassador BROOKS. Yes, sir, that's correct.

Senator DOMENICI. And nobody's suggested that we are not supposed to do that, because, as a matter of fact, that's what the whole effort that science-based stockpile stewardship is directed at.

Ambassador BROOKS. Yes, sir.

Senator DOMENICI. To find out whether they still have durability, whether they're still safe, whether they're still reliable. And if they're found not to be, we're not supposed to decide, "That's the

end of it, we shut 'em all down"; we're supposed to know about that, and something's supposed to happen.

Ambassador BROOKS. That's correct, sir.

TEST-SITE READINESS

Senator DOMENICI. Which comes to the next question. We have never said, to my knowledge, that we are going to close down the Nevada test range. As a matter of fact, even when we decided on the moratorium, my recollection is, we said it will have to constantly be maintained so that it will be ready if we need it. Is that correct? In, maybe, different words, but——

Ambassador BROOKS. That is correct. And the issue—and I do want to make a slight modification to one of those things made in the opening statement—the $25 million that is in this budget for test-site readiness, much of that is required as long as you're going to keep the test site ready at all. That's a relatively small fraction—and I'd have to give you the exact number for the record that is devoted to shortening that readiness. But we——

Senator DOMENICI. Well, Mr. Ambassador, we can argue that out up here, in due course, but, you know, some of us have thought, from—for a long time, 4 or 5 years, that the question is—should come up, and the Department would be put in a bad position when it was raised, that if we ever needed the range, it wasn't ready.

Ambassador BROOKS. Yes, sir, I agree with that.

[The information follows:]

UNDERGROUND NUCLEAR TEST READINESS

The fiscal year 2006 President's budget request includes $25 million to maintain test readiness timelines that are consistent with administration policy. The test readiness budget is thus less than 8 percent of the total funding to Nevada that directly or indirectly supports a viable test site. The test readiness budget pays for items not exercised by the experiment and infrastructure funds as detailed below. Test readiness examples are authorization basis documents and safety analyses for underground nuclear tests, updating of test procedures and agreements with local governmental authorities, the design and manufacture of Field Test Neutron Generators, new diagnostics, a study of seismic effects on the Las Vegas valley and maintenance of specialized equipment.

The test readiness budget is actually a small portion of the funding required to maintain the Nevada Test Site in a condition that would allow the NNSA to conduct an underground nuclear test. The bulk of the funding that maintains the Nevada Test Site comes from the amounts provided by the NNSA to Bechtel Nevada for maintenance of infrastructure and for the conduct of experiments in support of the stockpile stewardship program; for example the underground subcritical experiments. These funds total approximately $300 million.

Senator DOMENICI. And it might take a long, long time to get it ready. So what's the use of saying you ought to maintain it, if it takes 5, 6 years to get it ready? And you're saying it just happens that, at this point in history, we're saying it's time to do some improvements; and we conclude, therefore, we must be getting ready to test new weapons, which is not the case. Is——

Ambassador BROOKS. That is not——

Senator DOMENICI [continuing]. That correct?

Ambassador BROOKS [continuing]. The case.

Senator DOMENICI. All right. Now, that's not going to be believed by everybody, you understand. Some people are going to——

Ambassador BROOKS. True, nonetheless, sir.

Senator DOMENICI [continuing]. Some are going to say that isn't true. Maybe the lady on my right will say that isn't true. But I don't know who else to ask. I don't know who—we could put you all under oath, maybe we can ask that every person that has anything to do with it all swear that it isn't, but I'm—you know, I happen to believe that we need to improve the range. It's a great asset. And I hope we never use it. But I am one that does not believe it is absolutely certain that we will never have to use it. I'm not one of those, and I would never vote, and would probably do the best I could to see that that didn't happen.

NUCLEAR WEAPONS COMPLEX INFRASTRUCTURE STUDY

Now, having said that, there's three or four more, and I may submit them, but let me talk a little bit with you about the—whatever is going on in terms of a nuclear weapons complex infrastructure study.

Ambassador BROOKS. Yes, sir.

Senator DOMENICI. Now, I understand that there is such a study. I understand that it might have been time for such a study. And I have no argument with who's on it or that they have been—whether or not they've been busy trying to study and inventory. I understand they have. What I don't—what I'm very worried about—you see, I've been here long enough to know about a lot of studies, and there's lots of them been done that nothing happened. And I'm not so sure that's all good or bad. As far as us having done so many on security, I think that's very bad. We had at least five on what's wrong with security, and we never did anything. But we've had a lot of them, including one by the distinguished son of the founder of Motorola, a great doctor, who's now very old. But, anyway, he did a study, that carries his name, on how we should do this, how we should consolidate them. You might remember the——

Ambassador BROOKS. Yes, sir. The Galvin report, sir.

Senator DOMENICI. What's the name of the man?

Ambassador BROOKS. I think it's the Galvin report.

Senator DOMENICI. Yeah, Galvin. You know, he was looking about privatization and streamlining. Everybody looked at that and threw it away, too.

So, all I'm worried about is, whatever this study is, am I correct that, No. 1, it's not done—not finished?

Ambassador BROOKS. It's not done.

Senator DOMENICI. No. 2, nobody's signed onto it yet, is that right?

Ambassador BROOKS. That's correct.

Senator DOMENICI. The Secretary hasn't committed to any parts of it. Is——

Ambassador BROOKS. That's correct.

Senator DOMENICI [continuing]. That right?

Ambassador BROOKS. Yes, sir, that's correct.

Senator DOMENICI. You don't even know whether it's going to be the kind of thing that, in toto, you will support. Is that right?

Ambassador BROOKS. That's correct.

Senator DOMENICI. And there are people passing around ideas about what might be in it. You don't vouch for those, even if they come from your Department, right?

Ambassador BROOKS. That's correct.

Senator DOMENICI. There are some talking about which lab's going to grow, which lab's going to lose, which lab's going to have what. You have made no such decisions——

Ambassador BROOKS. We have made no such decisions, and it would be premature to do so. We've asked for a broad-based, open-ended, think-out-of-the-box study. And when we get it, we'll look at it, figure out what——

Senator DOMENICI. Right.

Ambassador BROOKS [continuing]. Makes sense and what doesn't.

SECURITY AT LOS ALAMOS NATIONAL LABORATORY

Senator DOMENICI. Now, I have just one last thing that really worries me. You know, it has—for a long time, Los Alamos National Laboratory has been synonymous with excellence. We all know that there's competition. Sandia is not competition, because they're different. Lawrence Livermore was built to be competitive. But it's only recently that, in the area of design and building and verifying the adequacy of our nuclear weapons, that—it's only recently that Lawrence Livermore has reached the heights that it has, vis-a-vis Los Alamos. Is that not correct? In the last 10 or 15 years. Los Alamos was premier, and building more and designing more——

Ambassador BROOKS. That's certainly true.

Senator DOMENICI. Right.

Now, what worries me, Mr. Secretary, is that they've had some problems on security, they've had some problems on management, but is it fair to say that none of that has impeached their competence and distinction as a great laboratory that has significant use and need to the defense of our country and to nuclear weaponry?

Ambassador BROOKS. Absolutely. The science at Los Alamos, as at other labs, is absolutely superb. Our concern with the safety and the security and management problems is because you've got to get them fixed so they can get back to doing what they do well, in science. I think we're making progress. The jury's still out on whether we're all the way there in fixing those problems.

Senator DOMENICI. Thank you very much.

Now, we'll go—Senator, you were here first, Senator Allard, so we're going to go to you, and then Senator Feinstein.

NUCLEAR WEAPONS STOCKPILE

Senator ALLARD. Mr. Ambassador, one of the things that seems to be happening, and I want you to verify this, is, throughout the world we continue to have countries that seem to be making nuclear weapons—Pakistan; India, I think, is of note; North Korea is—appears to be going that direction, they claim they are; and Iran, big question mark. I haven't heard Russia say anything about the fact that they've taken away their ability to produce more nuclear weapons, like we have done. And a number of other countries, some of them in the European community, seem to maintain that

capability, and yet we no longer are producing nuclear weapons. In fact, this President has called for a reduction in the nuclear warheads, through the stockpile. We've done more than that; we've even—actually pulled down some of our readiness, as far as nuclear warheads, with the Peacekeeper.

Ambassador BROOKS. Yes, sir.

Senator ALLARD. And a question that comes to mind—in comparison to what's happening with other countries, have—and maybe just from our own historical point of view, we have—I think we've had nuclear weapons stockpile down to the lowest level it's ever been for some time. Can you give me some idea of how we are, comparatively, historically, in the United States?

Ambassador BROOKS. When——

Senator ALLARD. I suspect we're down to historical levels.

Ambassador BROOKS. When the reductions the President approved last May are implemented in 2012, the stockpile will be lower than it has been in my professional lifetime. And I've been around for quite awhile.

I can't be more precise than that, because——

Senator ALLARD. It's a sensitive——

Ambassador BROOKS [continuing]. By long practice, the exact stockpile numbers, we do not discuss publicly, although I'll be more than happy to be very specific. And there's a report——

Senator ALLARD. In a——

Ambassador BROOKS [continuing]. For the Congress on this.

Senator ALLARD [continuing]. Different situation. I understand that. But, you know, I think we've made substantial gains in that, and I kind of—my view is that we can even do a better job if we have an opportunity to study what's happening in the stockpile. If we had a better understanding of what happens with aging——

Ambassador BROOKS. Right.

Senator ALLARD [continuing]. The various elements in the triggers, and had a better idea of what, you know, future risks might be. And it seems to me that with these studies, we could begin to resolve some of these questions, and maybe even have an opportunity to reduce that nuclear stockpile even more; particularly in the fact that our ability to target precisely is out there. And so, I'd like to hear you respond to that.

Ambassador BROOKS. Yes, sir. I believe, right now, that there are—first of all, the President has made it very clear, throughout his term in office, and even before, that he seeks the lowest nuclear weapons stockpile that's consistent with our national security. And he's demonstrated that through the actions that he took last year.

I believe that a more responsive infrastructure and a series of weapons that are easier to maintain will allow us to reduce further the number of spares that we keep; and, thus, continue to lead the world in showing nuclear restraint.

ADVANCED CONCEPTS

Senator ALLARD. And I think it's something that we can be proud of, but I also think that somehow or the other we have to be sure that we're able to maintain some sort of defensive structure, some deterrence that goes with that, where——

Ambassador BROOKS. Yes, sir.

Senator ALLARD [continuing]. Where we don't—we don't have our missile defense system in a posture yet where it's reliable. And so, we still have to rely, to a certain degree, on mutual-assured-destruction approach in order to prevent some of our adversaries from overstepping, I think, in many cases.

And is it fair to say that all you want to do at this point is to study concepts on what is actually feasible?

Ambassador BROOKS. Yes, sir.

Senator ALLARD. And nothing more?

Ambassador BROOKS. That's correct.

Senator ALLARD. And it's pretty clear, as I think we've mentioned time and time again, that our legislation there is set, we don't provide dollars for anything more than just a study.

Ambassador BROOKS. Yes, sir, that's absolutely correct.

Senator ALLARD. And so, I think it's pretty clear.

How much money is in your 5-year plan for this study?

Ambassador BROOKS. For the Robust Nuclear Earth Penetrator, $4 million in the budget that's before Congress, $14 million in what we project for 2007, and that's all.

Senator ALLARD. Is that enough money to complete the study?

Ambassador BROOKS. It's enough money to complete the study.

Senator ALLARD. So, not only do we not have any money in there for any production at all, we just don't have——

Ambassador BROOKS. We don't have any money for engineering development, either.

Senator ALLARD. We don't have enough money to complete the study.

Ambassador BROOKS. We'd have to come back to you twice more before you could get——

Senator ALLARD. Before you could have development.

Ambassador BROOKS [continuing]. To have the debate on production.

Senator ALLARD. Very, very good point.

Senator DOMENICI. Senator, would you yield on that?

Senator ALLARD. Yes, I'll be glad to yield.

RELIABLE REPLACEMENT WARHEAD

Senator DOMENICI. Senator, while you're on that question, we should follow up with a Reliable Replacement Warhead, which is right on line with what you're talking about, which is not the big penetrator.

Ambassador BROOKS. That's correct.

Senator ALLARD. That's correct. That's correct.

Senator DOMENICI. And that's a small amount of money, too.

Senator ALLARD. That's correct.

Senator DOMENICI. But it's also evaluating—and could you tell us how much money is in that?

Ambassador BROOKS. $9.4 million.

Senator DOMENICI. So anybody who thinks that's building warheads—I mean, you know, you can't even get the team hired if you're talking about that.

Senator ALLARD. I agree with you, Mr. Chairman.

And I'd like to address this—you know, we do have support from the Pentagon, and we've had—earlier this year, General Cart-

wright, Commander of U.S. Strategic Command, testified before the Senate Armed Services Committee that he strongly supports a study of the capabilities of a Robust Nuclear Earth Penetrator for the purpose of determining whether it can hold certain high value and deeply buried targets at risk. And, as I understand what his comments were, it's not—the result would not be a new nuclear weapon.

Ambassador BROOKS. That's correct.

Senator ALLARD [continuing]. And——

Ambassador BROOKS. But——

Senator ALLARD [continuing]. And you can——

Ambassador BROOKS. The result of this will just be a study.

Senator ALLARD. Yes. That is very important. And if the military needs to better understand the capabilities of any of these new technologies, it seems to me that you've got to do some studying. To do anything else seems to me totally irresponsible if you're concerned about the defense of this country.

Once the study is complete, and if the military asks you to further investigate, will you come back to the Congress for permission?

Ambassador BROOKS. Yes, sir. Not only because that's sensible, but because I'm not allowed to do anything else. I can't go beyond the study stage without a separate act of Congress, and if I go into engineering development, then I can't go to production without a third act of Congress, and each of those has to be preceded by a decision by the President. So, we are a long way from actually having a debate over fielding anything, if we ever get there. And I don't have any idea what will happen after the results of the study. It will depend, in part, I suspect, on our progress at holding these targets at risk conventionally, which is everybody's preferred method.

POTENTIAL ADVERSARIES NUCLEAR WEAPONS ACTIVITIES

Senator ALLARD. And, to kind of wrap up behind my starting comments, have you seen any evidence that would suggest that our potential adversaries have ceased their nuclear weapons activities in the last 20 years? Of course, Libya—I think maybe that would be the only example, but, other than for that——

Ambassador BROOKS. Well, yes——

Senator ALLARD [continuing]. Have you seen any evidence?

Ambassador BROOKS [continuing]. Of potential adversaries, Libya's probably the only example. South Africa is the other example of a country that clearly went the nuclear route, and then appears to have walked back from it.

There is certainly evidence that the Russian Federation is reducing their overall deployed levels, but they continue to produce nuclear weapons. And I believe that to be true of all of the nuclear powers, both the recognized ones—with the caveat that our knowledge of what's actually happening in North Korea is not as detailed, your comment is correct, they have stated they have nuclear weapons, they have shown things to visitors, which the visitors say looked like nuclear weapons, but it's not hard to make something that looks like nuclear weapons. I don't know if they have nuclear

weapons. The general assessment of almost everybody is, they do; but numbers are——

Senator ALLARD. Hard to come by.

Ambassador BROOKS [continuing]. Very difficult to——

Senator ALLARD. Yeah.

Ambassador BROOKS [continuing]. To ascertain.

WEAPONS LABORATORIES STAFFING

Senator ALLARD. And, you know, from a manpower standpoint in our laboratories, would you comment on the manpower shortage—I'd call a critical manpower shortage—on the know-how of how to manage these weapons with our physicists and scientists?

Ambassador BROOKS. I want to distinguish two things. Particularly in the aftermath of 9/11, the combination—what always attracts people to the weapons laboratories is a combination of very great science and the opportunity to serve the country, from a security standpoint. I think there are many more young scientists now for whom national security is a motivator in the aftermath of 9/11. And so, I think, in terms of the new Ph.D. at the beginning of his or her career, we're not doing too badly.

The area where we're very worried is the people who have had the experience of facing tough design challenges. And those people are disproportionately, almost exclusively, in their late 50's and older, and they will be retiring. One of the things that we will get from the RRW program, which requires the same kind of intellectual skill of understanding in these very complex entities—if you change this, if you take out this material that you put in, after all, for a reason, if you replace this with a simpler component, what happens? And exercising those skills by the older generation will provide a way to mentor the younger generation and to kind of pass on some of that hard-won knowledge. It's also true that, because of the success of science-based stockpile stewardship, we are gaining greater technical and conceptual understanding. And so, the new generation will be able to learn, by looking at analysis, things that the older generation had to learn by going out and doing underground testing.

So, I think it's important to worry. I am not panicked about this. I mean, you know, some of these people, they're national treasures, and when they leave it's going to be very tough to replace them. I refer to my colleague on my left.

SECURITY AT WEAPONS LABORATORIES

Senator ALLARD. Mr. Chairman, one final point. You have referred, in your comments, about the security at the laboratories. The Ambassador's referred to the security of the laboratories. And I remember a comment by Senator Simpson one time, who says, "How soon they forget." And it seems to me we have forgotten about some of our security issues at our labs and some of the problems we've had in the past, and how we're trying to correct those. And when we have the reductions in spending, one of the first things that come to my mind, how are we going to maintain the proper security environment that we need around those labs?

And I'll conclude with that. Thank you.

Ambassador BROOKS. Yes, sir.

Senator DOMENICI. Senator Feinstein.

Senator FEINSTEIN. Thank you very much——

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

RELIABLE REPLACEMENT WARHEADS

Senator FEINSTEIN [continuing]. Thank you very much, Mr. Chairman.

I would like, if I might, if you would approve, place in the record some letters on the RRW, my letter of February 9 to Secretary Bodman, his response of March 4, and my subsequent letter of April 12.

Senator DOMENICI. They're part of the record, if that's what you desire.

Senator FEINSTEIN. Thank you very much.

[The information follows:]

DIANNE FEINSTEIN
CALIFORNIA

COMMITTEE ON APPROPRIATIONS
COMMITTEE ON ENERGY AND NATURAL RESOURCES
COMMITTEE ON THE JUDICIARY
COMMITTEE ON RULES AND ADMINISTRATION
SELECT COMMITTEE ON INTELLIGENCE

United States Senate
WASHINGTON, DC 20510-0504
http://feinstein.senate.gov

February 9, 2005

The Honorable Samuel Bodman
Secretary
United States Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Dear Secretary Bodman:

Thank you for taking the time to come to my office last week to discuss FY 06 funding of the Robust Nuclear Earth Penetrator (RNEP) program. I appreciate your effort in coming to me personally about this and hope that we can maintain an ongoing dialogue on this important subject.

My purpose in following up with you is to request additional information on the Department of Energy's Reliable Replacement Warhead program.

Specifically, I would like to know:

- What is the purpose and scope of the program?
- Is the goal to replace existing warheads with new designs or warheads or to refurbish and increase the reliability of existing nuclear warhead types?
- Will the program lead to nuclear testing?
- Could this program lead to the introduction of new nuclear weapons?

The Fiscal Year 2005 Omnibus appropriations bill provided $9 million for the program and the President's FY 2006 budget requests an additional $9 million. In a February 7, 2005 article in the *New York Times*, John Harvey, director of policy planning at the National Nuclear Security Administration called the program "important" and stated that "the goal is to see if we can make smarter, cheaper and more easily manufactured designs that we can readily certify as safe and reliable for the indefinite future — and do so without nuclear testing."

As we discussed in our meeting last week, I have worked to eliminate funding for "low yield" nuclear weapons and the Robust Earth Nuclear Penetrator (RNEP) because I believe such programs could re-open the nuclear door and seriously undermine U.S. national security interests and nuclear nonproliferation efforts. It is important for me to understand that the Reliable Replacement Warhead program will make a positive contribution to the safety and reliability of existing warheads and is not another attempt to resume nuclear testing and field new nuclear weapons.

Again, I enjoyed meeting you last week and I look forward to working with you on issues of mutual concern in the future. Thank you for your attention to this request and I look forward to hearing from you.

Sincerely,

Dianne Feinstein
United States Senator

DF:kl

The Secretary of Energy
Washington, DC 20585

March 4, 2005

The Honorable Dianne Feinstein
United States Senate
Washington, D.C. 20510

Dear Senator Feinstein:

I have received your letter dated February 9, 2005, concerning the Reliable Replacement Warhead (RRW) program. I appreciate the opportunity to continue our dialog on nuclear weapons issues and, in particular, to provide you with additional information about the RRW program.

I assure you that whatever path the RRW program takes, we will be well-coordinated with the Department of Defense (DoD). We will follow all applicable Department of Energy and DoD guidance specified by the Congressionally established Nuclear Weapons Council and will fully meet our obligations to the Congress.

Specifically, to answer your questions:

What is the purpose and scope of the program? In order for the United States to sustain the nuclear weapons stockpile indefinitely, we believe it will be necessary to have the capability to replace most of the components in the weapons in the present stockpile. Therefore, we are beginning a program to understand whether, if we relaxed some of the warhead design constraints imposed on Cold War systems (e.g., high yield to weight ratios), we could provide components for existing stockpile weapons that could be more easily manufactured and whose safety and reliability could be certified with assured high confidence, without nuclear testing. We intend that such an effort will also result in reduced infrastructure costs for supporting the stockpile.

Is the goal to replace existing warheads with new designs or warheads or to refurbish and increase the reliability of existing nuclear warhead types? In the past, during the Cold War, when we were "turning over" the stockpile every 20 years or so, our modernization efforts generally focused on fielding new warheads with new military capabilities. The RRW program is different. The focus is to extend the life of those military capabilities provided by existing warheads. Thus I expect warheads that might ultimately result from this program to meet the military capabilities of the warheads they replace and to be delivered by existing delivery systems. We need to complete the concept and feasibility studies before we can characterize specific features of feasible RRW options in detail.

Will the program lead to nuclear testing? No. The intent of the RRW program is to identify replacement options that could be fielded without nuclear testing.

Could this program lead to the introduction of new nuclear weapons? The focus of the RRW program is to extend the life of those military capabilities provided by existing warheads, not develop warheads for new or different military missions. If, in the future, the DoD identifies requirements for new or different military capabilities, it is conceivable that certain of the concepts identified in the RRW program could be applied in the development of warheads to meet those new requirements. That is not, however, the purpose of the RRW program and, in any event, no new warhead could be developed or fielded without the specific authorization of Congress.

If you have any questions, please contact me or Ms. Jill Sigal, Acting Assistant Secretary for Congressional and Intergovernmental Affairs, at (202) 586-5450.

Sincerely,

Samuel W. Bodman

DIANNE FEINSTEIN
CALIFORNIA

COMMITTEE ON APPROPRIATIONS
COMMITTEE ON ENERGY AND NATURAL RESOURCES
COMMITTEE ON THE JUDICIARY
COMMITTEE ON RULES AND ADMINISTRATION
SELECT COMMITTEE ON INTELLIGENCE

United States Senate
WASHINGTON, DC 20510-0504
http://feinstein.senate.gov

April 12, 2005

The Honorable Samuel Bodman
Secretary
United States Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Dear Secretary Bodman:

Thank you for your March 4 response to the letter I sent you regarding the Reliable Replacement Warhead (RRW) program. I appreciate your willingness to engage in a dialogue on nuclear weapons issues and would like to take this opportunity to ask a few additional questions.

In your letter you state that the purpose and scope of the RRW program is to determine whether "we could provide components for existing stockpile weapons that could be more easily manufactured and whose safety and reliability could be certified with assured high confidence, without nuclear testing". In addition, the focus of the program "is to extend the life of those military capabilities provided by existing warheads, not [to] develop warheads for new or different military missions."

I appreciate these assurances about the goal of the RRW program. I was concerned, however, that you noted the RRW effort as possibly being a springboard for the development of a new generation of nuclear weapons. Specifically, you assert that "if, in the future, the DoD identifies requirements for new or different military capabilities, it is conceivable that certain concepts identified in the RRW program could be applied in the development of warheads to meet those requirements."

Your statement leaves open the possibility that research associated with the RRW program could be used for the development of new warheads with new military capabilities at a later time. In addition, your letter does not specifically rule out the development of "new" warheads as a part of the current program.

Given my concerns, I would appreciate clarification on the following points:

- When you state that "certain concepts" in the RRW program may serve as the basis for "new or different military capabilities", what exactly do you mean? Please provide a comprehensive explanation as to (1) what these "certain concepts" are, and (2) how exactly appropriated funds for the RRW may be expended to develop these "certain concepts."

- When you state that it is "conceivable" that "certain concepts identified in the RRW program applied in the development of warheads" could lead to "new or different military capabilities", how likely is this? Do you have any information indicating that DoD has begun the process of identifying requirements for such new or different military capabilities? If so, what is that information?

As you know, I strongly believe that the development of new nuclear weapons will only encourage the very proliferation we are trying to prevent thereby putting American lives and U.S. national security interests at risk. Congressional support for the RRW program will depend on a clear and unambiguous statement of its scope, purpose, and goals to ensure that it is consistent with our nonproliferation efforts and will not lead to unintended results.

Thank you for your attention to this request and I look forward to hearing from you.

Sincerely,

Dianne Feinstein
United States Senator

DF:rwh

Senator FEINSTEIN. In the Secretary's March 4 response to me, to the question, "Could this program lead to the introduction of new nuclear weapons?", here is his response, "The focus of the RRW program is to extend the life of those military capabilities provided by existing warheads, not develop warheads for new or different military missions. "If"—there's always an "if" or a "but"—"If, in the future, the DOD identifies requirements for new or different military capabilities, it is conceivable that certain of the concepts identified in the RRW program could be applied in the development of warheads to meet those new requirements."

Now, how does that not open the door to new nuclear weapons?

Ambassador BROOKS. Let me try, Senator. And let me—and I—we have a problem. I mean, we, on my end of the street. And our problem is, we want to be as complete and accurate as possible so we can't be accused of misleading the Congress. Knowledge is fungible. Everything I learn doing anything associated with a nuclear weapon potentially will help me if the Department of Defense ever decides they want something fundamentally new. We just gave an example. We're going to get people who are going to learn to think a little bit about, "What does it mean you do this or that to change component of a weapon?" And so, what the Secretary meant when he wrote that was to simply make it clear that we acknowledge the inevitable, inescapable fact that if you learn more things you can use that knowledge in a variety of ways. We wanted to recognize that fact, then make it clear that's not why we're doing this program. We don't envision this program as leading to new weapons.

I think, as the Secretary's letter says, it's not the purpose of the RRW program, and I think he also, if I remember his letter correctly, acknowledged—I mean, he'd have to remind you; you know, but he wanted to make sure you knew that he knows that we couldn't go forward on anything without the Congress.

Senator FEINSTEIN. Oh, I understand that. And you—I saw the twinkle in your eye, because you know that we fenced the program. I think it's at 6.3. And——

Ambassador BROOKS. Yes, ma'am.

Senator FEINSTEIN [continuing]. So, my next question was going to be—I would assume, then, that 2007 takes you up to 6.3.

Ambassador BROOKS. Are we talking about the——

Senator FEINSTEIN. We're talking about the bunker buster.

Ambassador BROOKS [continuing]. Going beyond 2007 would take you—2007 is 6.2——

Senator FEINSTEIN. 2007 is——

Ambassador BROOKS [continuing]. 6.2.

Senator FEINSTEIN [continuing]. 6.2?

Ambassador BROOKS. Yes, the same as 2005. 2006–2007 are the same thing, in terms of that classic definition of the steps you go. To go beyond would require, (a) money we haven't programmed, and, (b) approval you haven't given.

Senator FEINSTEIN. Right. And that's when—to go into 6.3——

Ambassador BROOKS. Yes, ma'am.

Senator FEINSTEIN [continuing]. Which is the more active engineering——

Ambassador BROOKS. Engineering development.

Senator FEINSTEIN [continuing]. You would have to come back to us for——

Ambassador BROOKS. Yes, ma'am.

RELIABLE REPLACEMENT WARHEADS

Senator FEINSTEIN [continuing]. Permission. Yes, I think that's good.

Now, back to the RRW. You don't plan on testing these new warheads?

Ambassador BROOKS. No. No. In fact, as we go to the laboratories and ask them to start thinking about what approach they might use, technically, to this component replacement, one of the con-

straints we're going to put is, they have to be able to say they believe that they'll be able to certify—that is, if they—whatever we choose to replace, whether it's the explosive or remove certain materials, we're actually going to be able to certify that without nuclear testing. There's absolutely no intent that this program be——

Senator FEINSTEIN. See, that's another thing. I find it hard to believe that you would actually develop a new warhead as a replacement that would go into a military situation without actually testing it before. I find it difficult to believe that a President wouldn't want it tested.

Ambassador BROOKS. Well—and I would have found it difficult to believe 15 years ago. That's why we've come to you for the last decade to get all this money for science-based stockpile stewardship, because what we will do is constrain the changes that we make to those that we don't need to use underground testing. And because we have a better understanding, both of subcritical experiments, things that aren't nuclear testing, as you're using the term, because we have better computation, that'll still let us do modification. I mean, that's not new. When we do the life-extension programs, I say we rebuild them just the way they were built, and that's not actually——

TEST READINESS

Senator FEINSTEIN. And then why move up time-to-test to 18 months? Why is that——

Ambassador BROOKS. A completely different reason, unrelated to RRW. The—and here's how we got to 18 months. We believe that there is no need to test now. We don't foresee any need to test. But if our surveillance program reveals a serious problem with a warhead that is crucial to the stockpile, I certainly, and I expect the professional military, would go to the President and say, "We may need to test, either to confirm the problem or to make sure of the fix." Now, if you look back in history when we were testing, and when we did see problems, and you say, "About how long did it take us from the identification of the problem to when we were ready to do an experiment and design it?"—and a lot of this stuff you can't do in advance, because you don't know what the problem is—18 months seemed to be a roughly appropriate number. Shorter than that, and you were paying money for readiness you couldn't use, because the experiment wouldn't be ready. Longer than that, and you were running the risk of being ready to test to find out whether you had corrected an important problem, but the test site wasn't ready. That's 18 months.

Is 18 the right number? Well, 17 or 20. I mean, nobody can tell you that. That's—18 is certainly better than 3 years. Is it a big deal between the 24 months and—I don't—that's how we got to 18, and there's not a whole lot more science to it than that.

Senator DOMENICI. You can go ahead, sir.

RELIABLE REPLACEMENT WARHEADS

Dr. BECKNER. Yes, could I? Let me return to the question of RRW and whether that inevitably might lead you to the need to test. The fact is that the designs that will be worked on within that concept will go back in time to earlier designs, which were heavier,

in some cases larger, but for which we do have a database. It's fairly old, but, as you know, weapons have been tested now for many, many years, over 1,000 of them. So, the intent is, when they work on these ideas, is to utilize data that does tie back to——

Senator FEINSTEIN. The test.

Dr. BECKNER [continuing]. Former tests. So, we're not going to go out into completely new territory with any of these ideas.

PITS

Senator FEINSTEIN. Okay. Now, two I-can't-understand-for-the-life-of-me questions. The first I-can't-understand-for-the-life-of-me question is why you need 450 pits, why you've been so persistent on 450 pits, when everything I read says you don't need 450 pits to modernize your present fleet. And the report on the——

Ambassador BROOKS. Says we don't need it.

Senator FEINSTEIN [continuing]. Quality isn't due until 2006. So why are you moving so aggressively, and have been for the last couple of sessions, toward 450 pits?

Ambassador BROOKS. Senator, with the greatest respect, nobody who works for me, or nobody for whom I have worked for, has ever said 450. What we did was, when we did the environmental impact statement for NEPA, we took the broadest possible range. I've forgotten how they got the upper limit, but they said we had to analyze within the broadest possible range. I have said before, and I will say now, I think it is very difficult to imagine anything like 450. I believe the report we submitted to Congress said that we thought it would probably be in the range of 150.

Let me explain to you what—the reason for the fuzziness. Let's say that the Congress lifts the restriction, I get the site, and we build this thing, and it starts producing pits around 2020. At that point, the newest pit in the stockpile will be 30 years old, because we stopped making them. We don't talk about specific numbers of the stockpile, but let's just say that you had 3,000 weapons deployed, spare, pits that aren't in there. Let's just say you had 3,000. I made the number up. All right? If, in fact, it turns out that the lifetime of plutonium is 45 years, then we have 25 years left on that lifetime to get through all 3,000 of those. So, you say, okay, and you do a simple division, and you get about 150.

If, on the other hand, you delay the modern pit facility and nothing else changes, but you delay it 5 years, now all of a sudden you've got a shorter time to get through that same number of pits. And so, the number you have to put through each year goes up. If the number is greater than 3,000, then, obviously, you have more.

So we've got a number of variables we don't know. The way you make—so the way you hedge against that is, you say, well, with most plausible stockpiles, you can convince yourself you're going to need about 150, and then you have the capability sometime in the next decade, if that turns out to the wrong number, because, in fact, plutonium lifetime is much shorter than we now expect, then you expand it.

The reason you don't want to wait and say, "Well, let's do all of the analysis that will let us narrow down the lifetime of plutonium": two reasons. First, the way science really works is, we won't

have a clear answer that everybody will agree on; we'll just have a technical scientific disagreement with more data. I mean, I predict that's what will happen. But, secondly, suppose we do have a consensus and it turns out that we're really near the short end of the thing. Then, in order to get through turning over the stockpile, I have to build this bigger than I need. If it turns out that we erred and that the lifetime of pits is much longer than we expected, then sometime in the next decade this committee or its successor will be able to crank back on some ongoing funding. The first one could put the program at risk; the second one does not.

So, it is my view that the right thing to do is to go forward with the design, keeping as many options as possible open, but the reason you can't understand why we'd want 450 pits a year is, there is no reason we want 450 pits a year. I think that's just way too high, unless we hold off this thing so long that you've got to turn the whole stockpile over in a very short time.

Senator FEINSTEIN. I thank you. Now I have to go home and do my homework on the actual fleet, and do those numbers——

Ambassador BROOKS. Yes, ma'am.

Senator FEINSTEIN [continuing]. And on the expected lifetime——

Ambassador BROOKS. Yes, ma'am.

Senator FEINSTEIN [continuing]. And do those numbers——

Ambassador BROOKS. And I——

Senator FEINSTEIN [continuing]. Which we will do.

Ambassador BROOKS. At least to save you the math, I commend you the report on pit lifetime, which I will make sure your staff has a copy, which looks at this parametrically. It looks at all the conceivable lifetimes, and it will—you know, you pick what you believe is likely to be true, and then it'll give you the answer. It's—

ROBUST NUCLEAR EARTH PENETRATOR

Senator FEINSTEIN. Thank you.

Now, the second I-can't-believe-for-the-life-of-me question. And this is——

Senator DOMENICI. Is it "believe it or not?"

Senator FEINSTEIN [continuing]. This is the big one. This is one that confounds me, because the Ambassador has been very upfront. And I had the quote from the March 2 House Armed Services Strategic Forces Subcommittee when you answered a question that Congresswoman Tauscher asked you about the bunker buster, and she asked, "I just want to know if there's any way a bunker buster of any size that we would drop will not produce a huge amount of radioactive debris." And you said, as you said here today, "No, there is not." And then the question was, "How deep could it go?" And the same thing, you said, "A couple of tens of meters, maybe—I mean, certainly. I really must apologize for my lack of precision if we, in the administration, have suggested that it was possible to have a bomb that penetrated far enough to trap all fallout. I don't believe that. I don't believe the laws of physics will ever let that be true."

And I believe that's a really correct statement, because I've talked to a number of nuclear physicists. They say the same thing. So my question is, why are we doing this? We won't spew radiation,

in terms of millions of cubic feet. I hope to God we won't. So why are we doing this?

Ambassador BROOKS. For the same reason, Senator, that we're doing any of the nuclear weapons programs. We face a very serious philosophical, moral, technical issue with nuclear weapons. And that is, for deterrents to work, we have to threaten to destroy something that is valuable to an adversary; notwithstanding the fact that the act of destroying that would be, in many ways, an unimaginable act. You and I have spent our whole life, and for much of that life, we've faced off against the Soviet Union at a time when at least I thought we might really go to war with those guys, and we deterred an attack on the United States by the notion of doing something back that would cause huge devastation.

May I, ma'am? Because I'm actually going somewhere; it just doesn't look that way.

Senator FEINSTEIN. Okay. I want to do this.

Ambassador BROOKS. The concern that we have now is that the kind of what I call "generic dictator," because I don't want to get arguing about any specific country, but if you look at generic dictators that we have dealt with recently, you will find they don't care about their people. They care about their power, and they care about their weapons, and they tend to put those things in places they don't think we can get to. And I don't believe that it is in our interest for a dictator to believe that there's nothing we could do. What we would do, who knows? That's the argument that says one might want a future President to have the option of such a weapon. All we're trying to do now is decide whether he can have it if he wants it, by figuring out if it's technically feasible.

Senator FEINSTEIN. I appreciate that. And I appreciate your directness. I really do.

Where I have a hard time with this answer is reading the Nuclear Posture Review and seeing the position that's taken in that review. Whereas, we all know we've never had a no-first-use policy, this review says that there are certain instances and certain countries against we would countenance a first use of nuclear weapons. All of those countries, the seven that are mentioned, know that. So, what are they going to do, sit back while we develop this, or are they going to go out and develop something even more, or at least as much? And this is where, when we have adequate conventional weapons, highly sophisticated conventional weapons, and, where combined with intelligence on air holes and exits and entries and those kinds of things, can be just as effective, I don't know why we want to risk the escalation, which, to me, seems to overwhelm the argument of deterrence.

ROBUST NUCLEAR EARTH PENETRATOR

Ambassador BROOKS. Yes, ma'am. And the answer is, in my view, in the premise you make. You make the premise that we can adequately hold these targets at risk through conventional means, that we have the conventional capability and the precision intelligence. And if that were true, I don't know why anybody would want to develop a nuclear capability, either. The point is that I think the actual ability to do this conventionally is not quite as good—and I'm getting in areas that, (a) are not my formal respon-

sibility, and, (b) shouldn't be discussed in an open hearing. But let me just say, for the sake of argument, if you believed that we might not have that capability, then you might want to at least think about, well, if the choice is nothing or a threat—or threatening an individual with nuclear weapons, which enhances deterrence? You correctly point out that countries are aware of what we might do. As long as we can't do things, then they don't have to worry about what a future President would do.

I believe, and there is a formal requirement from the Department of Defense, that we need to be able to threaten, militarily, hardened and deeply buried targets. Everybody that I know would much rather do that conventionally. And if your analysis that our intelligence and our conventional capabilities are right, then, (a) it doesn't matter whether you fund the study or not, because we'll certainly never go on with it, because it would make no sense. All I'm asking you to think through is, if it turns out that you're wrong, which is better, to accept the risks that you correctly describe by having a capability, or to accept the risks that I've described of having something that's a sanctuary beyond the reach of U.S. power?

I think that's a hard decision. I think we ought to have that discussion in the knowledge of whether we could do it with nuclear weapons if we wanted to. And that's why the administration proposes to spend some money to find out.

Senator FEINSTEIN. Yeah, and I appreciate your forbearance—yeah, I know, wrap it up—but one last thing and I'm done. We have an intellectual, an antiseptic discussion. And I go back, and I pull out my pictures of Nagasaki and Hiroshima. And I looked at what 15 kilotons can do. And I look at the wind patterns in various places, and I see what a 100-kiloton bunker buster will do. I mean, we would have to be mad to ever use it. And it—so, for me, if you leave this antiseptic world of going back and forth over a table, and you look at the real world of potential use, it's entirely different.

Ambassador BROOKS. It's very hard to see any time when any nuclear weapon you would want to use. It's, nonetheless, been, for all my lifetime, the view that the capability is an effective deterrent. And we've always faced that. The dichotomy you point out about this huge devastation, if we ever use them, compared to the deterrent benefit, that's true whether they can penetrate a few meters into the ground or not. And I think that's a hard question.

The only thing I would ask you to believe is, there's nobody on my end of the street who is unaware that nuclear use is, you know, quite literally, the most difficult and awesome decision a President would ever have to make. I don't think that we are going forward in an antiseptic way. We certainly don't intend to be, and I certainly don't think of it that way.

Senator FEINSTEIN. Thank you very much. Thank you, I appreciate your forbearance.

Thank you very much.

RETIREMENT OF DR. EVERET BECKNER

Senator DOMENICI. Thank you.

Now, let me ask—Dr. Beckner, this is your last day, and, you know, we would have, perhaps, asked you questions, but we chose

to do it another way. You still had something good to contribute. Do you want to say anything here, on your last day, about what's gone on or anything you'd like to?

Dr. BECKNER. Well, since you've given me the opportunity, I certainly wouldn't turn it down.

This has been a marvelous experience for me. It comes toward the end of my career, which extended back to 25-plus years at Sandia and then finally culminating in this position. It's the finest job I've had, mainly because of the importance to the country. It's not one that I was eager to leave, but it seemed to be time. And so, I now look forward to the retirement. But I'll think about it a lot in the future. So, I appreciate the opportunity I've had, and I want to be sure I'm on the record for that.

Senator DOMENICI. Well, you stay—you keep your suitcase packed, because there's probably a lot of things we're going to ask you to do that won't infringe upon the notion that you're in retirement.

Dr. BECKNER. Yeah, I'd be pleased to do that.

NUCLEAR WEAPONS RELEVANCE

Senator DOMENICI. We'll permit you to be constructive.

Senator, while you're still here, let me first say to you that I clearly understand the concern that you've expressed on all the issues. And I wish that we never had a nuclear weapon around, which I sense you do, also. And I even hear people, believe it or not, in commissions and council at the local levels, passing resolutions that we should get rid of our nuclear weapons. I hope, at least, when they say that, they mean "our," not just ours, but——

Senator FEINSTEIN. Everyone's.

Senator DOMENICI [continuing]. Everyone's. But I think they're—some of them aren't even saying that, just that they don't want them around America. But, you know, they were put upon us by ourselves, in a sense, and then we got in this mess that we had them and somebody else had them.

It is interesting that these devastating, terribly damaging weapons that nobody would fathom using kept peace for a long time. I mean, actually, I've seen some studies that there are probably less people killed in wars, during the 50 years that we were at bay, than any comparable 50 years in modern times. Interesting. Maybe it's not true, but I hear it's true.

Now it's getting worse; not because of that group of weapons laid over against ours, but because others have found it, right? Now it's—but, you know, I tend to operate off the premise, which apparently some people, even that built our bombs, didn't agree upon, because some of them wanted to share the fact that we had weapons, because they weren't quite sure we would be right all the time. You know that. Some of them excused—have written later and excused themselves from perhaps leaking secrets, that they weren't too sure we ought to have a monopoly. But let me say, I tend to believe our people, in government, when they tell us what they're going to do and what they're not going to do. And I don't have any such confidence that others are—even if they're our friends in the world—are going to tell us that about nuclear weapons and activi-

ties that they're undertaking. We could have a nice debate about that, but that's my feeling.

I also don't think that American people have to believe that. They, consequently think—they always tell me that I am absolutely wrong, we are building new weapons, and they know we are, "Every day, you're building a new bomb." I tell them, "I don't know where you get it. I only can believe what I've heard." But they believe it.

The truth of the matter is that I believe that none of these things that they're asking us to do in this field are done with the idea of enhancing or encouraging, in any way, our unilateral use of nuclear weapons, in any way, against another country, enemy or would-be enemy. I think they're all being developed because there is an apparent need so long as the world is what I've just described. And if it isn't that way, then we ought to—you know.

PITS

And I want to talk about pits for a minute, then I'll close. It is not correct to say that, "Here we are, rushing ahead to build pits." I mean, I have, for 10 years, been pressured by the Defense people that we're making fools of ourselves by not having any pit substitutes for our nuclear weapons; to the point where I was able to say, for 5 consecutive years, we're the only nuclear power that has no inventory of pits around. And we're trying to do it, right? And we finally ended up building them at Los Alamos, which is not supposed to be the place. You know, they're up there doing it. I've looked at it. And it sure as hell doesn't look like a manufacturing plant to me. And I know, Doctor, you've seen it. You've seen it, Mr. Ambassador. I mean, it's a pretty shaky looking place to be manufacturing pits. Safe, I acknowledge. And nobody's scared, so they must be safe. But—I'm not sure—but, sooner or later, we have to either decide that we are or we aren't. And sometime we've got to build a place.

And just think of this. Here's an administration, this one or the next one, that has to decide on a location and a building. I don't think you're saying they don't have to, ever. You're just questioning whether they're exaggerating, whether—but it's a terrific undertaking to site a building and decide upon it with the anti—and the way people can insist you jump through hoops before you do it, if you ever do it. And so, I don't think it's—I think the explanation that, while you're going through the impact evaluation, which takes forever and—go ahead and put in a number that makes sure that when Congress gets around to approving it, we're not going to have to do anything over again. Now, it may be too high, and it may be that before you go on even considering her concern and what I've said and you've said, you might want to cut it in half. You might want to go down to 150 or something, because, you know, I say, thank God if we ever got there, in terms of getting it done—I don't mean building them, but at least we'd be rid of the problem that we can't make a decision.

NUCLEAR WEAPONS

So that's how I see it. And I never want you to think that because I'm not going to agree with you on some of these things—

I do respect, greatly, you; but, not only that, you've worked hard on these issues. I just hope you know that what to you are believe-it-or-nots, to some of us are believable. And that's where we are on about five or six issues, and we'll debate them out thoroughly. And I think the committee—subcommittee will have a good time this year.

Senator FEINSTEIN. I think so, too.

Senator DOMENICI. We won't take so long to debate them. You can do that on the floor, but we'll get something done.

Senator FEINSTEIN. Thank you.

NAVAL REACTORS

Senator DOMENICI. Any of you—Admiral, do you have anything to say?

Admiral DONALD. No, sir. It's a pleasure to be here.

Senator DOMENICI. Are your boats at sea still safe?

Admiral DONALD. Yes, sir, absolutely.

Senator DOMENICI. Are they still landing in ports everywhere?

Admiral DONALD. Yes, sir. Yes, sir. We're welcome in any ports.

Senator DOMENICI. Except Australia.

Admiral DONALD. New Zealand.

Senator DOMENICI. New Zealand. That's an old-time arrangement, right?

Admiral DONALD. Yes, sir, it is.

Senator DOMENICI. Yeah. And when you go into ports in Europe, they don't move all their boats out of there——

Admiral DONALD. Absolutely not.

Senator DOMENICI [continuing]. Because they're scared of you, do they?

Admiral DONALD. No, sir, they do not.

Senator DOMENICI. That's amazing. You do that, but, over here, if we try to move a spent fuel rod, they want to clear out the countryside, right? And you've gone over there in water, where, if it leaked there, it would go everywhere. Anyway.

And, Mr. Baker, how about you. Do you have anything to comment?

ADDITIONAL COMMITTEE QUESTIONS

Mr. BAKER. No, I just want to thank you, Senator Domenici, over the years, for supporting our program. The threat has been reduced. It's getting tougher and tougher working with Russia, but, through your support, we have succeeded, and I want to thank you for it.

[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 PETE V. DOMENICI

PLUTONIUM DISPOSITION

Question. It appears that the liability proposal for plutonium disposition program continues to make slow progress. I was disappointed with the failure of the parties to reach an agreement before the Bratislava Summit between President Bush and President Putin.

As I noted in my statement, I fear opponents will seize on the opportunity to cut the budget request of $336 million and the $300 million in unobligated funds. I suspect our G–8 partners, who have committed $800 million toward this project, are also watching U.S. progress very carefully.

Why are we alone among the major participants in the Global Partnership not to be able to reach a liability agreement with Russia? Can you assure the committee that the administration is committed to pushing this agreement through in the near future?

Answer. The United States has many agreements with the Russian Federation for which it is essential to have appropriate liability protection for the United States, its personnel, its contractors and their personnel. The effects on these agreements need to be taken into account as we proceed with resolving liability issues in the context of the plutonium disposition program. The administration remains strongly committed to achieving a satisfactory resolution of the liability issues in the near future, which will enable the United States and Russia to proceed with plans to dispose of surplus weapon-grade plutonium.

U.S./RUSSIAN WORKING GROUP ON NUCLEAR SECURITY—BRATISLAVA STATEMENT

Question. It seems to me that the only way we can succeed in completing the security upgrades in Russia in 2008, in building an effective security culture there, and in getting the Russians to sustain high security with their own resources after our help phases out, is to convince the Russians that this is an urgent threat to their own security. The same goes for similar work with other countries. What more can we do to build understanding of the urgency of the treat—in Russia, and in countries around the world? President Bush and President Putin announced a commitment to increase efforts on "Loose Nukes" during the President's recent visit to Europe. What is the dimension of the new announcement, in terms of acceleration, reordering priorities?

Answer. At their meeting in Bratislava, President Bush and President Putin agreed to enhance cooperation between our two countries to better counter nuclear terrorism. Stressing that "while the security of nuclear facilities in the United States and Russia meet current requirements, these requirements must be constantly enhanced to counter the evolving terrorist threats." As such, the President's announced an expansion of cooperation on nuclear security and identified five areas for further cooperation: (1) Emergency Response; (2) Best Practices for security at nuclear facilities; (3) Security Culture; (4) Research Reactors; and (5) Nuclear Security.

The Bratislava statements have energized an evolving partnership in U.S.-Russia relations focused on the prevention of nuclear terrorism. While progress was being made in many of these areas prior to Bratislava, the process launched at Bratislava has focused increased attention on a number of critical U.S. nuclear security goals. Specifically as a result of Bratislava, we have expanded dialogue into new potential areas of cooperation: emergency response, best practices, and security culture, and have established concrete milestones for targeted areas of ongoing cooperation: including the conversion of research reactors to low enriched uranium fuel, the repatriation of both spent and fresh high enriched uranium fuel back to Russia and the United States, and completing joint action plans for nuclear site security upgrades at Rosatom and Ministry of Defense facilities.

Question. What are the key things we need to do to follow up on the Bratislava summit?

Answer. To continue the momentum achieved by Bratislava, the United States and Russia will need to follow through on continued implementation and established milestones for repatriation of fresh and spent highly-enriched uranium (HEU) fuel, site security upgrades at Russian nuclear facilities, and conversion of Russian and U.S.-supplied research reactors in third countries currently using HEU fuel. The United States and Russia have also agreed to a number of joint workshops and exercises planned for Fall 2005, in best practices, security culture, and emergency management. As emergency response cooperation expands from traditional consequence management cooperation to prevention of nuclear terrorism, the United States and Russia will need to consider a new intergovernmental agreement on Emergency Response.

RUSSIAN SECURITY SUSTAINABILITY

Question. As you complete upgrades at more and more sites, the sustainability work becomes ever more important, and presumably will become an increasing share of the effort. Why does the budget request reduce funds to support sustainability by $11 million?

Answer. Sustainability will indeed increasingly consume a larger portion of the budget for each of our nuclear security programs. The budget request reduction was a result of the National Infrastructure and Sustainability program's accelerated procurement of 10 new railcars for the Rosatom Weapons Complex in fiscal year 2005. The railcars will enable Rosatom to securely move nuclear material between sites. However, the budget request for the sustainability portion of all other nuclear security activities was not reduced.

Question. The Russians have done very little to reduce the number of sites with nuclear weapons and materials. It seems to me if [we] want high security there at an affordable price, in a way they can sustain, we have to be guarding a smaller number of places. What can we do to convince them to consolidate?

Answer. DOE/NNSA has engaged Rosatom officials on the importance of consolidation on numerous occasions and the Material Consolidation and Conversion Project is a vehicle whereby DOE/NNSA can support the consolidation of HEU to fewer sites. The joint DOE-Rosatom MCC Working Group provides a forum for continuing this engagement. It is necessary to consider financial incentives and other assistance for Rosatom and the nuclear sites that offset the impact of removing material from operational sites.

U.N. RESOLUTION 1540

Question. I was very pleased by the administration's success in pushing through U.N. Security Council Resolution 1540, which legally obligates every U.N. member country to put in place criminal laws banning any WMD activities with terrorists, effective export controls and border controls, and effective security and accounting for WMD stockpiles, including nuclear materials. I think this is a key tool to prevent future A.Q. Khan networks, and to keep nuclear bomb materials out of terrorist hands. But I've seen surprisingly little follow-through on implementing this resolution so far. Our export control support programs, for example, were working with 30–40 targeted countries before the resolution and they're still working with 30–40 targeted countries now—but under the resolution there are 191 countries that have a legal requirement to put good export controls in place, and probably well over 100 of them that are going to need help to do so. What role does the Department of Energy play in supporting the enforcement of these controls and in monitoring compliance?

Answer. Alongside the Department of State's Export Control and Related Border Security (EXBS) Program, DOE's International Nonproliferation Export Control Program (INECP) supports export control assistance overseas. Through this program, INECP serves to meet pressing export control system improvement requirements as outlined in U.N. Security Council Resolution 1540 and the President's nonproliferation policy in the 30–40 countries it currently engages. INECP uses national laboratory specialists to train foreign technical counterparts in the methods required to "staff" their own national export control systems, and thus supports elements necessary for effective national export control systems.

Specifically, INECP's training enables foreign technical specialists to:

—Conduct analyses of items proposed for export to prevent the diversion of WMD-related commodities to State proliferators or terrorist organizations;

—Provide training in high risk property management and internal compliance to their nuclear and dual-use industries that help industry officials understand the proliferation threat posed by legitimate technologies; and,

—Adapt INECP-modeled curricula to national customs training academy needs. This "Commodity Identification Training" is designed to familiarize frontline customs officers with the visually distinctive aspects of dual-use commodities needed to manufacture WMD, so that they can seek additional advice when necessary from their own national technical experts.

Question. What more should be done to prevent the proliferation of nuclear material, scientific expertise and equipment?

Answer. DOE's nonproliferation programs focus on these core aspects of the proliferation threat. Our programs cover a wide range of efforts from securing nuclear material at the source, to increasing overseas border security, to implementing and monitoring export controls, to disposing of fissile material and to scientific engagement of former weapons scientists. The administration continues to make these programs a top priority and the continued support of Congress for our multifaceted efforts would be greatly appreciated as we work as quickly as possible to reduce the threat posed by nuclear proliferation.

DOE RELATIONSHIP WITH HOMELAND SECURITY

Question. The Department is providing valuable technological expertise in its laboratories to the missions of Homeland Security. Can you provide for the committee the contributions that have been made thus far by the laboratories to the Department of Homeland Security, by each laboratory or other entity?

Answer. Over the past 2½ years, the National Nuclear Security Administration (NNSA) and the other elements of the Department have worked with the Department of Homeland Security (DHS) to identify and provide critically needed technology, equipment, and expertise. We have been engaged in more than 233 programs and projects across the complex that were supported by more than $582.9 million from DHS since its inception.

NNSA and its Laboratories have made significant contributions to the Department of Homeland Security (DHS). For instance, the core DHS Science and Technology (S&T) program, including the biological research program, started as a transfer of programs, funds and personnel from the NNSA Office of Nonproliferation Research and Engineering. Further, DHS and DOE have actively used a Calendar Year 2003 Memorandum of Agreement (MOA) to provide DHS direct access to the DOE and NNSA laboratories. This interaction has included providing expert technical staff from the national laboratories to staff key positions within the DHS S&T Undersecretariate, to a large number of DHS-funded technology programs and projects at the national laboratories, to an active programmatic engagement between offices in NNSA and DHS.

I am enclosing for the record, a summary of the number of projects, and associated costs, for the efforts at NNSA sites. While most of these efforts are on-going, the summary also lists some of the significant NNSA accomplishments and deliverables that have contributed to meeting the DHS mission.

Attachment.—DOE Relationship with Homeland Security

Sandia National Laboratories (SNL)

Programs/Projects.—74.

Funding.—$104.9 million.

Contributions: Radiological and Nuclear Countermeasures.—Sensor for Measurement and Analysis of Radiation Transients (SMART) technology uses sodium iodide detectors and Sandia developed software to distinguish between various naturally occurring isotopes and special nuclear material.

Sandia National Laboratories was responsible for the maritime venue at the RNC surge deployment of the DHS CounterMeasures Test Beds as well as providing staff and redeploying equipment to other venues such as bridges, tunnels and commuter rail.

The Sandia analysis team has responded to rapid turnaround requests during national Orange Alerts and provided specific information to local, State, and Federal law enforcement on the deployment and use of radiation detectors.

Infrastructure Protection Program.—Sandia's National Infrastructure Simulation & Analysis Center (NISAC) and Critical Infrastructure Protection/Decision Support System (CIP/DSS) Program have developed specific skill sets and capabilities requested by DHS to support infrastructure protection requirements issued by the DHS directorates.

Chem/Bio Countermeasures Program.—SNL is developing fully self-contained, portable, hand-held chemical analysis systems incorporating "lab on a chip" technologies. The micro-ChemLab systems utilize micro fabricated substrates to provide sensitive devices with fast response times in a low power, compact package.

A BioBriefcase project is being undertaken as a joint collaboration between Sandia and Lawrence Livermore National Laboratories for the DHS. This project calls for a broad-spectrum bioagent detector that is briefcase-sized and features dramatically reduced reagent consumption, improved sensitivity and rapid response time.

Under the Transit Facility Protection effort, a chemical sensor test bed and emergency response plan developed by Sandia and Argonne National Laboratory in 1997 to demonstrate an early warning system at the Washington, DC Metro recently went online as part of the subway's ongoing emergency preparedness operations.

Chemical detectors and prototype biological detectors have been fielded at a major U.S. airport as components of a future integrated monitoring system.

Decontamination and Restoration.—A Domestic Demonstration and Application Program (DDAP) begun in 2003, in collaboration with Lawrence Livermore National Laboratory, is intended to create an optimal model for restoring a vulnerable facility, such as an airport, after a biological agent attack. The envisioned model is known as BROOM for Building Restoration Operations Optimization Model. The researchers are partnering in this effort with San Francisco Bay Area airports.

They developed a single decontamination foam that has rendered all typical chemical and biological agents harmless. It was used to help eliminate anthrax in the Hart, Dirksen, and Ford buildings on Capitol Hill, and at contaminated sites in New York and in the Postal Service.

Explosives Detection Technology.—Sandia has developed a preconcentrator for explosives detectors that is 1,000 times more sensitive, 200 times smaller, 13 times less costly, and 4 times faster than previous technologies.

Operation Safe Commerce.—They support the Ports of Los Angeles and Long Beach as part of the DHS Operation Safe Commerce Program.

Los Alamos National Laboratory (LANL)

Programs/Projects.—85.

Funding.—$109.3 million.

Contributions: Nuclear and Radiological Threat Reduction.—Los Alamos has played a key role in testing radiation detection portal monitors, installing radiation detection equipment in the NYC test beds, in testing and improving equipment used to identify the radiation source material, and advancing our capabilities to actively interrogate containers that might contain threat materials or devices.

Los Alamos also plays a key role in designing systems of radiation detectors and in assessing the performance of such systems.

DHS funds preparations for responding to terrorist attacks, including a forensics and attribution program and an effort focused on providing first responders with a "playbook" detailing the appropriate scientifically correct response to a dirty bomb attack, and LANL plays a major role in both areas.

Chemical and Biological Threat Reduction.—The established projects from DOE's Chemical and Biological National Security Program (CBNP–NP–20) provided DHS's early successes in applied research and operational systems. Foremost among these was the project that became the BioWatch system that is now a 24/7 operational environmental surveillance system for biothreats in tens of cities.

Under DHS, LANL in partnership with EPA and CDC, quickly prototyped and implemented a national surveillance system by maturing the previous BASIS system. Los Alamos provided the system analysis of optimization, the sample management system, and tools to support local and Federal agencies in relocating and optimizing sensor placement.

For bioforensics efforts they provided unique analysis of biothreat agents from national and international incidences.

LANL performed genomic sequencing of pathogens that supported the development of new detection systems and bioforensics and established environmental microbial backgrounds that increase reliability of environmental surveillance systems.

They developed and demonstrated a bio-risk assessment methodology to guide the Nation's investment in biothreat reduction, both for intentional and naturally occurring threat agents.

Infrastructure, Threat and Risk Analysis.—LANL integrates programs in threat analysis, vulnerability assessments, and consequence analysis to provide a risk-informed decision making capability to senior level officials in the DHS, as well as other U.S. government officials. The Critical Infrastructure Decision Support System has been used to model all 17 infrastructures/key assets and their critical interdependencies for the first time.

The National Infrastructure Simulation and Analysis Center (NISAC) has performed critical infrastructure asset identification and ranking for major metropolitan areas of Portland, Houston, Chicago and Los Angeles.

The All-WMD Terrorist Threat Capability Assessment project has produced assessments of Tier 0 and 1 groups for the Intelligence Community including the interests and capabilities of these groups for attacking infrastructures using WMD.

Lawrence Livermore National Laboratory (LLNL)

Programs/Projects.—50.

Funding.—$264 million.

Contributions: Assessments and System Integration.—LLNL worked with the DHS since its inception to develop cutting-edge technologies in order to make America safer. LLNL's greatest contribution to this effort has been its ability to integrate threat-informed risk assessments into systems definition which identifies where research and development can most effectively improve operational capabilities and deploy them.

Biodefense.—They developed new assays for improved bioagent detection, the creation of improved biodetection techniques and the deployment of these techniques into operational capabilities (BioWatch) and created the Biodefense Knowledge Center (BKC).

Radiation Detection.—LLNL is also developing new detection technologies and supporting the creation of national standards on these (and existing) technologies, while working with operational entities (Port Authority of New York and New Jersey) on the integration of technology into mission critical activities.

Forensics.—LLNL has always provided its singular expertise regarding nuclear incidents and is continuing to work with the domestic and international community (in coordination with other Federal agencies, including DHS) to improve the methods and protocols of nuclear forensics and attribution.

Their Forensic Science Center has been assisting the law enforcement community in analyzing forensic samples of interest. DHS, in coordination with the FBI, is leveraging this capability by establishing nationally available contaminated evidence receival facilities at NNSA sites (including LLNL) because of the Laboratory's special expertise with WMD materials, international accreditation and long standing relationship with the law enforcement community.

Intelligence Support.—LLNL provided scientific and technical expertise for the analysis of all source intelligence information, primarily regarding the foreign nuclear threat. They have expanded their analytic capabilities to all threats and are a key part of DHS's intelligence team. Part of this expansion has been the development of advanced knowledge management tools, which have been further leveraged by DHS into the ADVISE architecture.

Nevada Test Site (NTS)

Programs/Projects.—11.

Funding.—$98.5 million.

Contributions: WMD Training.—Over 24 thousand students have been trained to date. Training is being provided at the Nevada Test Site and across the United States and territories in Weapons of Mass Destruction radiological/nuclear response. Training covers the spectrum from the All-Hazards Awareness level up through scenario-based, hot-zone, hands-on Hazardous Material Technician level.

Radiological/Nuclear Test and Evaluation Complex.—This facility is currently under construction and scheduled to be operational in the fall of 2006. DHS has identified a critical need to develop a facility to test and evaluate sensors and detection systems for the detection of the clandestine movement of radiological materials across our Nation's borders. When complete, this DHS-funded Nuclear Hazard Category 2 facility will have the capability to test prototype detectors in simulated real-world conditions with a variety of radionuclides including Special Nuclear Materials.

Savannah River National Laboratory (SRNL)

Programs/Projects.—13.

Funding.—$6.2 million.

Contributions: Forensics and Attribution.—SRNL developed analytical capabilities to more quickly and accurately determine the source of origin for captured nuclear materials. New equipment and techniques are being developed along with cataloging existing source data.

They are modifying existing facilities to expand our capabilities for handling and analyzing forensic evidence contaminated with nuclear materials.

Training.—Training for U.S. Coast Guard personnel on radiation detection general search techniques that includes training in the general orientation and USCG rad detection equipment operations is being provided.

SRNL is also providing training for Customs and Border Patrol personnel on radiation detection general search techniques in support of counter-smuggling efforts.

Test and Evaluation.—They have conducted testing and evaluation of Commercial Off-The-Shelf (COTS) radiation detection equipment in a maritime environment for the U.S. Coast Guard to support their selection process for purchasing.

The laboratory tested and evaluated radiation detection hardware in conjunction with Sandia National Lab at the DHS Test Bed at the Port of New York/New Jersey. COTS portal monitors were installed and tested in a marine port environment.

All of the laboratories have provided specialized expertise in various technologies as needed by the Department of Homeland Security. This level of support has been made available since the inception of the DHS.

Besides the National Nuclear Security Administration (NNSA), other offices in the Department of Energy (DOE) work closely with the Department of Homeland Security (DHS) to ensure DHS can use the special capabilities and expertise of the DOE laboratories to support DHS mission activities. DOE and DHS have signed a Memorandum of Agreement for this purpose and DOE has developed a streamlined reimbursable process for allowing DHS access to the DOE laboratories. DOE also provides an annual report to Congress on the homeland security related activities conducted by the DOE laboratories and facilities which includes DHS funded work.

I understand the Office of Science (SC) laboratories continue to conduct research and development activities that have the potential to provide new technologies for homeland security applications, as well as broaden the science base in areas of interest to DHS. These activities are primarily funded by DHS, but can also be supported by other sponsors of the laboratories. In fiscal year 2005, the SC laboratories are expected to receive approximately $230 million directly from DHS for a wide variety of research and development efforts. Below are a few specific examples of the contributions made thus far to DHS by the SC laboratories.

Argonne National Laboratory, working with several other DOE laboratories, has developed the PROTECT program which provides an early warning crisis management system aimed at mitigating the impacts of chemical attacks on critical infrastructure such as high-threat subway systems, intermodal transportation facilities, large buildings, and airports. The system employs chemical detectors supported with video verification of patron distress to identify actual attacks from detector false alarms. The system also includes an advanced command and control system that combines detector, video, train, and facility ventilation data, and produces output for situation awareness for facility managers and responders. The PROTECT system is now being used in Washington, DC; New York, NY; and Boston, MA. In each case, the system is run by facility managers, and maintenance costs are paid for by the facilities themselves. The system is expected to be deployed in other major cities across the country.

Brookhaven National Laboratory has developed and constructed a "test-bed" facility, called the Radiation Detector Testing and Evaluation Facility (RADTEC), for assembling, operating, and testing commercial and government "off-the-shelf" technologies targeted for various homeland security applications, providing unbiased baseline data for comparison purposes. RADTEC includes a secure indoor facility, allowing equipment to be assembled and tested in a protected environment before being placed in a nearby outdoor test environment. The outdoor facility consists of an isolated stretch of road, allowing the appropriate security and health and safety protocols needed for testing with radioactive sources of national security concern. The facility is expected to become an important resource for local, county, State, and Federal officials, allowing researchers to define the strengths and limitations of various detectors, providing a quantitative and qualitative method for comparison. This comparison is necessary to provide the most comprehensive security screening deployment for the busy ports and access points in the New York metropolitan area.

Oak Ridge National Laboratory (ORNL) and Pacific Northwest National Laboratory (PNNL) have been chosen to help facilitate the transition of innovative technologies and organizational concepts to regional, State, and local jurisdictions under the Regional Technology Integration initiative. The initiative will serve as the principal mechanism for aligning science and technology assessments and expertise with the real needs of first responders. The program recognizes the real and important variables of the environment of individual communities, including population, leadership structure, geography and physical layout, level of threat, and available resources. It is expected to be a building block on which cities can improve emergency response efforts by taking advantage of what the Nation has to offer in terms of scientific and technological advances and learning from others' experiences.

Oak Ridge National Laboratory has also developed a transportable radiation portal monitoring system (TRMS). The system consists of a two-detector, commercially available vehicle monitor that detects gamma and neutron radiation. Each detector is mounted on a custom designed, commercially manufactured trailer that can operate as a single unit or a dual-sided unit. The system was developed as a result of the implementation of a gamma-only system designed and built for use at ORNL. This initial system was designed to detect increases in measured gamma radiation levels as vehicles containing scrap and waste passed through the detection area. The advantages of a radiation detection system that is easy to setup, operate, then breakdown indicated that this technique may be valuable for homeland security applications. The TRMS was provided to the Port Authority of New York/New Jersey test bed where it was deployed for use. Field observations were made which resulted in an action plan to revise the design making the unit more roadworthy. During the deployment, the radiological performance was excellent and the ability to setup the system quickly was seen as a great advantage and to be very desirable by the user community.

Pacific Northwest National Laboratory is improving the understanding of how contaminants disperse in an urban environment in the event of a terrorist attack. PNNL and other partners are releasing a safe inert tracer gas into downtown Manhattan and then measuring wind patterns using portable wind-sampling instruments placed around the area. Data collected from the study will help improve computer model simulations of the transport and deposition of urban atmospheric con-

taminants. It also will be shared with the surrounding emergency response community to enable officials to factor the results into response techniques. The data collected during the New York campaign will improve the reliability of computer models. The models are important for local and Federal officials to train and prepare in the event of an airborne disaster. The ability to track dispersal of contaminants through the air in the metropolitan New York area is a top priority for local and national emergency management officials.

Additionally the Idaho National Laboratory (INL), managed by the DOE Office of Nuclear Energy, Science and Technology (NE), performs work for the Department of Homeland Security (DHS) in several areas including improving cyber security technologies for Supervisory Control and Data Acquisition (SCADA) and Process Control Systems, trace explosives detection and testing, nuclear materials detection, and biological countermeasures.

The INL's Control Systems Security Center is a multi-year program to perform risk and vulnerability assessments, and develop tools and solutions against known cyber vulnerabilities, as well as increasing industry's awareness of cyber security for control systems. The program works cooperatively with the Department's National SCADA Test Bed allowing industry and vendors to place their equipment in a specialized facility where it is analyzed by cyber and control systems researchers. INL's independent infrastructure systems allows SCADA and control systems testing to be performed in a more realistic environment than computer simulation. INL also performs SCADA and communications modeling work for the National Communications System, assists utilities by conducting site assist visits, and provides support to the U.S. Computer Emergency Readiness Team.

INL has also developed an active interrogation system for the detection of shielded nuclear materials smuggled in large commercial cargo containers, teaming with a commercial company to adapt this system for deployment at the Nation's ports of entry. The system can detect the presence of weapons grade nuclear material and can differentiate between highly enriched uranium, depleted uranium, or thorium.

Laboratory scientists are conducting research and performing testing on trace explosives detection systems for DHS and other Federal agencies. They perform explosive forensic analysis, design improved sensors, and develop detection testing protocols and standards.

Finally, INL performs work in chemical and biological countermeasures by developing and validating a suite of DNA signatures for rapid detection of certain biological agents and have developed a quick, safe, accurate method to detect this agent in the field.

Question. It is my understanding that DHS will establish a Domestic Nuclear Detection Office (DNDO) with primary responsibilities to improve the deployment of nuclear detectors here in the United States. DHS claims they will work to coordinate Federal efforts in this area and the development of new detection technology. It is my understanding that the Department has agreed to provide staffing for this Office. What role will DOE play in this partnership and which agency will pay the staffing costs for the DOE employees? NNSA's role and strategic objectives relative to nuclear proliferation are well understood, but what do you see as NNSA's role relative to the proliferation of other Weapons of Mass Destruction, particularly biological weapons?

Answer. The Domestic Nuclear Detection Office (DNDO) was established to bolster the ability to detect and interdict illicit nuclear and radiological materials that threaten the homeland. As the Nation's technical resource for nuclear and radiological matters, DOE is committed to working collaboratively with the DNDO in the use and development of technologies and resources. At the same time, DOE retains the responsibility for managing those programs that support DOE missions.

With the establishment of the DNDO, DOE has agreed to provide staffing in key areas on a rotational basis to ensure there is continuity and connectivity between the Departments for this key Presidential Initiative. For fiscal year 2006, NNSA will provide up to 11 staff members to provide connectivity across research and development, operational and procurement related interactions of the Departments. DHS has stated their intention to request fiscal year 2007 funding to reimburse interagency rotational assignments to DNDO.

In terms of the NNSA role relative to the proliferation of other Weapons of Mass Destruction (WMD), particularly biological weapons, NNSA's mission statement includes all WMD as global areas of emphasis. While, noting that NNSA's primary focus is on the nuclear aspect of WMD, there is considerable talent and research that has been, and can be, brought to bear on biological weapons R&D, especially in a nonproliferation context. The NNSA Laboratories are well situated to provide leading edge R&D to further the capability for the Nation to detect, characterize and locate biological threats to the Nation. This capability is, and should be, integrated

with other ongoing biological detection R&D work in DHS, the Defense Department and other Federal agencies.

TA–18

Question. Ambassador Brooks, Secretary Abraham made a decision to begin moving the Category 1 Special Nuclear Material out of TA–18 at Los Alamos to the Nevada Test Site for security purposes. Unfortunately the NNSA never budgeted for this activity in fiscal year 2005, nor was it requested in the Emergency Supplemental Appropriations bill. Instead you have decided to "tax" specific RTBF projects to pay of this activity. New Mexico projects would lose $10 million as a result. Congress did not prioritize funding for these RTBF projects so you could pay for your unbudgeted priorities. Senator Reid and I have included a provision within the Senate Supplemental that will provide $26 million for the TA–18 move. Are there any other emergency items of which you are aware but that have not been requested—such as $30 million needed for security upgrades in Nevada? If so what are they?

Answer. There are no other emergency items, but we are in the process of submitting a reprogramming of $17.4 million for Safeguards and Security to support emergent requirements associated with the implementation of the May 2003 Design Basis Threat.

Question. Why did you decide to cut Congressional priorities to fund the TA–18 project instead of requesting funding as part of the Emergency Supplemental?

Answer. The decision to begin moving the Category I Special Nuclear Material out of TA–18 at Los Alamos National Laboratory to the Nevada Test Site for security purposes (National Nuclear Security Administration (NNSA) Press Release NA–04–10, dated March 31, 2004) occurred after formulation of the fiscal year 2005 Budget and therefore was not included. Nevertheless, as our understanding of the security risk evolved, so did NNSA's sense of urgency to move these materials as soon as possible. Funding the early move of materials fits within the definition of the Readiness in Technical Base and Facilities account and was viewed as the most expeditious means to address this security concern.

NUCLEAR WEAPONS COMPLEX INFRASTRUCTURE STUDY

Question. Ambassador Brooks, I understand that the Department has convened a team under the Secretary of Energy Advisory Board to visit each of the NNSA facilities, meet with lab personnel and Department of Defense officials. This group is expected to make a proposal in May regarding the future size and scope of the NNSA weapons complex.

I have been informed by constituents who spoke with Ed Wilmot, the DoE site manager at Los Alamos, who was quoted as saying that Los Alamos will lose 25 percent of their capability as result of this proposal. That is a frightening thought, and I would appreciate it if you could set the record straight since you have been briefed on this study. Do you support a 25 percent reduction of capability at Los Alamos?

Answer. I do not foresee any circumstances that would lead to a 25 percent reduction of capability at Los Alamos.

Question. Was the statement made by Ed Wilmot accurate, and will this study propose such a drastic reduction in capability at Los Alamos?

Answer. Unfortunately, the information you received regarding Ed Wilmot's comments at a session of the Los Alamos Medical Center Board of Director's meeting were taken out of context by someone who was not present at the meeting. The fact is Mr. Wilmot used a 25 percent reduction as an arbitrary number during a strategy planning session of the Board that was unrelated to the ongoing Complex Study required by Congress. I should note that during this planning session a wide spectrum of other scenarios were discussed including significant growth at Los Alamos.

The Nuclear Weapons Complex Infrastructure Study task force is an independent study on behalf of the Secretary of Energy's Advisory Board. The study is advisory only and is now underway. The board has not published its recommendations and neither the Secretary of Energy nor I have made any decisions about the study.

FIVE-YEAR BUDGET OUTLOOK

Question. Ambassador Brooks, the fiscal year 2006 budget proposes a net reduction to the NNSA budget by $500 million over the next 5 years as compared to fiscal year 2005. The budget proposes reducing Defense Programs by $3 billion and the FIRP program is to be cut by $750 million. I don't believe that you will be able to support the vision you have laid out in your testimony before the Senate Armed Services Committee to maintain the existing stockpile while you restore the design

and production capability for a new weapon by 2015. Can you please explain where you intend to cut the $3 billion and how you intend to support this new capability?

Answer. The reductions in the nuclear weapon stockpile from the Treaty of Moscow, and a changed approach to Stockpile Stewardship will enable NNSA to make a funding reduction of this magnitude and still support this mission. During the next 5 to 10 years, we gain the efficiencies of investments made in advanced computing and simulation. The large capital expenditures in the past 5 years associated with supercomputing, the National Ignition Facility, and restoring tritium production capability are already winding down. The recent steep growth in funding for Safeguards and Security will taper off as infrastructure and technology improvements are implemented.

The key planning parameters for our future new capabilities are embodied in the "responsive infrastructure" and "reliable replacement warhead" concepts. Both of these are designed to support the continuing stewardship of the Nation's nuclear deterrent more efficiently and effectively, in terms of both products and facilities. Program implementation for these approaches is just beginning. The Nuclear Weapons Complex Infrastructure Study requested by the Congress is expected to support and expand upon this new approach.

Question. How will you ensure that we meet our stockpile stewardship obligations if you continue to make deep cuts to the Science Campaign (−5 percent) the Engineering Campaign (−12 percent), Readiness (−16 percent) over the next several years?

Answer. A reduction in funding for a campaign does not necessarily indicate a lack of support or retreat from program obligations. Funding for these campaigns, and all NNSA programs, is a function of multi year planning to meet stockpile stewardship obligations and long term goals, not a "level of effort". In the case of these and all campaigns, achievement of research objectives, completion of major construction projects, and future objectives all factor in to determine NNSA's overall priorities and funding levels.

Question. In your testimony before the Senate Armed Services Committee you referred to a major change in the fiscal year 2007 budget. Can you please elaborate on that proposal?

Answer. We knew when we submitted the fiscal year 2006–2010 President's Budget that we would likely rebalance the outyears for a number of our programs during our fiscal year 2007 PPBE process. That will take place this spring and summer in light of some "fact of life" changes for a few major programs, and in view of congressional direction we receive with the fiscal year 2006 actions.

The Nuclear Weapons Complex Infrastructure Study requested by the Congress is also expected later this spring. Although we do not expect that the study recommendations will have a major impact on the fiscal year 2007–2011 budget proposal, the fiscal year 2007 budget process will provide a forum for dialogue between the administration and the Congress that will set the path to a different, more efficient and less expensive approach to the nuclear weapons complex in the future.

NATIONAL IGNITION FACILITY (NIF)

Question. It appears that with constraints imposed by NIF construction, the budget for High Energy Density Physics research at Los Alamos and Livermore has been dropped to zero in fiscal year 2006 and fiscal year 2007 and Sandia's budget for the operation of the "Z" machine has been drastically cut. How does this large cut in this science activity affect the viability of the NIF ignition plan and the long term health of this critical aspect of stockpile stewardship?

Answer. Over the next 5 to 10 years NNSA will need to make the nuclear weapon complex more agile and responsive and will have to respond to a number of weapon design challenges. To effectively support the stockpile, previously planned major advanced scientific capabilities, such as validated simulation tools, radiography, and NIF ignition experiments, must be put in place as soon as feasible. For this reason, the fiscal year 2006 submission reoriented the Inertial Confinement Fusion and High Yield Campaign towards the completion of NIF. Execution of the first ignition experiment in fiscal year 2010 appears credible, despite the reductions to the high energy density physics program. Near term experiments in support of the ignition campaign will be executed at OMEGA and Z. Clearly adjustments are being made and we are accepting greater, though manageable, programmatic risk.

OMEGA and Z are essential for near term work in high-energy-density weapon physics and the ignition campaign, and these facilities will be adequately supported in fiscal year 2006. With respect to Z, we have maintained a reasonable program at Z, including full funding for the Z-refurbishment project. Because of constrained budgets, we are planning to operate the Z Facility at 90 percent of the full single

shift rate through April 2006. At that time, the Z-Facility will be shut down for refurbishment. Overall, we will reduce the number of shots on Z by a modest amount while still keeping the Z-refurbishment project on schedule. The amount of experiments supported at OMEGA in fiscal year 2006 will also be slightly less than fiscal year 2005. In short, the NIF ignition plan, and this aspect of stockpile stewardship remains viable.

Question. The ICF budget for fiscal years 2006, 2007 and 2008 appears marginal, at best, to meet needs of the expected ignition campaign on NIF in 2010. No shots at all are expected on NIF in the years leading up to this campaign. With such total concentration on NIF construction, the research needed to build up to a credible program for utilization of the NIF to support the Stockpile cannot be done. On what basis does NNSA believe that they can maintain a robust stockpile stewardship effort in High Energy Density Physics prior to crucial experiments on NIF in light of this prioritization?

Answer. As discussed in the question above, experimental programs are being maintained at Z and OMEGA, in addition to supporting NIF construction. Funds and plans are in place for a high energy density physics program that is required to support current stockpile applications. Some of this support is captured in other campaigns and directed stockpile work. Full details will be made available as part of the fiscal year 2007 request.

Question. With reduction of science budgets at the NNSA labs, there is clear risk of atrophy of science expertise in high energy density physics. What steps is NNSA taking, and what additional steps should be taken, to develop science programs that can aid in the development of High Energy Density Physics experiments on the NIF and other NNSA facilities (such as the Omega laser and ZR at Sandia)?

Answer. The NNSA has aggressively rebalanced the High Energy Density Physics (HEDP) program and is accepting greater programmatic risk in response to budgetary pressures. Nevertheless, we have a viable program that maintains a sufficient level of scientific expertise in HEDP, and will obtain relevant data from HEDP facilities to support near-term stockpile stewardship deliverables.

SMALL BUSINESS CONTRACTING

Question. I understand that DOE is last among Federal agencies in terms of compliance with the small business contracting goals set by the administration. I also recognize this is a result of policy that prohibits the Department from counting small business sub contracts let by the M&O contractors.

Both Sandia and Los Alamos place at least 45 percent of their subcontracts with small business—well over the SBA required level of 23 percent. DOE wide, small business procurements make up 52 percent of all M&O subcontracts. Despite this strong track record, DOE is only scored for prime contracts (only 4 percent of primes go to small business).

To address this shortfall NNSA has initiated two efforts to improve its small business score. The first has been to sign contracts with Alaska Native Corporations. Since October 2004, the NNSA has signed $500 million in contracts with ANCs.

The second initiative, known as the Tri-lab Initiative, would take $100 million in procurements from each of the three NNSA labs and bundle them to be offered by either the Albuquerque Service Center or Headquarters. NNSA's decision to pull these contracts back to Headquarters is also likely to impact the labs through a reduction in LDRD funding and will reduce NNSA's mandated small business goals negotiated by each lab.

This program is ill conceived and poorly executed as the procurement targets have varied widely as have the goals and terms proposed by NNSA. Can you please explain why you have insisted that the NNSA proceed with this proposal despite strong objection by the labs and small businesses?

Answer. As a result of the Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Tsunami Relief, 2005, section 6022, NNSA has tabled the Tri-lab Initiative indefinitely pending the outcome of the joint study directed by the legislation. The expectation that NNSA can award 23 percent of the NNSA budget to small businesses when more than 80 percent of the departmental budget is obligated to Management and Operating contracts presents a real challenge. Nevertheless NNSA continues to strive for increases in the amount of prime contracting dollars awarded to the Small Business community, as we work to support Federal-wide goals.

Question. The GAO is currently reviewing DOE subcontracting rules for a report later this year, and I have proposed language to fix this matter. Would you agree to put off execution of the tri-lab bundling proposal until the GAO completes their work and submits its recommendations?

Answer. The GAO has completed its work on DOE oversight of small business subcontracting and the Department has begun the process of implementing these recommendations through the issuance of several documents and directives.

Additionally, as a result of the Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Tsunami Relief, 2005, section 6022, NNSA has tabled the Tri-lab Initiative indefinitely pending the outcome of the joint study directed by the legislation.

Question. The GAO is currently reviewing DOE subcontracting rules for a report later this year, and I have proposed language to fix this matter. Can you please guarantee that this proposal will not impact current small business contracts in New Mexico and not negatively impact the LDRD program at each of the labs this year and the following years?

Answer. Pending the findings from the joint study directed by the Emergency Supplemental Appropriations Act for Defense, the Global War on Terror, and Tsunami Relief, 2005, section 6022, NNSA has halted action on the Tri-lab proposal. NNSA looks forward to working with the Small Business Administration in developing an appropriate methodology for measuring the achievement of the Department of Energy with respect to awarding contracts to small businesses.

ADVANCED SIMULATION COMPUTING

Question. Ambassador Brooks, NNSA is holding a significant funding reserve at Headquarters for the Advanced Simulation and Computing program and it is unclear how the money will be spent. I believe that we need to get this funding into the field. I also recognize that within the NNSA there is a debate regarding whether you should build computing capacity by purchasing existing technology to increase capacity quickly and cheaply or continue the current practice of buying expensive leadership-class machines. Do you have concerns that our weapons design computing needs are outstripping their access to computing capacity?

Answer. The funds identified in the fiscal year 2006 National Nuclear Security Administration (NNSA) budget request under Headquarters includes hardware and contract dollars that will be distributed to the laboratories at the beginning of the fiscal year. In the future, most of these funds will be distributed prior to the budget request submission and therefore the Headquarters numbers in future submissions should be significantly lower than the current one.

Currently, our computing needs do exceed our access to computing capacity. Sustained support for computing is essential to support national security. At NNSA and at the weapons Laboratories, we know that to address both current stockpile issues and emerging needs, computer systems that stretch the capabilities of the technology are required. Our current systems are oversubscribed, both in terms of capacity (high-volume, smaller-size) and capability (low-volume, largest-size). With the current generation of leadership-class machines, simulating the behavior of a system in the current stockpile with a full three-dimensional calculation is taking a year or more to complete—whereas a timely analysis should take less than a month. Further, the developing weapons' certification methodology, which includes compute-intensive sensitivity analysis, is driving a growing demand for capacity systems. Our current shortfall in computing is exacerbated by urgent situations that arise in the stockpile that displace other time-critical work. A case in point is a current Significant Finding Investigation that required us to supplant important work on the W76 Life Extension Program so that critical computations could be completed. Our continuing challenge is to reduce the time-to-solution of these problems while acquiring the most cost-effective systems that make it possible for weapons scientists and engineers to keep pace with the demands of the stockpile stewardship program.

Question. Is it possible to address capacity needs at a lower cost through multiple systems than buying a single cutting-edge machine?

Answer. We are addressing the capacity computing needs of the program by acquiring computer systems that are based on available, commodity products (such as processors, memories, and interconnection networks, and the Linux operating system). These systems can be acquired and deployed very rapidly to address a significant subset, but not all, of our problems. The Advanced Simulation and Computing program procured some early Linux-based systems in 2002 and found them to be effective for a significant fraction of our weapons simulations. We recognize that the weapons program can't make use of capability (now referred to as leadership-class) computers until it provides sufficient capacity systems to alleviate its oversubscription problems. However, Linux clusters cannot fulfill our most demanding capability needs, so the program will continue to rely on a balance of commodity clusters and cutting-edge machines for those applications that require them.

CYBER SECURITY

Question. The Integrated Cyber Security Initiative work to provision and secure NNSA systems has been moving along successfully with installations at several DOE Labs (most notably Sandia). Based upon this experience, should this infrastructure be promoted as "the" enterprise approach to secure and provision and authenticate all of DOE users? If so, why?

Answer. The Integrated Cyber Security Initiative is implementing an enterprise secure network for all sites in NNSA. The DOE Diskless Workstation Tiger team has recommended that the NNSA enterprise secure network be extended to include all DOE sites processing classified data. Because much of the work performed by the non-NNSA laboratories in DOE is unclassified it would inappropriate to connect these laboratories to the NNSA enterprise secure network. NNSA laboratories and production facilities are evaluating the NSNA enterprise secure network architecture for possible deployment in their sensitive and unclassified computing environments.

Question. Right now DOE labs seem to operate with a multitude of approaches to secure messaging and have developed a standardized manner in which to ensure that important communications are provided with the necessary level of security. Although there is a Federal Bridge Certificate Authority (FBCA) PKI infrastructure that is being used by many across DOE to send secure messages, there are many instances where individuals send information (apparently using their own discretion) without using this infrastructure, clearly not in compliance with DOE policy. What efforts are being made to standardize DOE with a common secure messaging solution by offering PKI credentials to all DOE employees and contractors and ensure that solution is being utilized at all appropriate times?

Answer. The DOE and NNSA are currently working to develop the plans for implementing the Homeland Security Presidential Directive-12. This directive requires that all Federal employees and Federal contractors use a common, standard credential to access all government and government contractor information systems. A key element in the implementation of this directive is a Department-wide PKI infrastructure. Completion of the implementation of the directive, now mandated by the Office of Management and Budget for September 2006, will provide a common PKI infrastructure across all DOE and NNSA sites and enable the use of a common secure messaging solution.

Question. Sensitive data may reside within a database, on a computer or laptop, within an email or other communication, among other places. What procedures and system does the Department use to ensure that: (1) individuals accessing internal information are who they claim to be; (2) the system allows individuals to only view the material they are authorized to view and no more; and (3) ensures that "authorized" users are not deliberately or inadvertently able to share this information with unauthorized users? If no such program is in place, why is there not a program in place to ensure such safeguards in the storage, use, and communication of such data exists for the entire Department? Would such a program have prevented some, any, or all of the security lapses that we have seen in within the Department?

Answer. The Integrated Cyber Security Initiative is implementing hardware, software, and procedures that will ensure that only authorized users may access and share data with other authorized users. Authorization will be strictly based on management approval of the "need-to-know." Deployment of this architecture into the NNSA unclassified and sensitive computing environments, coupled with the DOE implementation of HSPD–12 and FIPS 201, will extend these controls to cover all NNSA data. These controls will reduce the number of incidents involving inadvertent disclosure of information through inappropriate email and file transfers. However, these controls cannot address the incidents where users mis-handle data outside the computing environment, such as misplacing classified removable electronic media (CREM).

Senator DOMENICI. I do want to close by saying, Senator, that—Feinstein—there is another thing about ournuclear weapons, versus Russia, which I think we are being very honest about. And they're not being dishonest. I mean, they may be, but I don't know about it. But they have different nuclear weapons.

Senator FEINSTEIN. Yes, I know.

CONCLUSION OF HEARINGS

Senator DOMENICI. You know that. And they replace them regularly, and that's not considered new ones. They build them all the time, because they never built them to last very long. So, here we are, every time we move a—we wiggle a little pinky, somebody's running around saying—not you—but that we're building a new weapon, when there is a constant new set of weapons that you big scientists know they're going to have that work right. They don't have the same situation we do. They may have some other problems—manpower, all the rest of it.

With that, we're in recess.

[Whereupon, at 3:40 p.m., Thursday, April 14, the hearings were concluded, and the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2006

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 2006 Energy and Water Development Appropriations Act.]

DEPARTMENT OF DEFENSE—CIVIL

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS—CIVIL

PREPARED STATEMENT OF THE ARKANSAS RIVER BASIN INTERSTATE COMMITTEE

Mr. Chairman and members of this distinguished committee, my name is Lew Meibergen. I am Chairman of the Board of Johnston Enterprises headquartered in Enid, Oklahoma. It is my honor to serve as Chairman of the Arkansas River Basin Interstate Committee, members of which are appointed by the governors of the great States of Arkansas, Colorado, Kansas, Missouri, and Oklahoma.

In these times of war on terrorism, homeland defense and needed economic recovery, our thanks go to each of you, your staff members and the Congress. Your efforts to protect our Nation's infrastructure and stimulate economic growth in a time of budget constraints are both needed and appreciated.

Our Nation's growing dependence on others for energy, and the need to protect and improve our environment, make your efforts especially important. Greater use and development of one of our Nation's most important transportation modes—our navigable inland waterways—will help remedy these problems. At the same time, these fuel-efficient and cost-effective waterways keep us competitive in international markets. In this regard, we must maintain our inland waterway transportation system. We ask that the Congress restore adequate funding to the Corps of Engineers budget—$6.6 billion in fiscal year 2006—to keep the Nation's navigation system from further deterioration. If this catastrophic problem is not addressed immediately, we are in real danger of losing the use of this most important transportation mode.

As Chairman of the Interstate Committee, I present this summary testimony as a compilation of the most important projects from each of the member States. Each of the States unanimously supports these projects without reservation. I request that the copies of each State's individual statement be made a part of the record, along with this testimony.

Equus Beds Aquifer—Kansas

Equus Beds Aquifer Storage and Recovery Project.—Continuation of a City of Wichita Groundwater Management District No. 2 and State of Kansas project to construct storage and recovery facilities for a major groundwater resource supplying water to more than 20 percent of Kansas municipal, industrial and irrigation users. The project will capture and recharge in excess of 100 million gallons per day and will also reduce on-going degradation of the existing groundwater by minimizing mi-

gration of saline water. Federal authorization of the project HR 4650 introduced last year or through similar legislation this year and continued Federal funding is requested in the minimum amount of $1.5 million for fiscal year 2006.

Arkansas River Navigation Improvements

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 each barge, which will reduce the amount of fuel consumed and emissions released. Other 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.

Therefore, we request $40 million to construct dike structures to scour out the channel, and dredge necessary areas for improving the depth of the channel. 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 $3.0 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 $4.7 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.

The testimony we present reveals our firm belief that our inland waterways and the Corps of Engineers' efforts are especially important to our Nation in this time of trial. Transportation infrastructure like the inland waterways need to be operated and maintained for the benefit of the populace. Without adequate annual budgets, this is impossible.

Mr. Chairman, members of this committee, we respectfully request that you and members of your staff review and respond in a positive way to the attached individual statements from each of our States which set forth specific requests pertaining to those States.

We sincerely appreciate your consideration and assistance.

ARKANSAS

PREPARED STATEMENT OF PAUL LATTURE, II, CHAIRMAN FOR ARKANSAS

Mr. Chairman and members of the Committee, thank you for the opportunity to present testimony to this most important committee. I serve as Executive Director for the Little Rock Port Authority and as Arkansas Chairman for the Interstate Committee. Other committee members representing Arkansas, in whose behalf this statement is made, are Mssrs. Wally Gieringer of Hot Springs Village, retired Executive Director of the Pine Bluff-Jefferson County Port Authority; Scott McGeorge, President, Pine Bluff Sand and Gravel Company, Pine Bluff; Barry McKuin of Morrilton, President of the Conway County Economic Development Corporation; and N.M. "Buck" Shell, CEO, Five Rivers Distribution in Van Buren and Fort Smith, Arkansas.

We call to your attention four projects on the McClellan-Kerr Arkansas River Navigation System (the "System") that are especially important to navigation and the economy of this multi-State area: Arkansas River Navigation Improvements, Port of Little Rock Tow-Haulage in Oklahoma.

Arkansas River Navigation Improvements

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 each barge which will reduce the amount of fuel consumed and emissions released. Other 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.

Therefore, we request $40 million to construct dike structures to scour out the channel, and dredge necessary areas for improving the depth of the channel. This investment will increase the cost competitiveness of this low-cost environment-friendly transportation method and help us combat the loss of industry and jobs to overseas.

Little Rock Port

We recognize the significant reduction in new work and understand the need to combat the Global War on Terrorism. We also recognize the need to look for economic advantages where the needs of the government cross with the good of public entities to serve both needs. We believe a prime example of this effort would be to utilize Section 107 of the River and Harbors Act of 1960 (Public Law 86–645) in the Continuing Authorities Program which would allow the disposal of dredge disposal material to be utilized by the Little Rock Port for beneficial fill material.

Therefore, $7.6 million is requested for this project. This project will compliment the goal of Homeland Security by providing a safe, mid-America environment for shipping while complimenting other Federal investments, including the 12-foot channel project by providing completion of a major economic development engine.

Tow-haulage in Oklahoma

In the State of Arkansas, tow-haulage equipment has reduced the time required for lockage of a large tow configuration from 4 hours to pass a lock to 2 hours per passage. Due to funding constraints, this system has not been placed on the locks in Oklahoma.

We request, for the benefit of the entire system, $4.2 million to design and install a tow-haulage system on the first three locks going up the System in Oklahoma: Robert S. Kerr, Webbers Falls, and W.D. Mayo Locks.

Ark-White Cutoff

A cutoff is developing between the Arkansas and White Rivers which, if not corrected, could have dramatic adverse effects on the navigation system as well as significant bottomland hardwoods and pristine environment that provides unique wildlife habitat in southeast Arkansas.

Unless corrected, it is inevitable that a major cutoff will occur negatively impacting navigation on the river, significantly increasing siltation and dredging requirements and, at worst, cutting off the lower end of the Navigation System from the Mississippi River.

We request, for the benefit of the entire system, $7 million to protect the Navigation System from incurring significant increases in dredging, hazardous navigation conditions, and to preclude a devastating loss of habitat in bottom land hardwoods in the Big Island region between the Arkansas River, the White River and the Mississippi River. This pristine habitat is being threatened from the meandering of these rivers while also adversely impacting the Navigation System. The funds are greatly needed to preserve Navigation by completing the study and initiating construction.

In addition to these three vital requests, we urge you to continue to support funding for the construction, and operation and maintenance of the McClellan-Kerr Arkansas River Navigation System which provides low-cost and dependable transportation for farm products, construction aggregates, raw materials and finished products important to our Nation's economic recovery.

It is also most important that you continue construction authority of the McClellan-Kerr Project until remaining channel stabilization problems identified by the Little Rock District Corps of Engineers have been resolved. The Corps needs to develop a permanent solution to the threat of cutoffs developing in the lower reaches of the navigation system and to use environmentally sustainable methods under the existing construction authority.

Mr. Chairman, we appreciate the work of this essential committee and thank you for your efforts that contribute so much to the social and economic well-being of the United States of America.

We fully endorse the statement presented to you today by the Chairman of the Arkansas River Basin Interstate Committee and urge you to favorably consider these requests that are so important to the economic recovery of our region and Nation.

KANSAS

PREPARED STATEMENT OF GERALD H. HOLMAN, CHAIRMAN FOR KANSAS

Mr. Chairman and members of the committee, I am Gerald H. Holman, Senior Vice President of the Wichita Area Chamber of Commerce, Wichita, Kansas and Chairman of the Kansas Interstate Committee for the Arkansas Basin Development Association (ABDA).

The Kansas ABDA representatives join with our colleagues from the other Arkansas River Basin States to form the multi-State Arkansas Basin Development Association. We fully endorse the summary statement presented to you by the Chairman of the Arkansas River Basin Interstate Committee.

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. Other 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. Therefore, we request $40 million to maintain the authorized depth by constructing dike structures to minimize dredging and dredging only necessary areas. This investment will increase the cost competitiveness of this low-cost environment-friendly transportation method and help us combat the loss of industry and jobs to overseas.

We are encouraged about water resource development opportunities in the Arkansas River Basin for not only navigation, but also hydropower, flood control, recreation, water supply and environmental stewardship. We also support the promotion of economic development around Corps reservoirs. While encouraged, we are also concerned that existing and proposed funding levels will not support the needs and therefore, we support the return of proceeds from hydropower facilities, water storage contracts, recreation use, and proceeds from leases and sale of Federal lands, to be returned to the respective projects for infrastructure maintenance and improvements for the public benefit involving those projects.

The critical water resources projects in the Kansas portion of the Arkansas River Basin are identified below. The projects are safety, environmental and conservation oriented and all have regional and/or multi-State impact. We are grateful for your past commitment to critical needs in Kansas.

We ask for your continued support for this important Bureau of Reclamation project on behalf of the Wichita/South Central Kansas area:

Equus Beds Aquifer Storage and Recovery Project.—This is the continuation of a Bureau of Reclamation project jointly endorsed by the City of Wichita, Groundwater Management District No. 2 and the State of Kansas. This model technology has proven the feasibility of recharging a major groundwater aquifer supplying water to nearly 600,000 irrigation, municipal and industrial users. The demonstration project has successfully recharged more than 1 billion gallons of water from the Little Arkansas River. The project is essential to help protect the aquifer from on-going degradation caused by the migration of saline water.

The demonstration project has confirmed earlier engineering models that the full scale aquifer storage and recovery project is feasible and capable of meeting the increasing water resource needs of the area to the mid-21st century. The Equus Beds are also vital to the surrounding agricultural economy. Environmental protection of the aquifer, which this strategic project provides, has increasing importance to ensure quality water for the future since south central Kansas will rely to an even greater extent on the Equus Beds aquifer for water resources.

The south-central Kansas economy including the Wichita MSA represents:

—More than 20 percent of the State's employment.

—More than 1/3 of the State's manufacturing employment and payroll.

—At least 20 percent of the State personal income.

The quality of life and economic future for more than 20 percent of the State's population and economy is dependent upon the availability of reliable, high quality water resources from the Equus Beds.

The State of Kansas supports this much-needed project and includes it within the Kansas Water Plan. All interested parties fully support the project as the needed cornerstone for the area agricultural economy and for the economy of the Wichita metropolitan area.

The aquifer storage and recovery project is a vital component of Wichita's comprehensive and integrated water supply strategy. The full scale design concept for the aquifer storage and recovery project calls for a multi-year construction program.

Phase One is estimated to cost $17.1 million. The total project involving the capture and recharge of more than 100 million gallons of water per day is estimated to cost $110 million over 10 years. This is substantially less costly, both environmentally and economically, when compared with reservoir construction or other alternatives.

We are grateful for your previous cost share funding during the demonstration phase, as a compliment to funds provided by the City of Wichita. As we enter the construction phase, we request continued Congressional support in two ways:

—HR 4650 was introduced and passed out of committee last year. That bill, or similar legislation introduced this year, would authorize the project and also provide cost share funding up to 25 percent of the project cost. We request your support of HR 4650 or similar legislation authorizing the Aquifer Storage and Recovery Project as a Federal project and directing the Bureau of Reclamation to participate in its final design and construction to completion.

—Through continued cost share funding of the full-scale Aquifer Storage and Recovery Project in the minimum amount of $1,500,000 for fiscal year 2006 within the limits of HR 4650 or similar legislation.

Many of our agricultural communities have historically experienced major flood disasters, some of which have resulted in multi-State hardships involving portions of the State of Oklahoma. The flood of 1998 emphasized again the need to rapidly move needed projects to completion. Major losses also took place in the Wichita metropolitan area. Projects in addition to local protection are also important. Our small communities lack the necessary funds and engineering expertise and Federal assistance is needed. This committee has given its previous support to Corps of Engineers projects in Kansas and we request your continued support for the following:

Arkansas City, Kansas Flood Protection.—Unfortunately, this project was not completed prior to the flood of 1998. The flood demonstrated again the critical need to protect the environment, homes and businesses from catastrophic damages from either Walnut River or Arkansas River flooding. When the project is complete, damage in a multi-county area will be eliminated and benefits to the State of Oklahoma just a few miles south will also result. The Secretary of the Army was authorized to construct the project in fiscal year 1997. The project is slated for completion in fiscal year 2005 but the funding is not adequate in the President's budget. We request your continued support in the amount of $3.619 million, which is $2.619 million above the President's budget request so the Corps of Engineers can complete this project.

The Arkansas River Basin is a treasure that must be protected for future generations. We are experiencing decline in water quality due to sediment and nutrient loading. The quality of the water in the Arkansas River and its tributaries, including the numerous reservoirs in the system, is a reflection of its watershed and land use practices. It is imperative that the subbasins within the system are studied using the watershed approach and that protective remedies are identified and implemented to reverse the continuing decline in water quality. We recommend that the following high priority watershed studies be added to the fiscal year 2006 budget:

—*Walnut River (El Dorado Lake) Watershed Feasibility Study*.—A reconnaissance study was conducted in July 2000 by the USACE, Tulsa District, which identified ecosystem restoration as a primary concern in the Walnut Basin. The Kansas Water Office entered into an agreement with the USACE to begin a Walnut River Basin Ecosystem Restoration Feasibility Study for the entire basin.

Following the initial phase of the feasibility study, it was decided that focusing the study to a smaller geographic area would make more efficient use of existing local, State, and Federal resources. The project was re-scoped to focus study efforts on protection and restoration of El Dorado Lake and its contributing watershed.

Public water supply storage in El Dorado Lake is owned by the City of El Dorado and represents an important future regional water supply source for the Walnut Basin. The reservoir and its watershed have been designated by the Kansas Department of Health and Environment as high priority for Total Maximum Daily Load (TMDL) implementation for eutrophication (nutrients) and siltation. Fecal coliform bacteria is another high priority TMDL pollutant. Because of the importance of protecting both water quality and quantity in El Dorado Lake, and to more effectively target limited resources, KWO has partnered with the City of El Dorado to address long-term protection and restoration needs for the reservoir and its watershed, in cooperation with other local, State and Federal agencies.

Study efforts include addressing identified opportunities to reduce sedimentation in El Dorado Lake and meet the watershed total daily maximum load (TMDL) issues of sediment and eutrophication for the purpose of preserving ex-

isting water supply storage, restoring riparian and aquatic habitat in the lake and watershed.

We support the President's fiscal year 2006 budget for this project in the amount of $200,000 for completion of the feasibility study. The feasibility study is expected to be completed in September 2006.

—*Grand (Neosho) Basin Reconnaissance Study*.—A need exists for a basin-wide water resource planning effort in the Grand-Neosho River basin, apart from the issues associated with Grand Lake, Oklahoma. A Federal interest has been determined from the reconnaissance study as a result from a Congressional add in fiscal year 2003 and another add was appropriated in fiscal year 2004. Additional funds are needed to continue the reconnaissance stage of the project. The study would support management efforts by Kansas and Oklahoma agencies to address watershed and reservoir restoration issues in the Grand Lake Watershed. Local interest may also exist for local ecosystem restoration projects. We request funding in the amount of $300,000 in fiscal year 2006.

Grand Lake Feasibility Study.—A need exists to complete evaluation of water resource problems in the Grand-Neosho River basin in Kansas and Oklahoma to evaluate solutions to upstream flooding problems associated with the adequacy of existing real estate easements necessary for flood control operations of Grand Lake, Oklahoma. A study authorized by the Water Resources Development Act of 1996 was completed in September of 1998 and determined that if the project were constructed based on current criteria, additional easements would be required. Section 449 of WRDA 2000 directed the Secretary to evaluate backwater effects specifically due to flood control operations on land around Grand Lake. That study indicated that Federal actions have been a significant cause of the backwater effects and according to WRDA 2000, the feasibility study should be 100 percent federally funded. A Feasibility study is necessary to determine the most cost-effective solution to the real estate inadequacies. Changes in the operations of the project or other upstream changes could have a significant impact on flood control, hydropower, and navigation operations in the Grand (Neosho) River system and on the Arkansas River basin system, as well. We request funding in the amount of $650,000 in fiscal year 2006 to fully fund Feasibility studies evaluating solutions to upstream flooding associated with existing easements necessary for flood control operations of Grand Lake. Although this has been a Congressional add for the past 2 years, no money was made available in the fiscal year 2005 President's budget request.

Continuing Authorities Programs.—We support funding of needed programs including the Small Flood Control Projects Program (Section 205 of the 1948 Flood Control Act, as amended), Aquatic Ecosystem Restoration (Section 206 of the 1996 Water Resources Development Act, as amended), Ecosystem Restoration (Section 1135 of the 1986 Water Resources Development Act, as amended) as well as the Emergency Streambank Stabilization Program (Section 14 of the 1946 Flood Control Act, as amended). Smaller communities in Kansas (Iola, Liberal, McPherson, Augusta, Parsons, Altoona, Kinsley, Newton, Arkansas City, Coffeyville and Medicine Lodge) have previously requested assistance from the Corps of Engineers under the Section 205 and Section 14 programs. The City of Wichita is also requesting funding through these programs to address flooding problems. We urge you to support an increase of these programs to a $65 million programmatic limit for the Small Flood Control Projects Program, $35 million for Aquatic Ecosystem Restoration, $35 million for the Ecosystem Restoration Program and $25 million for the Emergency Streambank Stabilization Program.

The Planning Assistance to States Program under section 22 of the Water Resources Development Act of 1974, as amended, provides Federal funding to assist the States in water resource planning. The State of Kansas is grateful for previous funding under this program which has assisted small Kansas communities in cost sharing needed resource planning as called for and approved in the Kansas State Water Plan. We request continued funding of this program at the $10 million programmatic limit which will allow the State of Kansas to receive the $500,000 limit.

Finally, we are very grateful that both the Corps of Engineers and Bureau of Reclamation have the expertise needed for the development and protection of water resources infrastructure. It is essential to have the integrity and continuity these agencies provide on major public projects. Your continued support of these vital agencies, including funding, will be appreciated. Our infrastructure must be maintained and where needed, enhanced for the future.

Mr. Chairman and members of these committees, thank you very much for the dedicated manner in which you have dealt with the Water Resources Programs and for allowing us to present our funding requests.

OKLAHOMA

PREPARED STATEMENT OF JAMES M. HEWGLEY, JR., CHAIRMAN FOR OKLAHOMA

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 Mssrs. Ted Coombes, Tulsa; A. Earnest Gilder, Muskogee; Terry McDonald, Tulsa; and Lew Meibergen, Enid, who also serves as Chairman of the combined Arkansas River Basin Interstate Committee.

Together with representatives of the other Arkansas River Basin States, we fully endorse the statement presented to you by the Chairman of the Arkansas River Basin Interstate Committee. We appreciate the opportunity to present our views of the special needs of our States concerning several studies and projects.

The committee is encouraged about water resource developmental opportunities in the Arkansas River Basin for not only navigation, but also hydropower, flood control, recreation, water supply, and environmental stewardship. However, we are concerned that existing and proposed funding levels will not support the needs.

Tow Haulage Equipment—Oklahoma.—We request funding of $3.0 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 $4.7 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.

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. Other 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.

Therefore, we request $40 million to maintain the authorized depth by constructing dike structures to minimize dredging and dredging only necessary areas. This investment will increase the cost competitiveness of this low-cost, environment-friendly transportation method and help us combat the loss of industry and jobs to overseas.

The committee supports direct funding for hydropower and is convinced that this is a great public/private partnership that will make aging hydropower facilities more reliable and will utilize hydropower revenue to protect the Federal investment. Similarly, the committee supports initiatives to apply proceeds collected from Corps hydropower facilities, water storage contracts, and from recreation use fees to be returned to the projects where the revenue was generated in order to properly maintain the infrastructure and provide quality services. Finally, the committee promotes economic development around Corps reservoirs, and endorses the return of proceeds from leases and sale of Federal lands to be returned to the respective projects for infrastructure maintenance and improvements for the recreating public.

The Power Plant at Webbers Falls Lock and Dam on the Arkansas River has suffered from greatly reduced reliability due to turbine design problems. Because this is a run-of-the-river facility with no storage, energy spilled due to off-line units is energy that is lost forever. A feasibility study recommending major rehabilitation of this unit has been approved by the office of the Chief of Engineers.

Similar problems have been experienced at Ozark-Jeta Taylor Lock and Dam on the Arkansas River in Arkansas. Congress approved a new start and funding to begin the major rehabilitation of the Ozark powerhouse in fiscal year 2003. Congress approved the administration's fiscal year 2005 budget request of $5 million in Construction General funding to continue this major rehabilitation. The Little Rock District has solicited bids to replace the turbines with a more reliable design, and was scheduled to sign the contract in April 2005. This contract would have included an option to provide the newly designed turbines for the Webbers Falls project as well if additional funding were forthcoming. By combining the turbine replacements into a single contract, as recommended by Corps' Hydropower Design Center, $5

million could be saved. Anticipating the award of this contract, the consumer-owned electric utilities that purchase the hydropower generated at these projects committed in January 2005 to provide up to $38 million to complete the Webbers Falls rehab if traditional appropriations were unavailable for this project.

Unfortunately, the administration's fiscal year 2006 budget request does not include the necessary follow-on funding to continue the Ozark major rehab. On this basis Corps Headquarters has recommended that the Little Rock District not issue the contract and that the remaining $3 million in fiscal year 2005 funding be reprogrammed to other projects. If this recommendation is carried out, the major rehab of both Ozark and Webbers Falls power plants would be terminated.

The committee recommends that Congress appropriate $9.5 million to start the Webbers Falls major rehab in fiscal year 2006. If traditional appropriation funding is unavailable for these projects, we recommend that the committee fund these projects from the receipts provided by the sale of Federal hydropower—a process which is recommended in the administration's budget request.

Mr. Chairman, it is my pleasure to point out to this distinguished committee that this navigation system has brought low cost water transportation to Oklahoma, Arkansas and the surrounding States. There has been over $5.5 billion invested in the construction and development of the McClellan-Kerr Arkansas River Navigation system by the Federal Government ($1.3 billion) and the public and private sector ($4.2 billion+), resulting in the creation of over 50,000 jobs in this partnered project.

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 is $9.4 million less (over 12 percent) than the fiscal year 2005 appropriation, which will result in no funding being available for critical infrastructure maintenance in fiscal year 2006. We therefore request that $2.33 million be added to the budget to accomplish critical infrastructure maintenance items on the Oklahoma portion of the system as follows:

—*Robert S. Kerr*.—$1,334,000 to repair erosion and construct emergency mooring wood dolphins.

—*Webbers Falls*.—$498,000 for emergency dredging and to install a debris boom.

Additional O&M funds are also requested for other high priority, non-navigation, water resource needs including $543,000 for tainter gate repair at Kaw; $1,200,000 for floating bulkhead mooring facility repair at Keystone; $1,303,000 for tainter gate repair at Fort Gibson; and $250,000 for tainter gate hoist equipment replacement at Tenkiller.

The Arkansas River Basin is a treasure that must be protected for future generations. We are already experiencing a decline in water quality due to sediment and nutrient loading. The quality of the water in the Arkansas River and its tributaries, including the numerous reservoirs in the system, is a reflection of its watershed and land use practices. It is imperative that the sub-basins within the system are studied using the watershed approach, similar to that currently being performed in the Oologah feasibility studies, and that protective remedies are identified and implemented to reverse the continuing decline in water quality. We recommend that the following high priority watershed studies be added to the fiscal year 2006 budgets:

Miami, Oklahoma and Vicinity Feasibility Study.—We request funding of $350,000 to move into the feasibility stage for the vicinity in Ottawa County including and surrounding Miami, Oklahoma in the Grand (Neosho) Basin. Water resource planning-related concerns include chronic flooding, ecosystem impairment, poor water quality, subsidence, chat piles, mine shafts, health effects, and Native American issues. The State of Oklahoma's desire is to address the watershed issues in a holistic fashion and restore the watershed to acceptable levels. Study alter-

natives could include structural and non-structural flood damage measures, creation of riverine corridors for habitat and flood storage, development of wetlands to improve aquatic habitat and other measures to enhance the quality and availability of habitat and reduce flood damages.

Oologah Lake Watershed Feasibility Study.—We request funding of $370,000, which is $42,000 more than the President's budget request, for ongoing feasibility studies at Oologah Lake and in the upstream watershed. The lake is an important water supply source for the city of Tulsa and protection of the lake and maintaining and enhancing the quality of the water is important for the economic development of the city. Recent concerns have been expressed by the City of Tulsa and others regarding potential water quality issues that impact water users, as well as important aquatic and terrestrial habitat. Concerns are related to sediment loading and turbidity, oilfield-related contaminants and nutrient loading.

Grand (Neosho) Basin Reconnaissance Study.—We request funding in the amount of $300,000 to conduct a feasibility study of the water resource problems in the Grand (Neosho) Basin in Oklahoma and Kansas. There is a need for a basin-wide water resource planning effort in the Grand-Neosho River basin, apart from the issues associated with Grand Lake, Oklahoma. The reconnaissance study indicated that there is a Federal interest in this project and the feasibility will focus on the evaluation of institutional measures which could assist communities, landowners, and other interests in northeastern Oklahoma and southeastern Kansas in the development of non-structural measures to reduce flood damages in the basin. The reconnaissance study was a Congressional add new start, but no funding was put into the fiscal year 2006 President's budget request to continue into the feasibility stage.

Wister Lake Watershed Ecosystem Restoration Study.—This ecosystem restoration study will evaluate alternatives for in-lake solutions on Wister Lake. Excessive sedimentation and turbidity, nutrient loading and excessive algae growth, taste and odor; and excessive iron and manganese are problems at Wister Lake. Wind and wave action, combined with shoreline erosion and nutrient inputs, contribute to habitat loss and degradation of the lake. We request funds in the amount of $140,000 to continue this study.

Spavinaw Creek Watershed Study.—Spavinaw Creek and its downstream impoundments Eucha and Spavinaw Lakes are severely impacted by nutrient loading and excessive algae growth as a result of agricultural practices located in Arkansas and Oklahoma. Degradation of water quality has led to taste and odor problems, increased treatment costs, and a decreased recreational and aesthetic value of the lakes. Together, Spavinaw and Eucha Lakes provide 47 percent of the water supply for the Tulsa metropolitan area. The Metropolitan Utility Authority entered into the feasibility cost-share agreement in June 2004. We request funds in the amount of $266,000 to continue this study.

Grand Lake Feasibility Study.—A need exists to evaluate water resource problems in the Grand-Neosho River basin in Kansas and Oklahoma to evaluate solutions to upstream flooding problems associated with the adequacy of existing real estate easements necessary for flood control operations of Grand Lake, Oklahoma. A study authorized by the Water Resources Development Act of 1996 was completed in September of 1998 and determined that if the project were constructed based on current criteria, additional easements would be required. Section 449 of WRDA 2000 directed the Secretary to evaluate backwater effects specifically due to flood control operations on land around Grand Lake. That study indicated that Federal actions have been a significant cause of the backwater effects and, according to WRDA 2000, the feasibility study should be 100 percent federally funded. A feasibility study is necessary to determine the most cost-effective solution to the real estate inadequacies. Changes in the operations of the project or other upstream changes could have a significant impact on flood control, hydropower and navigation operations in the Grand (Neosho) River system and on the Arkansas River Basin system, as well. We urge you to provide $650,000 to fund feasibility studies for this important project in fiscal year 2006 and to direct the Corps of Engineers to execute the study at full Federal expense. This project has been a Congressional add for the past 2 years, but there are no funds in the fiscal year 2006 President's budget request to continue this project.

Tenkiller Dam Safety Project.—We are pleased that the President's budget includes funds to advance work for flood control and other water resource needs in Oklahoma. Of special interest to our committee is funding for the Tenkiller Ferry Lakes Dam Safety Assurance Project in Oklahoma. This project is slated to be complete in fiscal year 2006 and continued funding is necessary for safety purposes and economic efficiencies. We would like to see Tenkiller funded at the $5.2 million level, which is the Corps' capability for fiscal year 2006.

Canton Dam Safety.—We request that funding in the amount of $6.0 million be provided to continue the Canton Lake Dam Safety Project. The stability of the existing spillway requires restrictions on the flood control pool. The flood pool can only be held to a 17-year flood event. Installation of steel anchors is required to stabilize the existing spillway so that the project can be operated as originally designed. Funds were provided by Congress in the fiscal year 2005 Appropriations bill to work on this important project.

Section 205.—Although the Small Flood Control Projects Program addresses flood problems which generally impact smaller communities and rural areas and would appear to benefit only those communities, the impact of those projects on economic development crosses county, regional and sometimes State boundaries. The communities served by the program frequently do not have the funds or engineering expertise necessary to provide adequate flood damage reduction measures for their citizens. Continued flooding can have a devastating impact on community development and regional economic stability. The program is extremely beneficial and has been recognized nationwide as a vital part of community development, so much so in fact that there is currently a backlog of requests from communities who have requested assistance under this program. There is limited funding available for these projects and we urge this program be increased to an annual limit of $65 million.

We also request your continued support of the Flood Plain Management Services Program (Section 206 of the 1960 Flood Control Act), which authorizes the Corps of Engineers to use its technical expertise to provide guidance in flood plain management matters to all private, local, State and Federal entities. The objective of the program is to support comprehensive flood plain management planning. The program is one of the most beneficial programs available for reducing flood losses and provides assistance to officials from cities, counties, States and Indian Tribes to ensure that new facilities are not built in areas prone to floods. Assistance includes flood warning, flood proofing, and other flood damage reduction measures, and critical flood plain information is provided on a cost-reimbursable basis to home owners, mortgage companies, realtors and others for use in flood plain awareness and flood insurance requirements.

We also request your support of the Planning Assistance to States Program (Section 22 of the 1974 Water Resources Development Act) which authorizes the Corps of Engineers to use its technical expertise in water and related land resource management to help States and Indian tribes solve their water resource problems. The program is used by many States to support their State water plans. As natural resources diminish, the need to manage those resources becomes more urgent. We urge your continued support of this program as it supports States and Native American tribes in developing resource management plans which will benefit citizens for years to come. The program is very valuable and effective, matching Federal and non-Federal funds to provide cost-effective engineering expertise and support to assist communities, States and tribes in the development of plans for the management, optimization and preservation of basin, watershed and ecosystem resources. The Water Resources Development Act of 1996 increased the annual program limit from $6 million to $10 million and we urge this program be fully funded to the programmatic limit of $10 million.

We strongly urge the Appropriations Committee to raise the Corps of Engineers' budget to $6.6 billion to help get delayed construction projects back on schedule and to reduce the deferred maintenance backlog which is out of control. This will help the Corps of Engineers meet the obligations of the Federal Government to people of this great country.

Concerning another related matter, we have deep concerns about the attempt to re-authorize the Endangered Species Act without significant beneficial reforms. If a bill is passed through without reforms, it will be devastating to industry and the country as a whole. We strongly urge you to take a hard look at any bill concerning this re-authorization and insure that it contains reasonable and meaningful reforms. We urge the re-authorization of the act with reforms at the earliest possible time.

Mr. Chairman, we appreciate this opportunity to present our view on these subject.

PREPARED STATEMENT OF THE TENNESSEE-TOMBIGBEE WATERWAY DEVELOPMENT AUTHORITY

Mr. Chairman, we appreciate the opportunity to once again submit to you for your committee's consideration our requests for fiscal year 2006 appropriations for the Tennessee-Tombigbee Waterway and other waterway projects of importance to our

region. This is the 46th consecutive year the Authority has presented its funding requests to the Congress.

The Tennessee-Tombigbee Waterway Development Authority is a federally authorized interstate compact comprised of the States of Alabama, Kentucky, Mississippi, and Tennessee. Governor Bob Riley of Alabama is chairman of the compact.

We recognize the demands the war in Iraq and homeland security have had on Federal spending and the need to restrict appropriations for other programs in order to reduce budget deficits. However, the proposed budget for the Nation's ports and waterways is woefully inadequate and must be increased if the Nation is to sustain a projected two-fold increase in commerce and trade by the end of the next decade. While fiscal year 2006 is the largest for the Corps of Engineers by an administration in memory, the proposed budget is nearly $200 million less than that approved by the Congress for this year and $1.1 billion less than that needed to meet projected needs next year. The Tennessee-Tombigbee Waterway is a good example how ports and waterways are suffering from inadequate funding.

TENNESSEE-TOMBIGBEE WATERWAY

[In millions of dollars]

	Fiscal Year 2005 Level	Proposed 2006 Budget	Authority's 2006 Recommendation
O&M	23.0	20.1	24.0
Wildlife Mitigation	2.0	1.4	2.0

While over one-half of the Nation's 257 locks are more than 50 years old, the Tenn-Tom is relatively a new project. The waterway is now celebrating its 20th anniversary and has always enjoyed strong political support by members of Congress from this region. Nevertheless, Tenn-Tom's operation and maintenance has been under funded nearly every year since the 1997 Balanced Budget Act was enacted. As a result, the waterway has accumulated a backlog of nearly $12 million of repairs that were previously scheduled but have been indefinitely deferred due to lack of funding. The President's request of $20.1 million is nearly $3 million less than the current level of funding and nearly $4 million below that needed to adequately maintain the waterway and enable it to generate expected economic benefits. We recommend that $24 million be appropriated in 2006 for the operation and maintenance of the waterway. The requested increase in funds above the President's budget are needed for the following table.

[In millions of dollars]

	Amount
Additional dredging to keep the navigation channel open to commerce	2.0
More capacity of spoil disposal areas to accommodate increased dredging needs	1.2
Determine measures to reduce channel dredging in Aberdeen Lake, the waterway's most costly dredging problem	0.5
Eradication of aquatic weeds, the public's No. 1 complaint about the waterway's environment	0.2
Total Increase	3.9

An additional $600,000 is needed to reimburse the States of Alabama and Mississippi for their expenses for managing 126,000 acres of wildlife habitat that are the major part of the Tenn-Tom Wildlife Mitigation Project. A total payment of $2 million is required to meet the contractual obligations of the Federal Government to the two States. Environmental projects were given top budget priority in the 2006 proposed budget. Although this project is recognized as one of the Corps' most successful efforts to restore lost wildlife habitat, OMB nevertheless cut its funding from a current level of $2.0 million to $1.4 million. These funds need to be restored.

KENTUCKY LOCK

[In millions of dollars]

	Fiscal Year 2005 Level	Proposed 2006 Budget	Authority's 2006 Recommendation
Lock Construction	32.5	.....	40.0

The Corps has spent a total of $165 million since 1998 on construction of a new lock at Kentucky Dam, the gateway to waterborne commerce on the Tennessee River and the connecting Tenn-Tom Waterway. Nearly 60 million tons of commerce are shipped each year on these two systems with some 37 million tons traversing Kentucky Lock, itself. The nearly 60-year old, out-moded, existing lock cannot efficiently accommodate such a large volume of traffic causing 4-hour to 7-hour delays to transit the lock that cost shippers more than $70 million annually in wasted transportation costs. This is one of the most costly bottlenecks on the entire waterway system.

OMB instituted a new policy for next fiscal year that eliminated all on-going construction for projects that do not have a remaining benefits-to-costs ratio of 3 to 1 or higher. Although construction is 25 percent complete, funding for Kentucky Lock was eliminated based on this OMB policy. If not reversed by the Congress, the project will be mothballed and likely never completed. Its B/C ratio was calculated at 2.7 to 1 but if more optimal funding had been requested by OMB and approved by the Congress in prior years, its B/C would be 3.1 to 1. Traditionally, the Congress has authorized and funded those civil works projects, including waterways, that have a 1 to 1 or greater B/C ratio or those that demonstrated their economic benefits equaled or exceeded their costs.

We respectfully implore your committee to resoundingly reject this ill-advised budget policy and restore funding for Kentucky Lock and the other affected projects. To stop construction of this much needed waterway improvement at this time and waste nearly $165 million already invested would be unconscionable. Forty million dollars is needed to keep construction on a reasonable timetable that will permit completion of the project by 2012.

The Authority also recommends that you inform the Corps immediately that your committee rejects this policy and that it will restore funds for construction. Further, we request that you direct the agency to award those contracts as originally scheduled for this year, based on those appropriations already provided by the Congress. This is especially important for the superstructure contract planned for award this spring. This work is on a critical path and any delay of the contract's award results in a corresponding delay in the overall completion of Kentucky Lock. It is critically important this contract is awarded this spring.

CHICKAMAUGA LOCK

[In millions of dollars]

	Fiscal Year 2005 Level	Proposed 2006 Budget	Authority's 2006 Recommendation
Lock Construction	17.0	.....	10.0
Lock Repairs	1.0	2.4	2.4

Although the Congress approved this project as a new construction start in fiscal year 2004, OMB has failed for the second year to include funding for the new lock. Unless this project is built soon to replace the structurally deteriorating and undersized, existing lock, eastern Tennessee will become landlocked, causing serious economic disruptions. Ongoing repairs to patch up the more than 60-year-old lock will only postpone the inevitability of its permanent closure as a safety precaution and block commercial navigation between Chattanooga and Knoxville, TN until the new lock is completed.

The Authority requests an appropriation of $10 million to enable the Corps of Engineers to start construction of the cofferdam needed to build the new lock. This will be the first major contract for this critically needed project.

Mr. Chairman, we greatly appreciate the leadership you have given to water resource development. These projects have greatly increased the Nation's economic worth and improved the quality of life of its citizens. We especially thank you for your past support of the Tennessee-Tombigbee Waterway and for the other projects in our region. We again ask for your careful consideration of the above requests for continued funding of these very important projects.

PREPARED STATEMENT OF THE UPPER MISSISSIPPI RIVER BASIN ASSOCIATION (UMRBA)

[In millions of dollars]

	President's Request	UMRBA Recommendation
Construction General:		
Upper Miss. River System Environmental Mgt. Program	33.50	33.50
Lock and Dam 3 (Major Rehabilitation)	.....	5.30
Lock and Dam 11 (Major Rehabilitation)	7.58	7.58
Lock and Dam 19 (Major Rehabilitation)	17.50	17.50
Lock and Dam 24 (Major Rehabilitation)	4.30	4.30
Lock and Dam 27 (Major Rehabilitation)	.....	2.00
Upper Mississippi and Illinois Rivers Navigation Study (if construction is authorized)	.....	16.20
Operation and Maintenance:		
O&M of the Upper Mississippi and Illinois Rivers Navigation System	180.43	232.57
General Investigations:		
Upper Mississippi and Illinois Rivers Navigation Study (PED)	.....	24.00
Upper Mississippi River Comprehensive Plan	.....	1.10

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

The Corps of Engineers recently 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. However, Congress has not yet authorized the recommended integrated plan for navigation improvements and ecosystem restoration. To insure that the necessary planning and design work can proceed, in anticipation of construction authorization, Congress appropriated $13.5 million for Preconstruction Engineering and Design (PED) in fiscal year 2005. A similar bridging strategy will be necessary in fiscal year 2006 if authorization is still pending.

PED.—The UMRBA supports $24 million for PED in fiscal year 2006. 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 proceed immediately and be sustained over time. In fiscal year 2005, PED funding is being directed to both navigation improvements and ecosystem restoration projects. To continue this balanced approach, the Corps proposes directing $13 million to navigation measures (mooring facilities, switchboats, and lock design), $9 million to 30 ecosystem restoration projects, and $2 million for program management in fiscal year 2006.

Construction.—If the integrated navigation and ecosystem restoration program is authorized for construction this year, construction could be initiated on some projects as early as fiscal year 2006. In that event, UMRBA would support construction funding of $16.2 million, which is the Corps of Engineers' maximum expressed capability. This funding would support mooring facilities at 7 sites, switchboats at 2 sites, and 10 ecosystem restoration projects.

ENVIRONMENTAL MANAGEMENT PROGRAM

For the past 18 years, the Upper Mississippi River System Environmental Management Program (EMP) has been the premier program for restoring the river's habitat and monitoring the river's ecological health. As such, the EMP is key to achieving Congress' vision of the Upper Mississippi as a "nationally significant ecosystem and a nationally significant commercial navigation system." Congress reaffirmed its support for this program in the 1999 Water Resources Development Act by reauthorizing the EMP as a continuing authority and increasing the annual authorized appropriation to $33.5 million. The UMRBA is pleased that the administration has requested full funding of $33.5 million for the EMP in fiscal year 2006. The fact that the administration has identified the EMP as one of nine projects "that are the highest priorities in the Nation," is tribute to the EMP's success. Yet annual appropriations for the EMP have fallen short of the authorized funding levels for

the past 8 years and the program is still suffering from the dramatic 40 percent cut it experienced in fiscal year 2003. Thus, the UMRBA strongly urges Congress to appropriate full funding of $33.5 million for the EMP in fiscal year 2006.

The administration's proposed funding level of $33.5 million will support planning and design of 21 habitat restoration projects and construction of 11 projects. Once completed, these 11 projects will benefit over 32,000 acres of aquatic and floodplain habitat. In addition, fiscal year 2006 funds will support expanded efforts of the Long Term Resource Monitoring program (LTRMP), which has suffered substantially from the funding shortfalls in recent years. This year, the LTRMP was restructured to enhance its ability to meet increasing demands for information with decreasing resources. But it is essential that funding be increased in fiscal year 2006 to revive many of the critical functions that have been eliminated, deferred, or reduced.

UMRBA is particularly concerned about an apparent directive from OMB that $3 million of fiscal year 2006 EMP funding be devoted to development of a "10-year aquatic ecosystem restoration plan." Such a plan is unnecessary and would be duplicative of plans that the Corps of Engineers just completed as part of the Upper Mississippi and Illinois Rivers Navigation Study. Given the backlog of EMP habitat restoration projects awaiting construction, and the vast number of unmet needs under the Long Term Resource Monitoring Program, 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 of Engineers 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 of Engineers, as recommended in the recently completed 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 in 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 the past 19 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 Corps' fiscal year 2006 budget request for major rehabilitation work at L&D 11 ($7.58 million), L&D 19 ($17.5 million), and L&D 24 ($4.3 million). L&D 11, located near Dubuque, Iowa, is nearly 70 years old and experiencing frequent breakdowns of mechanical and electrical equipment. The major rehabilitation project currently underway includes new bulkheads, lock chamber and guidewall repairs, and electrical system upgrades. Rehabilitation needs are especially urgent at L&D 19, where temporary use of the only available spare lock gates risks closure of the river north of Keokuk, Iowa, if those gates fail. L&D 24, located near Clarksville, Missouri, is nearing completion of the first phase of its $87 million rehabilitation. Fiscal year 2006 funding will support completion of the dam tainter gate rehabilitation and lock wall concrete repairs.

The UMRBA also supports funding for two major rehabilitation projects that are not included in the President's request: L&D 3 ($5.3 million) and Locks 27 ($2 million). Navigation safety and embankment failure have been a concern for over 20 years at L&D 3. Downbound commercial tows have difficulty negotiating the lock chamber and in some cases have actually been sucked into the gated portion of the dam. Releasing these barges from the dam involves manipulating the gates and water levels in a way that puts increased pressure on the adjacent embankments, which have been severely weakened by age and past accidents. Should these structures be breached, commercial navigation would be curtailed and two large power plants would be forced to shut down. Lock 27 is located at a critical juncture on the inland waterway system, downstream of the Mississippi, Illinois, and Missouri Rivers. Because no funding has yet been provided to initiate rehabilitation as a construction "new start," emergency repairs continue using O&M funds.

OPERATION AND MAINTENANCE (O&M) OF THE UPPER MISSISSIPPI RIVER NAVIGATION SYSTEM

The Corps of Engineers 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, 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 2006 budget request totals approximately $180 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.

[In millions of dollars]

Upper Mississippi River System O&M Accounts	Fiscal Year 2005 Allocation	Fiscal Year 2006 Request	Fiscal Year 2006 Full Capability
Mississippi River Between Missouri River and Minneapolis:			
St. Paul District (MVP)	46.37	58.07	66.07
Rock Island District (MVR)	40.65	48.11	64.40
St. Louis District (MVS)	20.40	18.92	23.17
Mississippi River Between Ohio and Missouri Rivers	20.15	29.56	40.48
Illinois Waterway:			
Rock Island District (MVR)	31.29	24.70	37.23
St. Louis District (MVS)	1.85	1.07	1.22

The President's fiscal year 2006 funding request for O&M of most Upper Mississippi River reaches is above fiscal year 2005 allocations, with the exception of the pooled portion of the St. Louis District. Unfortunately, all these funding levels are well below what is needed. In particular, there is a growing backlog of maintenance needs as a result of historically flat line budgets. In the case of the Illinois Waterway, the President's fiscal year 2006 request, which is 20 percent below the fiscal year 2005 allocation, is even more problematic. Funding on the Illinois Waterway was increased substantially in fiscal year 2005 to address a significant maintenance backlog. Under the fiscal year 2006 request, all work on the backlog would stop and basic service levels would be reduced.

The UMRBA supports increased funding for O&M of the Upper Mississippi and Illinois River System to meet routine ongoing operation and maintenance needs, and to address the growing unfunded maintenance backlog. Full capability funding in fiscal year 2006 for all three Upper Mississippi and Illinois River districts totals $232.57 million.

UPPER MISSISSIPPI RIVER COMPREHENSIVE PLAN (FLOOD DAMAGE REDUCTION)

Section 459 of the Water Resources Development Act of 1999 authorized the Corps to develop what is called the "Upper Mississippi River Comprehensive Plan," the primary focus of which is systemic flood damage reduction and flood protection. Since planning began in December 2001, funding shortfalls have been significant and the study has been suspended several times. It will thus be impossible to complete the study within the 3-year time frame Congress established in WRDA 1999, and later reaffirmed in WRDA 2000.

The fiscal year 2006 budget includes no funding for the Comprehensive Plan, despite the fact that the study is nearly complete. The analysis to date suggests that systemwide levee increases have benefit-to-cost ratios less than one. However, this is the Corps' first use of flow frequency data to analyze flood damage reduction options on a systemwide basis. It is providing important insights into how local changes to the flood protection system may impact flood levels throughout the system. The Corps has also evaluated a series of Emergency Action Scenarios that state floodplain managers can utilize when making flood-fighting decisions. It is thus important that this study be brought to a timely conclusion, including preparation of the final report. Toward that end, UMRBA supports $1.1 million for completion of the study in fiscal year 2006.

PREPARED STATEMENT OF THE FORT PECK ASSINIBOINE AND SIOUX TRIBES AND DRY PRAIRIE RURAL WATER SYSTEM

FISCAL YEAR 2006 BUDGET REQUEST

The Fort Peck Assiniboine and Sioux Tribes and Dry Prairie Rural Water respectfully request fiscal year 2006 appropriations in the amount of $25,457,000 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 2006 WORK PLAN—PECK RESERVATION RURAL WATER SYSTEM (PUBLIC LAW 106–382)

	Amount
Fort Peck Tribes:	
Work Plan (100% Federal):	
Water Treatment Plant	$13,251,000
Pipelines:	
Poplar to Big Muddy	1,956,000
Poplar to Wolf Point	1,956,000
FP OM Buildings	856,000
Total	18,019,000
Dry Prairie:	
Work Plan (Branch Pipelines):	
Bainville, Dane Valley and East Medicine Lake:	
Federal	7,438,000
State and Local	2,349,000
Total	9,787,000
Total	27,806,000
Federal	25,457,000
State and Local	2,349,000

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, and the first phase of the Culbertson to Medicine Lake Pipeline Project.

The request is slightly less than the average annual appropriations needed to complete the project in fiscal year 2012, as provided by the authorizing legislation:

Total Federal Funds Authorized (October 2004 Dollars)	$234,860,000
Federal Funds Expended Through Fiscal Year 2005	$22,510,000
Percent Complete	9.58
Amount Remaining	$212,350,000
Average Annual Required for Fiscal Year 2012 Finish (Public Law 106–382)	$30,336,000
Fiscal Year 2006 Amount Requested	$25,457,000

Note that cost indexing from last year due to inflation increased the cost of the project from $207 million to $235 million, an increase of $28 million. This is more than the amount requested for fiscal year 2006. 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 currently under construction. All projects have a head under the engineers estimate.

A contract for the construction of the Missouri River water treatment plant will be initiated in fiscal year 2005. Completion of construction of the water treatment plant is contemplated in fiscal year 2007.

The request for fiscal year 2006 will continue the construction of the Missouri River water treatment plant with the use of the $13,251,000. Fiscal year 2007 funds in the amount of $10.2 million will be required for completion of the water treatment plant. The request for fiscal year 2006 also provides for construction of finished core water pipelines from the water treatment plant toward the communities of Poplar (Poplar to Big Muddy) and Wolf Point (Poplar to 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 connect to Dry Prairie facilities on the east and west boundaries of the Reservation. The funds for the pipeline projects are equally divided at $1,956,000 for each project. The Tribes will also use $856,000 for operation and maintenance buildings. The Bureau of Reclamation can confirm that the use of funds proposed for fiscal year 2006 is well within the project's capability based on current status of plans and specifications.

The pipeline project from the water treatment plant to Poplar will provide a source of water for a section of the Fort Peck Indian Reservation contaminated by oil drilling operations and the subject of EPA orders to the responsible oil company. The oil company will provide the distribution system necessary to mitigate the problems and the Assiniboine and Sioux Rural Water System will provide the interconnecting pipeline without duplicating any facilities identified in the Final Engineering Report.

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 (see general location map attached).

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 at the Big Muddy River. The project between Culbertson, Froid and Medicine Lake is in full operation and serves the last two mentioned communities and a small number of rural users.

The completed system provides Dry Prairie with capability to build branch pipelines and connect rural areas in the south half of the east half of the Dry Prairie Project. Bainville, Dane Valley and East Medicine Lake area residents can be served with the existing system capacity that is now constructed and in operation. The request for fiscal year 2006 funds of $7,438,000 will be combined with a non-Federal cost share of $2,349,000 to build nearly $10 million of branch pipelines connecting with the Culbertson-Froid-Medicine Lake core pipeline. Bidding of the project can be undertaken in by third-quarter fiscal year 2005. The Bureau of Reclamation can confirm the capability to construct these pipelines based on the current status of design.

Master Plan

The project master plan is provided for review on the following page. The request for fiscal year 2006 is shown in relation to the project components that remain to be completed by 2012.

LOCAL PROJECT SUPPORT

The Fort Peck Tribes have supported the project since 1992 when they conceived it and sought means of improving the quality of life in the region. The planning was a logical step after successful completion of an historic water rights compact with the State of Montana. This compact was the national "ice breaker" that increased the level of confidence by other Tribes in Indian water right settlement initiatives. The Tribes did not seek financial compensation for the settlement of their water rights but expected development of meaningful water projects as now authorized.

The 1999 Montana Legislature approved a funding mechanism from its Treasure State Endowment Program to finance the non-Federal share of project planning and construction. Demonstrating support of Montana for the project, there were only three votes against the statutory funding mechanism in both the full House and Senate. The 2001 through 2005 Montana Legislatures have provided all authorizations and appropriations necessary for the non-Federal cost share.

Dry Prairie support is demonstrated by a financial commitment of all 14 communities within the service area to participate in the project. Rural support is strong, with about 70 percent of area farms and ranches intending to participate as evidenced by their intent fees of $100 per household.

NEED FOR WATER QUALITY IMPROVEMENT

The Fort Peck Indian Reservation was previously designated as an "Enterprise Community", underscoring the level of poverty and need for economic development in the region. The success of economic development within the Reservation will be significantly enhanced by the availability of higher quality, safe and more ample municipal, rural and industrial water supplies that this regional project will bring to the Reservation, made more necessary by an extended drought in the region. Outside the Fort Peck Indian Reservation, the Dry Prairie area has income levels that are higher than within the Reservation but lower than the State average.

The feature of this project that makes it more cost effective than similar projects is its proximity to the Missouri River. The southern boundary of the Fort Peck Indian Reservation is formed by the Missouri River for a distance of more than 60 miles. Many of the towns in this regional project are located 2 to 3 miles from the river, including Nashua, Frazer, Oswego, Wolf Point, Poplar, Brockton, Culbertson, and Bainville. As shown on the enclosed project map, a transmission system outside the Fort Peck Indian Reservation will deliver water 30 to 40 miles north of the Missouri River. Therefore, the distances from the Missouri River to all points in the main transmission system are shorter than in other projects of this nature in the Northern Great Plains.

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 hands 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 are required by the cooperative agreements to 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.

JOINT PREPARED STATEMENT OF THE PORT COMMERCE DEPARTMENT, THE PORT AUTHORITY OF NEW YORK & NEW JERSEY; DIVISION OF INTERMODAL SERVICES, DEPARTMENT OF TRANSPORTATION, STATE OF NEW JERSEY; EMPIRE STATE DEVELOPMENT CORPORATION, STATE OF NEW YORK; AND NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION

The Port of New York & New Jersey is grateful for your continued support of the Nation's navigation system and our bi-State gateway. Strong funding is important to our work with the Federal Government in providing infrastructure necessary to accommodate the Nation's demand for international commerce. We strongly endorse the President's request for $101,000,000 for the NY & NJ Harbor Deepening Project. We also respectfully request $42,860,000 in added funds for projects, as explained below.

The subcommittee's record over the years documents its recognition of the importance of the Nation's navigation program to the economic well being of the country. Closer to home, the administration's budget states that the deepening of the Port's main system of channels is a national priority. Both views are well founded. International commerce across the country has grown tremendously, in fact straining the capacity of port and landside systems. Marine terminals in the NY Harbor region handled 4.4 million TEUs in 2004, an increase of roughly 400,000 TEUs over 2003. The freight moves not only into the region, the Northeast, and Midwest but also into most States in the continental United States. This activity is creating new jobs at the docks and well into the country. The Port supports almost 40,000 terminal-based jobs, over 189,000 off-terminal positions, and an additional 186,000 jobs nationwide. Last year, this Port hired 1,153 new ILA longshoremen, and plans are underway to replace 200 retirees and hire 1,200 additional employees. We welcome all members of the subcommittee and staff to join us in taking a first-hand look at the Port to learn more about its role in the U.S. transportation system.

The Port and its partners are mindful of maintaining environmental stewardship today while planning for tomorrow's commerce. Among other things, the Port Authority has committed funds to continue a NY Academy of Sciences study to identify and prevent sources of contamination from entering the harbor estuary. A pilot project has installed nitrogen oxide-reducing technology on a Staten Island ferry and plans to retrofit six additional ferries. We are retrofitting tugboats to reduce their emissions. We committed $60 million to acquire land for long-term preservation. Terminal operators have installed electric cranes, extended operating hours, and replaced cargo-handling equipment with cleaner models to reduce emissions and improve the environment—a strong signal of the private sector's commitment. We recognize that the Nation's maritime infrastructure must be able to support cargo growth while sustaining our natural resources. Only with adequate funding can the Corps work with its local partners to provide the necessary infrastructure and protect our environment.

Below are our comments on the fiscal year 2006 budget request. We enthusiastically support the administration's request for the Harbor Deepening Project and respectfully request that the subcommittee appropriate additional funds for select projects as noted and discussed below. Projects in bold lettering are requests beyond the administration's fiscal year 2006 budget levels. For reasons of space, we do not list maintenance projects for which we support the budget request levels.

Construction	Budget	Port Request
New York & New Jersey Harbor	$101,000,000	$101,000,000
Continuing Authority Program (CAP):		
Gerritsen Creek, NY		2,000,000
Jamaica Bay Marsh Island, NY		3,500,000
Lincoln Park, NJ		1,000,000
Soundview Park, NY		375,000
TOTAL		6,875,000
Surveys (Studies):		
Hudson-Raritan Estuary (HRE), NY & NJ	800,000	850,000
HRE, Gowanus Canal, NY	400,000	1,000,000
HRE, Lower Passaic River, NJ	400,000	2,300,000
HRE, Hackensack-Meadowlands, NJ	300,000	900,000
HRE, Flushing Bay & Creek, NY		[1] 725,000
HRE, Jamaica Bay Ecosystem Restoration, NY		[1] 1,000,000

Construction	Budget	Port Request
HRE, Liberty State Park, NJ		[1] 1,000,000
SP (S324) Hackensack-Meadowlands, NJ		1,000,000
TOTAL	1,900,000	8,775,000
Operation and Maintenance: [2]		
Flushing Bay & Creek, NY	150,000	12,150,000
Hudson River Channel	350,000	9,550,000
Jamaica Bay, NY	140,000	540,000
New York Harbor	3,410,000	4,810,000
New York & New Jersey Channels	7,200,000	12,700,000
Project Condition Surveys, NJ	1,635,000	2,135,000
Project Condition Surveys, NY	930,000	1,040,000
Total	13,815,000	42,925,000

[1] Project requires authorization.
[2] Not the full list of O&M projects.

CONSTRUCTION

New York and New Jersey Harbor.—This project was authorized by Section 101(a)(2) of WRDA 2000 (Public Law 106–541). The NY & NJ Harbor Deepening Project will improve transportation efficiency and will benefit the markets served by the port as well as the Nation's defense capability. All-water services to the East Coast, increasingly embraced by major steamship lines, promise growing cargo throughput in the years ahead. The Port and private industry have been engaged in a $1.46 billion redevelopment program that includes waterways, terminal, and access improvements to meet this anticipated growth. We urge adoption of the $101,000,000 budget request with the understanding that restoration of previously reprogrammed funds will be available, if needed, to keep the harbor-deepening program on schedule.

Continuing Authority Program.—We request that $6,875,000 be added to the Continuing Authority Program to enable construction of habitat restoration at Gerritsen Creek, Lincoln Park and the Jamaica Bay Marsh Island sites, and to complete the study phase for the Soundview Park restoration site. We also note that the current budget request for $15,000,000 is not adequate to support CAP projects ready for construction. Funding CAP to the authorized limit of $25,000,000 would be more realistic and would signal Congress' commitment to achieving effective environmental restoration.

SURVEYS (STUDIES)

Hudson-Raritan Estuary Studies.—These studies were authorized by a House Committee Resolution dated April 15, 1999, Docket Number 2596. Increases are requested for the studies in order to achieve the completion schedules for the New York & New Jersey, Lower Passaic, and Gowanus studies.

New York & New Jersey.—The study purpose is to identify projects to restore estuarine, wetland and adjacent upland buffer habitat in the region consistent with existing port and regional management plans. A Feasibility Cost Sharing Agreement (FCSA) was signed July 12, 2001, and study initiated. One fast-tracked project is Liberty State Park. New Jersey has all required project funds on hand and ready to provide to the Corps for construction. The Corps is unable to proceed with both the comprehensive study and the Liberty State Park project without more funds. We respectfully request that the budget be augmented by $50,000 to $850,000 to allow the Corps to proceed.

Lower Passaic.—Communities throughout the Passaic River Basin requested improvements to remediate and restore the river. In June 2003, the Corps, in partnership with EPA and the NJ Office of Maritime Resources (OMR), completed a comprehensive Project Management Plan (PMP) that integrates the work of all three agencies into a single study. In the same month, the Corps signed a FCSA with OMR and began the study. This has been designated as a pilot project under the joint Corps-EPA Urban Rivers Restoration Initiative. The non-Federal matching funding will be available as the project requires. Lack of Federal funding will jeopardize the Corps' ability to participate in the joint fieldwork envisioned in the PMP. We request that the budget be augmented to $2,300,000.

Gowanus.—The feasibility study will assess the environmental problems and potential solutions in the Gowanus Canal and Bay. Restoration measures will assess

clean up of off-channel contaminated hot spots, contaminant reduction measures, wetland creation, water quality improvements, and alteration of hydrology/hydraulics to improve water movement and quality. It was designated as a pilot project under the joint Corps-EPA Urban Rivers Restoration Initiative. A FCSA was executed with the NYC Department of Environmental Protection in March 2002. The City has committed its full share to the project and awaits the Federal match. To continue the restoration study of this highly contaminated, urban body of water, we request that the budget be augmented to $1,000,000.

Hackensack Meadowlands.—This study looks at the feasibility of restoring wetlands in the project area and assesses toxic waste remediation potential. The area's wildlife habitat preserves are threatened by dwindling open marshes. In April 2003, the Corps executed the FCSA with the local sponsor, the NJ Meadowlands Commission, and initiated the feasibility study. We respectfully request that the budget be augmented to $900,000 for this study aimed at protecting marshes, tidal creeks and open spaces and to $1,000,000 in S234 funds to begin projects ready for construction.

Liberty State Park.—The feasibility study looks to restore a major saltwater marsh system and remediate on-site contamination. We request $1,000,000 to complete the study and to initiate the Preliminary Engineering and Design (PED) phase, contingent upon authorization of this significant regional project.

Jamaica Bay and Flushing Bay.—These important regional projects require conditional authorization to begin work on the final designs. We request $1,000,000 and $725,000, respectively, for Preliminary Engineering & Design, contingent on authorization, for these important projects.

OPERATION AND MAINTENANCE

Maintenance projects are critical to the commerce, navigation and security of the Port, as well as the Nation's security. If channels are not maintained to official depths and as needed by today's commerce, the efficiency of the Federal system of channels is lost and the risk of groundings increases. Past and current budgets enable only partial maintenance of the channels, leaving significant areas at shallow and potentially unsafe depths. The Port is one the Nation's busiest petroleum ports and the Arthur Kill (under NY & NJ Channels) is critical to that trade. Maintenance of the channel is needed to support the industry, which serves the greater New York Metropolitan area and much of the American Northeast. Maintenance also protects and perpetuates the Federal infrastructure investment. We identified several critical projects with pressing dredging safety concerns. With those concerns in mind, it is important to be on the record in stating that this part of the fiscal year 2006 budget is insufficient to meet the practical needs of commerce. While the total port maintenance need well exceeds the President's O&M budget for the projects identified on the above table, we respectfully request the budget be augmented by $29,110,000 to $42,925,000.

CONCLUSION

The administration's budget includes language that would restrict the use of continuing contracts, which is extremely troubling. On reading the budget documents the full intent on this matter is not clear but it is evident that Congress is being requested to adopt a "1-year contract" approach that would have very serious impacts on the Port's deepening program. There are 17 contracts to be awarded in the project with a current estimated date of completion in 2014. As best as we can tell, the administration proposal would mean the completion of the deepening program 8 years later (in 2022). That would increase the overall construction cost significantly, undermine the value of our terminal development investments, and possibly even put at least one terminal operator out of business. As such we strongly oppose the policy change. The Port of New York & New Jersey continues to be a major international gateway for the Nation. The civil works program, coupled with public and private sector investments, has served well the Nation's economic and security interests for the better part of two centuries. We are proud of that history and commit to continuing this productive partnership with the Federal Government for centuries to come.

PREPARED STATEMENT OF THE PERKINS COUNTY RURAL WATER SYSTEM, INC.

Perkins County Rural Water System, Inc. respectfully submits this written testimony to the Appropriations Subcommittee on Energy and Water Development for

appropriations of $6.0 million for fiscal year 2006. This project was authorized under Public Law 106–136.

Perkins County Rural Water System, (PCRWS) gained the approval of the Office of Management and Budget and the Bureau of Reclamation to proceed with construction in 2004. We have been appropriated $7.6 million in years 2002 and 2003. We were appropriated $1.0 million and $2.25 million in 2004 and 2005 respectively. The administration has zeroed out our funding for 2006. To stay on course with our project, we need at least $6.0 million a year. Since we were not in the president's budget, it is very important that we get a write-in on the Senate's Appropriations Committee. Cost share for the system is 75 percent Federal, 15 percent local and 10 percent State. The State of South Dakota has offered to loan PCRWS the local share for 40 years at 3 percent interest to keep costs down to the customer.

Breakdown for the project for 2006 is as follows:

2006 BUDGET

	Amount
INCOME:	
BUREAU OF RECLAMATION	$6,000,000
STATE OF SOUTH DAKOTA	1,500,000
MISC	75,000
TOTAL	7,575,000
EXPENSE:	
FINISH PIPE FOR 2005	1,430,000
NORTH DAKOTA STATE WATER COMM	1,320,000
RESERVOIR	500,000
LEMMON AND SHADEHILL RURAL PIPE	2,280,000
BISON & PRAIRIE CITY RURAL	1,500,000
ADMINISTRATION, ENGINEERING	545,000
TOTAL	7,575,000

PCRWS will need $6.0 million for each of the next 3 years to complete our project on time. This consists of 550 miles of various size pipes ranging from 8 inches to 1.5 inches, one pump station capable of moving 800 gallons per minute, a 1.0 million gallon tank and telemetry to operate the whole system from one localized location.

The quality of water in Northwest South Dakota is the main concern for the health and well being of the people. Although the water typically meets primary standards established by the USEPA, most of the chemicals in the water are exceedingly high by the State of South Dakota standards. Water quality and quantity in Perkins County has been a plague for the county over many years. Droughts, both long and short term, are a fact of life for the people in this area. Being able to obtain quality water during these periods and having a backup system for other times would make life a lot easier for those in the rural area. Due to the isolation from major water supplies, this may be our only chance to obtain water at an affordable cost.

On the behalf of the Board of Directors of PCRWS and the people of Perkins County, South Dakota, thank you for allowing us to enter this testimony in the subcommittee's record.

PREPARED STATEMENT OF THE NEW YORK-NEW JERSEY HARBOR ROUNDTABLE

The authors of this statement have participated in a process known as the Harbor Roundtable initiated to develop a sound and comprehensive environmental agenda to complement the ongoing port development and navigation initiatives in the Port of New York and New Jersey. The goal is to establish both a World Class Port and a World Class Estuary. The Harbor Roundtable appreciates the continued support of the Appropriations Subcommittee on Energy and Water for the NY/NJ Harbor Estuary's ecosystem restoration projects. We acknowledge the President's request for $1,900,000 for studies in the region and $15,000,000 allocated nationally for the Corp's Continuing Authority Program. We respectfully request $13,750,000 in added funds for restoration projects within the NY/NJ Harbor Estuary. This funding is necessary so that these critical restoration projects can proceed on timelines complementary to Harbor deepening and Port revitalization. Funding requests for these

same restoration projects was submitted to, and have been supported by Richard M. Larrabee, Director, Port Commerce Department, The Port Authority of New York & New Jersey, Richard Gimello, Executive Director, Division Of Intermodal Services, State of New Jersey, Department of Transportation, Eileen Mildenberger, Chief Operating Officer and Executive Vice President, State of New York, Empire State Development Corporation, Kate Ascher, Executive Vice President New York City Economic Development Corporation.

The NY/NJ Harbor Estuary has been much transformed in recent decades as urban and port development has progressed. Initially, with New York City and northern New Jersey an early center of industrial development, industrial contamination flowed, with little restriction, into Harbor waters, prior to pollution control programs adopted in the 1970's. Recreational opportunities, species, and ecological functions vanished. More recent efforts have reversed this trend, but clearly more can be done. While the Harbor has lost a significant portion of its estuarine and tributary river wetlands, it still has major ecosystems that we can restore. These include Jamaica Bay, home of the Jamaica Bay Unit of the National Park's Gateway Recreation Area, that has witnessed accelerating erosion of its wetland islands, and the marsh complex that stretches from the Arthur-Kill around Staten Island to the Hackensack Meadowlands in northern New Jersey. All these marshes have been criss-crossed with transportation levees and other impediments to water interchange. Physical restoration of such ecosystems serves the interest of the Port and will improve Harbor water quality as well as habitat for wildlife. These systems are potential ecological gems in the midst of the most densely populated metropolitan area in the United States.

Contaminated sediments in tributaries of the Harbor such as the Lower Passaic River and Gowanus Canal in Brooklyn are also a major source of heavy metal and synthetic organic contaminants to the Harbor. Migration of these contaminants adds significantly to the cost of navigational dredging, at the same time it detracts from the health of fish and wildlife populations. In addition, the contaminated state of these sediments is hindering the revitalization of old urban areas along these waterways. Thus, a program to restore these degraded estuarine habitats and to remediate and restore these contaminated waterways is vital for the NY/NJ Harbor Estuary and serves the economic interests of the Port and the region as a whole.

The subcommittee's record over the years documents its recognition of the importance of restoration in NY/NJ Harbor Estuary. We are pleased that the Port, its partners, and a consortium of regional and national conservation organizations have recognized that the Port's maritime infrastructure must be able to support cargo growth while sustaining and enhancing our natural resources, and do so while concurrently expanding recreational opportunities for regional residents and visitors. Only with adequate funding can the Corps work with its local partners to continue to protect and restore our Estuary.

Below are our comments on the fiscal year 2006 budget request. We respectfully request that the subcommittee appropriate additional funds for select projects as noted and discussed below. Projects in bold lettering are requests beyond the administration's fiscal year 2006 budget levels.

Continuing Authority Program (CAP)	President's Budget	Requested
Gerritsen Creek, NY		$2,000,000
Jamaica Bay Marsh Island, NY		3,500,000
Lincoln Park, NJ		1,000,000
Soundview Park, NY		375,000
TOTAL		6,875,000
Surveys (Studies):		
Hudson-Raritan Estuary (HRE), NY & NJ	800,000	850,000
HRE, Gowanus Canal, NY	400,000	1,000,000
HRE, Lower Passaic River, NJ	400,000	2,300,000
HRE, Hackensack-Meadowlands, NJ	300,000	900,000
SP (§ 324) Hackensack-Meadowlands, NJ		1,000,000
HRE, Jamaica Bay Ecosystem Restoration, NY		[1] 1,000,000
HRE, Liberty State Park, NJ		[1] 1,000,000
HRE, Flushing Bay & Creek, NY		[1] 725,000
TOTAL	1,900,000	8,775,000

[1] Project requires construction authorization.

Continuing Authority Program.—We request that $6,875,000 be added to the Continuing Authority Program to enable construction of habitat restoration at Gerritsen Creek, Lincoln Park and the Jamaica Bay Marsh Island sites, and to complete the study phase for the Soundview Park restoration site. We also note that the current budget request for $15,000,000 is not adequate to support the CAP projects ready for construction. Funding CAP to the authorized limit of $25,000,000 would signal Congress' commitment to achieving effective environmental restoration.

Hudson-Raritan Estuary Studies.—These studies were authorized by a House Committee Resolution dated April 15, 1999, Docket Number 2596. Increases are requested for the studies in order to achieve the completion schedules for the New York & New Jersey, and Gowanus studies.

Hudson-Raritan Estuary, NY & NJ.—As part of this study, the Corps and the Port Authority are sponsoring the development of a Comprehensive Restoration Improvement Plan (CRIP). The CRIP will provide the framework to develop a harbor-wide ecosystem restoration strategy. The environmental community sees development of this framework, integrating the ongoing habitat and sediment restoration efforts, as a critical component of a world class estuary. We respectfully request that the budget be augmented by $50,000, to $850,000, to allow the Corps to proceed.

Gowanus.—The feasibility study will assess the environmental problems and potential solutions in the Gowanus Canal and Bay. Restoration measures will assess clean up of off-channel contaminated hot spots, contaminant reduction measures, wetland creation, water quality improvements, and alteration of hydrology/hydraulics to improve water movement and quality. It was designated as a pilot project under the joint Corps-EPA Urban Rivers Restoration Initiative. A FCSA was executed with the NYC Department of Environmental Protection in March 2002. The city has committed its full share to the project and awaits the Federal match. To continue the restoration study of this highly contaminated, urban body of water, we request that the budget be augmented to $1,000,000.

Lower Passaic.—The Passaic River is one of the most degraded rivers in the Nation, one of our regions greatest environmental threats and one of our highest priorities. In June 2003, the Corps, in partnership with EPA and the NJ Office of Maritime Resources (OMR), completed a comprehensive Project Management Plan (PMP) that integrates the work of all three agencies into a single study. In the same month, the Corps signed a FCSA with OMR and began the study. This has been designated as a pilot project under the joint Corps-EPA Urban Rivers Restoration Initiative. The non-Federal matching funding will be available as the project requires. Lack of Federal funding will jeopardize the Corps' ability to participate in the joint fieldwork envisioned in the PMP. We request that the budget be augmented to $2,300,000 with the stipulation that a portion of the funds be used to investigate interim and/or expedited remediation and restoration opportunities.

Hackensack Meadowlands.—The Hackensack Meadowlands is the largest remaining brackish tidal wetland complex in the estuary, and one of our region's highest priorities for preservation because of its still existing values and tremendous potential. Opportunities exist for the careful removal of impairments to fish migration on tributaries and the removal and/or covering of contaminated sediment hot spots with clean sediments. In April 2003, the Corps executed the FCSA with the local sponsor, the NJ Meadowlands Commission, and initiated the feasibility study. We respectfully request that the budget be augmented to $900,000 for this study aimed at protecting marshes, tidal creeks and open spaces and to $1,000,000 in §324 funds to begin projects ready for construction.

Jamaica Bay Ecosystem Restoration.—Jamaica Bay, like the Hackensack Meadowlands, is an integral part of the New York—New Jersey Harbor estuary. It is one of the largest remaining estuarine tidal wetland complex in the estuary, and one that the CCMP targets as deserving special attention to protect and preserve because of its still existing values and tremendous potential. These remaining wetlands and open space are especially significant for concentrations of Federal trust species including waterfowl, wading birds, shorebirds, raptors, anadromous fish, estuarine fish, and terrapins. Restoration measures will include re-contouring to restore flow patterns and flushing rates that will benefit benthic and fishery habitats and site specific restoration measures, such as regrading, ditching, vegetative plantings, and dike removal designed to improve local habitat value, especially salt marshes and coastal grasslands. These important regional projects require conditional authorization to begin work on the final designs. We request $1,000,000 for Preliminary Engineering & Design, contingent on authorization, for this critically important regional project.

Liberty State Park.—The feasibility study looks to restore a major saltwater marsh system and remediate on-site contamination. We request $1,000,000 to com-

plete the study and to initiate the Preliminary Engineering and Design (PED) phase, contingent upon authorization of this significant regional project.

Flushing Bay and Creek.—Flushing Bay is an embayment of western Long Island Sound adjoining a portion of the northern coast of New York City, in the Borough of Queens. Over the past century, the Bay's entire ecosystem has been degraded through fill activities, bulkheading, dredging, landfills, sewage and Combined Sewer Outfall (CSO) discharges. We request $725,000 to complete the study and to initiate the PED phase, contingent on authorization, for this important regional project.

CONCLUSION

The Port of New York & New Jersey is an important part of the economy of the New York/New Jersey metropolitan area, and with fishing, swimming, and boating it is holds great potential as a major recreational opportunity and economic engine for the region. Port development has also been a major beneficiary of the Estuary's natural resources. Several of the facilities have been built on former wetlands (in some cases predating Clean Water Act protections of those wetlands). Maintenance channel dredging, necessary for port commerce also has significant impacts on benthic habitat, mudflats, and wetlands. Recognizing this, the Port Authority and Port interests have committed to significant improvements in water and air quality, priority habitat preservation and restoration, and activities to mitigate for environmental impacts from Port operations and expansion.

We are encouraged by the constructive dialogue between Port interests and the environmental conservation community that has resulted in this appropriations request. Thank you for the opportunity to submit testimony on this important appropriation.

PREPARED STATEMENT OF THE OUACHITA RIVER VALLEY ASSOCIATION

APPROPRIATIONS FOR THE OUACHITA-BLACK NAVIGATION PROJECT

Mr. Chairman and members of the committee, thank you for the opportunity to present testimony to this committee that influences so much of the economy of our region through the Ouachita-Black Navigation Project. The Project was authorized by the River and Harbor Act of 1950 as modified by the River and Harbor Act of 1960.

The Ouachita River Valley Association is a nonprofit organization with a 112-year history having as its purpose the "development of projects that have been proven to be economically sound, socially justified which enhance the general welfare of the people in the Ouachita River basin in Arkansas, Louisiana, and the Nation". Mr. Chairman, sometimes it is prudent and helpful to state the obvious to ensure a common understanding of a situation and to enable informed evaluation. The following statements lie in this domain. The 337-mile Ouachita-Black Navigation System is the only commercially navigable waterway serving the eleven Parishes and Counties in northeast Louisiana and Southeast Arkansas. All project benefits rely on the four small locks and dams that have been in place for up to 30 years. None of which have an auxiliary structure nor are there feasible alternatives to the many services they provide. With few exceptions, the waterway throughout its 30-year history has received funding sufficient only for operations with little attention to maintenance. Neglect of this waterway following construction is symbolized by the absence of navigation charts on a project in operation for 30 years.

We submit our request in three major categories for your consideration. The first and foremost need is that of Operations and Maintenance, General (O&M) funding; second is the need for funding for stabilization of eroding banks that are endangering existing public and private infrastructure; and the third is funding for a study to identify and document the contributions of this waterway to the Nation and the region it serves in Louisiana and Arkansas.

OPERATION AND MAINTENANCE, GENERAL

Historical funding shortfalls for Operations and Maintenance (O&M) are seriously threatening the reliability and dependability of the Ouachita-Black Navigation System. The waterway is an important industrial/agricultural economic generator, vital transportation artery, irreplaceable source for municipal, industrial and agricultural water supplies, a vast recreational asset and natural resource preservation project serving this region and the Nation. These many benefits depend upon safe and reliable operation of four locks and dams and periodic channel maintenance work. A $1 investment in preventive O&M yields more than $14 in returns to the Nation. Programmed maintenance has been demonstrated to be and is intuitively more eco-

nomical than breakdown maintenance. Economic losses from service failures brought about by long-term system closures are magnified by unscheduled and more costly "break down" repairs.

An ominous concern specific to the Ouachita-Black System is the inability to dewater the locks to inspect critical lock components and to repair them in a timely manner without long and costly outages. Absent the stoplog slots, a failure of the lock miter gates and other underwater components as a result of deterioration or a marine accident will require months or years to repair as compared to perhaps weeks with a working stoplog system. Jonesville Lock was modified with stoplog slots in fiscal year 2004 to provide this capability. However, funding provided in fiscal year 2005 was insufficient to continue this work at the three upstream structures. We strongly urge and recommend that the highest priority be given to continuation of the stoplog slot installation program followed closely with inspection and repair of the critical components that have not been maintained for 30 years.

Request is made for $12.5 million for routine operations, continuation of the stoplog slot modification program, repair critical components, initiate preventive maintenance work, and perform channel maintenance dredging. This amount is only 58 percent of the more than $21 million for work that is identified as needed and within the capability of the Corps of Engineers to perform in fiscal year 2006.

CONSTRUCTION GENERAL, BANK STABILIZATION

As with any alluvial stream, the Ouachita River tends to meander with the annual rise and fall of river flows. The degree of this attack has been relatively minor but has now reached the point of endangering critical and irreplaceable infrastructure. Protection of federally funded infrastructure such as levees, roads and bridges, ports, as well as historical sites is best and most economically provided by judicious hardening or stabilizing the banks of the river. Prevention of damages is more economical that repair and replacement. Levees protecting the cities of Columbia and Monroe, Louisiana are threatened by encroaching erosion at miles 113, 121, and 169 and an irreplaceable historical site is endangered at Camden, Arkansas.

Request is made for $5.0 million for bank protection at these sites. Proposed Bill and Report language are attached.

GENERAL INVESTIGATIONS, POST-CONSTRUCTION BENEFIT STUDY

It is our strongest contention that expenditure of Federal funds should be thoroughly evaluated and justified on the basis of sound investments. However, much of the difficulty in providing acceptable evidence of waterway benefits is the lack of a comprehensive post-construction evaluation.

Benefits for this project have been narrowly defined in the past and decisions made from an uninformed perspective without regard to the actual contributions of the waterway system to the region and Nation. Initial administration budget proposals for fiscal year 2005, that would have abandoned the project, produced stakeholder meetings throughout the basin. The largest was a hearing held by the Arkansas Legislature at Camden, Arkansas with more than 150 people of all interests in attendance. The 30 stakeholders testifying before the committee brought out the widespread impact of the waterway on the people, industries, and environment of the region.

The effort to abandon significant portions of the national waterway infrastructure based solely on arbitrary tons or ton-miles of cargo moved is rooted in the concept that tributary streams provide only limited transportation benefits. Analysis of Waterborne Commerce Statistics Center data by Institute for Water Resources and TVA reveals that 68 percent of cargo tonnage and 56 percent of waterway ton-miles are generated on tributary streams. The ancillary benefits generated in connection with navigation projects are perhaps even greater than transportation benefits and should be determined in greater detail through basin specific studies.

Funds in the amount of $250,000 are requested to conduct a post-construction benefit evaluation of the Ouachita-Black Navigation System to provide a basis for future levels of investments.

SUMMATION

Mr. Chairman we appreciate the opportunity to bring these issues to the attention of the committee. And, to help "connect the dots" for prevention of catastrophic failures but most importantly to strengthen the Nation through wise investment in our natural resources from which springs our wealth. Investments by the Federal Government in the Ouachita-Black Navigation System have and are continuing to make a significant difference in the lives of the people residing in the valley while contributing to the Nation at-large. For this we are grateful. We urge the Congress through

its power of the budget to restore and maintain this important component of the national waterway infrastructure through very modest investments. Proposed Bill and Report Language are enclosed.

BILL LANGUAGE

OUACHITA AND BLACK RIVERS BANK STABILIZATION, ARKANSAS AND LOUISIANA

Provided further, that using the funds appropriated herein, the Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to design and construct bank stabilization measures, at Federal expense with local sponsors providing necessary lands, easements, and rights of way, along the Ouachita and Black Rivers, Arkansas and Louisiana, between mile 0 on the Black River, Louisiana, to mile 460 on the Ouachita River, Arkansas at the outlet of Remmel Dam, such measures to be constructed as the Secretary determines necessary to maintain navigation, for flood damage prevention, for control of erosion and for historic preservation.

REPORT LANGUAGE

OUACHITA AND BLACK RIVERS BANK STABILIZATION, ARKANSAS AND LOUISIANA

The Committee is aware of the severe bank caving and erosion occurring along the Ouachita and Black Rivers, Arkansas and Louisiana, between mile 0 on the Black River, Louisiana, to mile 460 on the Ouachita River, Arkansas at the outlet of Remmel Dam and has included bill language directing the Corps of Engineers to use funds provided, to design and construct bank stabilization measures, at Federal expense with local sponsors providing necessary lands, easements, and rights of way, along the Ouachita and Black Rivers, Arkansas and Louisiana, as the Secretary determines necessary to maintain navigation, for flood damage prevention, for control of erosion, and for historical preservation.

PREPARED STATEMENT OF THE CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

Testimony for the Tropicana and Flamingo Washes Flood Control Project, Las Vegas, Nevada.—$15,000,000 construction appropriations and $3,000,000 appropriations for work performed pursuant to Section 211 of the Water Resources Development Act of 1996.

Presented herewith is testimony in support of $15,000,000 for the construction appropriation necessary for the U.S. Army Corps of Engineers to continue the Tropicana and Flamingo Washes flood control project in Clark County, Nevada. Also, testimony in support of $3,000,000 appropriation 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 total requested appropriations are $18 million. The President's fiscal year 2006 Civil Works budget request to Congress identifies only $13,000,000 for this project. Critical flood control projects would be severely hampered at that funding level. 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.

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 1.7 million. The latest statistics show that more than 25,000 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 Federal project being constructed by the Corps of Engineers (Corps) is designed to collect flood flows from a 174-square mile contributing drainage area. The Corps' 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 wa-

tersheds 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 Corps' plan are critical.

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 are estimated at $20,500,000. 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 Corps' Tropicana and Flamingo Washes Project had been fully implemented. However, those features of the Corps' 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. Storms of this magnitude only reinforce the need to expeditiously build all flood control projects in the Las Vegas Valley.

This past winter, the area experienced heavier than normal rainfall amounts. This winter we have seen twice our average annual rainfall. The flood control features built as part of the Tropicana and Flamingo Washes Project helped to protect vast areas of our community.

The Feasibility Report for this 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 $252,345,000 (allocations $211 million), allowing the project to continue to be implemented. The total cost of the flood control portion of the project is currently estimated at $297,400,000, higher than originally anticipated primarily due to the delay in Federal appropriations.

The local community had constructed certain elements of the Corps' plan 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 Federal project. We have removed 18 square miles of flood zones from Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps. This was accomplished through the completion of the Red Rock Detention Basin Modifications, the Blue Diamond Detention Basin, and the F–1 and F–2 Debris Basins and Outfall Channels. We anticipate removal of additional flood zones as a result of recently completed portions of the Federal project and even more removed when the entire project is complete.

Both the Clark County Regional Flood Control District and Clark County are looking forward to the construction of the remaining portions of this project.

The non-Federal sponsors are requesting $15,000,000 for the continued construction of this project. Funding at this level will allow the Corps of Engineers to continue the construction of the following project features:

—Upper Blue Diamond Channel;

—F–4 Debris Basin and Channel.

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 Tropicana and Flamingo Washes 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 to date totals approximately $24.7 million, and includes features that were designed by the non-Federal sponsors and constructed by either the Federal Government or the non-Federal sponsors. The estimated Federal proportionate share of the work performed by the non-Federal sponsors is $18.6 million. To date, $12.5 million has been reimbursed.

The non-Federal sponsors are requesting $3 million in reimbursement under Section 211. This amount is requested in light of the language contained in the fiscal year 2000 Energy and Water Development Bill, Senate Report 106–58, which states in part, "The Committee expects . . . every effort to even out reimbursement payments to lessen future budgetary impacts." The non-Federal sponsors' contributions to the project are for the primary purpose of providing flood protection as quickly as possible.

In summary, the Tropicana and Flamingo Washes 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 $15 million, in fiscal year 2006, in order to facilitate continued design and construction of additional phases of this critical flood control project. In addition, we are also asking that the committee provide the Secretary of the Army with $3 million to reimburse the non-Federal sponsors the Federal proportionate share of the work completed by the sponsors in advance of the Federal Government. The total requested is $18 million.

The committee is aware that flood control measures are a necessary investment required to prevent 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.

PREPARED STATEMENT OF THE CITY OF FLAGSTAFF, ARIZONA

RIO DE FLAG FLOOD CONTROL PROJECT

Chairman Domenici, Ranking Member Reid, 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 2006. I believe this 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 2 fiscal years, Rio de Flag received $5.8 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 2006.

Like many other projects under the Army Corps's jurisdiction, Rio de Flag received no funding in the president's fiscal year 2006 budget, although the Corps has expressed 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 $400 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.

Mr. Chairman, the intense wildfires that have devastated the West during the last several years have only exacerbated the flood potential and hazard in Flagstaff. An intense wildfire near Flagstaff could strip the soil of ground cover and vegetation, which could, in turn, increase runoff and pose an even greater threat of a catastrophic flood.

In short, a large flood could cripple Flagstaff for years. This is why the City believes it is so important to ensure that this project remains on schedule and that the Corps is able to maximize its capability of $8 million in fiscal year 2006 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 $10 million for fiscal year 2005.

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 estimated to be $30,000,000 in and above the reconnaissance study or the feasibility study. The Non-Federal share is currently $10,500,000 and the Federal share is currently $19,500,000. 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 success 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 will commence in 2004. Phase II of the project is scheduled to commence in April of 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 $19 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 $395 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 2006 Energy and Water Development Appropriations bill. Thank you in advance for your consideration.

PREPARED STATEMENT OF THE METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

MCCOOK & THORNTON RESERVOIRS SUMMARY RECOMMENDATION.—$3,000,000 CONSTRUCTION

On behalf of the Metropolitan Water Reclamation District of Greater Chicago (District), I want to thank the subcommittee for this opportunity to present our priorities for fiscal year 2006 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 three Corps of Engineers (Corps) 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 include a total of $30,000,000 in construction funding for the McCook and Thornton Reservoir

projects in the 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 are the inevitable result. More critically, larger storms generate back flows to Lake Michigan and pollute water supply for the six-county area. 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. The "underground rivers" are tunnels up to 35 feet in diameter and 350 feet below the surface. To provide an outlet for these tunnels, reservoirs will be constructed at the end of the tunnel systems. Approximately 101.5 miles of tunnels, constructed at a total cost of $2.2 billion, are operational. The final 7.9 miles of tunnels, costing $168 million, are under construction. 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. In its first 7 years of operation, O'Hare CUP Reservoir has taken water in 22 storm events, and yielded $70.7 million in flood damage reduction benefits, which exceeds its $44.5 million construction costs. The Thornton and McCook Reservoirs are currently under construction, but until they are completed, significant areas will remain unprotected. Without these 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, 787 billion gallons of CSOs have been captured, 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 from CSOs has become a rarity. 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. Specifically, since 1977, these counties received an additional 162 million gallons of 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, more than 20 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 that between 1981 and 2020, 283 million gallons per day of Lake Michigan water would be added to domestic con-

sumption. 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.

REMAINING COMPONENTS: 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 are an integral part of TARP; the flood protection component of this 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 a storage capacity of 18 billion gallons and will provide annual benefits of $115 million. The total estimated annual benefits of these projects are more than twice as much as their total annual cost. 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 to cost ratios for these projects, after fiscal year 2005, are 3.01 for the McCook Reservoir and 3.17 for the Thornton Composite Reservoir. Preliminary design indicates that the remaining benefit to cost ratio for the McCook Reservoir is actually closer to 3.90, due to capital cost reductions of approximately $100 million. When completed, the reservoirs 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 foresight, innovation, and benefits.

Based on two successive Presidentially-declared flood disasters in our area in 1986 and again in 1987, and dramatic 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 flood control projects, we have an obligation to protect the health and safety of our citizens. Due to the need to provide continuous flood protection to the community, our delegation is working in Congress on language for the Water Resources Development Act of 2005 to allow the District to advance construction of the Thornton Composite Reservoir and be reimbursed for the work under the authority of Section 211 of the Water Resources Development of 1996. We are asking your support in helping us achieve this necessary and important goal of construction completion.

We appreciate that the subcommittee has included critical levels of funds for these important projects. We were delighted to see the $29,150,000 in construction and engineering funds included in the fiscal year 2005 Energy and Water Development Appropriations Act for the McCook and Thornton Reservoirs. However, it is important that we receive a total of $30,000,000 in construction funds in fiscal year 2006 to maintain the schedule of these critical projects. This funding would be used to complete the construction of the distribution tunnels, to continue work on the groundwater cut-off wall and grout curtain for the McCook Reservoir and to continue the design engineering for both reservoirs. The community has waited long enough for protection and we need these funds now to move the project into construction. We respectfully request your consideration of our request.

SUMMARY

Our most significant recent flooding occurred on February 20, 1997, when almost 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 p.m. and 3 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 of flooding in our area, the Corps was compelled to develop a plan that would complete 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, that are subject to flooding. The annual damages sustained exceed $150 million. If TARP, including the CUP Reservoirs,

were 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 continues on schedule through construction.

Therefore, we urgently request that a total of $30,000,000 in construction funds be made available in the fiscal year 2006 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 NAPA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

SUMMARY RECOMMENDATIONS

Project	Funding Request
Napa River Flood Control: Corps of Engineers, Construction	$24,000,000
Napa River Maintenance Dredging: Corps of Engineers, Operation and Maintenance	2,644,000
Napa Valley Watershed Management: Corps of Engineers, Feasibility Study	500,000

NAPA RIVER FLOOD CONTROL PROJECT

Background

The project is located in the city and county of Napa, California. 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 high tides and local runoff. Floods in the Napa area have occurred in 1955, 1958, 1963, 1965, 1986 (flood of record), 1995, and 1997. 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.

Since 1962, 27 major floods have struck the Valley region, exacting a heavy toll in loss of life and property. The flood on 1986, for example, killed three people and caused more than $100 million in damage. 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 countrywide. Almost all of the damages from the 1986, 1995, and 1997 floods were within the project area. Congress has authorized a flood control project since 1944, 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.

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 leasers, 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.

Construction of the project began 4 years ago. 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 remaining benefit/remaining cost ratio of over 3 to 1 as calculated by the Corps. 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 5 years ago by a two-thirds majority of the county's voters for the local share.

Project Synopsis

Fiscal Year 2005 Funding

The fiscal year 2005 Energy and Water Development Appropriations Act included $16,000,000 to continue construction of the project.

Necessary Fiscal Year 2006 Funding

Funding for the Napa River Project during 2006 in the amount of $24,000,000 is needed to continue construction of the project and maintain the current project schedule.

NAPA RIVER MAINTENANCE DREDGING

Background

The Napa River project is a shallow-draft, mainly light commercial and recreational, navigation channel. The operations and maintenance schedule provides for a 6-year cycle of maintenance dredging for the Napa River Channel to −15 feet Mean Lower Low Water (MLLW) from Mare Island Strait Causeway to Asylum Slough (downstream portion); thence −10 feet MLLW to head of navigation at the Third Street Bridge in the City of Napa (upstream portion). The sponsor (Napa County Flood Control and Water Conservation District) is responsible for furnishing a suitable upland dredged material disposal site for the project. The most recent maintenance dredging for the project was completed in fiscal year 1999.

Necessary Fiscal Year 2006 Funding

Funding in the amount of $2,644,000 for maintenance dredging of the Napa River project is required in fiscal year 2006. With maintenance normally performed on a 6-year cycle, dredging to restore authorized project depths is overdue. Maintenance dredging is required to restore depths required for existing traffic and in anticipation of the additional boat traffic resulting from the replacement of the Maxwell Bridge as part of the Napa River flood control project.

NAPA VALLEY WATERSHED MANAGEMENT

Background

The Napa Valley watershed faces many challenges and stresses to its environmental health and flood management abilities. From a healthy river point of view, the Napa River has been on a recovery path since its low point in the 1960's, when the last of the native salmon were taken from the system by severe water pollution and habitat destruction. Steelhead trout have survived as a remnant population of 200 that is presently in need of higher quality and more extensive spawning areas for recovery to a significant population.

In order to address issues such as encroachment of the river and loss of wetlands and to develop local tools for improving natural resource management, the U.S. Army Corps of Engineers, San Francisco District (Corps) and the Napa County Flood Control and Water Conservation District (NCFCWCD) is currently developing a Napa Valley Watershed Management Plan (WMP) which identifies problems and opportunities for implementing environmentally and economically beneficial restora-

tion in the Napa Valley watershed providing ecosystem benefits, such as flood reduction, erosion control, sedimentation management, and pollution abatement. The authority for this study is the Northern California Streams Study Authority stemming from the Rivers and Harbors Act of 1962, Public Law 87–874. The plan, which the District is requesting funds for, would include the identification, review, refinement, and prioritization of restoration and flood protection opportunities with an emphasis on restoration of the watershed's ecosystem (e.g., important plant communities, healthy fish and wildlife populations, rare and endangered habitats and species and wildlife and riparian habitats).

Project Synopsis

Fiscal Year 2005 Budget Funding

The fiscal year 2005 Energy and Water Development Appropriations Act included $200,000 to continue the Napa Valley Watershed Management Study. Funds are being used for data evaluation and outreach and to create a data monitoring framework for the watershed.

Necessary Fiscal Year 2006 Funding

Funding for the Napa Valley Watershed Management Study during fiscal year 2006 in the amount of $500,000 is needed to continue work on the Napa Valley Watershed Resource Analysis & Report. This amount is included in the President's Budget Request for the Corps of Engineers. The purpose of this work is to provide a foundation assessment for resource allocation that improves the habitat and water quality in the Napa River watershed.

PREPARED STATEMENT OF THE BOARD OF LEVEE COMMISSIONERS FOR THE YAZOO-MISSISSIPPI DELTA

U.S. ARMY CORPS OF ENGINEERS MISSISSIPPI RIVER & TRIBUTARIES PROJECT REQUEST—$450 MILLION

Perhaps at no time in the modern era have this Nation's flood control community and the citizens it seeks to protect been as threatened as they are today.

Not only does the proposed Federal budget provide only 60 percent of the funding needed to carry out the country's needed work, but legislative fiat and subsequent bureaucratic changes would also result in a dangerously restrictive manner in which monies which are received might be allocated.

Like other flood control entities, the Yazoo-Mississippi Delta Levee Board is used to appealing to the Congress for more funding than respective administrations would send to help keep our people dry, but the double-whammy now in place is most ominous, indeed.

We will address first the needed funding.

The committee is aware that the comprehensive project for Flood Control, the Mississippi River and Tributaries Project (MR&T) will provide flood protection for the alluvial valley of the Mississippi River from Cape Girardeau, Missouri, to the Head of Passes, Louisiana, and for the improvement of the Mississippi River for navigation from Cairo, Illinois, to Baton Rouge, Louisiana. This, ladies and gentlemen, is truly the heartland of America.

And it has worked, fabulously. For the investment of $12.1 billion, the project has accumulated benefits in flood damages prevented of about $293 billion. That's a benefit to cost ratio of 24:1. Every endeavor in the country should be so successful. So now we must bring it to what is effectively a grinding halt? The fiscal year 2006 proposed budget would fund the MR&T only at a level of $270 million, only 60 percent of what the U.S. Army Corps of Engineers has demonstrated to be its capabilities of $450 million.

As prime, and to the Yazoo-Mississippi Delta Levee Board preeminent example is the Upper Yazoo Project in our 10-county district of Mississippi, arguably the most effectively progressing and least controversy-plagued flood control project in the entire country. Yet, this public works success, which already provides urban flood protection to Greenwood and upon completion would provide additional urban flood protection to such as Marks, Lambert, Moorhead (the site of Mississippi Delta Community College), Tutwiler, Glendora, Sumner and Webb, as well as eliminating interbasin transfer, is slated to receive exactly zero funding—not 1 red cent—in the proposed Federal budget. We urge lawmakers that the Upper Yazoo Project be funded at the 2006 capability level of $13.275 million.

And while of the highest priority to this levee board, this project is not a lone example of funding inequity proposed. We join with the Mississippi Valley Flood Con-

trol association in urging that the Mississippi Rivers and Tributaries Project be funded at the full Corps capability of $450 million.

Also of paramount concern to us, however, are new restrictions being imposed on the Corps of Engineers within the confines of the MR&T.

Ladies and gentlemen, these new restrictions, most notably the lack of authority to award continuing contracts and the reprogramming of current projects, literally threaten to shut down every rural flood control project in the United States and consequently will serve to effectively write off all the men, women and children who live there.

If the Corps cannot utilize continuing contracts, then flood control will be effectively out of business in our part of the country. It is enormously self-defeating.

The MR&T project, in addition to its flood control benefits, also provides approximately $900 million in navigation savings on the Mississippi River each year. While the project is approximately 88 percent physically complete, there is considerable work to be done—some of it in our back yard.

It is important to note that the MR&T project was conceived and designed as a multi-component system to convey floodwaters that pass through the Lower Mississippi Valley to the Gulf of Mexico comprised of the drainage of 41 percent of the continental United States. Until the system is completed, it cannot safely convey a project flood or assure stability of the river for navigation.

We urge that the United States House of Representatives and the United States Senate grant the Corps of Engineers authority to award continuing contracts within the MR&T appropriation.

PREPARED STATEMENT OF THE RED RIVER VALLEY ASSOCIATION

CIVIL WORKS

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.

The Resolutions contained herein were adopted by the Association during its 80th Annual Meeting in Bossier City, Louisiana on February 24, 2005, and represent the combined concerns of the citizens of the Red River Basin area as they pertain to the goals of the Association.

The President's budget included $4.513 billion for the civil works programs. Even though the President's budget is only $200 million less than what was appropriated in fiscal year 2005, $4.705 billion (4.4 percent reduction), the problem is how the funds were distributed. A few projects received as much as twice as much as was appropriated in fiscal year 2005 to the detriment of many projects that received no funding. The $4.513 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 $5.5 billion in fiscal year 2006. The traditional programs, inland waterways and flood protection remain at the low, unacceptable level as in past years. These projects are the backbone to our Nation's infrastructure for waterways, flood control and water supply. 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 for construction and much of the architect and engineer work. Not only do these funds provide jobs, but provide economic development opportunities for our communities to grow and prosper, creating jobs.

In the past we have worked hard to "add" funding to the Energy and Water Bill for the Water projects. We want to bring to your attention that in fiscal year 1998 the Water projects received approximately 20 percent of the total bill. Over the next 7 years the Water portion steadily decreased to only 16.6 percent of the total bill in fiscal year 2005. The Nation's Energy program is very important, but we believe the Water program is too. We ask that the Subcommittee on Energy and Water and the full Appropriations Committee support bringing the Water share of the bill back to the 20 percent it once was.

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 water-

borne rates, the same year our waterway became operational. If the operation of our waterway was terminated the rail rates would increase. Many industries have experienced great transportation savings without using the waterway.

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.

We do not support any efforts to increase the benefit-to-cost ratio for projects above 1.0 and we do not support increasing the local sponsor's cost sharing requirements. This is not "Corps reform," it is an initiative to eliminate the civil works program. We do support true reform that would make civil works projects less expensive and faster to complete. Corps reform should make the Corps of Engineers more efficient, less expensive and faster in the execution of civil works studies and completion of projects, not eliminate the program.

I would now like to comment on 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. The official calendar year 2003 statistics, just released, shows that the J. Bennett Johnston Waterway tonnage was 4.2 million tons, a 12.6 percent increase from calendar year 2002. We also point out that the 4.2 billion tons is exactly on track with the projected tonnage that justified the project. This upward "trend" in usage will continue, as we know the public ports experienced a 40 percent increase in tonnage in calendar year 2004.

You are reminded that the Waterway is not complete; 6 percent remains to be constructed, $119 million. We appreciate Congress's appropriation level in fiscal year 2005 of $13 million, however, the President's fiscal year 2006 budget drastically cuts that to $1.5 million, which is unacceptable. There is a capability for $20 million of work, but we realistically request $10 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. Our Waterway feeds into the Mississippi River, Atchafalaya River and Gulf Inter-coastal Canal, which are all authorized at a 12-foot draft. A 12-foot channel would allow an additional one-third cargo capacity, per barge, which will greatly increase the efficiency of our Waterway and reduce transportation rates. This one action would have the greatest, positive impact to reduce rates to a competitive level that would bring more industries to use waterborne transportation. We request that the Corps conduct a reconnaissance study, to evaluate this proposal, at a cost of $100,000.

The feasibility study to continue navigation from Shreveport-Bossier City, Louisiana into the State of Arkansas will be completed in calendar year 2005. We appreciate that Congress appropriated adequate funding to complete this study. There is great optimism that the study will recommend a favorable project. 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.

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 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 fiscal year 2005 and request you fund this project at a level of $10 million in fiscal year 2006.

Flood Control.—You will recall that in 1990 major areas of northeast Texas, Southwest Arkansas and the entire length of the Red River in Louisiana were ravaged by the worst flooding to hit the region since 1945 and 1957. More than 700,000 acres were flooded with total damages estimated at $20.4 million. However, it could have been much worse. The Corps of Engineers estimates that without the flood control measure authorized by Congress over the past several decades an additional

1.3 million acres would have been flooded with an estimated $330 million in additional flood damage to agriculture and urban developments.

We continue to consider flood control a major objective and request you continue funding the levee rehabilitation projects ongoing in Arkansas. Five of eleven levee sections have been completed and brought to Federal standards. Appropriations of $5 million will construct two more levee sections 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 used 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 and approximately 50 miles of levees in the Natchitoches Levee District will be completed this year. We request $2 million to continue this important project in other Louisiana parishes.

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 cost-benefit ratio.

Due to a conflict over environmental issues, raised by the U.S. Fish and Wildlife Service, completion of the SFEIS was delayed pending further study to determine the extent of possible impacts to fish and wildlife, their habitats and biological communities along the Red River and Lake Texoma. In an effort to resolve these issues and ensure that no harmful impact to the environment or ecosystems would result, a comprehensive environmental and ecological monitoring program was implemented. It evaluates the actual impacts of reducing chloride concentrations within the Red River watershed. This base line data is crucial to understanding the ecosystem of the Red River basin west of Lake Texoma and funding for this must continue.

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 Environmental Record of Decision was signed by the Director of Civil Works. The plan was found to be economically justified. Completion of this project will reclaim Lake Kemp as a usable water source for the City of Wichita Falls 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 dependency on ground water. We request appropriations of $3,000,000 to continue this important environmental monitoring and to complete plans and specifications of the Wichita River control features.

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 $250,000 to initiate a re-evaluation report.

Water Supply.—Northwest Texas has been overrun with non-native species of brush and mesquite. It now dominates millions of acres of rangelands and has negatively impacted water runoff. Studies have indicated that brush management could increase runoff by as much as 30 percent to 40 percent. This would be of great value in opportunities for more surface water use and less dependency on ground water. Other benefits include an ecological diversity of plant and animal species, range fire control and cattle production. A $100,000 reconnaissance study would determine if there is a Federal interest and what magnitude these benefits would be.

Lake Kemp, just west of Wichita Falls, TX, is a water supply for the needs of this region. Due to siltation the available storage of water has been impacted. A $750,000 reallocation study is requested to determine water distribution needs and raising the conservation pool. $375,000 is requested in fiscal year 2006 to initiate this 2-year study.

Operation & Maintenance.—We appreciate the support of your subcommittee to support navigation to Shreveport/Bossier City, which is now providing a catalyst to our industrial base, creating jobs and providing economic growth. Our major project for O&M is the J. Bennett Johnston Waterway. From this project four public ports and three private terminals have been established. The President's budget included $10,115,000; however, a minimum of $11,800,000 is required to address our annual

dredging needs and operations costs for the five locks and dams. This does not address any backlog 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.

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. We believe that any Federal monies spent on civil work projects are truly investments in our future and will return several times the original investment in benefits that will accrue back to the Federal Government.

ATTACHMENT.—SUMMARY OF FISCAL YEAR 2006 REQUESTS

RED RIVER VALLEY ASSOCIATION

Note.—Projects are NOT in any order of priority.

General Investigation Studies (GI)

Red River Navigation, SW Arkansas.—This is a feasibility study initiated on March 24, 1999 to investigate the potential to extend navigation from Shreveport/Bossier, LA to Index, AR. To date $3,428,000 has been appropriated for this study and matched by the State of Arkansas. These funds will complete the study in fiscal year 2005. The initial study results indicate the probability that a project will be recommended. Funds are requested in fiscal year 2006 to initiate pre-construction, engineering and design (PED). *Total Fiscal Year 2006 Request*.—$400,000.

J. Bennett Johnston Waterway, LA, 12′ Channel Reconnaissance Study.—The waterway flows directly into the Atchafalaya River and then to the Gulf Inter-coastal Waterway, both have authorized 12′ channels. Except under extreme low water conditions the Mississippi River accommodates barges of 12′ draft. It is inefficient for industry to have to "special load" barges destined for the Red River to 9′ when all other barges are loaded to 12′. More important the added cargo per barge (one-third more) will have a dramatic impact on reducing the waterborne rates for the Waterway, making it more competitive. *Total Fiscal Year 2006 Request*.—$100,000.

Southeast Oklahoma Water Resource Study.—Conduct a reconnaissance study to evaluate the water resources in the study area. The study area includes the Kiamichi River basin and other tributaries of the Red River. A comprehensive plan will be developed to determine how best to conserve and utilize this water. In fiscal year 2004 $50,000 was received for this study. This is a complex 11-year study of ecosystem restoration issues and the Oklahoma Water Resource Board has signed on as the local sponsor. *Total Fiscal Year 2006 Request*.—$350,000.

Washita River Basin, OK.—The Washita River is a tributary of the Red River that flows into Lake Texoma. The initial reconnaissance report identified that a feasibility study should be conducted to study problems caused by golden algae. The Oklahoma Department of Wildlife Conservation has expressed an interest in being the local sponsor. Funding of $100,000 was received in fiscal year 2004 to initiate the study and $105,000 was appropriated in fiscal year 2005. *Total Fiscal Year 2006 Request*.—$75,000.

Southwest Arkansas Study.—Conduct a reconnaissance report in the four county areas of the Red River/Little River basins. Included would be the four Corps lakes; DeQueen, Dierks, Gillham and Millwood. The watershed study would evaluate; flooding, irrigation, fish and wildlife habitat, water quality, recreation and water releases for navigation. The State of Arkansas has expressed an interest in cost sharing the feasibility study. *Total Fiscal Year 2006 Request*.—$400,000.

Red River Basin Above Denison Dam, OK & TX, Water Resources Development and Ecosystem Restoration.—Over the past 200 years invasive and non-native brush species have taken over this region. These species, especially mesquite and salt cedar, absorbs enormous amount of water. Brush control could yield as much as 30 percent to 40 percent increase in rangeland runoff. Other benefits include an ecological diversity of plant and animal species, range fire control and cattle production. This is an eco-system restoration study. *Total Fiscal Year 2006 Request*.—$100,000.

Bossier Parish Levee and Flood Control, LA.—A multipurpose reconnaissance study was initiated in fiscal year 2004 receiving $65,000. Additional funds of $153,000 were appropriated in fiscal year 2005. Bossier Parish has agreed to be the local sponsor. The study will investigate competing demands of flooding, increased water use and a decline of environmental resources. *Total Fiscal Year 2006 Request*.—$332,000.

Construction General (CG)

Red River Waterway Project, J. Bennett Johnston Waterway, LA.—Two projects will be completed in fiscal year 2005 as well as recreation facilities and continued mitigation. These ongoing projects will be completed using the $13.0 million appropriated in fiscal year 2005. Additional funds could be used for new projects, which include; Westdale Realignment ($1,400,000), Gahagan Reinforcement ($3,200,000), Fausse/Natchitoches/Clarence Reinforcement ($1,200,000), Teague Parkway Revetment ($1,900,000), Lumbra Dikes ($5,416,000), Lindy C. Boggs Barrier Upgrade ($3,700,000) and continued mitigation ($1,684,000). *Total Fiscal Year 2006 Request*.—$20,000,000.

Red River Chloride Control Project (Wichita River Basin), TX:

—*Wichita River Basin, TX.*—A reevaluation for the Wichita River Basin features have been ongoing using reprogrammed funds. The office of the ASA (CW) has supported this project and the re-evaluation report was completed in March 2004. Funds are needed for design, plans and specifications and to continue environmental monitoring activities. *Total Fiscal Year 2006 Request*.—$3,000,000.

—*Area VI, OK.*—Over the past year there has been a renewed interest in Area VI in Oklahoma. The Governor of Oklahoma signed a letter supporting a re-evaluation report be initiated. Many State and Federal legislators have expressed support to evaluate this project. *Total Fiscal Year 2006 Request*.—$250,000.

Red River Below Denison Dam Levees & Bank Stabilization, LA, AR and TX:

—*Levee Rehabilitation, AR.*—Funds are required to initiate and complete construction of Levee Items 9A and 9B in north Lafayette County and initiate design for Levee Item 6. *Total Fiscal Year 2006 Request*.—$7,000,000.

—*Upgrade Levees, LA.*—Approximately 220 miles of levees in Louisiana do not have gravel surfaces on top of the levee, therefore do not meet Federal standards. These levees are in the Federal system and must be upgraded. This surface is required for safe inspections of the levees during times of floods and to maintain the integrity of the levee. The total project can be completed in four phases over 4 years. $1,000,000 was appropriated in fiscal year 2003 and approximately 50 miles of levee are being upgraded in the Natchitoches Levee District, LA. *Total Fiscal Year 2006 Request*.—$2,000,000.

Red River Emergency Bank Protection, Arkansas.—Funds are required to initiate construction of Bois D'Arc Revetment ($4,200,000) and Dickson Revetment ($5,800,000). These funds would also complete the design on Finn Revetment Phase II. These are important projects for protection of valuable farmlands, public infrastructure and to maintain the existing alignment of the river in advance of navigation. *Total Fiscal Year 2006 Request*.—$10,000,000.

Little River County (Ogden Levee), AR.—A reconnaissance report in 1991 determined that flood control levees were justified along Little River. The project sponsor, Arkansas Soil and Water Conservation Commission requests that the project proceed directly to PED, without a cost shared feasibility study. We request language and funding to accomplish this. *Total Fiscal Year 2006 Request*.—$200,000.

Big Cypress Valley Watershed (Section 1135).—The main focus of this study is within the City of Jefferson, Texas. Informal coordination with Jefferson has showed their continued support and intent to participate. Their total share is estimated to be $539,000 with annual O&M costs of approximately $21,000. In fiscal year 2001 $120,000 was appropriated to initiate this project. The Master Plan and acquisition of land by the local sponsor is being completed; however, funding can be used to complete the plans and specifications and to initiate construction. *Total Fiscal Year 2006 Request*.—$530,000.

Lawton, Oklahoma, Waste Water Infrastructure Rehabilitation Project.—The City of Lawton is located approximately 100 miles southwest of Oklahoma City in Comanche County, Oklahoma. The project consists of constructing wastewater infrastructure for the City of Lawton, Oklahoma, which includes off base housing for Fort Sill. The sponsor and Corps will finalize the scope of the project. The Sponsor will begin design and the Corps will draft a Project Cooperation Agreement and initiate real estate acquisition. *Total Fiscal Year 2006 Request*.—$50,000.

Operation & Maintenance (O&M)

J. Bennett Johnston Waterway.—The President's budget is usually sufficient to only operate the waterway and perform preventive maintenance. There are major, unfunded backlog maintenance items that must be accomplished. These items include inspection and repair of lock & dam stop logs ($860,000) inspection and repairs to tainter gates ($3,255,000), revetment repairs ($2,000,000) and other backlog items ($3,176,000). The President's budget, of $10,115,000 included no funding for backlog maintenance. *Total Fiscal Year 2006 Request*.—$19,406,000.

Flood Control Lakes.—There are nine major flood control lakes in the Red River Valley, plus the Truscott Brine Reservoir. These lakes have served to prevent hundreds of millions of dollars of damage over the past 50 years. However, they are getting to the age where maintenance cannot be deferred any longer. Backlog maintenance items include repair to flood gates, powerhouse maintenance, dam structures and recreation facilities. If upgrades are not made at recreation facilities they may have to be closed due to safety concerns to the public. We request funding levels at the Full Corps capabilities.

Support of MR&T Operations and Maintenance (O&M).—Old River Lock is the access tows have from the Mississippi River to the Red River Waterway. When this structure is not in service tows must go down the Atchafalaya River to the gulf and back to the Mississippi past New Orleans, LA, adding days to the trip. It is critical to the success of the Red River Waterway that the Old River structure be maintained.

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 $450 million for fiscal year 2006 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 flood waters generated across 41 percent of the Continental United States. These flood 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. The foresight used by the Congress and 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 provides protection from flooding in the area, but the award of construction contracts 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. This funding has resulted in having 7.6 miles of work completed and returned to the Levee Board for maintenance, and 24.4 miles are currently under contract. Right of way is being acquired on the next 3.4 miles with the contract being scheduled for award in September of this year. This will result in over half of the deficient 69 miles in our District being completed or under contract. We are requesting $55.1 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 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 2006 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 a dollar in benefits for each dollar 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 Yazoo Backwater Project will provide benefits to parts of six counties in the south part of the Mississippi Delta. The citizens of this area continue to patiently wait for the completion of this much needed project. This work authorized by the Congress to provide protection from higher stages on the Mississippi River resulting from changes made to the Mississippi River and Tributaries Project, must safely pass flood water from 41 percent of the continental United States. Also, the same change in the flow line of the Mississippi River that is requiring the Enlargement of the Mainline Mississippi River Levee will also increase stages in the South Delta. The Corps and EPA have made an extraordinary effort to resolve differences in wetland impacts resulting from the construction of the Corps recommended plan for this project. This plan has received the support of all six county Boards of Supervisors in the project area. We are requesting this project be funded by the Congress in the amount of $25 million. These funds will allow the Corps to begin acquisition of the reforestation easements and initiate the award of the pump supply contract.

The first item of work has been completed for the Big Sunflower River Maintenance Project and the right-of-way has been acquired for the next item of work. Our request for $2.21 million will allow right-of-way acquisition to continue and for the award of the first dredging contract. The residents in South Washington County continue to suffer damages from flooding while they continue to wait for this maintenance project to reach their area.

Work on the Delta Headwaters Project, formerly the Demonstration Erosion Control Project, has proven effective in reducing sediments to downstream channels. To discontinue this project will only increase sediment in downstream channels, 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 four 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 $13.275 million allowing construction to continue and the award of additional channel items that will extend construction upstream of Money, Mississippi.

Maintenance of completed works can not be overlooked. The four flood control reservoirs over looking 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 $14.8 million for Arkabutla Lake, $16.5 million for Sardis Lake, $12.3 million for Enid Lake, and $9.5 million for Grenada Lake. Additional funding will be used to replace rip rap, add needed infrastructure, and repair and upgrade existing infrastructure around all the lakes.

We are requesting $21.2 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.

Other Mississippi projects that require additional funding to keep on schedule include:

—*Big Sunflower River (Upper Steele Bayou)*.—$2 million;

—*Yazoo Basin Reformulation Unit*.—$2.2 million;

—*Yazoo Basin Main Stem*.—$25,000; and,

—*Yazoo Backwater (Greentree Reservoirs)*.—$300,000.

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 funding for

Critical Harbor Dredging necessary to keep these harbors opened for navigation. Our port commissioners have been notified that lack of 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 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 President's fiscal year 2006 budget not only lacked funding but it also included language to hurt our critical flood control projects. OMB included an $80 million Construction Suspension Fund. This fund will cover the cost of suspending or terminating existing projects under contract. The money will be used to pay off contractors to stop existing on-going work. This money should be used to continue work instead of stop work!

The President's fiscal year 2006 budget also included language to only fund projects with benefit/cost ratios of better than three to one. This "Performance Based Budgeting" means projects with higher remaining benefit/cost ratios should be given funding priority over those with lower BC ratios. If a project has been authorized by the Congress, has a positive BC ratio and is funded by the Congress, it should be given equal consideration for construction. The Lower Mississippi Valley, being a part of the Delta Regional Authority, must see that its projects be given equal treatment with the wealthier areas of the United States. Also included was the use of a straight 7 percent "real discount rate" instead of the current official interest/discount rate of 5.375 percent. This use of a higher rate favors projects which have near-term benefits over projects which build up benefits over time. The overall effect of the use of this higher rate will be that it will lower the B/C ratios for projects with long term benefits.

Finally, the President's fiscal year 2006 budget included language to eliminate the continuing contract clause which will force the Corps to have all the money in place before a project can be awarded. This will greatly slow down construction on the Mainline Mississippi River Levee Enlargement Project in which individual contracts can cost up to $25 million.

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 can not 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.

PREPARED STATEMENT OF THE LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

On behalf of the State of Louisiana and its 20 levee boards, we present recommendations for fiscal year 2006 appropriations for U.S. Army Corps of Engineers Civil Works Projects in Louisiana. *Request*.—$845,000,000.

Louisiana contains the terminus of the Mississippi River, third largest drainage basin in the world, draining 41 percent of the contiguous United States. When combined with the other interstate rivers flowing through the State, almost 50 percent of the contiguous land mass of this Nation drains through Louisiana. This same river drainage system forms the backbone of the federally constructed Inland Waterway System that provides our heartland cost effective access to the global marketplace via the 230-mile deepwater channel of the lower Mississippi River from Baton Rouge to the Gulf. This strategic gateway to international markets is the largest port complex in the world. The Inland Waterway System allows industrial facilities scattered throughout the central portion of the Nation to obtain raw materials and fuel from distant locations and to reach worldwide markets. These industries, and most of the agricultural industries in mid-America, are heavily dependent on the federally maintained navigable waterways to remain globally competitive in transporting their products. The lack of adequate funding for the preservation and efficient operation of this system will wreak havoc on the economies of all the communities located on these waterways.

A comprehensive and extensive flood control system is required to protect the landside facilities and related industries supporting that waterborne commerce. In Louisiana there are almost 3,000 miles of levees constructed jointly by Federal, State and local entities that provide protection from riverine and tidal flooding. Louisiana's 20 levee boards are responsible for the maintenance and upkeep of these levees, which allow one-third of Louisiana to be habitable year-round. The petro-

chemical, oil and gas industries in Louisiana that contribute to the economic well being of the Nation are almost totally dependent on the federally constructed flood control system to protect their facilities. But these same levees and channel improvements that benefit the entire Nation have been blamed for the rapid deterioration of our coastal wetlands. The loss of these wetlands is adversely impacting both the area's natural resources and the effectiveness of our hurricane protection system. These wetlands are not Louisiana's alone; they constitute 40 percent of the Nation's wetlands and their restoration must be considered a national priority.

The Mississippi River and Tributaries Project (MR&T) has been underway since 1928 and isn't scheduled for completion until beyond 2031. The administration's proposed budget of $270 million for fiscal year 2006 is totally unacceptable. We strongly support the Mississippi Valley Flood Control Association's request for the MR&T Project.

In making the following funding recommendations for Louisiana projects regarding specific construction, studies, and operation and maintenance items, the State of Louisiana would hope that Congress and the administration will honor their prior commitments to infrastructure development and continue to fund our requests. It is appropriate that the Federal Government has committed to providing combined flood control and navigation measures that benefit the economy of both Louisiana and the rest of the Nation. 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.

The State of Louisiana requests funding for the following projects that differs from what is in the Fiscal Year 2006 Administration Budget or is a project of particular importance for the State. Those items that the State of Louisiana believes have been appropriately funded have not been included.

SUMMARY OF RECOMMENDED APPROPRIATIONS FISCAL YEAR 2006 FOR LOUISIANA FLOOD CONTROL, NAVIGATION, HURRICANE PROTECTION & WATER RESOURCES PROJECTS

Louisiana Projects	Administration Budget	Louisiana Request
GENERAL INVESTIGATIONS:		
STUDIES:		
Amite River-Ecosystem Restoration, LA		$850,000
Amite River & Tributaries, LA Bayou Manchac		550,000
Atchafalaya River, Bayous Chene, Boeuf & Black	$585,000	585,000
Calcasieu Lock, LA		900,000
Calcasieu River Basin, LA	612,000	612,000
Calcasieu River Pass Ship Channel Enlargement, LA	700,000	700,000
Hurricane Protection, LA		500,000
LCA—Ecosystem Restoration, LA	15,000,000	15,000,000
LCA—Science & Technology, LA	5,000,000	5,000,000
Plaquemines Parish, LA		500,000
St. Bernard Parish Urban Flood Control, LA	656,000	656,000
St. Charles Parish Urban Flood Control, LA		900,000
St. John the Baptist Parish, LA		700,000
West Baton Rouge Parish, LA		300,000
Bossier Parish Levee & FC		332,000
Cross Lake Water Supply		200,000
PED:		
Bayou Sorrel Lock, LA	1,500,000	1,500,000
West Shore—Lake Pontchartrain, LA		500,000
Port of Iberia, LA		750,000
Southwest, AR (AR, LA)		400,000
NEW STUDIES:		
Bayou Nezpique Watershed, LA		100,000
Port Fourchon Enlargement, LA		100,000
Southwest La Multi-Purpose Water Resources		100,000
Tangipahoa River Ecosystem Restoration, LA		100,000
Pearl River & Vicinity of Bogalusa (LA & MS)		100,000
Red River Waterway, LA—12′ Channel		100,000
Comprehensive Study of LA's Inland Waterway System		300,000
CONSTRUCTION GENERAL:		
Comite River, LA	6,254,000	14,000,000
East Baton Rouge Parish, LA		2,000,000
Grand Isle, LA		1,800,000

SUMMARY OF RECOMMENDED APPROPRIATIONS FISCAL YEAR 2006 FOR LOUISIANA FLOOD CONTROL, NAVIGATION, HURRICANE PROTECTION & WATER RESOURCES PROJECTS—Continued

Louisiana Projects	Administration Budget	Louisiana Request
Inner Harbor Navigation Canal Lock, LA	.....	25,000,000
Lake Pontchartrain, LA	2,977,000	20,000,000
Larose to Golden Meadow, LA	.....	1,300,000
Mississippi River Ship Channel, Baton Rouge to Gulf	.....	229,000
New Orleans to Venice, LA	.....	7,200,000
Southeast, LA	10,491,000	62,500,000
West Bank and Vicinity, New Orleans, LA	28,000,000	53,000,000
Red River Below Den Dam (AR, LA)	.....	7,000,000
Red River Emergency (AR, LA)	.....	10,000,000
Red River Chloride Control Project (TX & OK)	.....	3,250,000
J Bennett Johnston WW, Miss. R. to Shreveport	1,500,000	20,000,000
Ouachita River Levees	.....	2,921,000
Ouachita River Bank Stabilization	.....	3,500,000
OPERATIONS & MAINTENANCE GENERAL:		
Atchafalaya River, Bayous Chene, Boeuf & Black	15,948,000	64,000,000
Barataria Bay Waterway	.....	2,600,000
Bayou Lacombe	.....	900,000
Bayou Lafourche	.....	2,000,000
Bayou Segnette	.....	2,900,000
Bayou Teche	.....	800,000
Bayou Teche & Vermilion River	.....	50,000
Calcasieu River & Pass	9,032,000	34,000,000
(T) Chefuncte River	.....	900,000
Freshwater Bayou	1,466,000	1,800,000
Grand Isle, LA & Vicinity	.....	700,000
Gulf Intracoastal Waterway	19,614,000	31,000,000
Houma Navigation Canal	253,000	2,000,000
Mermentau River	2,538,000	4,200,000
Mississippi River, Baton Rouge to the Gulf	54,053,000	80,000,000
Mississippi River—Gulf Outlet	14,111,000	25,000,000
Mississippi River, Outlets at Venice	.....	3,200,000
Tangipahoa River	.....	1,300,000
Waterway Empire to the Gulf	.....	240,000
WW Intracoastal Waterway to Bayou Dulac	.....	200,000
Ouachita & Black Rivers (AR, LA)	8,500,000	21,428,000
J Bennett Johnston Waterway	10,115,000	19,406,000
Lake Providence Harbor	.....	491,000
Madison Parish Port	.....	86,000

SUMMARY OF RECOMMENDED APPROPRIATIONS FISCAL YEAR 2006 FOR LOUISIANA MISSISSIPPI RIVER AND TRIBUTARIES

Louisiana Projects	Administration Budget	Louisiana Request
FC, MR&T GENERAL INVESTIGATIONS:		
Alexandria to the Gulf	$450,000	$450,000
Donaldsonville to the Gulf	.....	814,000
Morganza to the Gulf, PED	.....	10,000,000
Spring Bayou Area, LA	.....	500,000
Tensas River Basin, LA	.....	500,000
NEW STUDIES:		
Atchafalaya Basin Floodway System Land Study, LA	100,000	300,000
Donaldsonville Port Development, LA	.....	500,000
Point Coupee Parish to St. Mary Parish	.....	100,000
FC, MR&T CONSTRUCTION:		
Atchafalaya Basin	21,000,000	25,000,000
Atchafalaya Basin Floodway System	2,324,000	9,600,000
Channel Improvement (N.O. Dist.)	11,930,000	11,930,000
Mississippi Delta Region	2,244,000	3,700,000
Mississippi River Levees, LA (N.O. Dist.)	6,200,000	6,200,000

SUMMARY OF RECOMMENDED APPROPRIATIONS FISCAL YEAR 2006 FOR LOUISIANA MISSISSIPPI RIVER AND TRIBUTARIES—Continued

Louisiana Projects	Administration Budget	Louisiana Request
MS-LA Estuarine Area		50,000
Mississippi River Levees (AR, LA, MS) (V. Dist.)	21,475,000	33,000,000
Channel Improvement (AR, LA, MS) (V. Dist.)	17,025,000	23,135,000
FC, MR&T MAINTENANCE:		
Atchafalaya Basin	13,400,000	33,000,000
Atchafalaya Basin Floodway System	2,860,000	3,600,000
Baton Rouge Harbor (Devil's Swamp)		420,000
Bayou Cocodrie and Tributaries	65,000	65,000
Bonnet Carre Spillway	2,713,000	3,000,000
Channel Improvement (N.O. Dist.)	19,150,000	19,150,000
Dredging (N.O. Dist.)	800,000	800,000
MS Delta Region	239,000	239,000
Mississippi River Levees, LA (N.O. Dist.)	2,850,000	11,700,000
Old River	10,200,000	19,200,000
Mississippi River Levees (AR, LA, MS) (V. Dist.)	2,106,000	2,706,000
Revetments & Dikes (AR, LA, MS) (V. Dist.)	16,300,000	16,300,000
Dredging (AR, LA, MS) (V. Dist.)	5,000,000	5,000,000
Boeuf & Tensas Rivers	2,600,000	2,600,000
Red River Backwater	3,950,000	14,653,000
Lower Red River	66,000	66,000

We wish to express our thanks to the Appropriations Subcommittees on Energy and Water Development of the House and Senate for allowing us to present this brief on the needs of Louisiana for fiscal year 2006. We solicit your favorable consideration and request this statement be included in the formal hearing record.

PREPARED STATEMENT OF THE CITY OF LOS ANGELES BOARD OF HARBOR COMMISSIONERS AND PORT OF LOS ANGELES

Mr. Chairman and members of the subcommittee, thank you for the opportunity to submit testimony in support of the Channel Deepening Project at the Port of Los Angeles/Los Angeles Harbor, the largest container seaport in the United States. Our testimony speaks in support of a fiscal year 2006 appropriation of $14 million for the Federal share of continued construction of the Channel Deepening Project at the Port of Los Angeles, which we anticipate will be the final year's appropriation for this project. This critical Federal navigation improvement project underpins the United States' decisive role in international trade. Consistent with the goals and priorities of the administration and Congress, the Channel Deepening Project will provide immediate and significant economic return to the Nation, fulfill the commitment to environmental stewardship, and foster positive international relations. We respectfully request the subcommittee to fully fund our fiscal year 2006 appropriation request of $14 million.

REVISED TOTAL PROJECT COSTS

The Corps of Engineers recently revised the Total Project Cost for the Channel Deepening Project. This revision accounts for credits for in-kind services provided by the Port and other project modifications. These modifications include adjustments to the disposal costs for the dredged material, adjustments for construction contract changes, and project administration costs. The Corps' revised Total Project Cost is now $222,000,000, representing a Federal share of $72,000,000 and a local share of $150,000,000. Furthermore, in fiscal year 2003, the Port experienced a funding shortfall challenging us to meet construction contract earnings. As such, under authority provided by Section 11 of the Rivers and Harbors Act of 1929, the Port of Los Angeles advanced to the Corps of Engineers more than $13,000,000 in fiscal year 2003 to cover the shortfall, thereby avoiding costly construction shutdown or debt service on interest accruals. Mr. Chairman, the increased Total Project Cost requires an immediate modification in the next Water Resources Development Act, or in an appropriations bill. The Corps anticipates that the Section 902 limit established for the project may be exceeded close to the end of this fiscal year. Without this modification, we will be forced to shut down the project. While we are pleased the President's fiscal year 2006 budget includes $2.7 million for the Channel Deep-

ening Project, the increased project costs and previous funding shortfalls compel us to request this higher funding level for fiscal year 2006.

PORT NAVIGATION DEMANDS

Dramatic increases in Pacific Rim and Latin American trade volumes have made infrastructure development at the Port of Los Angeles more critical than ever. Currently, more than 42 percent of containerized cargo entering the United States through the San Pedro Bay port complex. The Port of Los Angeles, alone, handled more than 7.4 million 20-foot equivalent units of containers (TEUs) in calendar year 2004, representing unprecedented growth for any American seaport. This burgeoning international trade has resulted in the manufacture of larger state-of-the-art containerships with drafts of more than −50 feet. As such, the Port embarked upon the Channel Deepening Project—along with its Federal partner, the Army Corps of Engineers—to deepen its Federal channel from −45 feet to −53 feet. Currently, more than 50 of these state-of-the-art containerships are on order to serve the United States West Coast container fleet. The first of these deeper-draft ships began calling at the Port of Los Angeles in August of 2004, carrying 8,000 TEUs and drafting at −50 feet. Some of the deeper-draft ships have been diverted to the Port of Long Beach because our channels are too shallow to accommodate them.

As we have testified before, cargo throughput for the San Pedro Bay—the Port of Los Angeles in particular—has a tremendous impact on the United States economy. We at the Port of Los Angeles cannot over emphasize this fact. The ability of the Port to meet the spiraling demands of this phenomenal growth in international trade is dependent upon the speedy construction of sufficiently deep navigation channels to accommodate the new containerships. These new ships provide greater efficiencies in cargo transportation, carrying one-third more cargo than most of the current fleet, and making more product inventory of imported goods available to American consumers at lower prices. In addition, exports from the United States have become more competitive in foreign markets. However, for American seaports to keep up, they must immediately make the necessary infrastructure improvements that will enable them to participate in this rapidly changing global trading arena.

Mr. Chairman, these state-of-the-art container ships represent the new competitive requirements for international container shipping efficiencies in the 21st Century, as evidenced by the increased volume of international commerce. As such, we strongly urge Congress to appropriate the $14 million for fiscal year 2006 which will enable the Corps of Engineers to continue construction of the Channel Deepening Project, on schedule, through the project's anticipated completion in 2006.

ECONOMIC BENEFITS

The Channel Deepening Project is clearly a commercial navigation project of national economic significance and one that will yield exponential economic and environmental returns to the United States annually. The national economic benefits are evidenced by the creation of more than 1 million permanent well-paying jobs across the United States; more than $1 billion in wages and salaries, as well as local, State and Federal sales and income tax revenues deposited into the Federal treasury. As an aside, the 7.4 million TEUs handled by the Port of Los Angeles in 2004 had a commercial value of more than $300 billion in container cargo, with significant tax revenues accruing to the Federal Government. Similarly, according to the U.S. Customs Service, users of the Port pay approximately $12 million a day in Customs Duties. The Los Angeles Customs District leads the Nation in total duties collected for maritime activities, collecting $5.5 billion in 2004 alone. Clearly, the return on the Federal investment at the Port of Los Angeles is real and quantifiable, and we expect it to surpass the cost-benefit ratio—as determined by the Corps of Engineers' project Feasibility Study—many times over.

In closing, Federal investment in the Channel Deepening Project will ensure that the Port of Los Angeles, the Nation's busiest container seaport, remains at the forefront of the new international trade network well into this century. The Channel Deepening Project marks the second phase of the 2020 Infrastructure Development Plan that began with the Pier 400 Deep-Draft Navigation and Landfill Project. The Port of Los Angeles is moving forward with the 2020 Plan designed to meet the extraordinary infrastructure demands placed on it in the face of the continued high volume of international trade. Mr. Chairman, the Port of Los Angeles respectfully urges your subcommittee to appropriate $14 million in fiscal year 2006 to support the U.S. Army Corps of Engineers' continued construction of the Channel Deepening project on behalf of the Port of Los Angeles.

Thank you, Mr. Chairman, for the opportunity to submit this testimony for continued Congressional support of the Channel Deepening Project at the Port of Los An-

geles. The Port has long valued the support of your subcommittee and its appreciation of the port industry's importance to the economic vitality of the United States, and, in particular, the role of the Port of Los Angeles in contributing to this country's economic strength.

PREPARED STATEMENT OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS

The American Society of Civil Engineers (ASCE) respectfully recommends that Congress appropriate $5.6 billion for the U.S. Army Corps of Engineers Civil Works program, including a minimum of $2.55 billion for the inland waterways programs, in fiscal year 2006. Congress should appropriate the entire balance of $307 million in the Inland Waterways Trust Fund and the entire current balance of $2.6 billion in the Harbor Maintenance Trust Fund for critical infrastructure projects maintained and operated by the Corps. Congress also needs to appropriate $150 million for beach nourishment investigations and construction in fiscal year 2006.

INLAND WATERWAYS TRUST FUND

The U.S. Army Corps of Engineers maintains more than 12,000 miles (19,200 kilometers) of inland waterways, and owns or operates 257 locks at 212 sites on inland waterways. These waterways—a system of rivers, lakes and coastal bays improved for commercial and recreational transportation—carry about one-sixth of the Nation's intercity freight, at a cost per ton-mile about half that of rail, or one-tenth that of trucks. The physical condition of these waterways received a grade of D− from ASCE on our 2005 Report Card for America's Infrastructure released on March 9, 2005.

Waterways are excellent ways to move large volumes of bulk commodities over long distances. The cargo capacity of a typical barge is equivalent to that of 15 large railroad cars, or 58 semi-trucks. A representative 15-barge tow on a main stem waterway moves the same cargo as 870 trucks stretching 35 miles on the interstate highway system. That same 15-barge tow would require two 100-car unit trains, extending nearly 3 miles in length.

Locks and dams affect the environment. They slow the natural velocity immediately upriver from their locations, so that organisms adapted to fast-flowing water are replaced by those adapted to slow-flowing water, and dams trap sediments that would otherwise flow farther downstream. Dredging is necessary to keep the navigation channels open.

The 12,000 miles of inland and intracoastal waterways, as do highways, operate as a system, and much of the commerce moves on multiple segments. They serve as connecting arteries, much as neighborhood streets help people reach interstate highways. These waterways are operated by the Corps of Engineers as multi-purpose, multi-objective projects. They not only serve commercial navigation, but, in many cases, also provide hydropower, flood protection, municipal water supply, agricultural irrigation, recreation and regional development.

Forty-one States, 16 State capitals and all States east of the Mississippi River are served by commercially navigable waterways. Domestic companies operating vessels on U.S. waterways increased 19.6 percent from 2002 to 2003.

Waterway usage is increasing, but the facilities are aging; many Corps-owned or -operated locks are well past their planned design life of 50 years. Of the 257 locks still in use in the United States, 30 were built in the 19th century, another 92 locks are more than 60 years old. In other words, nearly 50 percent of all Corps-maintained locks were functionally obsolete by the beginning of 2005. Assuming that no new locks are built in the next 20 years, by 2020, another 93 existing locks will be obsolete—rendering more than 8 of every 10 locks now in service archaic.

As the system ages, the infrastructure cannot support the growing traffic loads, resulting in frequent delays for repairs. At the same time, the repairs are more expensive due to long-deferred maintenance. We estimate that the inland waterways system requires $4 billion a year over the next 5 years to upgrade the system's locks and other facilities.

The Inland Waterway Trust Fund, created in 1978, pays half the cost of the construction and major rehabilitation costs for specified Federal inland waterways projects. It receives money from a tax on fuel (currently set at 20 cents per gallon) on vessels engaged in commercial transportation on inland waterways.

In recent years, there have been a number of major inland waterway infrastructure failures—a few years ago, the entire Ohio River system was closed for a time due to infrastructure breakdowns.

The fund will earn $105 million in fiscal year 2006, including $92 million paid by the barge and towing industry, and $13 million in interest. In fiscal year 2005,

the Corps of Engineers received $149 million for construction projects, leaving a balance of approximately $307 million. In fiscal year 2006, the Corps is planning to spend $394 million on current maintenance projects, a sum that will not reduce the backlog of pending repairs that exceed $600 million.

The Corps estimates that it would cost more than $125 billion to replace the present inland waterway system.

—Congress should amend the Inland Waterways Trust Fund Act of 1978 to allow all funds collected to be used for repair and construction of dams and locks. Congress should then appropriate the full fund balance each year to pay for the cost of rehabilitating the Nation's oldest locks. The government needs to set a priority system for restoring locks that have outlasted their design lives, with an initial focus on all locks built in the 19th century. The current Federal budget process does not differentiate between expenditures for current consumption and long-term investment. This causes major inefficiencies in the planning, design and construction process for long-term investments.

—In the interim, Congress must appropriate at least $2.55 billion for inland waterways programs.

—ASCE supports the creation of a Federal capital budget to create a funding mechanism that would help reduce the constant conflict between short-term and long-term maintenance needs. This would increase public awareness of the problems and needs facing this country's physical infrastructure, and would assist Congress in focusing on those specific programs that are necessarily devoted to long-term growth and productivity.

HARBOR MAINTENANCE TRUST FUND

ASCE believes Congress must commit the entire current balance of $2.6 billion in the HMTF in fiscal year 2006 to port and harbor improvements. Growing traffic volumes and ever-larger ships are expected to strain U.S. port facilities in the first half of the 21st century. In a 2002 study for the U.S. Army Corps of Engineers on U.S. harbor needs through 2020, analysts concluded that foreign commerce now makes up about 27 percent of the U.S. Gross Domestic Product (GDP) and is worth roughly $1.5 trillion. Forecasts indicate that foreign cargo traffic will more than double by the year 2020. By 2040, imports and exports are expected to increase eightfold.

There are about 9,300 commercial harbor and waterway piers, wharves and docks in the United States. Of these, 150 deep-draft ports account for more than 99 percent of foreign waterborne trade entering the United States. Moreover, about 75 percent of international tonnage and almost 90 percent of international cargo value flows through only 25 U.S. ports. Increasingly, the cargo traffic entering U.S. ports is being carried on a new class of "mega ships."

Containerships are growing in terms of both fleet capacity and vessel size. Their share of the world fleet's cargo-carrying capacity increased 8.8 percent per annum from 1985 to 1999 making containership fleet capacity the fastest growing for any type of vessel. Containerships are also becoming increasingly larger. Containership size is generally measured by the number of containers that a vessel can carry expressed in 20-foot equivalent units (TEUs). In the 1980's, containerships of 2,000 to 3,000 TEUs were considered the norm. Since then, deregulation of the transportation industry, consolidation among containership companies and growing volumes of container trade have spawned a race among major carriers to build larger vessels in pursuit of lower costs and increased competitiveness.

Today, companies are introducing "mega ships" that range from 6,000 to 7,500 TEUs, and plans are under way for vessels of 10,000 to 12,000 TEUs. Fully loaded by weight, mega ships require channels of 50 feet or more in depth. In the United States, only a handful of ports currently meet this requirement.

Major port development is responding to growth in container shipping and larger containerships, as well as growth in dry and liquid bulk shipping. Ports are investing heavily in dockside infrastructure, such as expanded berths, newer and larger cranes, improved intermodal capabilities, and deeper channels. U.S. ports appear to be keeping pace with their foreign counterparts with regard to dockside infrastructure. Many major container ports in the United States are developing new terminals and implementing massive projects to reduce port congestion and accommodate mega ships that are wider, longer, and deeper, and that require quick turnaround times to remain profitable. But the Federal Government's effort to provide navigable waterways is falling behind the need. Ports are investing their funds with the understanding that the Federal Government will meet its responsibility in maintaining required water depths.

Vessel demand on the Nation's ports is escalating, as commodity flows increase. The total number of annual vessel calls to and from the United States is expected to more than double by the year 2020 from about 114,500 in the year 2000 to approximately 261,000 in the year 2020. Between 2000 through 2020 containership calls are projected to increase at a 5.5 percent annual rate and grow from about 42,000 to almost 121,000.

The ultra-large crude oil tankers, the largest vessels in the world fleet, have vessel drafts of more than 70 feet. The average draft of the largest dry bulk vessels is almost 60 feet. The largest container vessels now have design drafts close to 50 feet, with the average design draft for the largest ones (more than 5,000 Twenty-foot Equivalent Unit container capacity) being more than 45 feet.

Congress enacted the Harbor Maintenance Tax (HMT) and established the Harbor Maintenance Trust Fund (HMTF) in the Water Resources Development Act of 1986. The HMTF pays 100 percent of the Corps' eligible Operations and Maintenance expenditures for commercial harbors and channels. Section 201 of the Water Resources Development Act of 1996 expanded the use of HMTF to pay Federal expenditures for construction of dredged material disposal facilities necessary for the operation and maintenance of harbors.

Total HMTF revenues for fiscal year 2005 were $1 billion. The total Fund balance, however, was approximately $2.6 billion as of September 30, 2004. But the President's budget for fiscal year 2006 calls for spending only $665 million from the Fund on port and harbor construction and maintenance. Congress must appropriate the full balance in the HMTF in fiscal year 2006 to pay for critically needed port and harbor improvements. The huge investment gap in our port and harbor infrastructure can be overcome by spending down the annual HMTF balances for the purposes the monies were intended.

BEACH NOURISHMENT PROGRAM

ASCE recommends that Congress appropriate $150 million for studies and beach restoration projects throughout the Nation. We encourage Congress to: (1) continue to fund periodic beach renourishment, (2) fund new beach nourishment studies and construction starts, and (3) permit projects to move seamlessly from study to design to construction.

The $150 million for beach nourishment investigations and construction in fiscal year 2006 equals a one-third increase over the fiscal year 2005 enacted level. The $49 million request for beach restoration in 2006 is wholly inadequate. It is only one-third the amount requested in 2005, and it is nearly two-thirds lower than the $111.7 million that Congress enacted for 2005. That means there will be less money to repair erosion and to restore critical coastal habitat, which represents a real threat to America's economy.

With 20,506 miles of eroding shoreline (and 2,672 miles critically eroding), beach attrition is a serious threat to the Nation's tourism, which represents a significant threat to the national economy. Federally funded beach restoration projects return $1 to $7 on the initial investment.

PREPARED STATEMENT OF CAMERON COUNTY, TEXAS

We express full support of the inclusion in the fiscal year 2006 budget for the full capability of the USACE for $1 million.

HISTORY AND BACKGROUND

On September 15, 2001, a tugboat and several barges struck the Queen Isabella Causeway on the Gulf Intracoastal Waterway at the mouth of the Brownsville Ship Channel east of Port Isabel. The accident took the lives of eight people.

A January 1997 Reconnaissance Report of the Gulf Intracoastal Waterway-Corpus Christi Bay to Port Isabel, Texas (Section 216), was conducted by the United States Army Corps of Engineers. The study was initiated to determine the Federal interest in rerouting the GIWW. The information available at the time indicated a less than favorable benefit to cost ratio for the proposed realignment. Since the September 15 incident, the Corps, Cameron County officials, and a number of local entities and residents of the County have reopened discussion of the rerouting of the GIWW. The Corps of Engineers agrees that new facts regarding the safety of the current alignment warrants a revisiting of the issue to determine the viability of rerouting the channel in a direct line from the point where the waterway crosses underneath the causeway to the point where it reaches the Brazos Santiago Pass and the Brownsville Ship Channel. The route in question is the exact one traveled by the tugboat

and barges that struck the bridge on September 15, killing eight people. The tugboat captain failed to negotiate the sharp turn after it passed through the Long Island Swing Bridge. This particular turn is one of the most dangerous on the entire waterway.

PROJECT DESCRIPTION

The reconnaissance study completed by the U.S. Army Corps of Engineers (USACE) confirmed the Federal interest in moving forward with reopening the study to reroute the Gulf Intracoastal Waterway at Port Isabel. The USACE moved forward with the initiation of a feasibility study that would allow the Corps to reopen the examination of the rerouting of the GIWW on the basis of safety. The measure would seek to eliminate safety hazards to Port Isabel and Long Island residents created by barges that move large quantities of fuel and other potentially dangerous explosive chemicals through the existing route under the Queen Isabella Causeway. The overall goal of the study would be to enhance safety and transportation efficiency on this busy Texas waterway by removing the treacherous turn tug and barge operators are forced to make as they navigate the passage through the Long Island Swing Bridge. In addition to the hazardous curve, the winding and congested course taken by the waterway through the City of Port Isabel adds needless distance and time to the transportation of goods to and from Cameron County ports. These costs are borne not only by commercial operators using the waterway, but also by consumers and businesses all across Texas and the Nation. The rerouting would also seek to correct the adverse impact of waterway traffic on Cameron County residents. Apart from the obvious potential for damage to the Queen Isabella Causeway, adverse impacts are created by waterway traffic in the form of traffic delays associated with the Long Island Swing Bridge and the transportation of hazardous materials within several hundred feet of densely populated areas in Port Isabel and Long Island. Currently, a 1950's era swing bridge that floats in the waterway channel connects Long Island and the City of Port Isabel. As waterborne traffic approaches the bridge, cables are used to swing it from the center of the channel and then swing it back into place. This costly and time-consuming process, which frequently backs up traffic into the downtown business district of Port Isabel, is estimated to drain hundreds of dollars a year from the economy of this economically distressed area. More serious problems are created when the heavily used cables or winch motors on the swing bridge fail, leaving the bridge stuck in an open or closed position. Equipment failures often cause delays for several days and leave Long Island residents cut-off from vehicle access or the ports of Port Isabel and Brownsville cut-off from in-bound and out-bound barge traffic. During these times, supplies of vital commodities are halted all across the Rio Grande Valley as stocks dwindle and produce and finished goods begin to pile up.

IMPACT OF THE GULF INTRACOASTAL WATERWAY

The Gulf Intracoastal Waterway is an integral part of the inland transportation system of the United States. Stretching across more than 1,300 coastal miles of the Gulf of Mexico, this man-made, shallow-draft canal moves a large variety and great number of vessels and cargoes. The 426 miles of the waterway running through Texas makes it possible to supply both domestic and foreign markets with chemicals, petroleum and other essential goods. Barge traffic is essential to many of the port economies from Texas to Great Lakes ports, indeed, throughout the entire GIWW. Some ports feel their future strategic plans are closely linked to the efficient operation of the GIWW. This is true for ports that rely almost entirely on barge traffic as well as ports that function primarily as recreational facilities. Most of the cargo moved along Texas waterways is petroleum and petroleum products. The GIWW is well suited for the movement of such cargo, and, therefore, has allowed many of the smaller, shallow-draft facilities to engage in both interstate and international trade. Commercial fishing access via the GIWW has had a significant impact on these port economies as well.

CONCLUSION

A 1995 Lyndon Baines Johnson School of Public Affairs report entitled "The Texas Seaport and Inland Waterway System" warned of concern with the safe operation of barges on the GIWW citing, "a serious accident perhaps involving a collision between two barges carrying hazardous materials could force closure of the waterway". No one could foresee the terrible accident that occurred on September 15. The lives of eight people came to an end and the lives of their loved ones was irrevocably changed forever. This important waterway must be improved to prevent another tragedy. The $1 million that must be added to the fiscal year 2006 appropriations

bill will allow the Corps of Engineers to continue to study a preferred plan to remedy this dangerous situation. The government has already invested nearly $2 million to move this project forward. Cameron County, the users of the GIWW, and the residents of the area respectfully requests the addition of this much-needed appropriation.

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 2006 to complete PED for the project to deepen and widen Cedar Bayou, Texas:

—*President's budget included.*—$0;

—*Additional funds needed in fiscal year 2006.*—$505,000.

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 ft. deep and 100 ft. 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 channel improvement 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.The feasibility report, completed in 2005 indicated a preferred plan of widening the channel to 100 feet and deepening it to 10 feet.

JUSTIFICATION AND INDUSTRY SUPPORT

First and foremost, the channel must be improved for safety. The channel is the home to a busy barge industry. The most cost-efficient and safe method of conveyance is barge transportation. Water transportation offers considerable cost savings compared to other freight modes (rail is nearly twice as costly and truck nearly four times higher). In addition, the movement of cargo by barge is environmentally friendly. Barges have enormous carrying capacity while consuming less energy, due to the fact that mulitple barges can move together in a single tow, controlled by only one power unit.

The result removes a significant number of trucks from 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 dock facilities at the mile markers that would be affected by this much-needed improvement. These industries include: Reliant Energy, Bayer Corporation, Koppel Steel, CEMEX, US Filter Recovery Services and Dorsett Brothers Concrete, to name a few.

PROJECT COSTS AND BENEFITS

Congress appropriated $100,000 in fiscal year 2001 for the Corps of Engineers to conduct the feasibility study to determine the Federal interest in this improvement project. The study indicated a benefit to cost ratio of the project of 2.8 to 1. The estimated total cost of the project is $16.5 million with a Federal share estimated at $13.5 million and the non-Federal sponsor share of approximately $3.5 million. Total annual benefits are estimated to be $4.8 million, with a net benefit of $3 million. Congress appropriated $400,000 each in fiscal year 2002 and fiscal year 2003, $374,000 in fiscal year 2004 and $135,000 in fiscal year 2005 to support the feasibility study. This project is environmentally sound and economically justified. We would appreciate the subcommittee's support of the required add of the appropriation needed by the Corps of Engineers to complete the plans and specifications of the project so that it can move forward at an optimum construction schedule. The users of the channel deserve to have the benefits of a safer, most cost-effective Federal waterway.

PREPARED STATEMENT OF PORT FREEPORT, TEXAS

Channel Improvement Project included in administration's fiscal year 2006 budget.—$500,000.

Corps capability for fiscal year 2006.—$750,000.

On behalf of the Brazos River Harbor Navigation District and the users of Freeport Harbor, we extend gratitude to Chairman Domenici and members of the subcommittee for the opportunity to submit testimony in support of the continuation of the feasibility study for the proposed channel improvement project for Freeport Harbor and Stauffer Channel, Texas.

HISTORY AND BACKGROUND

Port Freeport is an autonomous governmental entity authorized by an act of the Texas Legislature in 1925. It is a deep-draft port, located on Texas' central Gulf Coast, approximately 60 miles southwest of Houston, and is an important Brazos River Navigation District component. The port elevation is 3 to 12 feet above sea level. Port Freeport is governed by a board of six commissioners elected by the voters of the Navigation District of Brazoria County, which currently encompasses 85 percent of the county. Port Freeport land and operations currently include 186 acres of developed land and 7,723 acres of undeveloped land, 5 operating berths, a 45″ deep Freeport Harbor Channel and a 70′ deep berthing area. 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".

In fact, early indications point to a benefit to cost ratio of the project to be at an impressive more than 20 to 1 benefit to cost.

Port Freeport has the opportunity to solidify significant new business for Texas with this improvement project. In addition, the environment would be further protected since offshore lightering of large petroleum crude vessels would no longer be necessary. Moreover, the transportation of goods would be economically enhanced. Given the projected growth of international and domestic cargoes and the state of our Nation's current highway, rail and port infrastructures, Port Freeport represents an economical investment in the State of Texas and the Nation's ability to grow our G.D.P. for years to come. Freeport Pilots and users of Freeport Harbor confirm that the enhanced safety of a wider channel cannot be overstated.

ECONOMIC IMPACT OF PORT FREEPORT

According to the USACE 2004 report entitled "The U.S. Waterway System—Transportation Facts", Port Freeport is 12th in foreign tonnage in the United States and 24th in total tonnage. The port handled over 30.5 million tons of cargo in 2003 and an additional 70,000 T.E.U.'s of containerized cargo. It is responsible for augmenting the Nation's economy by $7.06 billion annually and generating 8,090 direct and an additional 8,116 indirect jobs. Its chief import commodities are petroleum crude, bananas, and 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. In addition, the port will be the home of one of the first Liquefied Natural Gas plants in Texas as Freeport LNG, a cooperative venture of Conoco-Phillips and Cheniere Energy received final FERC approval for the permit for the facility.

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 more than 20-to-1 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 2006

The administration's budget included $500,000 for the continuation of the feasibility study, which is being conducted at a 50/50 Federal Government/local sponsor share. The Corps had indicated a capability for fiscal year 2006 of $750,000 to continue the feasibility study and keep this project on an optimal and most cost-efficient time frame for the Federal Government and the local sponsor. Congress has thus far invested over $1 million in this project. We respectfully request the additional $250,000 for fiscal year 2006.

PREPARED STATEMENT OF THE SANTA CLARA VALLEY WATER DISTRICT

UPPER PENITENCIA CREEK FLOOD PROTECTION PROJECT, SANTA CLARA COUNTY, CALIFORNIA

SUMMARY

This statement urges the committee's support for an administration budget request of $628,000 to continue with the feasibility study for the Upper Penitencia Creek 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 the U.S. Army Corps of Engineers' (Corps) 1995 reconnaissance report, 4,300 buildings in the cities of San Jose and Milpitas are located in the flood prone area, 1,900

of which will have water entering the first floor. The estimated damages from a 1 percent or 100-year flood exceed $121 million.

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 2005.

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 2005 Funding.—$273,000 was appropriated in fiscal year 2005 for the Upper Penitencia Creek Flood Protection Project for project investigation.

Fiscal Year 2006 Funding Recommendation.—It is requested that the congressional committee support the administration's fiscal year 2006 budget request of $628,000 for the Upper Penitencia Creek Flood Protection Project to continue the Feasibility Study.

UPPER GUADALUPE RIVER PROJECT, SANTA CLARA COUNTY, CALIFORNIA

SUMMARY

This statement urges the committee's support for an appropriation add-on of $6.5 million to initiate construction for the Upper Guadalupe River Flood Protection Project.

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 Draft 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 Draft Limited Reevaluation Report also recommended for full cost-sharing on the Locally Preferred Plan project.

Fiscal Year 2005 Funding.—$75,000 was authorized in fiscal year 2005 for the Upper Guadalupe River Project to continue preconstruction engineering and design.

Fiscal Year 2006 Funding Recommendation.—It is requested that the congressional committee support an appropriation add-on of $6.5 million in fiscal year 2006 to initiate construction on the Upper Guadalupe River Flood Protection Project.

COYOTE CREEK WATERSHED STUDY, SANTA CLARA COUNTY, CALIFORNIA

SUMMARY

This statement urges the committee's support of the administration budget request of $100,000 to initiate a Reconnaissance Study of the Coyote Creek Watershed.

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.—The Coyote Watershed Study was one of only three "new start" studies proposed for funding nationwide in the administration budget request.

Fiscal Year 2005 Funding.—No Federal funding was received in fiscal year 2005.

Fiscal Year 2006 Funding Recommendation.—It is requested that the congressional committee support the administration budget request of $100,000 to initiate a multi-purpose Reconnaissance Study within the Coyote Creek Watershed.

THOMPSON CREEK RESTORATION PROJECT, SANTA CLARA COUNTY, CALIFORNIA

SUMMARY

This statement urges the committee to support an earmark of $400,000 within the Section 206 Aquatic Ecosystem Restoration Program to continue the Thompson Creek Restoration Project.

STATEMENT OF SUPPORT

THOMPSON CREEK RESTORATION PROJECT

Background.—Thompson Creek, a tributary of Coyote Creek, flows through the City of San Jose, California. Historically, the creek was a naturally-meandering stream and a component of the Coyote Creek watershed. The watershed had extensive riparian and oak woodland habitat along numerous tributary stream corridors and upland savanna. Currently, these habitat types are restricted to thin sparse pockets in the Thompson Creek restoration project area.

Significant urban development over the last 20 years has modified the runoff characteristics of the stream resulting in significant degradation of the riparian habitat and stream channel. The existing habitats along Thompson Creek, riparian forest stands, are threatened by a bank destabilization and lowering of the water table. Recent large storm events (1995, 1997, and 1998) and the subsequent wet years in conjunction with rapid development in the upper watershed have resulted in a succession of high runoff events leading to rapid erosion.

The upstream project limits start at Aborn Road and the downstream project limit is Quimby Road where Thompson creek has been modified as a flood protection project. The project distance is approximately 1 mile.

Status.—In February 2000, the Santa Clara Valley Water District (District) initiated discussions with U.S. Army Corps of Engineers (Corps) for a study under the Corps' Section 206 Aquatic Ecosystem Restoration Program. Based on the project merits, the Corps completed a Preliminary Restoration Plan (PRP) and subsequent Project Management Plan (PMP). After approval of the PRP the Detailed Project Report (DPR) was initiated. The DPR will provide the information necessary to develop plans and specifications for the construction of the restoration project.

PROJECT TIMELINE

	Date
Request Federal assistance under Sec. 206 Aquatic Ecosystem Restoration Program	Feb 2002
Complete Preliminary Restoration Plan	Jan 2004
Initiate Detailed Project Report (Feasibility Study)	Jan 2005
Public Scoping Meeting and Local Involvement	Sept 2005
Final Detailed Project Report to South Pacific Division of Corps	July 2006
Initiate Plans and Specifications	Oct 2006
Complete Plans and Specifications	Dec 2007
Project Cooperation Agreement signed	Dec 2006
Certification of Real Estate	Mar 2007
Advertise Construction Contract	May 2007
Award Construction Contract	July 2007
Construction Start	Sept 2007
Complete Physical Construction	Dec 2008

Fiscal Year 2005 Funding.—$300,000 earmark was received in the fiscal year 2005 Section 206 appropriation to complete the PRP.

Fiscal Year 2006 Funding Recommendation.—It is requested that the congressional committee support an earmark of $400,000 within the Section 206 Aquatic Ecosystem Restoration Program.

GUADALUPE RIVER PROJECT, SANTA CLARA COUNTY, CALIFORNIA

SUMMARY

This statement urges the committee's support for an administration budget request of $5.6 million and an appropriation add-on of $400,000, for a total of $6 million to continue construction of the final phase of the Guadalupe River Flood Protection 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 Collaborative" 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 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 2005 Funding.—$6 million was authorized in fiscal year 2005 to continue Guadalupe River Project construction.

Fiscal Year 2006 Funding Recommendation.—It is requested that the congressional committee support an appropriation add-on of $400,000, in addition to the $5.6 million in the administration's fiscal year 2006 budget request, for a total of $6 million to continue construction of the final phase of the Guadalupe River Flood Protection Project.

SOUTH SAN FRANCISCO BAY SHORELINE STUDY, SANTA CLARA COUNTY, CALIFORNIA

SUMMARY

This statement urges the committee's support for an administration budget request of $600,000 and an appropriation add-on of $400,000, for a total of $1 million to continue a Feasibility Study to evaluate integrated flood protection and environmental restoration for the South San Francisco Bay Shoreline.

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.

Fiscal Year 2005 Funding.—$325,000 was appropriated in fiscal year 2004 to conduct a Reconnaissance Study and initiate a Feasibility Study.

Fiscal Year 2006 Funding Request.—It is requested that the congressional committee support an appropriation add-on of $400,000, in addition to the $600,000 in the administration's fiscal year 2006 budget request, for a total of $1 million to continue the Feasibility Study to evaluate integrated flood protection and environmental restoration.

LLAGAS CREEK PROJECT, SANTA CLARA COUNTY, CALIFORNIA

SUMMARY

This statement urges the committee's support for an appropriation add-on of $900,000 for planning, design, and environmental updates for the Llagas Creek 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 requirement. 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 has not received adequate funding from U.S. Department of Agriculture 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 the Corps to complete the project.

Fiscal Year 2005 Funding.—$450,000 was appropriated in fiscal year 2005 for the Llagas Creek Flood Protection Project for planning and design.

Fiscal Year 2006 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 $900,000 in fiscal year 2006 for planning, design, and environmental updates for the Llagas Creek Project.

SAN FRANCISQUITO CREEK FLOOD DAMAGE REDUCTION AND ECOSYSTEM RESTORATION PROJECT, SANTA CLARA COUNTY, CALIFORNIA

SUMMARY

This statement urges the committee's support for an administration budget request of $200,000 and an appropriation add-on of $150,000, for a total of $350,000 to continue a Feasibility Study of the San Francisquito Creek Watershed.

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 boundary 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 home 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 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.

Fiscal Year 2005 Funding.—$100,000 was appropriated to San Francisquito Creek in fiscal year 2005 to initiate a Feasibility Study.

Fiscal Year 2006 Funding Recommendation.—It is requested the congressional committee support an appropriation add-on of $150,000, in addition to the $200,000 in the administration's fiscal year 2006 budget request, for a total of $350,000 to continue the Feasibility Study.

PAJARO RIVER WATERSHED STUDY, SANTA CLARA COUNTY, CALIFORNIA

SUMMARY

This statement urges the committee's support for an appropriation add-on of $400,000 for the Pajaro River Watershed Study.

STATEMENT OF SUPPORT

PAJARO RIVER WATERSHED STUDY

Background.—Pajaro River flows into the Pacific Ocean at Monterey Bay, about 75 miles south of San Francisco. The drainage area encompasses 1,300 square miles in Santa Clara, San Benito, Monterey, and Santa Cruz counties. Potential flood damage reduction solutions will require cooperation between four counties and four water/flood management districts. There is critical habitat for endangered wildlife and fisheries throughout the basin. Six separate flood events have occurred on the Pajaro River in the past half century. Severe property damage in Monterey and Santa Cruz counties resulted from floods in 1995, 1997, and 1998. Recent flood events have resulted in litigation claims for damages approaching $50 million. Twenty million dollars in U.S. Army Corps of Engineers (Corps) flood fight funds have been expended in recent years.

Status.—Two separate Corps activities are taking place in the watershed. The first activity is a Corps reconnaissance study authorized by a House Resolution in May 1996 to address the need for flood protection and water quality improvements, ecosystem restoration, and other related issues. The second activity is a General Revaluation Report initiated in response to claims by Santa Cruz and Monterey Counties that the 13 mile levee project constructed in 1949 through agricultural areas and the city of Watsonville is deficient. The reconnaissance study on the entire watershed was completed by the San Francisco District of the Corps in fiscal year 2002. The decision to continue onto a cost-shared feasibility study is currently delayed pending the Corps resolution of the flooding problems on the lower Pajaro River (Murphy's Crossing to the Ocean) and defining feasibility study goals that meet the interests of all Authority members.

Local Flood Prevention Authority.—Legislation passed by the State of California (Assembly Bill 807) in 1999 titled "The Pajaro River Watershed Flood Prevention Authority Act" mandated that a Flood Prevention Authority be formed by June 30, 2000. The purpose of the Flood Prevention Authority is "to provide the leadership necessary to . . . ensure the human, economic, and environmental resources of the watershed are preserved, protected, and enhanced in terms of watershed management and flood protection." The Flood Prevention Authority was formed in July 2000 and consists of representatives from the Counties of Monterey, San Benito, Santa Clara, and Santa Cruz, Zone 7 Flood Control District, Monterey County Water Resources Agency, San Benito County Water District, and the Santa Clara Valley Water District. The Flood Prevention Authority Board sent a letter of intent to cost share a feasibility study of the Pajaro River Watershed to the Corps in September 2001.

Fiscal Year 2005 Funding.—$50,000 was authorized in fiscal year 2005 for the Pajaro Watershed Feasibility Study.

Fiscal Year 2006 Funding Recommendation.—It is requested that the congressional committee support an appropriation add-on of $400,000 in fiscal year 2006 for the Pajaro River Watershed Study.

COYOTE/BERRYESSA CREEK PROJECT, BERRYESSA CREEK PROJECT ELEMENT, SANTA CLARA COUNTY, CALIFORNIA

SUMMARY

This statement urges the committee's support for an appropriation add-on of $1.75 million to continue with the General Reevaluation Report and update of environ-

mental documents for the Berryessa Creek Flood Protection Project element of the Coyote/Berryessa Creek Project.

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 4 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) 2004 report, a 1 percent or 100-year flood could potentially result in damages of $225 million with depths of up to 3 feet.

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 $5.2 million, and should be completed in the summer of 2006.

Fiscal Year 2005 Funding.—$338,000 was appropriated in fiscal year 2005 for the Coyote/Berryessa Creek Flood Protection Project to continue the General Reevaluation Report and environmental documents update.

Fiscal Year 2006 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 $1.75 million for the Berryessa Creek Flood Protection Project element of the Coyote/Berryessa Creek Project.

PREPARED STATEMENT OF THE CALAVERAS COUNTY WATER DISTRICT

Project	Request
COSGROVE CREEK (SECTION 205)	$550,000
NEW HOGAN LAKE REOPERATION (SECTION 205)	600,000

On behalf of the Calaveras County Water District, I want to thank the subcommittee for the opportunity to present our priorities for fiscal year 2006.

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 rivers flow west, 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 County Groundwater Basin (ESJCGB). This on-going Calaveras County Watersheds Study under the authority of the Corps of Engineers' Sacramento and San Joaquin Comprehensive Basin Study is focused on the western part of Calaveras County.

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 PROJECT—UNDER THE AUTHORITY OF THE CORPS OF ENGINEERS SECTION 205 FLOOD PROTECTION PROGRAM

Current Issues

Cosgrove Creek is an intermittent stream within the Calaveras River Watershed. The creek enters the lower Calaveras River downstream from the spillway of New Hogan Lake. During average precipitation years, stream flow is present from late fall through early summer. Cosgrove Creek is approximately 9.8 miles long and has a drainage area of 21 square miles. The upper two thirds of the Cosgrove Creek watershed is used for grazing and the lower third has been subject to urban development. A portion of this lower reach, which passes through the adjacent communities of Valley Springs, La Contenta and Rancho Calaveras in western Calaveras County, has experienced significant incidents of flooding.

The area is rapidly becoming urbanized and consists of residential and agricultural properties within the floodplain. The nature of the flood risk is overflows which occur on Cosgrove Creek and which have been estimated as 10- and 100-year flows of 2,220 cfs and 3,950 cfs, respectively. Calaveras County Public Works Department has identified flooding occurring along the creek three times in the past 10 years. The number of people within the area impacted is over 400 and a recent floodplain evaluation identified over 100 damageable structures in the 100-year floodplain.

Project Objectives

The Cosgrove Creek multi-purpose flood protection project in Valley Springs is to reduce flood damages, put flood flows to beneficial use, including sprayfields and conjunctive use of recycled water, restore wetlands and riparian habitat in Cosgrove Creek and provide recreation within the floodplain by developing suitable hiking/riding trails and playing fields. Current concepts for study review and formulation include a dike or set back levee, along with channel widening and the development of a detention basin to hold peak flows for beneficial use, along with multi-purpose use for environmental restoration and recreation for soccer, softball and open field sports.

Local officials have identified the need for flood protection, beneficial use of peak flows and public recreation in this area and determined that these needs are compatible within the flood zone and the community will work to continue to ensure this compatibility.

Fiscal Year 2006 Request

Five hundred fifty thousand dollars is requested to continue the feasibility phase of the project and initiate plans and specifications.

RE-OPERATIONS STUDY OF NEW HOGAN LAKE—UNDER THE AUTHORITY OF THE CORPS OF ENGINEERS SECTION 205 FLOOD PROTECTION PROGRAM

Project Need

A re-operations study of New Hogan Lake is being requested in order to have the Corps evaluate re-operating New Hogan Lake to manage the existing storage for downstream water supply and conjunctive use.

CCWD, which holds water rights in New Hogan Lake, believes that changing conditions and identified need for additional water supply in the developing foothills in Calaveras County could require a change in historic operations in the lake.

While a broader San Joaquin and Sacramento River Basin Reservoir Re-operation Study is now underway by the Corps, its objective is not water supply and conjunctive use, nor does it focus in any detail on New Hogan Lake. Therefore, a limited re-operations study of New Hogan Lake is necessary and will be supported by key local partners.

Fiscal Year 2006 Request

Six hundred thousand dollars is requested to complete the feasibility phase of the project and initiate plans and specifications.

PREPARED STATEMENT OF THE CITY OF ST. HELENA, CALIFORNIA

Project	Request
ST. HELENA NAPA RIVER RESTORATION PROJECT (Section 206 Aquatic Ecosystem Restoration Program)	$600,000
YORK CREEK DAM REMOVAL AND RESTORATION PROJECT (Section 206 Aquatic Ecosystem Restoration Program)	350,000

On behalf of the City of St. Helena, I want to thank the subcommittee for the opportunity to present our priorities for fiscal year 2006.

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 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 City of St. Helena is a General Law City and operates under the Council-City Manager form of government. 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, 2002 is 6,041. St. Helena is a full service City and encompasses an area of 4 square miles. 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 Napa River flows along the north 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 the time of year, runoff from York and Sulphur Creeks, and urban area discharges. During the winter months when streamflow is high, pollutants are diluted; however, sedimentation and turbidity is high as well. During the summer months when streamflow 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 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 6 Federally listed threatened and endangered species within the Napa River and its adjoining corridor 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: (1) urbanization removing significant amounts of shading and cover vegetation within and adjacent to the river; and (2) a detrimental lack of pool habitat. Encroachment and channelization of Napa River have degraded riparian habitat for rearing, resident, and migratory fish and wildlife. The lack of riparian cover, increasing water temperature and sedimentation in the river, has resulted in poor water quality. These changes have reduced the project area's ability to support the re-establishment of listed species.

In an effort to address these Federal environmental issues, the St. Helena Napa River Restoration Project, a Section 206 Aquatic Ecosystem Restoration Project, was identified in the Napa Valley Watershed Management Feasibility Study in April of 2001 as a specific opportunity for restoration. The project would restore approximately 3 miles (20 acres) of riparian habitat and improve the migratory capacity of Federally listed threatened and endangered species, providing greater access to rearing, resident and migratory habitats in the 80 square mile watershed above the project area.

The project will interface with and complement the City of St. Helena's multiple objective flood project, the St. Helena Flood Protection and Flood Corridor Restoration Project, which will provide flood damage reduction through restoration and re-establishment of the natural floodplain along the project reach, setting back levees and the re-creation and restoration of a natural floodway providing high value riparian forest.

This Section 206 project 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 3 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. In an effort to build on recent geomorphic and riparian studies on the Napa River, the Corps will use these efforts from Swanson Hydrology and Geomorphology and Stillwater Science to secure baseline information for this project.

The City of St. Helena respectfully requests the committee's support for $600,000 for completing the Detailed Project Report and initiating plans and specifications for the St. Helena Napa River Restoration Project under the Corps' Section 206 Aquatic Ecosystem Restoration Program.

YORK CREEK DAM REMOVAL AND RESTORATION PROJECT

York Creek originates from the Coast Range on the western side of the Napa Valley Watershed at an elevation of approximately 1,800 feet and flows through a narrow canyon before joining the Napa River northeast of St. Helena. York Creek Dam on York Creek has been identified as a significant obstacle to passage for federally listed Steelhead in the Central California Coast. In fact, it has been determined that York Creek Dam is a complete barrier to upstream fish migration. In addition, since the City of St. Helena has owned York Creek Dam, there has been a number of silt discharges from the dam into York Creek that have caused fish kills.

Under the Corps of Engineers' Section 206 Authority, a study is underway to remove the dam structure and to restore the creek in an effort to improve fish passage and ecological stream function for this Napa River tributary. Alternatives to be investigated and pursued include complete removal of York Creek Dam, appurtenances and accumulated sediment, re-grading and restoring the creek through the reservoir area. Rather than merely removing the dam and accumulated sediments, alternatives under consideration would use a portion of the material to re-grade the reservoir area to simulate the configuration of the undisturbed creek channel upstream. Material could also be used to fill in and bury the spillway and to fill in the scour hole immediately downstream of the spillway. Use of material on site will

greatly reduce hauling and disposal costs, as well as recreating a more natural creek channel through the project area.

The revegetation plan for the site following removal of the earthen dam will restore a self-sustaining native plant community that is sufficiently established to exclude nonnative invasive plants. Revegetation will replace vegetation that is removed due to construction and stabilize sediments in the stream channel riparian corridor and upper bank slopes. The species composition of the revegetated site will be designed to match that of (relatively) undisturbed sites both above and below the project site. In terms of expected outcomes for the project, the removal of York Creek Dam will open an additional 2 miles of steelhead habitat upstream of the dam, and the channel restoration will reestablish natural channel geomorphic processes and restore riparian vegetation.

The City of St. Helena respectfully requests the committee's support for $350,000 in appropriations under the Corps of Engineers' Section 206 Aquatic Ecosystem Restoration Program, so that the efforts to allow the continuation of the Detailed Project Report can stay on schedule for the York Creek Dam Removal and Restoration Project.

PREPARED STATEMENT OF THE AMERICAN SHORE AND BEACH PRESERVATION ASSOCIATION

Mr. Chairman and members of the distinguished subcommittee, I am Harry Simmons, President of the American Shore and Beach Preservation Association (ASBPA). ASBPA was formed nearly 80 years ago to bring together coastal scientists, local community leaders, and others who are devoted to improving and preserving America's diverse coastal resources by nurturing the development of scientific knowledge and public policies which promote their responsible stewardship.

America's coasts are home to some of the Nation's most precious natural resources. Beyond their intrinsic natural beauty, healthy beaches provide effective storm damage protection, offer residents and visitors unequaled recreational opportunities, and provide unique environmental habitat. Together with coastal wetlands, bird refuges, estuaries, ports, intracoastal waterways and other resources, our coastal regions are economic engines filled with environmental treasures and recreational opportunities that deserve to be preserved and protected.

To be specific in terms of ASBPA's requests:

—ASBPA supports increased funding for studies and beach restoration projects throughout the Nation and urges Congress to: (1) continue to fund periodic beach renourishment, (2) fund new beach nourishment study and construction starts, and (3) permit projects to move seamlessly from study to design to construction. ASBPA estimates the cost of providing adequate funding for beach restoration projects and studies in fiscal year 2006 to be $150 million.

—ASBPA supports funding for the National Shoreline Technology Demonstration Program (the "Section 227 Program") at no less than $6 million, and the National Shoreline Management Study at no less than $500,000. Equally important is the need to provide adequate funding for the national "Regional Sediment Management (RSM) Demonstration Program" as well as other RSM programs in coastal States.

—In the wake of the National Oceans Commission report and the President's Ocean Action Plan, ASBPA urges Congress to initiate funding for the National Coastal Data Bank. By appropriating $1 million, Congress can begin a 4-year effort to establish an Internet-based home for existing Federal, State, and academic institution data. This data can then be joined with the Integrated and Sustained Ocean Observing System (IOOS), which collects data from a variety of Federal and State agencies, as well as academic and scientific institutions.

We also ask that you reject the funding and policy changes proposed under the President's fiscal year 2006 budget for the Army Corps of Engineers' civil works programs.

The President's fiscal year 2006 budget once again proposes to cut shore protection projects and studies by nearly 50 percent over the level enacted by Congress for fiscal year 2005. Even worse, the proposed budget continues the policy of refusing to support Federal participation in the periodic renourishment phase of beach projects. While the administration proposes to fund those renourishment projects with a navigation impact, this standard has never been set by Congress and is not an appropriate standard for either planning or budget priority purposes.

We remain very concerned that the President's proposed budget would eliminate the statutory and contractual commitments the Corps made with non-Federal spon-

sors, essentially eliminating Federal participation in all work beyond initial construction.

We know of the concerns of the Chairman and Ranking Member about the use of the Corps' reprogramming authority. Like you, we support the responsible use of that authority for purposes intended by Congress. Beach nourishment projects and studies are both donors and recipients of reprogrammed funds. We rely on the flexibility of the Corps to reprogram funds into beach studies and construction just as we understand when one of our studies or construction projects gets delayed that the funds can better be used elsewhere.

We appreciate the opportunity to submit our views to the subcommittee and look forward to working with you and your staff in the development of the fiscal year 2006 Energy and Water Development appropriations bill.

PREPARED STATEMENT OF THE NATURE CONSERVANCY

Mr. Chairman and members of the subcommittee, I appreciate this opportunity to present The Nature Conservancy's recommendations for the Army Corps of Engineers' and Department of Energy's fiscal 2006 appropriations. We understand and appreciate that the subcommittee's ability to fund programs within its jurisdiction is limited by the tight budget situation but appreciate your consideration of these important programs.

The Nature Conservancy is an international, non-profit organization dedicated to the conservation of biological diversity. 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. The Conservancy has about 1,000,000 individual members and 1,900 corporate associates. We have programs in all 50 States and in 27 foreign countries. We have protected more than 15 million acres in the United States, approximately 102 million acres and 5,000 river miles with local partner organizations worldwide. The Conservancy owns and manages 1,400 preserves throughout the United States—the largest private system of nature sanctuaries in the world. Sound science and strong partnerships with public and private landowners to achieve tangible and lasting results characterize our conservation programs.

The Conservancy urges the subcommittee to support the following appropriation levels in the fiscal 2006 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 permits modification of existing dams and flood control projects to increase habitat for fish and wildlife without interrupting a project's original purpose. This program continues to be in extremely high demand with needs far greater than the $25 million appropriated in fiscal 2005. This financial shortfall has stopped many important projects. The Conservancy is the non-Federal cost share partner on six ecologically significant Section 1135 restoration projects. These projects include Spunky Bottoms, a floodplain restoration/reconnection project on the Illinois River, for which we seek an earmark in the amount of $200,000 in fiscal 2005; and McCarran Ranch a stream meander and riparian habitat restoration project on the Truckee River in NV which is seeking $3.7 million to continue construction. The Conservancy strongly encourages full funding of $25 million for the Section 1135 program in fiscal 2006, an increase over the President's $15.0 million request.

Section 206: Aquatic Ecosystem Restoration.—Section 206 is a newer Corps program that authorizes the Corps to restore aquatic habitat regardless of past activities. This is another popular restoration program with demand far exceeding the $25 million appropriated for fiscal 2005. The Conservancy is the non-Federal cost-share partner on 11 Section 206 projects. These projects restore important fish and wildlife habitats. Ecologically significant projects for which the Conservancy is the non-Federal sponsor include: Mad Island, TX, a coastal restoration project that needs $1.475 million to continue construction; Kanakakee Sands, IN, riparian and wetland prairie restoration that seeks $1.2 million for continuing construction; and Camp Creek, OR, a headwaters stream restoration project that needs $175,000 to continue the feasibility study. The Conservancy strongly encourages full funding of $25 million for the Section 1135 program in fiscal 2006, an increase over the President's $15.0 million request.

Upper Mississippi River System Environmental Management Program.—The Environmental Management Program (EMP) is an important Corps program that con-

structs habitat restoration projects and conducts long-term resource monitoring of the Upper Mississippi and Illinois Rivers. The EMP operates as a unique Federal-State partnership affecting five States (Illinois, Iowa, Minnesota, Missouri, and Wisconsin). The EMP was reauthorized in WRDA 1999 with an increased authorization in the amount of $33.2 million. The Conservancy supports the President's request for full funding of $33.2 million for fiscal 2006.

Estuary Habitat Restoration Program.—The Estuary Habitat Restoration Program was established with the intent to restore 1 million acres of estuary habitat by 2010. This multi-agency program will promote projects that result in healthy ecosystems that support wildlife, fish and shellfish, improve surface and groundwater quality, quantity, and flood control; and provide outdoor recreation. The Conservancy supports $20 million in fiscal 2006. This is an increase over the President's budget request of $5.0 million.

Florida Keys Water Quality Program.—The Florida Keys Water Quality Program is a unique restoration program designed to protect the Florida Keys' fragile marine and coral ecosystem. This nationally significant marine ecosystem is being impacted by excessive nutrients due to storm and wastewater pollution. This program is cost shared with State and local interests to repair and improve the storm and wastewater treatment facilities on the Florida Keys to reduce the harmful levels of nutrient pollution. The Nature Conservancy, and it's partners—the State of Florida, Florida Keys Aqueduct Authority, Monroe County, City of Islamorada, City of Layton, City of Key Colony Beach, City of Marathon, and City of Key West—support $30 million for fiscal 2006. This program was not included in the President's budget.

GENERAL INVESTIGATION PRIORITIES

Middle Potomac River Watershed Study.—The preliminary Middle Potomac Watershed Section 905(b) analysis identified 14 feasibility studies to address flood control needs and environmental restoration opportunities within the Middle Potomac Watershed. The study team identified three study goals for the development of project management plans: (1) to conserve, restore, and revitalize the Potomac River basin; (2) to develop sustainable watershed management plans; and (3) to cooperate with and support public and private entities in developing watershed management plans. The Conservancy urges the committee to provide $500,000 in fiscal 2006 to continue the development of these plans. This study is not included in the President's budget.

Savannah Basin Comprehensive Water Resources Study.—The Savannah Basin Comprehensive Water Resources Study will enable the Corps and other partners to gain a better understanding of the influence of hydrologic processes such as timing, duration, frequency, magnitude, and rate of change of river flows on the river's ecology. The Nature Conservancy, under a cooperative agreement funded by the Corps and its cost share partners, Georgia and South Carolina, developed a set of ecosystem flow recommendations for the Savannah River Basin. A test release of the new flow recommendation was conducted March 15–18, 2004 and again in fall 2005. The Conservancy supports $436,000 in fiscal 2006. This study is not included in the President's Budget.

DEPARTMENT OF ENERGY

Carbon Sequestration Technology Area.—The Carbon Sequestration Technology Area of the Strategic Center for Coal at Department of Energy's (DOE) National Energy Technology Laboratory has been used to refine the tools and methods used to measure carbon emissions reductions and uptake from improved land management. These tools and methods are being tested on-the ground in Conservancy conservation priority areas in Brazil, Belize, Peru, Chile and the United States. The Conservancy is soon launching two more DOE funded projects to test remote carbon measurement techniques in Northern California and another study to evaluate the cost and location of carbon emissions reduction and uptake opportunities in eleven Northeastern States. These projects are producing cutting-edge technologies and methods that will lead to quantifiable and verifiable reductions in greenhouse gases. The Conservancy supports the President's request of $66,228,000, for continued and increased funding for research.

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 Ted Illston, Senior Policy Advisor.

PREPARED STATEMENT OF THE GREEN BROOK FLOOD CONTROL COMMISSION

Mr. Chairman and members of the subcommittee, my name is Vernon A. Noble, and I am the Chairman of the Green Brook Flood Control Commission. I submit this testimony in support of the Raritan River Basin—Green Brook Sub-Basin project, which we request be budgeted in fiscal year 2006 for $15,000,000 in Construction General funds.

As you know from our previous testimony, a tremendous flood took place in September of 1999. Extremely heavy rainfall occurred, concentrated in the upper part of Raritan River Basin. As a result, the Borough of Bound Brook, New Jersey, located at the confluence of the Green Brook with the Raritan River, suffered catastrophic flooding. Water levels in the Raritan River and the lower Green Brook reached record levels.

There were tremendous monetary damages, and extensive and tragic human suffering.

The flooding of September 1999 is not the first bad flood to have struck this area. Records show that major floods have occurred here as far back as 1903.

Disastrous flooding took place in the Green Brook Basin in the late summer of 1971. That flood caused $304,000,000 in damages (April 1996 price level) and disrupted the lives of thousands of persons.

In the late summer of 1973, another very severe storm struck the area, and again, thousands of persons were displaced from their homes. $482,000.000 damage was done (April 1996 price level) and six persons lost their lives.

The first actual construction of the Project began in late fiscal year 2001, in which an old bridge over the Green Brook, connecting the Boroughs of Bound Brook and Middlesex, was replaced with a new and higher bridge. That work is now complete.

The second construction contract, known as Segment T, began in 2002, and is now essentially complete. A "ring wall" around the low sides of an adjacent apartment complex is now underway to complete the protection for the eastern portion of Bound Brook Borough.

The next following segment of the Project, known as Segment U, is now well underway along the Middle Brook, at the western boundary of Bound Brook Borough.

To continue the protection along the Middle Brook, a contract was recently placed by the Corps of Engineers for protective levees immediately downstream of Segment U. This further protective construction work, know as Segment R1, has now begun.

When Congress authorized the Project for construction, it did so only for the lower and Stony Brook portions. This was the result of the objections raised in 1997 by the Municipality of Berkeley Heights, located in the highest elevation portion of the Green Brook Basin.

In 1998 a Task Force was formed to seek a new consensus for protection of the upper portion of the Basin.

Following the recommendations of the Task Force, in calendar year 2003, Resolutions of Support for protection of the upper portion of the Basin were adopted, along the lines of the recommendations of the Task Force. These new Resolutions of Support for the protection of the upper portion of the Basin, principally the Municipalities of Plainfield and Scotch Plains, were adopted by those Municipalities, and by the two affected Counties of Union and Somerset.

A final design for a new plan to protect these upper basin Municipalities remains to be done. This work will involve a new effort by the Corps of Engineers, and of course will require that the Corps of Engineers enlist technical support for surveying, environmental investigations, and design studies, by the placing of appropriate contracts with qualified outside consulting engineering firms.

This work will require many months, and contracts for actual construction of these protective measures for the upper portion of the region are not likely to be ready until several more years. It is understood that when these studies have been completed, it will be necessary for Congress to specifically authorize the final design of the recommended plan. That likely cannot happen until fiscal year 2007, or later.

Meantime, it is essential that this preparatory work continue. And it is thus essential that the Corps of Engineers be authorized and allowed to place contracts for environmental and engineering studies in order to develop an acceptable plan for the protection of the upper portion of the Green Brook Basin.

It is understood that specific action by the Congress is required at this time to authorize the Corps of Engineers to continue this work in fiscal year 2006 and beyond. It is also understood that before final design for protection of the upper portion of the Green Brook Basin can proceed, it will be necessary that a Project Cooperation Agreement be entered into between the Corps of Engineers and the State of New Jersey. Presumably, this Project Cooperation Agreement will be similar to the Agreement now in force between the Corps of Engineers and the State of New

Jersey, which was made for the lower and Stony Brook portions of the Green Brook Basin.

To carry this work forward, it is essential that the Corps of Engineers be authorized, within the funds appropriated to them in fiscal year 2006, to place contracts for engineering and environmental studies pertaining to the protection of the upper portion of the Basin.

It is to be noted that the Estimated Damages caused by the Flood of 1973, in the upper portion Municipalities only, reported in the final GRR of May 1997, page 33, showed that Estimated Damages in Plainfield, Scotch Plains and Watchung (the upper portion of the Basin) amounted to an estimated $357 million.

We urge the members of Congress to direct the Corps of Engineers, within the funds made available to them for fiscal year 2006, to continue the necessary investigations and studies, and to authorize the Corps of Engineers to place contracts for such investigations as may be necessary, so that the preparatory work for the ultimate protection of the people and property within the upper portion of the Basin can be carried forward.

The Green Brook Flood Control Commission is made up of appointed representatives from Middlesex, Somerset and Union Counties in New Jersey, and from the 13 Municipalities within the Basin. This represents a combined population of about one-quarter of a million people.

The members of the Commission are all volunteers, and for 34 years have served, without pay, to advance the cause of flood protection for the Basin. Throughout this time, the Corps of Engineers, New York District, has kept us informed of the progress of their work, and a representative from the Corps has been a regular part of our monthly meetings.

We believe that it is clearly essential that the Green Brook Flood Control Project be carried forward, and pursued vigorously, to achieve protection at the earliest possible date. This Project is needed to prevent loss of life and property, as well as the trauma caused every time there is a heavy rain.

New Jersey has programmed budget money for its share of the Project in fiscal year 2006.

We urgently request an appropriation for the Project in fiscal year 2006 of $15,000,000.

With your continued support, the Green Brook Flood Control Commission is determined to see this Project through to completion.

Thank you, Mr. Chairman, and members of the subcommittee, for your vitally important past support for the Green Brook Flood Control Project; and we thank you for the opportunity to submit this testimony.

GREEN BROOK FLOOD CONTROL

GREEN BROOK SUB-BASIN, RARITAN RIVER BASIN, NEW JERSEY

GREEN BROOK FLOOD CONTROL PROJECT FUNDING

	A	B	C	D	E	F	G
FEDERAL FISCAL YEAR	FEDERAL ADMINISTRATION BUDGET REQUEST	CONGRESSIONAL APPROPRIATION (NOMINAL)	SAVINGS AND SLIPPAGES	EFFECTIVE NET APPROPRIATION TO CORPS OF ENGINEERS	TRANSFER BY CORPS TO (-) FROM (+) OTHER PROJECTS	NET MONEY AVAILABLE FOR WORK ON PROJECT (WORK ALLOWANCE)	CUMULATIVE MONEY REC'D. BY CORPS SINCE AUTHORIZATION IN 1986
1986	$ 445,000	$ 445,000	$ -19,000	$ 426,000	$ - - -	$ 426,000	$ 426,000
1987	1,370,000	1,370,000	- - -	1,370,000	- - -	1,370,000	1,796,000
1988	1,400,000	1,400,000	- - -	1,400,000	- - -	1,400,000	3,196,000
1989	1,500,000	1,500,000	-68,000	1,432,000	- - -	1,432,000	4,628,000
1990	1,200,000	1,200,000	-116,000	1,084,000	+23,000	1,107,000	5,735,000
1991	2,000,000	2,000,000	-496,000	1,504,000	-98,000	1,406,000	7,141,000
1992	2,600,000	3,169,000	-364,000	2,805,000	- - -	2,805.000	9,946,000
1993	- - -	3,500,000	- - -	3,500,000	- - -	3,500,000	13,446,000
1994	- - -	2,800,000	-594,000	2,206,000	+571,000	2,777,000	16,223,000
1995	2,000,000	2,000,000	- - -	2,000,000	+135,000	2,135,000	18,358,000
1996	3,600,000	3,600,000	-932,000	2,668,000	+193,000	2,861,000	21,219,000
1997	2,781,000	2,781,000	-300,000	2,481,000	300,000	2,781,000	24,000,000
1998	- - -	3,100,000	-189,000	2,911,000	- - -	2,911,000	26,911,000
1999	- - -	9,900,000	-694,000	9,206,000	- 6,500,000	2,706,000	29,617,000
2000	1,000,000	1,000,000	-142,000	858,000	- - -	858,000	30,475,000
2001	4,000,000	4,000,000	- 640,000	3,360,000	+ 89,000	3,449,000	33,924,000
2002	10,000,000	10,000,000	-1,598,000	8,402,000	+1,048,000	9,450,000	43,374,000
2003	5,000,000	7,000,000	-1,253,000	5,747,000	-842,000	4,905,000	46,279,000
2004	6,500,000	7,000,000	-1,555,000	5,445,000	-535,000	4,910,000	51,141,000
2005	9,100,000	9,100,000	-1,015,000	8,085,000	-650,000	7,435,000	58,576,000
2006	- - -	$ 15,000,000	Recommendation of the Green Brook Flood Control Commission For FY2006 to Continue Construction				

REFERENCE:
THIS SUMMARY OF FUNDING FOR THE GREEN BROOK FLOOD CONTROL PROJECT HAS BEEN ASSEMBLED BASED UPON PUBLICLY AVAILABLE INFORMATION.

PRESENTED BY:
GREEN BROOK FLOOD CONTROL COMMISSION
GREEN BROOK, NJ 08812 MAR 2005

DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

PREPARED STATEMENT OF MID-DAKOTA RURAL WATER SYSTEM

FISCAL YEAR 2006 FUNDING REQUEST

The Mid-Dakota Project is requesting an appropriation of $5.015 million provided through the Bureau of Reclamation's project construction program for fiscal year 2006. As with our past submissions to this subcommittee, Mid-Dakota's fiscal year 2006 request is based on a detailed analysis of our ability to proceed with construction during the fiscal year. In all previous years, Mid-Dakota has fully obligated its appropriated funds, including Federal, State, and local, and could have obligated significantly more were they available.

An appropriation of $5.015 million for fiscal year 2006 will complete the Federal Government's funding obligation for the initial construction of the authorized Project. It is with pleasure that Mid-Dakota agrees with President Bush's $5.015 million request for Mid-Dakota in fiscal year 2006.

TENTATIVE FISCAL YEAR 2006 CONSTRUCTION SCHEDULE

Construction proposed for fiscal year 2006 would complete pipelines and appurtenances for the Mid-Dakota Project as is currently authorized pursuant to Public Law 102–575 Title XIX. Construction activities will be generally comprised of those construction projects begun in fiscal year 2005.

Total project expenditures are currently greater than the amount remaining in authorized funds by $1 million to $2 million dollars. If a funding shortfall is realized, Mid-Dakota will examine its options for funding the shortfall when the amount is known.

IMPACTS OF FISCAL YEAR 2006 AWARD

The most obvious impact of any significant reduction from Mid-Dakota's request will be the potential for delay of construction of one or more Project components. The $5.015 million will allow for the completion of the Mid-Dakota Project as it is

currently authorized. The requested appropriation will provide the necessary funds to proceed with construction of contracts already awarded and underway.

HISTORY OF PROJECT FUNDING

The Project was authorized by Congress and signed into law by President George H.W. Bush in October 1992. The Federal authorization for the project totaled $100 million (1989 dollars) in a combination of Federal grant and loan funds (grant funds may not exceed 85 percent of Federal contribution). The State authorization was for $8.4 million (1989 dollars). A breakdown of Project cost ceilings and expenditures are provided on the following table(s):

MID-DAKOTA RURAL WATER SYSTEM, INC. CONSTRUCTION CONTRACT STATUS AND CASH-FLOW

Project Funds	Current 2006	FER (1993)	Percent Increase
Federal Ceiling—Construction	$145,709,000	$111,000,000	131.3
State Ceiling—Construction	9,670,000	9,000,000	107.4
Interest earned on Federal funds (neg)	(638,000)		
Total Construction Ceiling	154,741,000	120,000,000	129.0
Wetland Component	2,756,000		
Total Adjusted Federal Ceiling	147,827,000		
Total Project Authorized Ceiling	157,497,000		

Contract Number & ID	Status	Contract Amount	Work Completed to Date	Retainage	Balance Due
Source & Production:					
1–1 Intake & Pump Station	Complete	$3,944,962	$3,944,962		
1–1A Intake Rip-Rap	Complete	87,179	87,179		
1–1B Intake Road Surfacing	Complete	26,188	26,188		
2–1 Water Treatment Plant	Complete	10,242,564	10,242,564		
2–1A WTP Controls	Complete	14,629	14,629		
2–1B WTP Cold Storage	Complete	92,000	92,000		
Subtotal Source & Production		14,407,521	14,407,521		
Main Transmission Pipeline:					
3–1A Raw Water Pipeline	Complete	1,719,251	1,719,251		
3–1B MTP to Blunt	Complete	7,022,056	7,022,056		
3–1C MTP to Highmore	Complete	4,793,105	4,793,105		
3–1D MTP CP System	Complete	214,651	214,651		
3–2A MTP to Ree Heights	Complete	3,155,455	3,155,455		
3–2B MTP to St. Lawrence	Complete	3,356,564	3,356,564		
3–3A MTP to Wessington	Complete	2,383,513	2,383,513		
3–3B MTP to Wolsey	Complete	3,881,892	3,881,892		
3–3C MTP to Huron	Complete	2,630,672	2,630,672		
3–3D MTP CP System	Complete	173,970	173,970		
Subtotal Main Trans. Pipeline		29,331,130	29,331,130		
Secondary & Distribution Pipeline:					
4–1A/B 1–5 Distribution	Complete	10,572,232	10,572,232		
4–1A/B 6 Distribution	Complete	9,027,572	9,027,572		
4–2 1 Distribution	Complete	4,707,395	4,707,395		
4–2 2 Distribution	Complete	3,000,176	3,000,176		
4–2 4&5 Distribution	Complete	5,134,974	5,134,974		
4–2A 4 Distribution	Complete	1,191,329	1,191,329		
4–2AP Distribution	Complete	11,337,290	11,337,290		
4–2AV Distribution vaults	In Progress	686,749	686,749	$22,000	$22,000
4–3P 1 Distribution	In Progress	7,512,370	7,302,670	182,602	392,302
4–3V 1 Distribution vaults	In Progress	533,119	528,783	26,656	30,992
4–3P 2 Distribution	In Progress	4,691,992			4,691,992
4–3P 3 Distribution	In Progress	5,591,944			5,591,944

Contract Number & ID	Status	Contract Amount	Work Completed to Date	Retainage	Balance Due
4–3V 2 Distribution vaults	In Progress	182,497			182,497
4–3V 3 Distribution vaults	In Progress	187,260			187,260
4–4A Canning Expansion	In Progress	1,018,967	988,647	50,526	80,846
Subtotal Sec. & Dist. Pipeline		65,375,867	54,477,818	281,784	11,179,832
Water Storage Tank:					
5–1 Highmore Tank	Complete	1,433,500	1,433,500		
5–1A 1 Onida Tank	Complete	397,688	397,688		
5–1A 2–4 Oko, Agar & Getty Tanks	Complete	1,526,453	1,526,453		
5–2 1 Mac's Corner Tank	Complete	561,101	561,101		
5–2 2–3 Collins Slough & Rezac Tanks	Complete	911,720	911,720		
5–2A 1&3 Ames & Wess. Spr. Tanks	Complete	868,490	868,490		
5–2A 2 Cottonwood Lake Tank	Complete	695,863	695,863		
5–3 Wolsey Tank	In Progress	2,021,414	2,021,414	10,000	10,000
5–3A Staum Dam & Pearl Creek Tanks	In Progress	1,034,764	1,029,724	25,869	30,909
Subtotal Water Storage Tanks		9,450,993	9,445,953	35,869	40,909
Other Construction Contracts:					
6–1 SCADA	In Progress	1,275,000	1,006,629	23,555	291,926
9–0 OMC Concrete Paving	Complete	58,474	58,474		
9–3 OMC Warehouse	In Progress	323,654	247,664	16,905	92,895
6–2 IEEE 519–92 Compliance	Not Bid	250,000			250,000
Subtotal Other Contracts		1,907,128	1,312,767	40,460	634,821
TOTAL PROJECT CONSTRUCTION COSTS		120,472,638	108,975,189	358,113	11,855,562
Other Costs:					
Engineering and Inspection	In Progress	18,315,224	17,066,159		1,249,065
USBR Administration	In Progress	2,225,000	1,909,119		315,881
Administration and Other Costs	In Progress	11,290,518	10,608,518		682,000
Easement & ROW Costs	In Progress	2,720,771	2,500,000		220,771
Repay SSNB Loan	In Progress	344,215			344,215
Repay Orient Loan	Complete	12,874	12,874		
Repay Camelot Loan	In Progress	117,000			117,000

Huron Water Tower Sharing	In Progress	600,000	.....	.....	600,000
Huron constructed Facilities Reimburse	Complete	143,000	143,000	.....	.....
Huron Assistance with Facilities Cost	Complete	100,000	100,000	.....	.....
Subtotal Other Costs	.....	35,868,602	32,339,670	.....	3,528,932
Wetland Component Costs:					
USBR Administration	In Progress	325,000	311,445	.....	13,555
Fund Transfers	In Progress	400,000	397,649	.....	2,351
Land Purchases	In Progress	2,031,000	1,285,446	.....	745,554
Subtotal Wetland Component Costs	.....	2,756,000	1,994,540	.....	761,460
TOTAL PROJECT COSTS	.....	[1] 159,097,240	143,309,399	358,113	16,145,954

[1] Contingency: $1,600,240.

The total authorized indexed cost of the project is approximately $157,497,000 [1] all Federal funding considered, the government has provided all but approximately $5 million of the authorized commitment. The remaining funds ($5 million) are therefore the basis of Mid-Dakota's 2006 appropriation request.

SUMMARIZATION OF FEDERAL FUNDING

[In millions of dollars]

Fed. Fiscal Year	Mid-Dakota Request	Pres. Budg.	House	Senate	Conf. Enacted Levels	Bureau Award Levels	Additional Funds	Total Fed. Funds Provided
1994	7.991	.....	.....	2.000	2.000	1.500	.....	1.500
1995	22.367	.....	.....	8.000	4.000	3.600	.....	3.600
1996	23.394	2.500	12.500	10.500	11.500	10.925	2.323	13.248
1997	29.686	2.500	11.500	12.500	10.000	9.429	1.500	10.929
1998	29.836	10.000	12.000	13.000	13.000	12.367	1.675	14.042
1999	32.150	10.000	10.000	20.000	15.000	14.262	2.000	16.262
2000	28.800	5.000	15.000	7.000	14.010	13.400	1.000	14.400
2001	24.000	6.040	11.040	6.040	10.040	9.561	.....	9.561
2002	30.684	10.040	15.040	15.540	15.040	13.642	0.861	14.503
2003	29.360	10.040	17.040	17.940	17.860	16.149	0.800	16.949
2004	23.869	2.040	12.040	15.040	15.040	13.535	0.455	13.990
2005	17.015	17.015	17.000	17.000	17.000	15.068	.....	15.068
2006	5.015	0.015	.....	.....	.....	.....	.....	.....
Totals	.....	75.190	133.160	144.560	144.490	133.438	10.614	144.052

Additionally, the State of South Dakota has contributed $9.67 million in grants to the Mid-Dakota Project, in previous years. The State of South Dakota completed its initial authorized financial obligation to the Mid-Dakota Project in the 1998 Legislative Session.

CONSTRUCTION IN PROGRESS

Mid-Dakota began construction in September of 1994, with the construction of its Water Intake and Pump Station. Since that eventful day of first construction start, we have bid, awarded, and completed 23 project components and are into construction on eight other major Project components. The previous table titled "Construction Contract Status and Cash-flow" provides a synopsis of construction progress.

When considering the essence of a public water supply systems, at its core are: customers, pipeline and water productions and sales. It's notable and commendable that Mid-Dakota will complete the authorized project (approximately $157 million) with a percent or 2 of the authorized funding ceiling. It's especially note worthy when you compare the table below demonstrating how much more Project has been built while staying so close to the original authorized ceiling:

	Auth. Ceiling	Completed Project	Percent
Customers (accounts)	2,200	[1] 4,800	218
Pipeline (miles)	2,771	3,800	137
Water Sales (billion gal. per year)	1.2	1.7	142

[1] Includes towns as one account each.

CLOSING

Mid-Dakota is aware of the tough funding decisions that face the Energy and Water Appropriations Subcommittee and we appreciate the difficult decisions the subcommittee must make. We strongly urge the subcommittee to look closely at the Mid-Dakota Project and recognize the need that exists. Consider the exceptionally high level of local and State support. And finally consider the fact that fully funding the fiscal year 2006 appropriation request as submitted by the President and by Mid-Dakota should fully fund the initial authorized components of the Mid-Dakota Project.

[1] The total authorized ceiling amount is a result of informal conversations and correspondence with the Bureau of Reclamation. The figure represents a best estimate at the time of writing this testimony.

Again, we thank the subcommittee for its strong support, both past and present.

LETTER FROM THE STATE OF WYOMING

Cheyenne, WY, February 25, 2005.

The Honorable PETE V. DOMENICI,
Chairman,
The Honorable HARRY REID,
Ranking Member,
Energy and Water Development Subcommittee, Committee on Appropriations, United States Senate, 127 Dirksen Senate Office Building, Washington, DC.

DEAR CHAIRMAN DOMENICI AND SENATOR REID: I write to request your support for an appropriation in fiscal year 2006 of $2,529,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The President's recommended budget for fiscal year 2006 includes this line-item amount. The funding designation we seek is as follows: $1,401,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; $572,000 for the San Juan River Basin Recovery Implementation Program; and $556,000 for Fish and Wildlife Management and Development.

These highly successful, cooperative programs are ongoing partnerships among the States of Colorado, New Mexico, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. The programs' objectives are to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act. These recovery programs have become national models for collaboratively working to recover endangered species while addressing water needs to support growing western communities in the Upper Colorado River Basin region of the Intermountain West. Since 1988, these programs have facilitated ESA Section 7 consultation (without litigation) for over 800 Federal, tribal, State and privately managed water projects depleting approximately 2.5 million acre-feet of water per year.

The requested fiscal year 2006 appropriation will allow the Upper Colorado River Endangered Fish Program to proceed with construction of additional fish passage structures on the Green and Colorado Rivers to provide access to historic habitat upstream of existing diversion dams. The requested funding for the San Juan River Recovery Program will be used for contracts for construction and cooperative agreements with the State of New Mexico to provide and protect instream flows, fish ladders, flooded bottom land restoration, propagation facilities, stocking efforts, nonnative and sportfish management activities.

The enactment of Public Law 106–392, as amended by Public Law 107–375, authorized the Federal Government to provide up to $46 million of cost sharing for these two ongoing recovery programs' remaining capital construction projects. Raising and stocking of the endangered fish produced at program hatchery facilities, restoring floodplain habitat and fish passage, regulating and supplying instream habitat flows, installing diversion canal screens and controlling nonnative fish populations are key components of the programs' ongoing capital construction projects. Subsection 3(c) of Public Law 106–392 authorizes the Secretary of the Interior to accept up to $17 million of contributed funds from Colorado, Wyoming, Utah and New Mexico, to expend such contributed funds as if appropriated for these projects; and provides for an additional $17 million to be contributed from revenues derived from the sale of Colorado River Storage Project (CRSP) hydroelectric power. This substantial non-Federal cost-sharing funding demonstrates the strong commitment and effective partnerships embodied in both of these successful programs. The requested Federal appropriations are critically important to these efforts moving forward.

The past support and assistance of your subcommittee has greatly facilitated the success of these multi-State, multi-agency programs. On behalf of the citizens of Wyoming, I thank you for that support and request the subcommittee's assistance for fiscal year 2006 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Best Regards,

DAVE FREUDENTHAL,
Governor.

LETTER FROM THE WYOMING WATER ASSOCIATION

Cheyenne, WY, March 13, 2005.

The Honorable PETE V. DOMENICI,
Chairman,
The Honorable HARRY REID,
Ranking Member,
Energy and Water Development Subcommittee, Committee on Appropriations, United States Senate, 127 Dirksen Senate Office Building, Washington, DC.

DEAR CHAIRMAN DOMENICI AND SENATOR REID: On behalf of the members of the Wyoming Water Association, I am writing to request your support for an appropriation in fiscal year 2006 of $2,529,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The President's recommended budget for fiscal year 2006 has included this line-item amount. Founded in 1933, the Wyoming Water Association (WWA) is a Wyoming non-profit corporation and voluntary organization of private citizens, elected officials, and representatives of business, government agencies, industry and water user groups and districts. The Association's objective is to promote the development, conservation, and utilization of the water resources of Wyoming for the benefit of Wyoming people. The WWA provides the only statewide uniform voice representing all types of water users within the State of Wyoming and encourages citizen participation in decisions relating to multi-purpose water development, management and use.

Consistent with the requests made by the Governor of Wyoming, the funding designation the Wyoming Water Association seeks is as follows: $1,401,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; $572,000 for the San Juan River Basin Recovery Implementation Program; and $556,000 for Fish and Wildlife Management and Development.

These highly successful, cooperative programs are ongoing partnerships among the States of Colorado, New Mexico, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. The programs' objectives are to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act. These recovery programs have become national models for collaboratively working to recover endangered species while addressing water needs to support growing western communities in the Upper Colorado River Basin region of the Intermountain West. Since 1988, these programs have facilitated ESA Section 7 consultation (without litigation) for over 800 Federal, tribal, State and privately managed water projects depleting approximately 2.5 million acre-feet of water per year.

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The past support and assistance of your subcommittee has greatly facilitated the success of these multi-State, multi-agency programs. On behalf of the members of the Wyoming Water Association, I thank you for that support and request the subcommittee's assistance for fiscal year 2006 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Sincerely yours,

JOHN W. SHIELDS,
Executive Secretary.

LETTER FROM THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Los Angeles, California, March 18, 2005.

The Honorable PETE V. DOMENICI,
Chairman, Appropriations Subcommittee on Energy and Water Development, SD–127 Dirksen Senate Office Building, Washington, DC 20510.

DEAR CHAIRMAN DOMENICI: The Metropolitan Water District of Southern California is writing in support of the following Federal programs, in priority order, under the Bureau of Reclamation and Department of Energy's budgets that we believe are deserving of your subcommittee's support during the fiscal year 2006 budget process:

—*(1) Colorado River Front Work and Levee System, Water Management Reservoir Near the All American Canal Subactivity*.—$30 million;
—*(2) Yuma Area Projects, Excavating Sediments Behind Laguna Dam*.—$7.6 million;
—*(3) California Bay-Delta Restoration*.—$35 million;
—*(4) Lower Colorado River, Water and Energy Management*.—$300,000;
—*(5) Colorado River Basin Salinity Control—Title II Basin Wide Program*.—$17.5 million; and,
—*(6) Atlas Mill Tailings Removal in Moab, Utah*.—$28 million.

The Metropolitan Water District of Southern California is a public agency that was created in 1928 to meet the supplemental water demands of people living in what is now portions of a six-county region of southern California. Today, the region served by Metropolitan includes approximately 18 million people living on the coastal plain between Ventura and the international boundary with Mexico. It is an area larger than the State of Connecticut and, if it were a separate nation, would rank in the top ten economies of the world.

Included in our region are more than 300 cities and unincorporated areas in the counties of Los Angeles, Orange, San Diego, Riverside, San Bernardino, and Ventura. We provide over half of the water used in our 5,200-square-mile service area. Metropolitan's water supplies come from the Colorado River via our Colorado River Aqueduct and from northern California via the State Water Project's California Aqueduct.

We are sensitive to the magnitude of these program requests during tight budget times. We are also committed to supporting these Federal programs as they are critical to meeting the challenges of water resources management and source water quality protection throughout California. These programs help to ensure long-term water security and meet the water quality requirements necessary to provide our member agencies with a safe, reliable water supply. We strongly urge your support for these funding requests.

COLORADO RIVER FRONT WORK AND LEVEE SYSTEM

Water Management Reservoir Near the All-American Canal Subactivity

Reclamation is completing a multi-phased study quantifying the need and options for regulatory storage to improve Colorado River management downstream of Lake Mead. Reclamation has concluded that locating up to a 10,000 acre-foot capacity water management reservoir near the All-American Canal, near Drop 2, 15 miles east of the Imperial Valley. The reservoir's location would be of great benefit to the Colorado River Basin States. Benefits that include:

—conservation of reservoir system storage;
—improving river regulation and water delivery scheduling;
—providing opportunities for water conservation;
—storage and conjunctive use programs; and,
—setting the stage for new cooperative water supply and water quality management endeavors with Mexico.

Reclamation funding of $30 million is needed in fiscal year 2006 in order to obtain permits, acquire land, clear and prepare the site, design the reservoir and its inlet and outlet canals, and procure materials for construction.

This is one of four distinct subactivities to be undertaken in 2006 under the Water and Energy Management and Development Activity of the Colorado River Front Work and Levee System Project.

The President's fiscal year 2006 request for this Activity is $2.419 million. Metropolitan requests that Reclamation's funding for the Water Management Reservoir near the All American Canal subactivity be augmented so as to provide $30 million for this work to progress sufficiently.

Yuma Area Projects, Excavating Sediments Behind Laguna Dam

While work on a reservoir near the All-American Canal proceeds, there is an immediate need to restore limited Colorado River regulatory storage capacity downstream of Parker Dam. This can be partly accomplished by excavating sediments that have accumulated behind Laguna Dam since its completion in 1909. Reclamation funding of $7.6 million is needed in fiscal year 2006 to complete environmental compliance and procurement and begin dredging behind Laguna Dam.

This subactivity under the Yuma Area Projects, Facilities Maintenance and Rehabilitation activity would restore 1,100 acre-feet of storage behind Laguna Dam. Not only would this enhance the ability to regulate flows arriving at Imperial Dam, it would capture and re-regulate the water periodically released for the proper operation of Imperial Dam, benefiting both the Colorado River Basin States and Mexico.

The President's fiscal year 2006 request for the sediment control subactivity is $2.6 million. Metropolitan requests that Reclamation's funding for sediment control be augmented so as to provide $7.6 million for the work to excavate sediments from behind Laguna Dam.

The construction of a new regulating reservoir, and dredging sediments behind an existing dam will critically improve water delivery efficiencies and prevent the loss of up to 200,000 acre-feet per year from Colorado River reservoir storage.

CALIFORNIA BAY-DELTA AUTHORIZATION

Metropolitan strongly recommends your support of a Reclamation fiscal year 2006 budget that includes $74,000,000 in funding for the CALFED Bay-Delta Program. This includes $35,000,000 in new funding authorized in Public Law 108–361. Metropolitan also supports the Association of California Water Agencies additional request of $28,000,000 for near-term, high priority projects. This Federal funding is needed to supplement the State's cost share of implementing CALFED-related programs, including supply reliability, water quality, ecosystem restoration, water transfers, watershed protection, water use efficiency, science, and coordination.

LOWER COLORADO RIVER, WATER AND ENERGY MANAGEMENT

Metropolitan requests that Reclamation receive $300,000 to conduct a study to identify the concurrent and overlapping government programs that are aimed at improving resource efficiency, and to create a strategic map for integrating the individual efforts to realize better integration and identify cross-program beneficiaries. Through an assembled taskforce, the study will get agencies to look beyond their borders and share their strategy and vision, which will reap significant working benefits in the pursuit of resource efficiency.

COLORADO RIVER BASIN SALINITY CONTROL PROGRAM—TITLE II

We ask for your support for additional Federal funding for Reclamation's Colorado River Basin Salinity Control Program (Salinity Control Program)—Title II. We request that Congress appropriate $17.5 million for implementation of the Title II-Basin Wide Program, an increase of $7.5 million from the President's request of $10 million, to ensure water quality protection for this important source of water supply to Arizona, California, and Nevada through construction of off-farm measures to control Colorado River salinity. Concentrations of salts in the river cause hundreds of millions in damage in the United States.

ATLAS MINE TAILINGS CLEANUP

In cooperation with the Utah State Environmental Quality Department, the Metropolitan Water District supports the President's budget request of $28 million in fiscal year 2006 for the purposes of moving forward with the clean-up of uranium mine tailings at the Atlas Site in Moab, Utah. Metropolitan stands firmly behind the Governor of Utah's position that these mine tailings must be removed from their dangerously close proximity to the Colorado River, and that by supporting that position, Metropolitan advocates removal as the only acceptable solution to this issue.

We look forward to working with your office to further advance sound water management activities in California. Please contact Metropolitan's Executive Legislative Representative in Washington, DC, if we can answer any questions or provide additional information.

Sincerely,

GILBERT F. IVEY,
Interim Chief Executive Officer.

PREPARED STATEMENT OF THE NEW MEXICO INTERSTATE STREAM COMMISSION

COLORADO RIVER BASIN SALINITY CONTROL PROGRAM, BUREAU OF RECLAMATION

SUMMARY

This statement is submitted in support of fiscal year 2006 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 2006 to implement the authorized Colorado River salinity control program of the Bureau of Reclamation. The President's appropriation request of $10 million 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, had 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 damages from the Colorado River to United States water users are about $300,000,000 per year. 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. 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. The Basin States and Federal agencies agree that increases in the salinity of the Colorado River will result in significant increases in damages to water users in the Lower Colorado River Basin. Although the United States has always met the water quality standard for salinity of water delivered to Mexico under Minute No. 242 of the International Boundary and Water Commission, the United States through the U.S. Section of IBWC is currently addressing a request by Mexico for better quality water.

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 2006. The Basin States cost sharing adds 43 cents for each Federal dollar appropriated.

Public Law 106–459 gave the Bureau of Reclamation additional spending authority for the salinity control program. With the additional authority in place and significant cost sharing available from the Basin States, it is essential that the salinity control program be funded at the level requested by the Forum and Basin States to protect the water quality of the Colorado River.

Maintenance and operation of the Bureau of Reclamation's salinity control projects and investigations to identify new cost-effective salinity control projects are necessary for the success of the salinity control program. Investigation of new opportunities for salinity control are critical as 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.

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 COLORADO RIVER ENERGY DISTRIBUTORS ASSOCIATION (CREDA)

U.S. BUREAU OF RECLAMATION AND WESTERN AREA POWER ADMINISTRATION PROGRAMS

The Colorado River Energy Distributors Association (CREDA) appreciates this opportunity to submit its views on recommendations in the President's fiscal year 2006 budget proposal that affect Bureau of Reclamation (Bureau) and Western Area Power Administration (Western) programs in the Energy and Water Development Act of 2006. Our testimony will address three issues:

—Our opposition to the proposal to change cost-based rates for power generated by Federal power marketing administrations (PMAs) to market rates;

—Our request for the inclusion of clarifying language to fund additional, post-9/11 security measures at multi-purpose Federal dams from non-reimbursable appropriations; and

—Our opposition to the proposal to fund the Utah Mitigation and Conservation fund from reimbursable power revenues.

CREDA is a non-profit, regional organization representing 155 consumer-owned, non-profit municipal and rural electric cooperatives, political subdivisions, irrigation and electrical districts and tribal utility authorities that purchase hydropower resources from the Colorado River Storage Project (CRSP). CRSP is a multi-purpose Federal project that provides flood control, water storage for irrigation, municipal and industrial purposes; recreation and environmental mitigation, in addition to the generation of electricity. CREDA was established in 1978 and serves as the "voice" of CRSP contractor members in dealing with resource availability and affordability issues. CREDA represents its members in dealing with the Bureau—as the owner and operator of the CRSP—and with Western—as the marketing agency for CRSP hydropower.

CREDA members serve over 4 million electric consumers in six western States: Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming. CREDA's member utilities purchase more than 85 percent of the power produced by the CRSP.

MARKET-BASED RATES FOR FEDERAL POWER

The administration's fiscal year 2006 budget includes a recommendation that rates for hydropower marketed by the four PMAs (Western Area, Bonneville, Southwestern and Southeastern), which are currently cost-based, be increased by 20 percent per year until they reach "market" rates.

If implemented, this proposal would increase rates considerably for customers served by CREDA members and consumers in 27 other States and have a significant negative impact on the economies of many regions of the country. CREDA members serve their consumers through a variety of resource portfolios. Some rely on a combination of the Federal resource, self-generation, and wholesale market purchases. Many of these utilities have already experienced significant cost impacts due to wholesale market conditions and long-term drought, which has reduced the

availability of Federal hydropower and required customers and the PMAs to replace Federal hydropower purchases with higher cost market resources. In fact, since 1999, Western's CRSP purchased power costs, required as a result of drought, extreme market conditions and environmental experimentation, total $484,466,000.

The budget documents accompanying the market-based rate proposal indicate that it is based on assertions made in an earlier Government Accountability Office (GAO) report, which claimed that the PMAs are subsidized by taxpayers. This claim is not true.

Federal power customers repay 100 percent of the capital costs associated with the power function of Federal dams, with interest. They also pay all costs of operation and maintenance of PMA generation and transmission facilities. In addition, power customers pay the lion's share of the costs of irrigation facilities—those costs that are beyond the irrigators' "ability to pay."

Further, in the case of CRSP, power revenues have contributed over $179 million to operations of the Glen Canyon Adaptive Management Program; approximately $18 million to the Colorado River Salinity Control Program and over $40 million for the Upper Colorado River Basin and San Juan Basin Endangered Fish Recovery Programs. CRSP power customer contributions to these non-power programs total about $20 million per year.

Power marketed by the PMAs is generally low-cost because its fuel source is falling water. Unlike other conventional power plant resources—nuclear, coal and gas—hydropower does not have any fuel costs. This fact and the fact that most of the Federal projects were built decades ago account for the favorable economics of PMA power. Private power companies that have hydroelectric resources enjoy the same favorable economics for those facilities.

It is also important to recognize that PMA generators are not merchant generators that operate for profit to take advantage of market conditions. At all Federal multi-purpose projects, power generation is an incident to the other purposes of the project, such as flood control, water supply and, at some projects, navigation and treaty obligations. There is a great deal of law that would have to be overridden to implement this proposal. This is not a proposal which can be implemented without substantive legislation.

We urge the subcommittee to ensure that this proposal does not become law.

COSTS OF INCREASED SECURITY AT FEDERAL MULTI-PURPOSE PROJECTS

Following the attacks of September 11, 2001, the Bureau embarked upon an aggressive program to enhance the security of Federal dams to protect the facilities against terrorist attacks. Based on historical precedent dating to World War II, the Bureau determined in 2002 that that the costs of increased security measures should remain a non-reimbursable obligation of the Federal Government.

For fiscal year 2003, the Bureau received $28.4 million in the Energy and Water Development Appropriations Act (Public Law 108–7) and an additional $25 million in supplemental appropriations. The Bureau also received $28.5 million for increased security costs in the Energy and Water Development Appropriations Act of 2004 (Public Law 108–137).

Due to budget constraints, the President's fiscal year 2005 budget directed the Bureau to recover $12 million from entities that benefit from the multi-purpose projects. Of that amount, power customers were asked to pay an estimated 94 percent. Federal power customers objected, citing legislative precedent and the fact that the additional security measures are intended to protect all features of the Federal multi-purpose projects, not just the power features, from attack and destruction (Power users agree that costs of pre-9/11 security measures attributable to the power function should be paid by power customers). In fact, in the event of a catastrophic failure of these projects, the power function could most likely be the purpose least impacted.

Further, power users note that the Bureau's decision to allocate a majority of the reimbursable costs to power users was not based on any objective or risk analysis of the benefits of the security upgrades.

Congress has spoken annually regarding treatment of these costs. In report language accompanying the Energy and Water Development Appropriations Act of 2005 (Public Law 108–447), Congress recognized the dramatic increase in security needs and corresponding costs at Bureau facilities following the September 11, 2001 attacks on our country. Congress also recognized that the Bureau security posture "will not likely approach pre-September 11, 2001 levels for many years, if ever." The conference committee then underscored its concern for the reimbursability of security costs by including the following directive to the Bureau:

"Reclamation shall provide a report to the conference no later than May 1, 2005, with a breakout of planned reimbursable and non-reimbursable security costs by project, by region. The conference directs the Commissioner [of Reclamation] not to begin the reimbursement process until the Congress provides direct instruction to do so."

CREDA believes that the historic rationale established in the 1942 and 1943 Interior Department Appropriation Acts for treating costs of increased security at multipurpose Federal projects as non-reimbursable obligations of the Federal Government is still valid. A legal analysis outlining this rationale is contained in a February 5, 2002 letter to then-Assistant Secretary of Interior Bennett W. Raley.

We urge Congress to add language to the Energy and Water Development Appropriations Act of 2006 to clarify that costs of increased security at dams owned and operated by the Bureau of Reclamation should continue to be non-reimbursable.

CENTRAL UTAH PROJECT RECLAMATION MITIGATION AND CONSERVATION ACCOUNT

Titles II through VI of the Reclamation Projects Authorization and Adjustment Act of 1992 (Public Law 102–575), known as the Central Utah Project Completion Act (CUPCA), establish and define the Utah Reclamation Mitigation and Conservation Commission (Commission). The Commission's mission is to develop policies and objectives for the implementation of fish, wildlife and recreation mitigation and conservation projects and features associated with the Central Utah Project (CUP), which is a "participating project" of the CRSP.

Sec. 402(b) of the Reclamation Projects Act creates a Utah Reclamation Mitigation and Conservation Account (Account) in the Treasury of the United States and provides that contributions to the Account will include $5 million (cost-indexed) annually by the Secretary of Energy out of funds appropriated to Western, which will be considered "nonreimbursable and nonreturnable."

During debate on the Reclamation Projects Act, CUPCA Congressional supporters attempted to add an amendment that would require CRSP power users to make a $5 million annual contribution to the Account. CRSP power users refused, arguing that, because there are no power features associated with the CUP, it would not be equitable to ask power customers to contribute to mitigation and conservation efforts. Faced with the potential opposition of the CRSP power customers to the CUPCA, the title's sponsors reconsidered and ultimately directed that the $5 million/year be contributed by the Department of Energy (DOE) out of non-reimbursable funds appropriated for Western.

The President's fiscal year 2006 budget recommends that this section of CUPCA be overturned, by the enactment of the following language:

"Provided, that notwithstanding section 402(b)(3)(B) of the Reclamation Projects Authorization and Adjustment Act of 1992, the fiscal year 2006 contribution of $6,650,000 from the Secretary of Energy, Western Area Power Administration, to the Utah Reclamation Mitigation and Conservation Account shall be made from receipts deposited to the Western Area Power Administration Colorado River Basin Power Marketing Fund on a reimbursable basis from Colorado River Storage Project customers."

Effectively, this means that the administration proposes to shift the costs of the Utah Mitigation and Conservation Fund from the Federal Government to power customers in Arizona, New Mexico, Wyoming, Colorado, Nevada and Utah. This would set an unfortunate and inappropriate precedent that would allow the Federal Government to shift other non-power-related Federal costs to power users or other sets of taxpayers.

In the 107th Congress, Congress amended the CUPCA, through passage of H.R. 4129 (Public Law 107–366), in part to redirect unexpended budget authority to provide for prepayment of repayment contracts and to clarify the treatment of investigation costs. CREDA testified in support of H.R. 4129 and believes that if Congress had intended a change to be made to treatment of the Utah Mitigation and Conservation Fund provision of CUPCA, it would have addressed that provision in Public Law 107–366.

We urge the subcommittee to oppose this proposal and to insist that the contribution continue to come from DOE through non-reimbursable, non-returnable funds appropriated for Western.

PREPARED STATEMENT OF MNI WICONI PROJECT

FISCAL YEAR 2006 CONSTRUCTION BUDGET REQUEST

The Mni Wiconi Project beneficiaries (as listed below) respectfully request appropriations and can demonstrate capability for construction in fiscal year 2006 in the amount of $47,400,000 as follows:

	Amount
Oglala Sioux Rural Water Supply System:	
Core	$10,029,000
Pine Ridge (Distribution)	16,230,000
West River/Lyman Jones Rural Water System	11,082,000
Rosebud Rural Water System	10,059,000
Lower Brule Rural Water System	([1])
Total Amount Requested Fiscal Year 2006	$47,400,000

[1] Funding Complete.

Mni Wiconi means, "water is life", in the Lakota language, and Mni Wiconi is a new way of life. The project has provided Indian and non-Indian people of arid Western South Dakota with a source of clean drinkable water not available before. With the help of the subcommittee we have accomplished much; we are dedicated to completing the project on schedule, a goal that is possible by allocation of funds from completed projects to Mni Wiconi. Within 3 years it is possible to conclude our project and then to re-allocate funds to newer projects.

The project sponsors were provided by the 107th Congress (Public Law 107–367) with all the authority necessary to finish this project at the level of development originally intended on a schedule through fiscal year 2008. Completion of the project is now achievable as shown below:

Total Federal Funds Required (October 2004 Dollars)	$427,849,000
Estimated Federal Funds Spent Through Fiscal Year 2005	$285,648,000
Percent Spent	66.76
Amount Remaining	$142,201,000
Years to Complete	3
Average Amount Required for Fiscal Year 2008 Finish (Public Law 107–367)	$47,400,000

The administration's budget for this project in fiscal year 2006 ($22.447 million for construction) is a welcome improvement from last year that reflects the need to complete the project. The amount requested by the administration continues to fall short of the average amount needed to complete the project in fiscal year 2008. The project is now over 67 percent complete and can be completed in the next 3 years. The project sponsors strongly urge that the funds previously allocated to the Mid-Dakota Project be used to supplement and complete the Mni Wiconi Project. The needs and merits of this project are considerable as described in Section 2.

The project's operation, maintenance and replacement request from the sponsors is in addition to the construction request and is presented in Section 8.

UNIQUE NEEDS OF THIS 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, tensions between the Indian population and the non-Indian settlers on Great Sioux lands have been high with little easing by successive generations. The Mni Wiconi Project is perhaps the most significant opportunity in more than a century to bring the sharply diverse cultures of the two societies together for a common good. Much progress has been made due to the good faith and genuine efforts of both the Indian and non-Indian sponsors. The project is an historic basis for renewed hope and dignity among the Indian people. It is a basis for substantive improvement in relationships.

Each year our 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

borne 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.

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. The Mni Wiconi Project 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 and other Indian reservations of the project area.

TABLE 1.—PROFILE OF SELECTED ECONOMIC CHARACTERISTICS: 2000

Indian Reservation/State	2000 Population	Change from 1990 (Percent)	Income (Dollars)		Families Below Poverty (Percent)	Unemployment (Percent)
			Per Capita	Median Household		
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 Indian 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 Indian 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-Indian 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).

Financial support for the Indian membership has already been subjected to drastic cuts in funding programs through 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 nationwide have created a crisis for tribal government because tribal members have moved back to the reservations in order to survive. Economic conditions have resulted in accelerated population growth on the reservations.

The Mni Wiconi Project Act declares that the United States will work with us under the circumstances because

" . . . 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 . . .".

Indian support for this project has not come easily because the historical experience of broken commitments to the Indian people by the Federal Government is difficult to overcome. The argument was that there is no reason to trust and that the Sioux Tribes are being used to build the non-Indian segments of the project and the Indian 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 the complete the critical elements of the project proposed for fiscal year 2006.

OSRWSS CORE PIPELINE TO REACH PINE RIDGE INDIAN RESERVATION IN FISCAL YEAR 2006

The Pine Ridge Indian Reservation and parts of West River/Lyman Jones remain without points of interconnection to the OSRWSS core. The requested funding level for the OSRWSS Kadoka to White River pipeline will complete the project to the northeast corner of the Pine Ridge Indian Reservation where, in combination with the western part of West River/Lyman Jones, the remaining 50 percent of the design population resides. Funds will also be used by the Oglala Sioux Tribe to build the North Core westerly toward Hayes in the West River Lyman Jones service area with the intent to complete the OSRWSS North Core and all other core facilities in fiscal year 2007. Funding will also be required in fiscal year 2007 to complete the OSRWSS North Core system to serve the Reservation.

The 2000 census confirms that the Oglala Sioux population on Pine Ridge is growing at a rate of 27 percent per decade or 1½ times greater than projected from the 1990 census. Delivery of Missouri River water to this area is urgently needed. Nearly half of the design population of the project is located on the Pine Ridge Indian Reservation.

All proposed OSRWSS construction activity will build pipelines that will provide Missouri River water immediately to beneficiaries. In many cases, construction of interconnecting pipelines by other sponsors is ongoing, and fiscal year 2006 funds are required to complete projects that will connect with the OSRWSS core and begin others.

Funding for OSRWSS core and distribution facilities is necessary to bring economic development to the Pine Ridge Indian Reservation, designated as one of five national rural empowerment zones in the late 1990's. The designation serves to underscore the level of need. Economic development is largely dependent on the timely completion of a water system, which depends on appropriations for this project.

Finally, the subcommittee is respectfully requested to take notice of the fact that fiscal year 2006 will significantly advance construction of facilities that continues our progress toward the end of the project. The subcommittee's past support has brought the Project to the point that the end can be seen. Key to the conclusion of the project in fiscal year 2008 is the completion of the OSRWSS core to the Pine Ridge Indian Reservation. Toward this end, funds are included in the fiscal year 2006 budget to build the connecting pipelines between the northeast corner of the Pine Ridge Indian Reservation and the central portion of the Reservation near Kyle. Rosebud is engaged in the construction of major connecting pipelines that will deliver water southerly to the central portions of the Rosebud Indian Reservation and to service areas for West River/Lyman Jones.

The following sections describe the construction activity in each of the rural water systems.

OGLALA SIOUX RURAL WATER SUPPLY SYSTEM—DISTRIBUTION

With the conclusion of projects under construction in 2002, the Oglala Sioux Tribe completed all facilities that can be supported from local groundwater. The Tribe, representing nearly 50 percent of the project population, will rely on the OSRWSS core to convey Missouri River water to and throughout the Reservation as a additional water source. Much pipeline has been constructed, primarily between Kyle, Wounded Knee and Red Shirt and between Pine Ridge Village and the communities of Oglala and Slim Buttes.

Of particular importance to the Oglala Sioux Tribe is the continuation of the main transmission system from the northeast corner (Highway 73/44 junction) of the Reservation to Kyle in the central part of the Reservation. The transmission line is needed to interconnect the OSRWSS core system with the distribution system within the Reservation in order to deliver Missouri River water to the populous portions of the Reservation. This critical segment of the project can be continued in fiscal year 2006 to coincide with the westward construction of the OSRWSS core to the northeast corner of the Reservation (see section 2). It will require funds in fiscal year 2006 and fiscal year 2007 to complete. This component of the Oglala system has been deferred for several years due to inadequate funding. The component is urgently needed for the OSRWSS core system to be utilized on the Pine Ridge Indian Reservation.

WEST RIVER/LYMAN JONES RURAL WATER SYSTEM—DISTRIBUTION

The requested appropriation is directed to serving members between Ft. Pierre and Philip. The highest priorities are for the Moenville Phase II service area and

the water supply for the Moenville projects. These service areas are closest to the Mni Wiconi water treatment plant and are among the last to be served.

The Kadoka Pump Station will take water from the OST core pipeline constructed with fiscal year 2005 funding and deliver water to the City of Kadoka and the West River/Lyman Jones Kadoka service area. The West River/Lyman Jones members are now being supplied from a groundwater source at Kadoka that exceeds the SDWA standard for radium. EPA has allowed the source to remain in service pending availability of Mni Wiconi project water.

The distribution pipeline system in the Community of Vivian has long exceeded its service life. Residents in the community have become members of West River/Lyman Jones. The new distribution system will eliminate excessive water loss from the antiquated system and minimize operation and maintenance (O&M) costs.

Continuing drought conditions in the WR/LJ project area has resulted in the addition of new services within the areas now being served. The Indefinite Quantities project meets that need. A significant portion of the non-Federal funds are payment from these add-on users.

The Federal funds appropriated to date have made possible the construction of water service to WR/LJ members and contributed greatly to stability of livestock enterprises in the region. Providing a water supply that meets SDWA standards to the cities along Interstate Highway 90 has removed health hazards to the traveling public and benefited tourism in the region. Further Federal appropriations authorized for the Mni Wiconi Project will extend similar benefits to the total project area. We sincerely appreciate your support.

ROSEBUD RURAL WATER SYSTEM (SICANGU MNI WICONI)

In the past year the Rosebud Sioux Rural Water System, or Sicangu Mni Wiconi, improved the quality of life for many people in south central South Dakota. The interconnection with the OSRWSS was put into service in August and surface water was pumped to both Rosebud and WR/LJ users in Mellette County. The introduction of surface water reduced the pressure on the limited existing groundwater supply and "freed up" sufficient groundwater to supply the combined WR/LJ and Rosebud Mellette east service area. This unique project benefited both sponsors, the Federal Government and exemplifies the new relationships and spirit of cooperation resulting from this project. Most of all it benefited the people of Mellette County who have been waiting far too long for good water.

Many others' lives have been improved by the project as well. Our transmission mains and distribution lines have brought water to hundreds of existing and new homes. We have brought water to a college campus, an alcohol treatment center, new housing areas and economic development projects as well. We have accomplished a lot, but a lot remains to be accomplished.

As the end of the construction phase of the project comes into sight, we hope that completion of the Sicangu Mni Wiconi is not forgotten or overshadowed by other efforts. It provides people with a source of clean drinkable water that many have not had before. It creates infrastructure for the development of the reservation economy. Mni Wiconi is a promise for a better life on the Rosebud Reservation.

In the coming year we plan to keep that promise by bringing water to more people through both the construction of new pipelines and rehabilitation of existing facilities. Most of the effort planned for 2006 will utilize the recently completed transmission and distribution lines to make service connections in the Mission area and extend service progressively eastward to the Hidden Timber and rural Okreek areas. The second portion of the Mission Area improvements, which were initiated in 2005 will be completed in 2006. The completion of the Antelope to Okreek transmission main in 2003 alleviated a critical water shortage in the community and will now be used as a source for new distribution lines in an area where available water frequently has high nitrate concentrations.

We have just completed the first phase of upgrades to the water supply to the community of Rosebud, the center of our tribal government. In 2006, we plan to replace many of the corroded cast iron pipelines with modern materials. The older corroded pipe is more prone to breakage, resulting in loss of service, increased operation and maintenance costs and health risks.

In 2006, work will also begin on the Mellette West project. This project is possible because of the recent completion of the Rosebud Core Pipeline and relies entirely on surface water as a source of supply. The service area is one of the driest on the Reservation and the reliable supply of high quality water will now allow people to live on their land for the first time.

Distribution lines and service connections for rural homes and livestock will continue to be a priority. A reliable supply of high quality water allows people to settle

on land that was intended for settlement over 100 years ago. The livestock watering is also critical after so many years of drought. Emergency connections were initiated in the past year and this program is necessary to help maintain the economic viability of Reservation rangeland which provides income and livelihood to both landowners and ranchers.

The costs of operation and maintenance are a concern. The Rosebud Sioux Tribe and particularly the Water and Sewer Commission, take pride in operating an efficient organization that provides high quality water. As our water system has expanded, the O&M burden has also increased, unfortunately, funding for O&M has not kept pace with the needs of the expanding system.

We bring this to the attention of the subcommittee because we fear that while so much has been accomplished through the construction side of the project, if the operation and maintenance of the new facilities is under funded, maintenance will be deferred and the facilities and our people will suffer.

We also request that you reconsider the application of underfinancing to our project. We understand that the use of underfinancing recognizes that, during the course of the year, it is inevitable that some projects and activities will fall behind schedule for a wide variety of reasons. While this may have delayed the expenditure of funds on large irrigation or dam projects, it is not as applicable to the types and sizes of contracts used in our project. The loss of funding through underfinancing extends the completion date of the project even further, which in turn increases the administrative costs.

The project sponsors have taken numerous measures to use appropriations efficiently. We have already mentioned the Mellette east service area where working together, WR/LJ and Rosebud reduced federal expenditures by over $1 million. In the current fiscal year all the sponsors have agreed to "fast track" the completion of Lower Brule at a savings of roughly $1.8 million to the project.

We ask that you give our efforts, both in providing water to our people and in using appropriations wisely, serious consideration this coming year. We appreciate your past and future efforts.

LOWER BRULE RURAL WATER SYSTEM—DISTRIBUTION

The Lower Brule Rural Water System (LBRWS) has gained the support of the other sponsors to complete its share of the project with funds appropriated in the fiscal year 2005 budget. This support is not only a benefit for LBRWS and its users but to the project as a whole. By funding LBRWS in this manner, a savings of approximately $1.8 million will be experienced by the project.

With the funds received in fiscal year 2005, LBRWS will complete the construction of its entire system and provide water to all of the homes on the Lower Brule Indian Reservation. The fiscal year 2005 funds will also allow LBRWS to provide water lines and water to pasture taps. Since the area has been experiencing drought conditions, many of the dams are dry. The provision of water will allow some pastures to be utilized that would have otherwise been of no benefit to the ranchers.

In addition, the fiscal year 2005 funds will allow the completion of a new 400,000 gallon elevated water tank in Lower Brule. The existing tank is in a location where slides (soil movement) have occurred. As a result, the stability of the tank's foundation is in question.

As indicated earlier, the result is that the entire LBRWS has been completely funded by the funds appropriated in fiscal year 2005 and the good graces of the other sponsors. The result is a savings to the project of approximately $1.8 million. This will not end LBRWS's involvement in the project; however, as 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 have and will continue to work with Reclamation to ensure that their budgets are adequate to properly operate, maintain and replace (OMR) respective portions of the overall system. The sponsors will also continue to manage OMR expenses in a manner ensuring that the limited funds can best be balanced between construction and OMR. In fiscal year 2003, the approved budget for OMR was $8.228 million, which was adequate. Funding was not adequate in fiscal year 2004 and fiscal year 2005 at the $6.254 million level and will not be adequate at fiscal year 2006 at $7.053 million, albeit a good improvement.

The project has been treating and delivering more water over the last 2 years 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 main-

tain the functioning system throughout the project has grown. The OMR budget must continue to be adequate to keep pace with the portion of the system that is placed in operation.

The Mni Wiconi Project tribal beneficiaries (as listed below) respectfully request appropriations for OMR fiscal year 2006 in the amount of $8,276,000 as follows:

	Amount
Oglala Sioux Rural Water Supply System:	
Core Facilities (Pipelines and Pumping Stations)	$1,590,000
Distribution System on Pine Ridge	2,851,000
Rosebud Sioux Rural Water System	1,600,000
Lower Brule Sioux Rural Water System	1,104,000
Bureau of Reclamation's internal budget	1,131,000
Total Mni Wiconi Project O&M Request	8,276,000

Be assured that water conservation is an integral part of the OMR of the project. Water conservation not only provides immediate savings from reduced water use and the need for extra production, it also extends the useful life and capacity of the system. Proposed funding at the $7.0 million level is not adequate to perform water conservation or other OMR functions.

PREPARED STATEMENT OF THE LEWIS AND CLARK RURAL WATER SYSTEM

BACKGROUND

The Lewis and Clark Rural Water System is requesting $35 million through the Bureau of Reclamation's Water and Related Resources account for continuing construction activities in 2006. These funds will be used for construction, acquisition of easements and property, engineering, and associated legal and professional costs. The project has completed required planning and environmental reviews, and major construction began in earnest last year. During the last year Lewis and Clark has installed the first two segments of the raw water pipeline (RWP), started construction on the third and final segment of the RWP, awarded a $9.4 million contract for the first segment of the treated water pipeline, and has made steady progress on acquiring the necessary easements and property.

The President's budget requests $15.0 million for Lewis and Clark, which reflects the commitment he continues to demonstrate to the project. While this request is a welcome starting point, $35 million is necessary to fully fund the project this year to ensure construction activities will continue in 2006. Even though we are in the early stages of construction, it is important to keep the project on schedule in order to provide this much-needed water source to area communities as soon as possible.

The Lewis and Clark Rural Water System Act became law in July 2000 (Public Law 106–246). When complete, the project will provide safe, reliable drinking water to approximately 200,000 people in South Dakota, Minnesota, and Iowa. Lewis and Clark represents a unique regional approach by three States to address common problems with area water resources in a more effective and cost-efficient way than each State could do alone. Regional water problems include shallow wells and aquifers prone to contamination and drought, compliance with new Federal drinking water standards, and increasing water demand due to population growth and economic expansion.

The Lewis and Clark project will utilize an aquifer adjacent to the Missouri River near Vermillion, South Dakota, and will distribute water to member communities in an area of approximately 5,000 square miles, roughly the size of Connecticut. When complete, the drinking water will pass through a well system, water treatment plant, and a non-looped distribution system. The system also will include water storage tanks that will provide approximately a 1-day supply. The project will require an estimated additional 10 years to complete.

PLANS FOR CONSTRUCTION IN 2005 AND 2006

Lewis and Clark developed a schedule for construction and related services to be performed during the next 2 years. The following work is anticipated in fiscal year 2005 and fiscal year 2006, subject to the availability of funding.

Projects Planned for Fiscal Year 2005

—*Site J Production Pump Test Well.*—Lewis & Clark currently plans to drill another test production well south and west of Vermillion. The well will be a ±105′

deep vertical well and will be sized to be an actual production well for the project.

—*Raw Water Pipeline—Segments 2 and 3*.—This project is currently under construction and should be completed in summer 2005. This project is located near Vermillion, South Dakota.

—*Treated Water Pipeline—SD Segment 1*.—The Treated Water Pipeline Segment 1 will involve construction of a pipeline from west of Sioux Falls to Tea, South Dakota. This project was recently awarded and construction will begin in late spring 2005. The project will include construction of the main 48″ treated water transmission pipeline for the Lewis & Clark System.

—*Treated Water Pipeline—SD Segments 2 and 3*.—The next phase of the treated water pipeline construction in South Dakota would include construction 11 miles of the main 48″ pipeline from Tea south to Lennox and Highway 18. The plans for this project are currently under review. Lewis & Clark plans to bid and award this project in the summer of 2005.

—*Treated Water Pipeline—SD Segment 5*.—Segment 5 will continue construction of the main 48″ diameter trunk line south from Highway 18 to Highway 46. Segment 5 would include approximately 12 miles of pipe. This segment is currently under design. Lewis & Clark plans to bid and award this project in late summer 2005.

—*Water Treatment Plant Final Design*.—The pre-design has been completed and a Value Engineering review was held in early 2005. Lewis & Clark needs to begin final design of the water treatment shortly in order to start construction of the water treatment plant in the spring of 2008.

Projects Planned for Fiscal Year 2006

Fiscal year 2006 activities will include a continuation of the projects listed above for 2005, plus the following additional system components:

—*Treated Water Pipeline—SD Segment 4*.—Segment 4 includes construction of the pipeline to serve water to Sioux Falls and two other members. Segment 4 includes approximately 6 miles of 36″ diameter pipe in the area immediately west of Sioux Falls. Lewis & Clark would bid and award this project in 2006.

—*Treated Water Pipeline—SD Segments 6 through 8*.—These segments complete the main 48″ transmission pipeline from Highway 46 south to the water treatment plant site (approximately 22 miles). Design and land acquisition will be initiated on these segments. If funds are available, Segment 6 would be advertised for bids in 2006.

—*Treated Water Pipeline—SD Segment 9*.—The route for Segment 9 is immediately south of Sioux Falls and is rapidly being developed. It is imperative for Lewis & Clark to begin design and start acquisition of easements for this critical project component. Construction would probably not be commenced until 2007, or later.

—*(Under Consideration) Treated Water Pipeline—IA Segment 1 (Iowa Emergency Connection)*.—The first phase of the Iowa Emergency Connection will involve a pipeline from the Sioux Center water treatment plant to Hull, Iowa. The project will include construction of the main treated water transmission pipeline for the Lewis & Clark System and service connection lines for Sioux Center and Hull. Lewis & Clark will be acquisition of easements. Currently, no date for construction has been established.

—*(Under Consideration) Treated Water Pipeline—IA Segment 3 (Iowa Emergency Connection)*.—The next phase of the Iowa Emergency Connection may include building a short section of Lewis & Clark pipeline to connect Sheldon, Iowa to a temporary source of water. If pursued, Lewis & Clark could bid and award this project in summer of 2006.

PREPARED STATEMENT OF THE PAJARO VALLEY WATER MANAGEMENT AGENCY (PVWMA)

On behalf of the City of Watsonville and the Pajaro Valley Water Management Agency (PVWMA), we are submitting this testimony in support of Federal funding for the Watsonville Area Water Recycling Project. The project has been targeted to receive $2.5 million as part of the fiscal year 2003, fiscal year 2004, and 2005 Energy and Water appropriations bills through the Bureau of Reclamation's Title XVI program. This year, we respectfully request your support for the inclusion of $3.0 million in the Bureau of Reclamation's Title XVI program in the fiscal year 2006 Energy and Water Development Appropriations bill.

The City of Watsonville and the PVWMA continue to make great progress on the project. We are working diligently with the Bureau of Reclamation to develop solutions to the seawater intrusion problem affecting the water supply of our agricultural and urban water users. We need not convince you of the vital nature of this project that will protect the Pajaro Valley's fresh water supply from continued degradation.

To address the water resource needs of our area, PVWMA is implementing the Revised Basin Management Plan Project (project). Capital costs of the project are estimated at $165 million, of which $80 million is eligible for Federal cost sharing under the Title XVI program (in 2006 dollars). The Watsonville Area Water Recycling Project components that have qualified for funding through the Title XVI program include:

—Recycled Water Treatment Facility;

—Distribution System; and,

—Salinity Control Pipeline.

The next several years will be critical for the project and we anticipate that construction of the Recycled Water Treatment Facility and portions of the Distribution System will be completed in fiscal year 2007 and remaining facilities by fiscal year 2011. The Bureau of Reclamation certified the Watsonville Area Water Recycling Project Feasibility Study pursuant to the Bureau's Title XVI program in 2004 and then certified the Record of Decision on the Basin Management Plan Environmental Impact Statement on September 10, 2004. With the passage of these two milestones, all necessary Federal approvals for the project to proceed have been secured.

The following table summarizes projected expenditures for design and construction of the Title XVI eligible project components.

[In millions of dollars]

Fiscal Year	Projected Expenditures
2004	[1] $5.4
2005	10.1
2006	11.9
2007	8.5
2008	0.1
2009	20.2
2010	23.8
Total	80.0

[1] Actual.

We continue to be concerned by the administration's lack of support for Title XVI projects including the Watsonville Area Water Recycling Project. The Bureau's fiscal year 2006 budget recently submitted to Congress includes no funding for our project. We strongly believe that the Title XVI program in general and the Watsonville Area Water Recycling Project specifically offer effective solutions to the water supply crisis in our State. Indeed, without the Title XVI program, water recycling in our area might not be feasible and would force increased reliance on an already oversubscribed Central Valley Project. We question the wisdom of reducing the Bureau's participation in Title XVI and ask that you work with your colleagues in support of the program as well as funding for the Watsonville Area Water Recycling Project.

We are excited to report that the project is moving ahead on schedule. Approximately $18 million of project components have been constructed through fiscal year 2004. The accelerated construction of these project components allows PVWMA to deliver water early and demonstrate continued progress. In fiscal year 2004, we initiated work on the final design of the distribution system, the recycled water facilities, blending facilities and water wells, and salinity control pipeline. The design for each component will be completed in early fiscal year 2005 and construction of the projects will commence immediately thereafter.

Once again, thank you for all of your work thus far. We further wish to thank you for making your staff available to us to answer questions and to provide guidance.

Please feel free to contact PVWMA's Washington Representative or us if you have any questions or require additional information.

PREPARED STATEMENT OF THE RED RIVER VALLEY ASSOCIATION

BUREAU OF RECLAMATION

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.

The Resolutions contained herein were adopted by the Association during its 80th Annual Meeting in Bossier City, Louisiana on February 24, 2005, and represent the combined concerns of the citizens of the Red River Basin Area as they pertain to the goals of the Association.

Our western rivers played a very important part in the development and economic success of the States west of the Mississippi River. An agency responsible for the development of those water resources has been the Bureau of Reclamation. In our four-State region they have been most active in Oklahoma.

I would like to comment on two specific requests for the future economic well being of the citizens residing in the Red River Valley region in Oklahoma. We support the following two studies and request that the Bureau of Reclamation be funded at their full fiscal year 2006 capability.

North Fork of the Red River, OK, Investigation Study.—The W.C. Austin (Altus Lake and Dam) Project in southwestern Oklahoma, is authorized to provide water for irrigation to approximately 48,000 acres of privately owned land in southwestern Oklahoma; control flooding on the North Fork of the Red River and augment municipal water supply for the City of Altus. Secondary benefits include fish and wildlife conservation and recreation opportunities. Project features include Altus Dam, four canals, a 221-mile lateral distribution system and 26 miles of drains. The Lugert-Altus Irrigation District (LAID) is responsible for operation and maintenance of the project.

Water demand in the District and region is growing which, in turn, is reducing future water availability and economic development opportunities. This proposed investigation would: (1) develop a hydrologic model of the NFRR watershed; and (2) evaluate opportunities for augmenting water availability in the project region.

We support a 3-year comprehensive evaluation of water resources in the North Fork of the Red River in Oklahoma for a total study cost of $670,000. We sincerely appreciate your support in past appropriations.

An allocation of $150,000 is requested for the fiscal year 2006 appropriations.

Arbuckle-Simpson Aquifer Study.—The Arbuckle-Simpson Aquifer has been designated a sole source aquifer by EPA and a large number of Oklahomans depend on its protection for their health and economic future. This is an important source of water supply for: the citizens of Ada, Sulphur, Mill Creek and Roff; the Chickasaw National Recreational Area; Chickasaw and Choctaw Tribal members; and many farmers and ranchers owning land overlying the basin. Contributions from the aquifer also provide the perennial flow for many streams and natural springs in the area. The Arbuckle-Simpson Aquifer underlines approximately 500 square miles of south-central Oklahoma.

During recent years, a number of issues have emerged which have caused concerns about the utilization and continued health of the aquifer. These concerns include issues over water use, exportation of water out of the area, impacts of groundwater development on the flows in the significant springs and rivers, and competition for water and water quality.

In order to assure the future well-being of the aquifer we support a 5-year study to include detailed assessments of: the formation's hydrogeology, water quality and vulnerability; groundwater-surface water interactions; land use changes and related impacts; Tribal-State water rights; and overall management of the resources. The initial estimates put the total study cost at $2.7 million; however, due to its complexity and new issues concerning Chickasaw and Choctaw Tribal interest, a better cost estimate will be known after the second year of the study. We appreciate your support of this study by funding the first 2 years of the study.

We request $1,500,000 be appropriated for fiscal year 2006 and support that the study be cost shared, 90 percent Federal and 10 percent State/local funds.

The Red River Valley Association understands these are difficult times with our Nation's budget, so we appreciate your support for these studies in fiscal year 2005. We feel they are extremely important to the welfare of the citizens in Oklahoma and request that you again support these studies in fiscal year 2006.

We are always available to provide additional information and answer whatever questions you may have. All comments should be directed to our Executive Director.

PREPARED STATEMENT OF THE DESCHUTES RIVER CONSERVANCY

As Chairman of the Deschutes River Conservancy (DRC) it is my pleasure to convey to the subcommittee the DRC Board's strong support for the $2 million funding request for fiscal year 2006 for the Deschutes Ecosystem Restoration Project (under the Bureau of Reclamation), sponsored by Congressman Walden. The Deschutes River Conservancy (DRC), is a non-profit, private corporation established in Oregon in 1996. In September 1996, Congress enacted and the President signed Public Law 104–208, which included S. 1662, the Oregon Resources Conservation Act establishing the DRC (then known as the Deschutes Basin Working Group under Section 301(h) (Division B, Title III)). In 2000 Congress reauthorized the DRC through Public Law 106–270, the Deschutes Resources Conservancy Reauthorization Act of 2000 which authorized $2.0 million per year on a matching basis through fiscal year 2006. The DRC is limited to spending 5 percent of any appropriation on administration.

NEEDS AND ACCOMPLISHMENTS

In fiscal year 2005, Congress appropriated $443,000 to the Bureau of Reclamation to support the DRC. These funds (as well as past appropriations) have enabled the DRC to make great strides in pursuing its mission of improving the quantity and quality of stream flows in the Deschutes Basin (see Appendix 1 for background on the DRC). Federal and matching funds have resulted in the following accomplishments:

Water Quality

—108,518 trees planted in riparian areas
—16.1 miles of streambank planted
—38.6 miles of riparian fencing
—8 push-up dam removals
—47 off-site watering facilities
—7,450 feet of channel restored
—4.5 acres of new wetlands
—14,535 feet of terracing
—55 sediment control basins
—23,283 acres of no-till farming

Water Quantity

—5,892 acre-feet (13.9 cfs) of conserved water pending transfer
—1 point of diversion switch (1 cfs)
—2 direct acquisitions (2.81 cfs)
—82,909 feet of canal piping
—1,460 feet of ditch piping

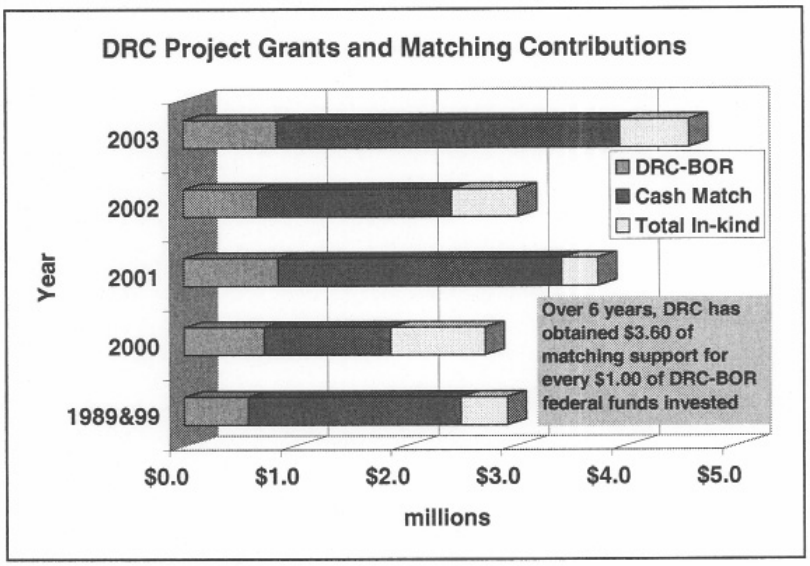
These projects have helped the DRC to attain significant improvements in streamflow and water quality in key basin streams. This past August, below irrigation district diversions Squaw Creek flowed at 5 cubic feet per second (cfs) and Tumalo Creek at 10 cfs—where in years past before the DRC took up its collaborative approach with water users these creeks would have run dry in the summer months. In Squaw Creek our pending canal piping projects will yield an additional 4.5 cfs. In other words, in our two highest priority reaches the DRC has already reached halfway to flow restoration targets of 20 cfs. Our planning efforts in Squaw Creek project that in another 5 years we can reach our goal—provided we can leverage the $5 million in funds required to do the job.

In the Middle Deschutes the DRC has a much larger task—with a flow target of 250 cfs estimated to cost $80 million over 20 years—but we are making great headway. This past summer flows in the Middle Deschutes were 60 cfs due to our leasing program, effectively doubling flows over the 30 cfs voluntarily provided by local irrigation districts. As it was the 1913 reservation of water rights by the Federal Government (which later went to the Bureau's Deschutes Project) that led to the overallocation of natural flow in the Deschutes and the low flows in the winter in the Upper Deschutes (for project storage) and in the summer in the Middle Deschutes (for irrigation withdrawals).

The DRC is a unique experiment in fostering a cooperative approach to the past history of water resource development in the West and avoiding the conflict usually associated with endangered species recovery and water quality problems. In an editorial published recently our local newspaper the Bend Bulletin suggested that our progress to date in accomplishing our mission is akin to "magic" given its difficult nature and the obstacles that we must overcome. However, we believe that our mission is achievable. By acting as a catalyst and bringing together interested partners

the DRC is helping build a shared vision for basin-wide restoration that is responsive to economic and social needs of local communities.

The strong foundation for collaborative work in the Deschutes Basin creates a unique opportunity to demonstrate on-the-ground results from innovative voluntary, market-based water resources management. A key strength of this endeavor is the high degree of cost-sharing between interested parties. As shown below past Bureau funds appropriated for the Deschutes Ecosystem Restoration Project have been leveraged over three-to-one with non-Federal and in-kind contributions. The DRC has, and will continue to, make every effort to access local and State funding sources. Given the magnitude of the task, however, we very much rely on our Federal appropriations as the core of our support base. Nor are our needs diminishing. Rather as we move forward, the projects and funding needs grow in size as our partners grow increasingly comfortable and confident about tackling larger projects with us. Short summaries of specific projects proposed to our Congressional delegation for funding in fiscal year 2005 are included in Appendix 2.



In sum, our past accomplishments and current and future projects are critical to ensuring a healthy future for the Deschutes watershed. Appropriations are critical to underpin DRC efforts to demonstrate that a pro-active, cooperative approach to meeting agricultural, municipal and instream water needs can succeed in the American West.

APPENDIX 1.—BACKGROUND ON THE DRC

The DRC is a partnership initiated by the Environmental Defense Fund (EDF), the Confederated Tribes of the Warm Springs Reservation and local irrigation districts. DRC founders recognized the need for a private organization with ecosystem-determined goals and methods based on positive incentives, consensus, and local governance. Since approximately half of the Basin's land area is managed by Federal agencies it was clear that such a private organization would need the capacity to partner on projects with the Federal agencies to be truly ecosystem and basin-wide in scope. In March, 1996, Senator Hatfield introduced S. 1662 authorizing Federal agencies to work with this private organization, known as the Deschutes Basin Working Group. Title III of the Oregon Resource Conservation Act of 1996, signed by the President in September, 1996, authorizes the following:

—Federal agencies to work with the private Deschutes Basin Working Group, dba Deschutes River Conservancy (DRC);

—Secretaries of Interior & Agriculture to appoint DRC board members for 3 year terms;

—Federal participation with DRC in ecological restoration projects on Federal and non-Federal land and water with 50–50 cost share; and,

—Emphasize voluntary market-based economic incentives.

The DRC mission is to restore streamflow and improve water quality in the basin through on-the-ground projects that enhance the quality of the region's natural resources and add value to its economy.

The DRC board consists of nine members from the Basin's private sector; hydropower, livestock grazing, recreation/tourism, timber, land development, irrigation (two), environmental (two), and two members from the Confederated Tribes of the Warm Springs Reservation. In addition to the private board members there are two board members appointed from the Departments of Interior and Agriculture, two board members representing the State of Oregon, and four members representing local governments within the Deschutes Basin.

APPENDIX 2.—FISCAL YEAR 2005 PROJECT SUMMARIES

RIPARIAN RESTORATION PROGRAM

Tailwater Wetlands Program.—$100,000

DRC will help the North Unit Irrigation District develop a tailwater wetlands management program to treat potentially nutrient rich tailwater flows before they return to local tributaries in Jefferson County. These tributaries suffer from a host of water quality issues including high stream temperatures, elevated nutrient levels, and low dissolved oxygen. Total costs of developing and initiating the program will be $200,000 with half coming from DRC Federal funds.

Stream Restoration in Partnership with Working Ranches.—$125,000

The DRC will work with local watershed councils and soil and water conservation districts to provide technical and financial assistance to private landowners who wish to restore their lands. Restoration activities will include the implementation of grazing best management practices, streambank rehabilitation, stream channel restoration, and wetland restoration. Total costs of the restoration activities will be $250,000 with half coming from DRC Federal funds.

Riparian Revegetation Program.—$140,000

The DRC will continue its work with riparian landowners on revegetation of streamside areas with native species in order to provide shade, buffering and other water quality benefits. Enrolling 350 acres in the program will cost $280,000 with half coming from DRC Federal funds.

Deschutes Wetlands Initiative.—$150,000

DRC will work with the Deschutes Basin Land Trust and other local partners to acquire and restore significant wetland habitats. Wetlands are rare in the Deschutes Basin but play an important role in naturally regulating streamflow, maintaining water quality, and providing important fish and wildlife habitat. Total costs of developing and initiating the program will be $300,000 with half coming from DRC Federal funds.

WATER ACQUISITIONS PROGRAM

Deschutes Water Alliance (DWA) Revolving Conservation Fund.—$320,000

The DRC is initiating a revolving fund for financing of small- to medium-sized water conservation projects as part of the DWA. In fiscal year 2006 projects include the piping of a number of laterals in the Central Oregon, Swalley and Tumalo irrigation districts. These projects will return 3 cfs to the Middle Deschutes and Tumalo Creek. Initial capitalization of the fund is set at $700,000. The DRC Federal funds contribution in fiscal year 2006 is $320,000.

District Main Canal Piping and Lining Partnerships.—$1,000,000

Irrigation districts in the Deschutes Basin manage 95 percent of water diverted from streams and rivers and with the help of DRC are willing to aggressively pursue large water conservation projects on their main canals such as lining and piping. The DRC is working with the North Unit Irrigation District (Main Canal Lining), Central Oregon Irrigation District (Pilot Butte Main Canal Piping), Swalley Irrigation District (Main Canal Piping), and Tumalo Irrigation District (Tumalo Feed Canal Piping) and Three Sisters Irrigation District (McKenzie and Main Canal Piping) to establish a prioritized list of large, phased conservation projects that will make significant improvements to irrigation district management of water and restore streamflows in the Deschutes River and its tributaries. With over $50 million

in projects already identified the DRC is targeting $4 million in investments in fiscal year 2006 with $1 million coming from DRC Federal funds.

Water Leasing Program.—$50,000

The DRC's highly successful water leasing program is projected to return 100 cfs instream in fiscal year 2006, representing a 10 percent gain over fiscal year 2005. The leasing program provides an inexpensive and flexible way to rapidly improve instream flows and educate the public and water right holders about flow restoration. The DRC-BOR contribution will be $75,000 of a $150,000 cash project that also features a considerable in-kind contribution by water rightholders.

DWA Water Reserves and Transfers Program.—$300,000

Working with Swalley and Central Oregon Irrigation District, and the City of Bend, the DRC is building agricultural reserves and acquiring surplus water rights for instream protection. In fiscal year 2006, the second year of the program, outputs are expected to grow by 50 percent as the Alliance acquires 300 acres of reserves from urbanizing areas in Deschutes County. Total costs of the program are $900,000 with $300,000 coming from DRC Federal funds.

Three Sisters Irrigation District Water Exchange.—$50,000

The DRC is partnering with the Three Sisters Irrigation District on an innovative surface to ground water switch through Oregon's water exchange provision. Temporary seasonal substitution of groundwater in place of diverted surface water will allow the DRC and TSID to keep Squaw Creek flowing at its State-mandated minimum of 20 cfs throughout the critical summer months, representing a gain of up to 15 cfs and helping irrigators to avoid future regulation as ESA listed steelhead trout are reintroduced to the creek, which originally provided the majority of steelhead habitat in the Upper Deschutes Basin. A project of between $400,000 and $600,000 is expected depending on the length of the operational contract and the resulting energy costs. Of this total $50,000 is expected from DRC Federal funds.

Instream Flow Acquisitions.—$250,000

DRC will work on a number of high priority water transactions that will help address water quality and streamflow deficiencies in critical stream reaches for the recovery of listed species (steelhead and bull trout). The DRC is working with individual water right holders in Squaw Creek, and owners of urbanizing land and districts that are downsizing in the Middle Deschutes to find willing sellers. The total cost of the acquisitions is $500,000 with the DRC Federal funds covering half of this amount.

The Non-Federal to Federal match on these projects is estimated at over 2:1.

PREPARED STATEMENT OF DENVER WATER

I am requesting your support and assistance in insuring continued funding for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program. These ongoing cooperative programs have the dual objectives of recovering four species of endangered fish while water use continues and water development proceeds in compliance with the Endangered Species Act of 1973, State law, and interstate compacts. Partners in the two programs are the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. I respectfully request support and action by the subcommittee that will provide the following:

—An increase of $691,000 in the fiscal year 2006 Recovery Element budget (Resource Management Appropriation; Ecological Services Activity; Endangered Species Subactivity; Recovery Element) allocated to "Colorado River fish recovery project" to allow U.S. Fish and Wildlife Service (FWS) Region 6 to meet its funding commitment to the Upper Colorado River Endangered Fish Recovery Program. This is the level of funding appropriated in fiscal years 2003, 2004 and 2005 for this program. These funds are needed for FWS direct participation in managing and implementing the Upper Colorado Program's actions, monitoring achievement of recovery goals, managing data associated with fish population abundance and sampling, evaluating stocking, and monitoring fish and habitat response to recovery actions.

—The appropriation of $437,000 in operation and maintenance funds (Resource Management Appropriation; Fisheries Activity; Hatchery Operations & Maintenance Subactivity, Hatchery Operations Project) to support the ongoing operation of the FWS' Ouray National Fish Hatchery in Utah during fiscal year 2006.

—An increase of $211,000 in the "Resource Management Appropriation; Ecological Services Activity; Endangered Species Subactivity; Recovery Element" budget allocated to the "San Juan River Recovery Implementation Program". These funds are needed to support the FWS Recovery Program Coordinator and staff who are responsible for program management and support of all Recovery Program activities.

The enactment of Public Law 106–392, as amended by Public Law 107–375, authorized the Federal Government to provide up to $46 million of cost sharing for these two ongoing recovery programs' remaining capital construction projects. Raising and stocking of the endangered fish produced at program hatchery facilities, restoring floodplain habitat and fish passage, regulating and supplying instream habitat flows, installing diversion canal screens and controlling nonnative fish populations are key components of the programs' ongoing capital construction projects. Subsection 3(c) of Public Law 106–392 authorizes the Secretary of the Interior to accept up to $17 million of contributed funds from Colorado, Wyoming, Utah and New Mexico, and to expend such contributed funds as if appropriated for these projects; and provides for an additional $17 million to be contributed from revenues derived from the sale of Colorado River Storage Project (CRSP) hydroelectric power. This substantial non-Federal cost-sharing funding demonstrates the strong commitment and effective partnerships embodied in both of these successful programs. The requested Federal appropriations are critically important to these efforts moving forward.

The support of your subcommittee in past years is greatly appreciated—and has been a major factor in the success of these multi-State, multi-agency programs as they have progressed forward towards delisting the endangered fish species in the Upper Colorado and San Juan River Basins while necessary water use and development activities are occurring. I request the subcommittee's assistance to ensure that the FWS is provided with adequate funding for these vitally important programs.

PREPARED STATEMENT OF THE UPPER GUNNISON RIVER WATER CONSERVANCY DISTRICT

I am requesting your support for an appropriation in fiscal year 2006 of $2,529,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The President's recommended budget for fiscal year 2006 includes this line-item amount. The funding designation we seek is as follows: $1,401,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; $572,000 for the San Juan River Basin Recovery Implementation Program and $556,000 for Fish and Wildlife Management and Development.

These highly successful, cooperative programs are ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. The programs' objectives are to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act. These recovery programs have become national models for collaboratively working to recover endangered species while addressing water needs to support growing western communities in the Upper Colorado River Basin region of the Intermountain West. Since 1988, these programs have facilitated ESA Section 7 consultation (without litigation) for over 800 Federal, tribal, State and privately managed water projects depleting approximately 2.5 million acre-feet of water per year.

The requested fiscal year 2006 appropriation will allow the Upper Colorado River Endangered Fish Program to proceed with construction of additional fish passage structures on the Green and Colorado Rivers to provide access to historic habitat upstream of existing diversion dams. The requested funding for the San Juan River Recovery Program will be used for contracts for construction and cooperative agreements with the State of New Mexico to provide and protect instream flows, fish ladders, flooded bottom land restoration, propagation facilities, stocking efforts, nonnative and sportfish management activities.

The enactment of Public Law 106–392, as amended by Public Law 107–375, authorized the Federal Government to provide up to $46 million of cost sharing for these two ongoing recovery programs' remaining capital construction projects. Raising and stocking of the endangered fish produced at program hatchery facilities, restoring floodplain habitat and fish passage, regulating and supplying instream habitat flows, installing diversion canal screens and controlling nonnative fish populations are key components of the programs' ongoing capital construction projects. Subsection 3(c) of Public Law 106–392 authorizes the Secretary of the Interior to

accept up to $17 million of contributed funds from Colorado, Wyoming, Utah and New Mexico, to expend such contributed funds as if appropriated for these projects; and provides for an additional $17 million to be contributed from revenues derived from the sale of Colorado River Storage Project (CRSP) hydroelectric power. This substantial non-Federal cost-sharing funding demonstrates the strong commitment and effective partnerships embodied in both of these successful programs. The requested Federal appropriations are critically important to these efforts moving forward.

The past support and assistance of your subcommittee has greatly facilitated the success of these multi-State, multi-agency programs. I thank you for that support and request the subcommittee's assistance for fiscal year 2006 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE GRAND VALLEY WATER USERS ASSOCIATION

I am requesting your support for an appropriation in fiscal year 2006 of $2,529,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The President's recommended budget for fiscal year 2006 includes this line-item amount. The funding designation we seek is as follows: $1,401,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; $572,000 for the San Juan River Basin Recovery Implementation Program and $556,000 for Fish and Wildlife Management and Development.

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PREPARED STATEMENT OF FOUR CORNERS POWER PLANT

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PREPARED STATEMENT OF THE NORTHERN COLORADO WATER CONSERVANCY DISTRICT

I am requesting your support for an appropriation in fiscal year 2006 of $2,529,000 to the U.S. Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The President's recommended budget for fiscal year 2006 includes this line-item amount. The funding designation we seek is as follows: $1,401,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; $572,000 for the San Juan River Basin Recovery Implementation Program; and $556,000 for Fish and Wildlife Management and Development.

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Colorado River Basin region of the Intermountain West. Since 1988, these programs have facilitated ESA Section 7 consultation (without litigation) for over 800 Federal, tribal, State and privately managed water projects depleting approximately 2.5 million acre feet of water per year.

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PREPARED STATEMENT OF THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

The Metropolitan Water District of Southern California supports the efforts of the Central Arizona Water Conservation District whose leaders have been working with the Bureau of Reclamation to re-instate the operation of the Yuma Desalting Plant in Arizona, as authorized under Title I of the 1974 Salinity Control Act.

As you are keenly aware, the western portion of the United States has been experiencing record drought conditions for more than 5 years. The drought has forced water managers to explore new ways of making existing supplies go further. However, efforts to ready the Yuma Desalting Plant for operations have not received sufficient attention. In the Conference Report accompanying the fiscal year 2004 Energy and Water Development Appropriations bill, Congress expressed its concern regarding excess water releases from storage in Colorado River reservoirs as they relate to the desalting plant and to meeting water delivery requirements under a 1944 treaty with Mexico. Part of the solution to meeting the treaty responsibilities was the construction and operation of a desalting plant near Yuma, Arizona to treat drainage flows before returning them to Mexico.

Yet, the plant has never been fully operational, and since the mid-1990's, has been essentially idle receiving only minimal standby maintenance in contravention of the clear directions of Congress to maintain the plant in a condition that would allow operation at one-third capacity within 1 year. It is estimated that operation of the Yuma Desalting Plant would conserve an estimated 100,000 acre-feet of Colorado River water annually. This is enough water to provide for the annual needs of more than half a million people.

We believe that putting the Yuma Desalter into operational status would be consistent with other efforts now being pursued by all seven basin States to find ways to conserve water delivered by the Colorado River. The Yuma Desalter can also be operated in conjunction or in coordination with other water supply and river management programs to provide additional water supply and environment benefits. Accordingly, Metropolitan supports the Arizona Congressional Delegation request to have the Bureau of Reclamation begin the process of bringing the Yuma Desalting Plant back into operation as contemplated. This would help recapture a significant amount of water that is now otherwise lost annually. We request that language be

included in the fiscal year 2005 Energy and Water Development Appropriation bill directing Reclamation to take the necessary steps to bring the Yuma Desalting Plant into operation at no less than one-third capacity by the end of fiscal year 2006. We believe that Reclamation's budget is sufficient to accomplish this goal.

We at Metropolitan look forward to working constructively with your committee to address drought in the West. If you need any additional information, or if we can answer any questions, I hope you will feel free to contact me personally or through Metropolitan's Washington, DC Representative.

PREPARED STATEMENT OF THE SANTA CLARA VALLEY WATER DISTRICT

CALFED BAY-DELTA PROGRAM, SANTA CLARA COUNTY, CALIFORNIA

SUMMARY

This statement urges the committee's support of the administration budget request of $35 million and an appropriation add-on of $65 million, for a total of $100 million for California Bay-Delta Restoration.

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 recent passage of H.R. 2828 reauthorizes Federal participation in the CALFED Bay-Delta Program and provides $389 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 authorized 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 2005 Funding.—$7.5 million was appropriated for CALFED activities under the various units of the Central Valley Project in fiscal year 2005.

Fiscal Year 2006 Funding Recommendation.—It is requested that the committee support an appropriation add-on of $65 million, in addition to the $35 million in the administration's fiscal year 2006 budget request, for a total of $100 million for California Bay-Delta Restoration.

SAN JOSE AREA WATER RECLAMATION AND REUSE PROGRAM (SOUTH BAY WATER RECYCLING PROGRAM), SANTA CLARA COUNTY, CALIFORNIA

SUMMARY

This statement urges the committee's support for an administration budget request of $300,000 and an appropriation add-on of $2.7 million, for a total of $3 million to fund the program's work.

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 470 customers and delivers over 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 $28.25 million of the $35 million authorization.

Fiscal Year 2005 Funding.—$1.75 million was appropriated in fiscal year 2005.

Fiscal Year 2006 Funding Recommendation.—It is requested that the congressional committee support an appropriation add-on of $2.7 million, in addition to the $300,000 in the administration's fiscal year 2006 budget request, for a total of $3 million to fund the Program's work.

SAN LUIS RESERVOIR LOW POINT IMPROVEMENT PROJECT, SANTA CLARA COUNTY, CALIFORNIA

SUMMARY

This statement urges the committee's support an appropriation of $10 million to initiate the studies. This request is included in the $100 million CALFED Bay-Delta Program appropriation request.

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:

—Increase the operational flexibility of San Luis Reservoir by increasing the effective storage.

—Ensure that San Felipe Division contractors are able to manage their annual Central Valley Project contract allocation to meet their water supply and water quality commitments.

—Provide opportunities for project-related environmental improvements.

—Provide opportunities for other project-related improvements.

Preliminary studies by the District have identified six potential alternatives to solve the problem. More funding is needed to fully explore these alternatives.

The recent passage of H.R. 2828 reauthorizes Federal participation in the CALFED Bay-Delta Program. The San Luis Reservoir Low Point Improvement Project is 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 2005 Funding.—No appropriation was requested in fiscal year 2005.

Fiscal Year 2006 Funding Recommendation.—It is requested that the committee support an appropriation of $10 million for the San Luis Reservoir Low Point Improvement Project. The San Luis request is included in the $100 million CALFED Bay-Delta appropriation request.

PREPARED STATEMENT OF THE COLORADO RIVER COMMISSION OF NEVADA

Subject.—Support for Fiscal Year 2006 Federal Funding of $17.5 million for the Department of the Interior—Bureau of Reclamation's Basinwide Salinity Control Program.

As a Nevada representative of the Colorado River Basin Salinity Control Forum, the Colorado River Commission of Nevada has adopted a position supporting funding the fiscal year 2006 budget request for $17,500,000 for the Bureau of Reclamation's Colorado River Basin Salinity Control 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 for 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 COLORADO RIVER WATER CONSERVATION DISTRICT

I respectfully request your support for an appropriation in fiscal year 2006 of $2,529,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The President's recommended budget for fiscal year 2006 includes this line-item amount.

The funding designation we seek is as follows:

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The past support and assistance of your subcommittee has greatly facilitated the success of these multi-State, multi-agency programs. I thank you for that support and request the subcommittee's assistance for fiscal year 2006 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

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 Subcommittee, regarding the fiscal year 2006 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 2006 Budget request for the Bureau of Reclamation's programs Westwide. The administration's current budget proposal is approximately $200 million less than what we in the water community feel is necessary to carryout an effective 21st Century water program for the West.

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. This is why we support the Western Water Initiative of the Bureau of Reclamation and

the $30 million request for the Water 2025 program, an important program to assist during this time of crises.

OREGON NEEDS

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.

Oregon districts hope to continue this work through enhanced conservation, but to do that the districts need support to implement effective alternative programs such as pilot water banking projects (Klamath Basin and the Deschutes Basin), energy reduction programs, additional measurement and telemetry monitoring, etc.

While some of these districts will continue to benefit from the funding requested in the fiscal year 2006, 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 requesting $1 million to fund the Bear Creek and Little Butte Optimization Study by the Bureau of Reclamation. That study will propose a plan to conserve water throughout the basin by lining and piping canals within the districts, considering the potential for raising Howard Prairie Dam and the feasibility of other conservation options.

The Grants Pass Irrigation District (GPID) continues to address the eventual removal of the Savage Rapids Dam. The $1 million in the fiscal year 2006 Budget is an important continuation of the effort to address the agreements made in this area. However, that request is not adequate for the work schedule. OWRC supports the GPID request for $8 million in fiscal year 2006 for the Bureau of Reclamation to complete design, engineering, and installation of electric pumps to replace the Savage Rapids Dam.

DESCHUTES BASIN

Tumalo Irrigation District

Deschutes River Conservancy

Ochoco Irrigation District

The Tumalo Irrigation District is currently working on new program and project authorizations and does not have a funding request at this time.

The Deschutes River Conservancy is also currently working on new program and project authorizations and is seeking an appropriation of $2 million dollars for fiscal year 2006.

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. Approximately $200,000 in additional dollars is required to finish the project. Reclamation earlier invested $500,000 in the process, which has not been completed.

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 exchanging Umatilla River water for Columbia River water to benefit fisheries resources. Phase III is the final component of the Project and will have the largest impact to the basin. The districts recognize the need to move forward with Phase III of the project and support the $200,000 in the fiscal year 2006 Budget.

OWRC supports the fiscal year 2006 request of $250,000 by the East Valley Water District for an evaluation of the potential to deliver irrigation water to lands within the district so as to relieve pressure on local groundwater supplies.

OWRC also supports the funding request of $500,000 by the East Fork Irrigation District for their Central Canal Upgrade/Neal Creek Inverted Siphon so the District can restore upstream and downstream passage of juvenile and adult anadromous and resident fish in Neal Creek, including threatened steelhead; and end the transport of glacial silt into Neal Creek and the District's canal system and reduce long-term O&M costs.

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 2006 Oregon Investigations program request that contains $450,000 to continue studies for these basins as well as several other basins in the State.

KLAMATH BASIN

The Klamath Project districts continue to require support of their Water Resource Initiatives, Water Conservation Plan work and ongoing operations planning and other projects within Reclamation's budget for the Mid-Pacific Division. 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.

OREGON WATER SUPPLY INVESTIGATIONS

In addition, we support the State of Oregon request for an additional $450,000 for 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 request 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.

Thank you for the opportunity to provide testimony regarding the fiscal year 2006 Federal 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.

PREPARED STATEMENT OF THE WESTERN COALITION OF ARID STATES (WESTCAS)

The Western Coalition of Arid States (WESTCAS) is submitting this testimony to the United States Senate Appropriations Committee, Energy and Water Subcommittee regarding the Bureau of Reclamation's (BOR) fiscal year 2006 Federal budget. BOR's budget is of particular concern for our members since its mission regarding water directly affects the members of our organization.

WESTCAS is an organization created in 1992 with coalition membership of approximately 125 water and wastewater districts, cities and towns, and professional associates focused on water quality issues in many western States.

WESTCAS is concerned about the overall budget reduction for BOR and its affect on certain programs. The President's fiscal year 2006 request for the Bureau of Reclamation at $946.7 million is $18.2 million less than the fiscal year 2005 enacted level of $964.9 million. Of greatest concern is the $50 million in the water and related resources (construction) account of the Bureau. The greatest reductions were seen in the Middle Rio Grande, Central Arizona and Title XVI projects.

This is despite sizable increases in the Safety of Dams, Site Security, Water 2025 and the newly reauthorized Bay-Delta Eco-System Restoration programs. WESTCAS appreciates the sizable increases, and would ask the committee to provide even greater funding in this account.

Our organization believes the Title XVI program warrants higher appropriations. There is approximately $600,000,000 in backlogged projects for Title XVI at this time. These projects are one of the most cost effective ways of developing and providing water in the West. We believe that a minimum annual appropriation of $50,000,000 for Title XVI should ensue beginning in fiscal year 2006.

WESTCAS believes that some consideration should be given to an annual authorization for appropriations similar to the Corps of Engineers 1135 program, where funds are authorized every fiscal year in a set amount and project sponsors are eligible to get an appropriation from that authorized amount of money. This would serve to reduce the number of congressional "write-ins" which reflect negatively on the Title XVI program. To facilitate that authorization program, WESTCAS requests the committee ask the Secretary of Interior to look into the possibility of restructuring Title XVI.

The Lower Colorado River is in need of additional off-stream storage below Hoover Dam to respond to the ongoing drought. A letter recently sent from the governors' representatives of the seven Colorado River Basin States to the region's 14 Senators urged their support for $30 million in fiscal year 2006 for regulatory storage and an additional $7.6 million for sediment removal to improve the capacity at Laguna Dam, in order to save up to 200,000 acre-feet of water annually. These projects will better enable the Colorado River managers to regulate flows, and also will promote enhanced conservation, storage, delivery, and water quality. This funding for increased Lower Colorado River Regulatory Storage should not adversely affect funding for any of the Bureau of Reclamation's authorized projects or funding for Reclamation's water operations, environmental, endangered species recovery, and salinity control programs. WESTCAS supports the Seven Basin States' fiscal year 2006 requests (totaling $37.6 million) for Lower Colorado River storage improvements.

WESTCAS supports the continued funding of the Federal portions of the Colorado River Salinity Control Program. Since the Colorado River is a major source of water supply in the arid West, maintaining the salinity in the river at acceptable levels is critical for the economic, recreational, and environmental uses of the river. WESTCAS urges the committee to continue to fund this vital program.

We thank you for the opportunity to provide this statement for the hearing record.

PREPARED STATEMENT OF THE PUBLIC SERVICE COMPANY OF NEW MEXICO

I am requesting your support for an appropriation in fiscal year 2006 of $2,529,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The President's recommended budget for fiscal year 2006 includes this line-item amount. The funding designation we seek is as follows: $1,401,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; $572,000 for the San Juan River Basin Recovery Implementation Program and $556,000 for Fish and Wildlife Management and Development.

These highly successful, cooperative programs are ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interest. The programs' objectives are to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act. These recovery programs have become national models for collaboratively working to recover endangered species while addressing water needs to support growing western communities in the Upper Colorado River Basin region of the Intermountain West. Since 1988, these programs have facilitated ESA Section 7 consultation (without litigation) for over 800 Federal,

tribal, State and privately managed water projects depleting approximately 2.5 million acre-feet of water per year.

The requested fiscal year 2006 appropriation will allow the Upper Colorado River Endangered Fish Program to proceed with construction of additional fish passage structures on the Green and Colorado Rivers to provide access to historic habitat upstream of existing diversion dams. The requested funding for the San Juan River Recovery Program will be used for contracts for construction and cooperative agreements with the State of New Mexico to provide and protect instream flows, fish ladders, flooded bottom land restoration, propagation facilities, stocking efforts, normative and sportfish management activities.

The enactment of Public Law 106–392, as amended by Public Law 107–375, authorized the Federal Government to provide up to $46 million of cost sharing for these two ongoing recovery programs' remaining capital construction projects. Raising and stocking of the endangered fish produced at program hatchery facilities, restoring floodplain habitat and fish passage, regulating and supplying instream habitat flows, installing diversion canal screens and controlling nonnative fish populations are key components of the programs' ongoing capital construction projects. Subsection 3(c) of Public Law 106–392 authorizes the Secretary of the Interior to accept up to $17 million of contributed funds from Colorado, Wyoming, Utah and New Mexico, to expend such contributed funds as if appropriated for these projects; and provides for an additional $17 million to be contributed from revenues derived from the sale of Colorado River Storage Project (CRSP) hydroelectric power. This substantial non-Federal cost-sharing funding demonstrates the strong commitment and effective partnerships embodied in both of these successful programs. The requested Federal appropriations are critically important to these efforts moving forward.

The past support and assistance of your subcommittee has greatly facilitated the success of these multi-State, multi-agency programs. I thank you for that support and request the subcommittee's assistance for fiscal year 2006 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE IRRIGATION & ELECTRICAL DISTRICTS' ASSOCIATION OF ARIZONA

We are pleased to present this written testimony on the fiscal year 2006 budget proposals for the U.S. Bureau of Reclamation and the Western Area Power Administration. Our Association consists of 25 entities in Arizona which serve water and power from the Colorado River and other sources to rural and urban Arizona communities, farms and businesses.

BUREAU OF RECLAMATION

While we generally support the proposed Reclamation budget, and indeed think it is too small, the following are specific items of concern that we urge the subcommittee to consider.

Use of Receipts.—The budget proposes to allow Reclamation to capture power receipts from the Western Area Power Administration and use those for operation, maintenance, and research and development activities without having to come to Congress for appropriation of such monies. In the Colorado River Basin, power customers and water customers have a series of arrangements for customer involvement in reviewing spending proposals before they reach Congress. This funding shift would emasculate those relationships and make the oversight Congress rightly provides for these activities significantly more difficult. Congress has previously rejected similar proposals. Because of the lack of accountability that this proposal engenders, we do not believe that Congress should consider authorizing this monetary shortcut.

Glen Canyon Dam.—In the 1992 Grand Canyon Protection Act, Congress gave specific direction to the Secretary of the Interior concerning assessing the impacts of the specific power operation criteria used at Glen Canyon Dam on the downstream environment in Marble Canyon and the Grand Canyon. Studies had already been underway on that subject for a decade by the time Congress acted. Some 23 years into this program, there are still no definitive answers. Nevertheless, Reclamation proposes to build temperature control devices into the outlet works at Glen Canyon Dam, impelled by an 11-year-old Final Biological Opinion under the Endangered Species Act. The budget proposal and its supporting documentation admit that no one knows whether this will have any beneficial effect on the downstream endangered fish, the humpback chub. Indeed, it could be harmful. Congress should

withhold funds for construction of these temperature control devices until sound science shows that a beneficial effect will result. Congress should also direct Reclamation to provide a report on the impacts of the five power operating criteria at Glen Canyon Dam. Certainly 23 years of study has produced some answers.

Security Costs.—We oppose the shift of $18 million to $20 million of currently non-reimbursable costs associated with increased security measures after 9/11 to power users. It is simply unfair to single out hydropower facilities to bear these increased costs when airports, train stations, etc., are receiving ongoing non-reimbursable appropriations many times larger than this. Shortly after 9/11, Reclamation established a non-reimbursable cost policy for increased security costs and Congress has since then consistently approved that policy and directed Reclamation to continue it. Indeed, in the Omnibus Appropriation Bill for fiscal year 2005, Congress specifically directed Reclamation to continue that policy, and to report back to Congress by May 1 of this year. Congress further directed Reclamation not to alter that policy without specific direction from Congress. Now Reclamation has dug itself into a financial hole by treating a large portion of these monies as reimbursable and not requesting appropriations for them. The sound public policy that engendered Reclamation's original position and approval of it by Congress should be continued.

Public Law 108–451.—The President signed this bill, the Arizona Water Settlements Act, on December 10, 2004. While Reclamation's proposed budget mentions the passage of the Act, the only impact discernible in the budget request is a significant decrease in funding for CAP Indian distribution systems. We are concerned that the settlement that is embodied in the Act contains funding obligations to which the United States agreed which are not being reflected in this budget request.

WESTERN AREA POWER ADMINISTRATION

We have three specific comments on Western's proposed budget.

Average Market Rates.—The fiscal year 2006 budget proposes that the Power Marketing Administrations, including Western, raise rates by 20 percent per year until achieving prices constituting something labeled "average market rates". This proposal is nothing short of asinine. Throughout the entire history of Federal power generation programs, Congress has directed that Federal power resources be sold to consumers at prices that will recover costs and, based on applicable Federal law, interest on the reimbursable portions of these severally authorized projects. Until recently, federally-regulated electric utilities and most State-regulated utilities were held to the same conceptual yardstick: cost-based rates. Recent studies have shown that allowing federally-regulated private electric utilities to venture into "market based rates" has done nothing to lower power costs to consumers. Moreover, this massive public policy shift would require overriding the provisions of numerous major acts and Congressionally-authorized projects and programs. The Congressionally-mandated yardstick for pricing Federal power has always been "lowest possible cost consistent with sound business principles". Since the record is devoid of evidence that the use of market rates by private utilities has benefited electric consumers, surely the government should not venture into this philosophical quagmire. Current Federal pricing policy is sound and in the best interests of electric consumers. We strongly oppose this misguided initiative.

Use of Receipts.—We continue to oppose what is becoming a perennial suggestion that the PMA's, including Western, be authorized to use power receipts for operation and maintenance costs associated with their programs. Like the similar proposal for Reclamation, this proposal would destabilize existing agency/customer consultation arrangements, reduce Congressional oversight and provide a hugely expanded level of agency autonomy. The lack of checks and balances in this proposal renders it fatally flawed. Instead, Congress should direct the PMA's, including Western, to initiate and/or improve customer consultation and concurrence mechanisms. This would encourage customers to work with these agencies to ensure that truly needed funding for projects and programs was available.

Parker-Davis Project.—Last year, the fiscal year 2005 Omnibus Appropriation Bill provided $6 million to replace one of two parallel transmission lines running from Topock Substation in western Arizona to Davis Dam and on to the Mead Substation near Hoover Dam in Nevada. The funds were deemed non-reimbursable. Since the funds then had to be taken out of available funds, this earmark made a significant dent in the construction funding for Western for fiscal year 2005 and caused a number of projects to be postponed. This conductor replacement was supposed to be an experiment and funded outside Western's budget. That didn't happen. Just as importantly, the administration is not proposing to continue funding for this "experiment". We heartily support the administration's decision and vigorously oppose any earmarking of funds within Western's budget for it. The proposed use of composite

cable is extraordinarily expensive compared to traditional cable. The path being proposed to be upgraded is contractually constrained, not physically constrained, and there are substantially cheaper alternatives for improving transmission in northwestern Arizona. In short, it is a waste of money.

In closing, we wish to inform the subcommittee that we endorse and support the testimony filed by the Colorado River Energy Distributors' Association, a regional association of which our Association is a member. We also endorse and support the testimony filed by the Central Arizona Water Conservation District, one of our members.

We appreciate the opportunity to share the Association's positions with you and would be happy to respond to any requests for information or clarification.

PREPARED STATEMENT OF COLORADO SPRINGS UTILITIES

I am requesting your support for an appropriation in fiscal year 2006 of $2,529,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. The President's recommended budget for fiscal year 2006 includes this line-item amount. The funding designation we seek is as follows: $1,401,000 for construction activities for the Upper Colorado River Endangered Fish Recovery Program; $572,000 for the San Juan River Basin Recovery Implementation Program and $556,000 for Fish and Wildlife Management and Development.

These highly successful, cooperative programs are ongoing partnerships among the States of New Mexico, Colorado, Utah and Wyoming, Indian tribes, Federal agencies and water, power and environmental interests. The programs' objectives are to recover endangered fish species while water use and development proceeds in compliance with the Endangered Species Act. These recovery programs have become national models for collaboratively working to recover endangered species while addressing water needs to support growing western communities in the Upper Colorado River Basin region of the Intermountain West. Since 1988, these programs have facilitated ESA Section 7 consultation (without litigation) for over 800 Federal, tribal, State and privately managed water projects depleting approximately 2.5 million acre-feet of water per year.

The requested fiscal year 2006 appropriation will allow the Upper Colorado River Endangered Fish Program to proceed with construction of additional fish passage structures on the Green and Colorado Rivers to provide access to historic habitat upstream of existing diversion dams. The requested funding for the San Juan River Recovery Program will be used for contracts for construction and cooperative agreements with the State of New Mexico to provide and protect instream flows, fish ladders, flooded bottom land restoration, propagation facilities, stocking efforts, nonnative and sportfish management activities.

The enactment of Public Law 106–392, as amended by Public Law 107–375, authorized the Federal Government to provide up to $46 million of cost sharing for these two ongoing recovery programs' remaining capital construction projects. Raising and stocking of the endangered fish produced at program hatchery facilities, restoring floodplain habitat and fish passage, regulating and supplying instream habitat flows, installing diversion canal screens and controlling nonnative fish populations are key components of the programs' ongoing capital construction projects. Subsection 3(c) of Public Law 106–392 authorizes the Secretary of the Interior to accept up to $17 million of contributed funds from Colorado, Wyoming, Utah and New Mexico, to expend such contributed funds as if appropriated for these projects; and provides for an additional $17 million to be contributed from revenues derived from the sale of Colorado River Storage Project (CRSP) hydroelectric power. This substantial non-Federal cost-sharing funding demonstrates the strong commitment and effective partnerships embodied in both of these successful programs. The requested Federal appropriations are critically important to these efforts moving forward.

The past support and assistance of your subcommittee has greatly facilitated the success of these multi-State, multi-agency programs. I thank you for that support and request the subcommittee's assistance for fiscal year 2006 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE COLORADO RIVER BOARD OF CALIFORNIA

Your support and leadership are needed in securing adequate fiscal year 2006 funding for the Department of the Interior with respect to the Federal/State Colo-

rado River Basin Salinity Control Program. 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 successful and cost effective program is carried out pursuant to the Colorado River Basin Salinity Control Act and the Clean Water Act. 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 along with 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.

The goal of the Colorado River Basin Salinity Control Program is to offset the effects of water resource development in the Colorado River Basin after 1972 rather than to reduce the salinity of the River below levels that were caused by natural variations in river flows or human activities prior to 1972. To maintain these levels, the salinity control program must remove 1,800,000 tons of salt loading from the River by the year 2020.

In the Forum's last report entitled 2002 Review, Water Quality Standards for Salinity, Colorado River System (2002 Review) released in October 2002, the Forum found that additional salinity control measures that remove salt from the River in the order of 1,000,000 tons are needed to meet the implementation plan. The plan for water quality control of the River has been adopted by the States and approved by the Environmental Protection Agency. 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 can be controlled with Reclamation's Basin-wide Salinity Control Program. 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 necessary.

In 2000, Congress reviewed the salinity control program as authorized in 1995. Following hearings, and with the administration's support, the Congress passed legislation that increased the ceiling authorization for this program by $100 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 previous years, the President has supported, and Congress has funded, the Bureau of Reclamation's Basin-wide Salinity Control Program at about $12 million. The Forum has indicated that the President's request for funding for fiscal year 2006 in the amount of $10,000,000 is inappropriately low. The Forum has requested a total of $17.5 million for fiscal year 2006 to implement the needed and authorized program. The Colorado River Board supports the Forum's recommendation and believes that failure to appropriate these funds may result in significant economic damages in the United States and Mexico. Water quality commitments to downstream U.S. and Mexican users must be honored while the Basin States continue to develop their Compact apportioned waters from the Colorado River. For every 30 mg/L increase in salinity concentration in the River, there is $75 million in additional damages annually in the United States.

Based upon past appropriations, implementation of salinity control measures has fallen behind the needed pace to prevent salinity concentration levels from exceeding the numeric criteria adopted by the Forum and approved by the EPA. The seven Colorado River Basin States have carefully evaluated the Federal funding needs of the program and have concluded that an adequate budget is needed for the plan of implementation to maintain the salinity standards for the River. With the newly authorized USDA EQIP program, more on-farm funds are available and adequate funds for Reclamation are needed to maximize Reclamation's effectiveness. The Forum, at its meeting in San Diego, California, in October 2002, 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 2006, 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 17 million residents of southern California. Preservation of its water quality through an effective salinity control program will avoid the additional economic damages to users in California.

The Colorado River Board greatly appreciates your support of the Federal/State Colorado River Basin Salinity Control Program and again asks for your assistance and leadership in securing adequate funding for this program.

DEPARTMENT OF ENERGY

PREPARED STATEMENT OF THE DOE UNIVERSITY RESEARCH PROGRAM IN ROBOTICS (URPR)

The U.S. Department of Energy (DOE) has provided support to the DOE University Research Program in Robotics to pursue long range research leading to the: "development and deployment of advanced robotic systems capable of reducing human exposure to hazardous environments, and of performing a broad spectrum of tasks more safely and effectively than utilizing humans."

The DOE University Research Program in Robotics (URPR) has proven highly effective in technology innovation, education, and DOE mission support. The URPR has incorporated mission-oriented university research into DOE, and, through close collaboration with the DOE sites, provides an avenue for developing creative solutions to problems of vital importance to DOE.

The URPR would like to thank the committee members for their historically strong support of this successful program. Recognizing the shift in national priorities post-9/11/01, the URPR has begun to include new applications as the target for its technology development.

Request for the Committee

The University Research Program in Robotics (URPR) is included in the President's budget at its traditional level of $4.5 million (fiscal year 2002–2005). To accelerate technology development and deployment within the DOE complex, we suggest an additional $1.5 million be added to the URPR while a separate allocation of $2.0 million be provided to participating NNSA laboratories and sites.

DEVELOPING ADVANCED ROBOTICS FOR DOE AND THE NATION

Robotic Solutions for Work in Potentially Hazardous Environments

The goal of this program is to invent and utilize state-of-the-art robotic technology in order to remove humans from potentially hazardous environments and expedite remediation efforts considered essential. Established by DOE in fiscal year 1987 to support advanced nuclear reactor concepts, the project was moved to EM to support the higher priority needs in environmental restoration. Reflecting the change in national priorities post-9/11, the URPR began supporting NNSA applications during fiscal year 2004. Because of the sensitive nature of some potential applications, this transition is proceeding smoothly but gradually as the new DOE participants begin to grasp the applicability of this technology to their future world, and the URPR participants obtain information regarding technology problems and potential applications.

The URPR represents a DOE-sponsored consortium of five research universities (Florida, Michigan, New Mexico, Tennessee, and Texas) of long standing, working on the science of remote systems technologies to advance their effectiveness in performing physical tasks in hazardous environments associated with the DOE nuclear sites. The work of these universities is now widely recognized as some of the best in the field (the creation of spin-off companies, deployment requests from FEMA at Ground Zero, wins in national technology competitions, archival journal articles, etc.). Some of the focus technologies include innovative mobile platforms and their semi-autonomous navigation, kinesthetic input to teleoperation systems, simulation-based design and control, manipulation of unwieldy objects, machine vision and scene assessment for world modeling, improved radiation hardening of electronic components, and integration technology to assist in the assessment and deployment of complete solutions in the field. In addition to DOE specific applications, the team is increasingly able to deploy their technology for DOD applications (aircraft carrier weapon's elevator, anti-terrorism systems, submarine operations, etc.), for Homeland Security applications (surveillance and monitoring), for commercial applica-

tions (manufacturing, building construction, space) and for human augmentation and training (micro-surgery, rehabilitation of humans, reduction of drudgery). We constantly seek to explore strategic partnerships and utilize existing deployment resources to more rapidly export this technology to the DOE sites that could most benefit from this new technology.

Robotics and Automation for NNSA

NNSA recognizes the need to develop advanced automation and robotics capabilities, as expressed in the NNSA Technology Roadmap for the modernized nuclear weapon complex. The report notes "Perhaps the most significant transformation of the NWS complex will be the replacement of manually intensive production systems with automated, intelligent process and equipment." The URPR program provides capabilities that will improve ability and agility in responding to programmatic needs, and enhance personal safety, security, efficiency, and efficacy of weapons related activities within the complex through the application of intelligent automation. It supports the DOD research programs priorities of promoting scientific and engineering leadership, and vitality and workforce renewal, providing agile responses to future requirements, and offering assessment and implementation of new technology options during the planning and execution of major capital projects.

The nuclear weapons complex represents one of our Nation's most vital pieces of defense infrastructure and warrants the country's finest technologies to accomplish its mission. In the commercial sector, advanced automation and robotic technologies have demonstrated the ability to increase security, personnel safety, precision and reproducibility, and productivity for tasks that are hazardous, routine, or require exceptional precision.

Advances in robotic mobility, mapping, handling, simulation, safety and integration technology will minimize the risks to human operators and maximize the productivity of DOE sites. URPR will provide fundamental, long-range robotics and integration technologies that can be validated and systematically inserted into DOE sites. These world-class technologies will support applications in the Stockpile Stewardship Program and other DOE programs. The specialized needs associated with the complex make many existing technologies inappropriate, unsuitable, or requiring significant further development or modification. Where new automation and robotics technologies will benefit the DOE mission, the URPR program seeks to meet that need.

The current plans for the URPR transition into the NNSA organization call for the university consortium to interact through Sandia National Laboratory (SNL) to the project manager at DOE headquarters. SNL has been strongly supportive of the URPR mission, but lacks funds to participate materially in this program. At the top levels of NNSA, the URPR funds are being drawn from multiple campaigns since the benefits of this technology can impact many NNSA applications. URPR ties to specific sites having applications needing robotic technologies have begun.

Making the Nation Safer

In the aftermath of the 9/11 tragedy, our Nation has engaged in a long-term war to counter terrorism. The National Research Council [2002] published a thorough study of the role of science and technology in countering terrorism entitled Making the Nation Safer. This book represents the collective thoughts of 164 top scientists and engineers focusing on homeland security of the United States. It represents the combined output of the National Academy of Sciences, the National Academy of Engineering, the Institute of Medicine, and the National Research Council. It identifies urgent research opportunities. Of the seven crosscutting technology challenges identified by the committee, autonomous mobile robotic technologies were highlighted. "Continued development and use of robotic platforms will enable the deployment of mobile sensor networks for threat detection and intelligence collection. Robotic technologies can also assist humans and such activities as ordinance disposal, decontamination, debris removal, and firefighting." Robotic technologies, cited as a "critical long-term research need," are featured throughout the individual chapters that address ways for mitigating our society's vulnerabilities to terrorism and responding to an attack. In addition, the report identifies the need to sustain the Nation's scientific and engineering talent base and recommends [Rec. 13.4] a human resource development program to increase training in those fields consistent with the government's long-term priorities for homeland security research. The report exhorts that "expanding the number of American scientists and engineers is particularly important."

In summary, the University Research Program in Robotics is a key player in executing the recommendations for making the Nation safer. We believe that the

progress being demonstrated by the URPR will also be heralded by DHS as they develop a clearer vision of their needs.

Innovation, Education, and DOE Mission Support

The URPR's strategic mission is to make significant advances in our Nation's robotic and manufacturing technology base while emphasizing: education, technology innovation through basic R&D, and DOE mission support. The URPR has demonstrated that the advantages of operating as a consortium are significant. The institutions of the URPR partition the technical development into manageable sections which allow each university to concentrate within their area of expertise (efficiently maintaining world-class levels of excellence) while relying on their partners to supply supporting concentrations. With full support of the host universities, this effort naturally generated the in-depth human and equipment capital required by the DOE community. Practically, the long-term distributed interaction and planning among these universities in concert with the DOE labs and associated industry allows for effective technology development (with software and equipment compatibility and portability), for a vigorous and full response to application requirements (component technologies, system technologies, deployment issues, etc.), and for the supported application of the technology. Considering the remarkable achievements of URPR over its history, the URPR is in the ideal position to execute its prominent role in education, technology innovation, and DOE mission support.

The project has produced an impressive array of technological innovations, which have been incorporated into robotic solutions being employed across Federal and commercial sectors. This successful program demonstrates efficient technology innovation while educating tomorrow's technologists, inventing our country's intelligent machine systems technology of the next century, bolstering our manufacturing-related industries, and meeting tomorrow's applied research needs for DOE.

DOE Mission Contribution—Robotic Technologies

Since its inception, DOE has promoted robotics as a necessary enabling technology to accomplish its mission. The motives for undertaking a comprehensive R&D effort in the application of advanced robotics to tasks in hazardous environments reflect economic considerations, efficiency, and health and safety concerns. The URPR is DOE's only needs-driven research program to develop new remote systems technologies to support the DOE thrust areas. In contrast, DOD, NIH, and NASA continue to prove the benefits of much larger mission-oriented robotics programs.

The URPR's level of funding has been constant since fiscal year 2002 and remains adequate for continuing basic research and development of this technology. However, the URPR participants are concerned about ensuring their technology provides direct benefit to NNSA applications. We are already aware of several applications in which robotics and automation should be employed to enhance safety, security, and productivity. Key Senate staff have recommended to augment the URPR funding and provide direct funding to NNSA sites in order to stimulate technology development and deployment for these and future applications (e.g., LANL TA–55, Y–12).

Request for the Committee

We request the committee include the following language in the fiscal year 2006 Energy and Water Appropriations Bill: "From within funds provided for the engineering campaigns, the Committee recommends that $6,000,000 be provided to continue the University Research Program in Robotics (URPR) for the development of advanced robotic technologies for strategic national applications. Also from within funds provided for the engineering campaigns, the Committee recommends that $2,000,000 be provided to NNSA laboratories and sites to transfer, integrate and deploy robotics technology developed by the URPR."

PREPARED STATEMENT OF CUMMINS INC.

Cummins Inc. is pleased to provide the following statement for the record regarding the Department of Energy's fiscal year 2006 budget for Energy Efficiency and Renewable Energy and Fossil Energy programs. 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 would also 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 FreedomCAR and Vehicle Technologies (FCVT)

Vehicle Technologies

Advanced Combustion Engine R&D—Heavy Truck Engine.—This program supports R&D activities to increase heavy truck engine fuel efficiency while meeting EPA emissions regulations in 2007 and 2010. Modern heavy duty diesel engines convert approximately 41 percent of fuel energy into useful work. Technologies required to achieve EPA's 2007 and 2010 emissions regulations will negatively impact engine efficiency (EPA regulations call for 90 percent emissions reductions by 2010). The objective of this program is to reach a 50 percent engine efficiency level under the new standards. A 45 percent efficiency level has been demonstrated at 2007 conditions in the laboratory. To further mitigate fuel efficiency penalties, additional research efforts are needed in advanced combustion and NO_X and PM reduction. Heat rejection challenges and aftertreatment systems, including active particulate filters and NO_X reduction technologies (adsorbers and SCR), will be addressed by the program in fiscal year 2006. Other areas of work include modeling and simulation techniques, system level controls, vehicle system integration and advanced lubricants. This program is critical to the success of engine manufacturers in meeting EPA's strict 2007 and 2010 emissions regulations. Cummins urges that $20 million be appropriated for the program for fiscal year 2006.

Advanced Combustion Engine R&D—Off-Highway Heavy Vehicle Engine R&D.—Technologies needed to meet EPA's strict Tier IV emissions regulations for off-road vehicles will result in significant fuel economy penalties. This program supports R&D efforts to help meet future emissions requirements while maintaining Tier II/Tier III fuel consumption. Off-highway vehicles and machines operate under severe environmental conditions, including high dust, debris, a wide range of altitudes, temperatures and vibration. Off-road engines are applied to hundreds of different types of equipment in a wide range of industries, such as agriculture, construction and mining. Manufacturers face unique challenges in meeting emissions regulations for off-highway vehicles. These markets are very sensitive to installed cost for engine components, and the lack of ram air and limited space for accessories and engine components significantly limits emissions compliance strategies. Progress has been made in recent years in combustion models to facilitate in-cylinder emissions solutions, meeting Tier III emissions levels with fuel economy levels close to Tier II engine designs. Level funding for the Off-Highway program in fiscal year 2006 will allow continued research on improving combustion models for complex combustion systems, transient operations and validation of Tier IV technologies on single and multi-cylinder engines. Cummins urges that $3.5 million be appropriated for this program for fiscal year 2006.

Advanced Combustion Engine R&D—Combustion and Emission Control R&D.—In this program, the emphasis is on research in advanced combustion regimes that would achieve FreedomCAR and 21st Century Truck Partnership efficiency goals for personal and commercial diesel vehicles while maintaining near zero emissions. The light duty segment, less than 8,500 lb. GVW, is where most transportation fuel is currently used and where virtually all of the growth in transportation fuel use will occur. The ability to meet Tier II, Bin 5 emissions targets with light duty diesel engines has been demonstrated through the program with aftertreatment subsystems and controls. However, critical technology hurdles remain in the areas of lowering engine out emissions, improving aftertreatment system durability, engine managed regeneration and effective operation during transient and low temperature operations, on-board diagnostics, minimizing fuel economy penalties due to use of reductant and engine back pressure effects. Funding under the 21st Century Truck Partnership supports CRADA activities at the Department of Energy's national laboratories for broad research and development of advanced combustion systems to improved engine-out emissions and fuel efficiency. Recent DOE contract awards for research on High Efficiency Clean Combustion are funded under this program. Cummins urges that $28.5 million be appropriated for this program in fiscal year 2006. A funding split under the program between the 21 Century Truck Partnership (21CTP) and the FreedomCAR Partnership is recommended as follows: 21CTP—$7.7 million and FreedomCAR—$20.8 million (as requested by DOE).

Advanced Combustion Engine R&D—Waste Heat Recovery.—This DOE program supports broader energy efficiency and emissions goals for diesel engines by funding technology development for waste heat recovery and boosting technologies. Over 50 percent of the fuel energy is lost in diesel engines through wasted heat in exhaust, lubricants or coolants. This program is focused on identifying and developing innovative energy recovery technologies, such as thermoelectric and turbo-compounding

technologies, which are showing promise for recovering wasted energy by converting it to electrical energy. Planned activities for the program in fiscal year 2006 include design & development of components, subsystems and associated electronic controls, integration with engine controls and development of thermoelectric generator technologies. Cummins urges that $4 million be appropriated for this program in fiscal year 2006.

Advanced Combustion Engines—Health Impacts.—The goal of this program is to evaluate health implications from new engine technologies being developed to meet energy efficiency goals. The Advanced Collaborative Emissions Study (ACES) is funded under this program. ACES is a cooperative effort between government (DOE, EPA) and industry (EMA, MECA, API, etc. . . .) to assess health effects of emissions from heavy-duty engines equipped with new emissions control technologies. The ACES program will include emissions characterization, chronic exposure animal bioassays, and identification of any unanticipated emissions or health effects from new engine technologies. Cummins urges that $2.5 million be appropriated for this program in fiscal year 2006.

Fuels Technologies

Non-Petroleum Based Fuels & Lubes: Heavy and Medium Duty Truck Programs (Natural Gas Vehicle).—This program funds development efforts for natural gas engines for medium and heavy trucks. Current natural gas engines sacrifice fuel efficiency compared to diesels in similar applications. However, next generation natural gas combustion technologies offer the potential to meet 2010 emissions with simpler more durable systems and reduce or eliminate fuel efficiency losses. Natural gas engines are practical in urban applications including school and city buses, pick up and delivery trucks. The exhaust emissions signature of engines using natural gas and hydrogen mixture combustion has demonstrated potential for even lower emissions. Natural gas combustion, storage and infrastructure development also offers a bridge to the hydrogen economy. Cummins urges that $2 million be appropriated for this program in fiscal year 2006.

Advanced Petroleum Based Fuels (APBF).—This important program supports activities to enable post-2010 combustion regime and emissions control systems to be as efficient as possible and ongoing study of sulfur effects on aftertreatment systems for heavy duty engines. Aftertreatment technologies required to meet new emissions regulations are new and relatively undeveloped. Engine companies are required to prove out emissions compliance for over 435,000 miles of useful life. The goal of this program is to study the impacts of sulfur content in fuel on durability and reliability of aftertreatment systems. Cummins urges that $8.5 million be appropriated for this program in fiscal year 2006.

Materials Technologies

Propulsion Materials Technology—Heavy Vehicle Propulsion Materials Program.—This program supports research and development of next generation materials to enable improvements in diesel engine efficiency and reduce aftertreatment system costs. Technologies for NO_X adsorbers and particulate filters are not yet fully developed. A better understanding of NO_X adsorber systems, filtration media modeling and substrate degradation mechanisms is required. In addition, traditional heavy duty diesel engine materials may not be adequate for next generation combustion concepts, such as Homogeneous Charge Compression Ignition (HCCI) technologies. Lighter weight and higher strength materials are needed to obtain lighter, more robust and higher cylinder pressure engine systems. Reductions in engine weight yield significant improvements in fuel consumption and emissions. Increased funding for the program will support studies on a range of advanced materials technologies, including sulfur removal from NO_X adsorber catalysts/soot oxidation, filtration media modeling, nano-fiber filter technologies, and understanding lightweight/high strength material engine components. Cummins urges that $6.9 million be appropriated for this program in fiscal year 2006.

Distributed Energy Resources

Distributed Generation Technology Development—Advanced Reciprocating Engine Systems (ARES).—The goal of this multi-year 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, high up-time, and unattended operations. However, these engines have not kept pace with the fuel efficiency of their diesel engine counterparts. Traditional natural gas engines are approximately 32–37 percent efficient. Technologies sponsored by the ARES program have demonstrated a 19 percent efficiency improvement compared to baseline engines and a 19 percent reduction in CO_2 emissions. These systems are being ramped

up for field evaluations, and fiscal year 2006 is a critical year for the program. Future technology challenges include analytical model development, combustion development, air handling optimization, hardware durability, ignition system life and advanced controls. The development of distributed power generation supports national energy security needs, improved protection of critical infrastructure to address homeland security concerns, less dependence on the national electrical grid system and point of use energy production. Cummins urges that $17 million be appropriated for this program in fiscal year 2006.

FOSSIL ENERGY

Office of Fossil Energy/Coal and Other Power Systems/Distributed Generation Systems

Fuel Cells

Innovative Concepts—Solid State Energy Conversion Alliance (SECA).—The goal of the Solid State Energy Conversion Alliance (SECA) project is the development of a commercially viable 3–10 kW solid oxide fuel cell module that can be mass-produced in modular form for RV, commercial mobile, and telecommunications markets. The program is also investigating products that can be used in auxiliary power units on long haul trucks to reduce idling. Solid oxide fuel cells can play a key role in securing the Nation's energy future by providing efficient, environmentally sound electrical energy. Fuel cell systems provide highly reliable power, with significantly lower noise, fuel consumption and exhaust emissions compared to existing fossil fuel technologies. Federal funding is critical to support research needed to keep this technology moving from the laboratory to commercial viability. Progress on Phase 1 of the program has been positive. In 2004, a 1 kW-scale prototype was constructed and tested. A 5 kW prototype is being constructed for evaluation in the fall of 2005. The program is moving forward toward production development beginning in calendar 2007, leading to possible commercial production in 2010. This is a 10-year program that combines the efforts of the DOE national laboratories, private industry, universities, and other research organizations. Cummins urges that the DOE request of $65 million be appropriated for this program in fiscal year 2006.

Thank you for this opportunity to present our views on these programs which we believe are of great importance to the U.S. economy through viable transportation and power generation.

PREPARED STATEMENT OF THE UNIVERSITY OF OKLAHOMA

The University of Oklahoma (OU) respectfully requests appropriation of $1 million in fiscal year 2006 to initiate research in high-priority and near-term applications of single-walled carbon nanotubes (SWNT). This work will be performed through a newly formed Center for Applications of Single-Walled Carbon Nanotubes.

STATEMENT OF NATIONAL INTEREST

Nanotechnology will undoubtedly play a central role in the future of energy. Lighter, stronger, more efficient nano-structured materials will result in superior utilization, transportation, and storage of energy. Within the realm of nanotechnology, single-walled carbon nanotubes (SWNT, also known as "buckytubes") play a crucial role. SWNT will function as arms, wires, pipes, circuit devices and nano-scale transport devices that will make the nanotechnological revolution possible. SWNT serve as true ballistic conductors, molecular wires, and single-molecule transistors. In the next few decades we will see the silicon-based microelectronics of today rivaled or perhaps supplanted by carbon-based nanoelectronics technology that is much faster, smaller and energy-efficient. In the field of materials, nanotubes might represent in the 21st century what polymers did in the 20th century: a revolutionary material that changes the lives of everyone. The combination of extraordinary electrical properties, extremely high thermal conductivity, very large length-to-diameter ratio (typical of a polymer), and extreme stiffness (typical of a ceramic) means that a material unlike any other has been created. SWNT are 200 times stronger than steel at one-sixth the weight, and conduct heat more efficiently than any other material.

The path to large-scale application of SWNT has been hampered by the high cost and low availability of these unique materials. SWNT synthesis methods are currently presumed to be impure and non-scalable, unable to operate under severe conditions, and demanding of high capital and operating costs. However, a new nanotube synthesis process developed at OU and known as CoMoCAT™ (Resasco *et al.*), is a catalytic method of synthesis that has proven advantageous over all ex-

isting methods and can be scaled up to produce large amounts of high quality SWNT. Significantly, many of the proposed applications of SWNTs are likely to require quantities of nanotubes with high structural integrity, rather than nanotube mixtures and low-purity materials. Based on the novel CoMoCAT™ technology, an OU startup company (South-West Nanotechnologies, SWeNT) is developing a large-scale process that will position OU in the unique and enviable position of having available abundant amounts of SWNT of the highest quality for development of revolutionary products. The uniformity of nanotube structure and their easier dispersability are the world-wide recognized properties of our nanotube product. However, long-term economic competitive advantage will mostly be in the development and manufacture of products based on the SWNT produced in Oklahoma. This challenge will be the main focus of the funded program.

MISSION AND APPROACH

Researches at OU and SWeNT have developed unique methods to handle the nanotubes in different forms (freeze dried nanotube webs, viscous gels, and stable nanotube suspensions). Each of these forms is suitable for specific applications and is customized for each potential user. The research lines that will be either expanded from existing groups at OU or developed around the proposed initiative will take advantage of the large-scale availability of high-quality nanotubes produced by SWeNT. The advantages of SWeNT nanotube material are described below in the section entitled Statement of Unique Technology. The research described herein will take our technological lead in production of carbon nanotubes, and turn it into an economic lead in products useful in the following applications of great impact in the Energy sector, such as:

—Fuel cells;
—Energy Storage;
—Photovoltaic cells; and,
—Lightweight strong composites.

Their incomparable aspect ratio and high surface area, coupled with their extraordinary mechanical, electrical, and gas transport properties make SWNT excellent support elements for nanostructured fuel cell electrodes and essential components of supercapacitors and conducting coatings. The properties of our SWNT show great potential for improvement of fuel cell electrodes' performances. We have demonstrated that the nanotubes can stabilize high Pt dispersions, increase electronic conductivity in the electrodes, improve gas transport in the electrodes' reactive layers, and decrease peroxides' attack of the proton-transfer membrane. In addition, SWNT can be structured on the surface of the membrane at the nanometer level, thus offering the opportunity for maximizing utilization of Pt, a major driver of the fuel cell cost. All these advantages make SWNT excellent candidates as fuel cell electrodes.

Also, within the scope of the research program on nanotube applications is the utilization of the remarkable ability of SWNT for gas adsorption and as a filler in polymer composites with unique strength, light weight, thermal and electrical conductivity. In particular, we plan to develop nanotube-based fire-resistant polymer composites, electrical and thermally conducting composites, as well as high-strength fibers. In confined areas, e.g. ships and airplanes, a very important safety hazard is melted plastic, e.g., plastic used as insulation for wires. Nanotubes entangle with the polymer and prevent the polymer from dripping when melted, thus averting severe injury to passengers, crew and safety personnel fighting the fire. Applications for high thermal conductivity materials include microelectronics; heat dissipation is one of the most important problems in making electronic components smaller and smaller.

The use of high thermal conductivity materials will lead to even smaller and more powerful microelectronic components. Addition of SWNT to polymers results in electrical conductivity increases of many orders of magnitude. These electrically conductive composites can be designed with a wide range of conductivities for a variety of applications that include antistatic materials, electrostatic dissipation, and EMI/RFI shielding.

Soft body armor materials made from polymers, (Kevlar and Spectra Shield) are lightweight and flexible; however the stopping power is significantly inferior to hard armor made from heavy, inflexible ceramics. SWNTs have polymer-like and ceramic-like qualities, and hence the possibility of making a material that has the flexibility and weight of soft-body armor and the stopping power of hard body armor. Better armor will improve survivability and mobility of our military and law enforcement personnel.

Other promising SWNT applications include field emitters for flat panel displays, nanosensors, nanotransistors, nanostructured coatings, and molecular delivery of biomolecules.

STATEMENT OF UNIQUE TECHNOLOGY

Our process is based on a formulation of solid catalyst that inhibits the formation of undesired forms of carbon and minimizes the residual catalyst left on the product; it can be readily scaled-up and may result in lower production costs. This method is based on the controlled reaction of carbon monoxide (CO) on a solid catalyst, under conditions that result in high yield and selectivity towards SWNT as opposed to other less desired forms of carbon, such as graphite nanofibers. Most importantly, this process can be operated in a continuous mode and be scaled-up while keeping high selectivity. These are significant elements for a cost-effective production system. Each of the known competitive processes lacks at least one or more of the key success factors of cost, selectivity, and consistent quality.

Because the electronic and optical properties of SWNT depend upon sensitively of tube structure, a major goal in nanotube production is to control the distribution of nanotube diameters and chiralities in the product. For methods in which nanotubes are grown from gaseous precursors on metallic catalyst particles, the size distribution of the catalyst particles strongly influences the product composition. For example, dozens of distinct nanotube structures are formed in the well-known HiPCO™ process, developed at Rice University. By contrast, with the unique catalyst formulation developed by OU, the product composition depends on catalyst design and parameters that precede the reaction process and nanotube growth. Adjustment of these parameters allows fine control over the specific catalyst activity and, therefore, of the nanotube structures.

In our method, nanotubes are grown by CO disproportionation (decomposition into C and CO_2) at 700–950°C in flow of pure CO at a total pressure that typically ranges from 1 to 10 atm. This process is able to grow a significant amount of SWNT in several minutes, keeping selectivity towards SWNT of better than 90 percent. The difference of this technology compared to other catalytic decomposition methods is based on the stabilization of highly dispersed Co species on a solid substrate. The effect of having Co stabilized is dramatic. It avoids the formation of large metallic aggregates. These large metallic aggregates, present in all of the competing methods have the disadvantage of getting encapsulated in graphite layers, which remain in the product and are extremely difficult to remove. By contrast, in our process, Co atoms are initially in the form of cobalt molybdate and only begin to agglomerate under the reaction conditions and their growth is hindered by the interaction with the substrate.

This process has the intrinsic ability to produce SWNT of different diameters, because by varying the operating temperature or the gas composition the distribution of diameters can be reproducibly varied. During the last 2 years, the process has been scaled up by a factor of 20 without any change in the structural characteristics of the product. In addition to the better scalability of our process, the product itself exhibits uniquely superior features. Among several advantages, the uniformity of nanotube structure and their easier dispersability due to their thinner bundle size are perhaps the most remarkable.

For many applications in nanoelectronics and nanosensors it is essential to have a nanotube material with specific electronic properties. The characteristics of nanotubes are directly related to their diameter and chirality. Therefore, a process that allows controlling in a reproducible way the structure of nanotubes has a remarkable edge over non-selective processes. The nanotubes produced by our process exhibit a uniquely narrow distribution of diameters, which can be controlled by adjusting the process parameters. This characteristic of the product has been confirmed by photoluminescence analysis performed in collaboration with scientists at Rice University. For instance, as demonstrated in a recent publication, the selectivity distribution of different semiconducting carbon nanotubes produced by our method is superior compared to that obtained in the competing processes. It can be observed that only two types of nanotubes represent the majority of the semiconducting nanotubes present in our samples. By contrast, a similar analysis of the competing material displays a much broader distribution of both diameters. The two types of nanotubes observed in our samples are the (6,5) and (7,5), whose diameters are 0.75 nm and 0.82 nm, respectively. This result is in perfect agreement with the 0.8 nm average diameter measured by Raman spectroscopy, TEM, and STM. The distribution of chiralities is also very narrow. Both, the (6,5) and (7,5) nanotubes have a chiral angle near 27 degrees. By contrast, competing materials exhibit a much broader distribution of chiralities.

Due to the presence of the solid silica substrate that separates the growing nanotubes during the synthesis, the resulting bundles of SWNT are significantly thinner than those typically obtained with methods in which the catalyst is in the vapor phase. While each of the bundles produced by these other methods contain 50 to 100 nanotubes, those obtained in our process only contain 10 to 20 nanotubes. A sample with thinner bundles has several important advantages over one with thicker bundles. For example, for applications in flat panel displays (field emission), thinner bundles result in much lower voltage requirements for a given operating emission current. Lower onset voltages in field emission have a great impact on the cost and viability of flat panel displays. Similarly, in the area of polymer composites, thinner bundles can produce conducting composites with lower nanotube loadings, increasing the transparency of the material and reducing the cost.

Tests conducted by companies who collaborate with OU and SWeNT, such as Applied Nanotechnologies Inc, Austin, TX; Zyvex, Dallas, TX; and Nomadics, Stillwater, OK confirm the higher dispersability in polymer matrices of our SWNT material compared to nanotubes produced by other methods. In addition to the photoluminescence analysis conducted at Rice, several reputed laboratories around the world have confirmed the quality and uniqueness of the SWNT produced by our method. For example, high-resolution STM images have been obtained at Harvard University in the group of Prof. Charles Lieber. The STM images reveal nanotubes of high quality and uniquely uniform diameter, in complete agreement with the photoluminescence results. Similarly, Dr. Ming Zheng at Dupont, working with our material and employing a separation method involving interaction of DNA of specific sequencing with the nanotubes, has been able to produce monodispersed samples of (6,5) nanotubes. This is the first time that a sizeable sample of only one type of nanotube is separated. This remarkable accomplishment can only be realized with the narrow distribution of our sample material. In addition to those mentioned above, our samples have been tested and analyzed by several other academic laboratories around the world (Prof. Manfred Kappes, Karlsruhe University, Germany; Prof. Hongjie Dai, Stanford; Prof. Michael Strano, Illinois; Prof. Antonio Monzon, Zaragoza, Spain) as well as industrial laboratories (Dupont, Zyvex, Eikos, ChevronPhillips, Dow) and Federal agencies (NASA). In all cases, the analyses have indicated that the material is of high quality and uniquely uniform.

PREPARED STATEMENT OF THE DETROIT DIESEL CORPORATION

Detroit Diesel Corporation (DDC), a DaimlerChrysler Company, provides this statement for the record addressing the administration's fiscal year 2006 budget request for the Department of Energy's Office of FreedomCAR and Vehicle Technologies (OFCVT). Specifically, the following line items and recommendations are addressed in this statement:

—*Heavy Truck Engine*.—$20.0 million funding recommended;

—*Combustion and Emission Control (21CT)*.—$7.735 million funding recommended;

—*Advanced Petroleum Based Fuels (21CT)*.—$5.5 million funding recommended.

We generally support the administration's budget request for OFCVT, but we respectfully urge the committee to consider further enhancements to critical key line items that require prompt and immediate attention to reduce the U.S. demand for petroleum. These key line items will have immediate near-term impact on energy security, will decrease emissions of criteria air pollutants and greenhouse gases, and will enable the U.S. transportation industry to sustain a strong and competitive position in the domestic and world markets. Specific relevant OFCVT R&D programs enjoy substantial industry cost share demonstrating a matched commitment by the U.S. industry. In order to bring the intended results to fruition, these programs require sustained or increased levels of funding.

DDC's world headquarters and its main manufacturing plant are located in Detroit, Michigan. DDC employs over 4,000 persons who design, manufacture, sell and service engines for the transportation and power markets. Our products cater to heavy-duty trucks, coach and bus, automobiles, construction, mining, marine, industrial, power generation and the military. DDC has operations and manufacturing centers in various regions of the United States, along with a network of over 100 distributors and 2,700 dealers throughout the United States and worldwide. The DDC Series 60 engine has revolutionized truck engine technology, consistently setting new global performance, fuel economy and life cycle cost standards. It has been the most popular heavy-duty truck engine in the United States for the past 14 years.

Detroit Diesel recognizes the administration's FreedomCAR agenda, and its attention to both near-term and long-term energy sufficiency. The long-term vision focuses on potential emerging technologies, such as fuel cells and hydrogen-based transportation energy. However, it is not anticipated that these technologies will be viable for heavy-duty applications in the foreseeable future. Therefore, we believe that it is equally important to further develop fuel-efficient clean diesel technologies. With appropriate government support, these technologies will have a significant impact on surface transportation fuel use. In this regard, our comments will focus on the program line items that provide substantial potential payback for this important area of national interest.

We generally support the administration's budget request, while respectfully urging the committee to consider further enhancements to the following two line items under the proposed fiscal year 2006 Advanced Combustion Engine R&D program element: Heavy Truck Engine and Combustion and Emission Control, as well as one line item under the proposed fiscal year 2006 Fuels Technology program element: Advanced Petroleum Based Fuels.

The Heavy Truck Engine has a fiscal year 2006 request of $12.148 million, less than the enacted budget in fiscal year 2005. The 2007 and 2010 Federal emissions mandates require an extremely aggressive R&D development plan to identify and implement new technologies. Recent specific findings suggest that EPA's initial projections have underestimated the negative economic impact of the U.S. 2004 regulations by an order of magnitude. The 2007/2010 mandates will further reduce both NO_X and particulate emissions by an additional 90 percent from the 2004 levels. The technological complexities of meeting highly stringent emissions reduction while maintaining and ultimately improving the fuel economy within an extremely short time frame is the toughest challenge ever faced by the U.S. heavy-duty transportation industry. We believe this provides the strongest rationale for significant increases in government support to these competitively bid, collaborative, 50–50 cost-shared R&D programs. DDC is investigating advanced combustion systems, alternative emissions reduction technologies including engine and exhaust after-treatment systems, and smart control strategies within an integrated powertrain. Fiscal year 2005 funding appropriation was $13.8 million. We urge the committee to consider increasing the Heavy Truck Engine line item by an additional $7.9 million above the fiscal year 2006 budget request (Total=$20 million) to assert and support the urgency of accelerated development of these related high risk emerging technologies.

The Combustion and Emission Control activity focuses on the development of advanced emission control technologies for clean diesel engines for U.S. personal transportation vehicle applications as well as a heavy truck component supporting the goals of the 21st Century Truck Partnership. For decades to come, clean diesel engines are the most relevant solution simultaneously offering significant fuel economy savings, reduced exposure to climate change issues and a cleaner environment. Initial developments show potential for lower emissions meeting the mandated 2007/2010 levels while maintaining the diesel engine's inherently superior fuel efficiency. The initial performance results are compelling, but many questions remain unanswered regarding emerging technologies for after-treatment and integration of a total technically viable system. The administration's $3.375 million request for the 21CT portion of this budget line item is significantly lower than the historical level of the last few years. We suggest enhancing this by an additional $4 million (Total=$7.375 million) to handle the urgent technical issues of the relevant emerging technologies.

The Fuels Technology is a separate OFCVT program element that includes Advanced Petroleum Based Fuels line item request of $3.5 million for the 21CT portion. It has been demonstrated by the National Labs that combustion efficiency of heavy duty diesel engines can be improved via tailoring certain properties of fuels. In fiscal year 2006, new programs with industry-led teams will attempt to advance this research into the next stage of applied R&D. Therefore, we recommend enhancing the 21CT portion of this line item by an additional $2 million (Total=$5.5 million) to enable the investigation of this additional path for improved fuel efficiency.

We take this opportunity to affirm our strong endorsement to the proposed Department of Energy's fiscal year 2006 referenced budget requests with the stated specific enhancements. The trend setting partnership between the U.S. Government and a key industrial base addresses this country's and the world's needs in critical areas of transportation, energy security, economy and environment. The exemplary track record through competitive leveraging of government funding by substantial industry cost share and the emerging high potential results of these partnerships warrant strong Congressional endorsement. This affords a unique opportunity for a justifiable and a highly effective return on investment of the U.S. taxpayers' money.

PREPARED STATEMENT OF THE CONSORTIUM FOR FOSSIL FUEL SCIENCE, UNIVERSITY OF KENTUCKY

Member institutions of CFFS: University of Kentucky, University of Pittsburgh, West Virginia University, University of Utah, and Auburn University.

PRODUCTION OF HYDROGEN FROM FOSSIL FUELS USING C1 CHEMISTRY: OVERVIEW AND FUNDING REQUEST

The "hydrogen economy" envisions a quantum leap in the improvement of air quality through the utilization of hydrogen as a fuel for a new generation of vehicles powered by fuel cells ("FreedomCar") and for the production of electrical power ("FutureGen"). This document briefly outlines a hydrogen research program being conducted by research faculty and graduate students from the five universities (Kentucky, West Virginia, Pittsburgh, Auburn, and Utah) that comprise the Consortium for Fossil Fuel Science (CFFS). The primary goal of the research is to develop novel, improved methods of producing hydrogen from coal-derived syngas, hydrocarbon gases and liquids produced from syngas, coalbed methane, and natural gas using C1 chemistry, an area in which the CFFS has significant expertise and experience. The development of novel hydrogen storage materials is also being investigated. A 3-year contract to conduct this research was initiated with the CFFS by the U.S. Department of Energy, Office of Fossil Energy, (DOE–FE) in 2005. The CFFS is requesting $2 million from DOE–FE in fiscal year 2006 to continue this research program. The five CFFS universities will provide $0.25 of cost-sharing for each Federal $1.00, for a total cost-share of $500,000 in fiscal year 2006.

The overall goals of the program are to:

—Develop non-traditional approaches for producing high purity hydrogen from gaseous, liquid, and solid hydrocarbons that are more efficient than those currently used.

—Develop improved catalysts and reaction sequences for producing hydrogen from coal-derived syngas via the water-gas shift (WGS) reaction.

—Develop improved methods for low-temperature reforming of alcohols derived from coal.

—Develop novel solid materials that have high capacity for safe hydrogen storage.

RESEARCH PROGRAM

The CFFS research program on hydrogen has been formulated through consultation and discussions with program managers at the DOE–FE National Energy Technology Laboratory (NETL) and with the members of the CFFS Industrial Advisory Board (Chevron-Texaco, Eastman Chemical, Conoco-Phillips, Air Force Research Laboratory, U.S. Army National Automotive Center-Tank & Automotive Command (TACOM), and Tier Associates). A brief summary of the research topics being addressed in this program is given below.

NON-TRADITIONAL APPROACHES FOR THE PRODUCTION OF HYDROGEN

—Catalytic dehydrogenation of gaseous hydrocarbons has been shown by the CFFS to be a simpler one-step method of producing hydrogen than the traditional multiple step method. Future research will focus on applying this approach to producing hydrogen from liquid and solid hydrocarbons, including coal, diesel fuel, and waste plastic.

—Hydrogen production from C_1 fuels by reforming in supercritical water looks promising because of its ability to act both as a solvent and a reactant.

—Electrochemical production of pure hydrogen from fine coal slurries may occur at lower potentials with less energy consumption than direct electrolysis of water because coal supplies additional electrons for the process.

—Autothermal reforming of hydrocarbon fuels will be investigated using novel iron-based catalysts with ceria supports.

—Photocatalytic decomposition of water using photocatalysts consisting of metal-doped titanium oxide aerogels will be investigated. Metal nanoparticles will be incorporated into the aerogels from volatile metal complexes.

HYDROGEN PRODUCTION USING THE WATER-GAS SHIFT (WGS) REACTION

—A low temperature reaction sequence to produce hydrogen from coal-derived syngas using a potassium catalyst will be investigated.

—Development of very high surface area WGS catalysts supported on ceria aerogels should improve the yields and kinetics of that process.

—Identification of active sites and secondary metal promoters should lead to more active iron-based WGS catalysts.

LOW TEMPERATURE REFORMING OF ALCOHOLS

—Several companies favor steam reforming of alcohols as an approach for producing hydrogen for vehicles and distributed power generation. Three CFFS research projects will employ novel approaches and catalysts for reforming readily available alcohols such as methanol, ethanol, and ethylene glycol (anti-freeze).

NOVEL HYDROGEN STORAGE MATERIALS

Novel materials that are being developed and investigated for hydrogen storage by the CFFS are listed below:

—Chemical hydrides containing catalysts to improve hydrogen storage and release.
—Activated glassy carbons and stacked-cone carbon nanotubes.
—Silica nano-balloons.
—Metal nanoparticles on high surface area silica aerogels.
—Hydrogen-carrier liquid hydrocarbons.

SUMMARY

The Consortium for Fossil Fuel Science is requesting $2 million in fiscal year 2006 to continue an integrated 3-year research program initiated in fiscal year 2005 on the production and storage of hydrogen from coal using C1 chemistry. Achievement of the program goals will accelerate the development of a hydrogen economy. Producing the hydrogen from coal, our greatest domestic resource, could generate many new jobs in both the mining industry and in hydrogen production plants. Additionally, development of technology to produce hydrogen from coal should help to decrease petroleum imports, now surpassing $150 billion per year, and improve the U.S. balance of trade.

The Consortium for Fossil Fuel Science is eager to continue its role in these exciting technical developments. The principal contacts for the CFFS at each of our five universities are: Gerald P. Huffman, Director, Consortium for Fossil Fuel Science, University of Kentucky; Christopher B. Roberts, Chair, Department of Chemical Engineering, Auburn University; Irving Wender, Distinguished Research Professor, Department of Chemical & Petroleum Engineering, University of Pittsburgh; Richard A. Bajura, Director, National Research Center for Coal and Energy, West Virginia University; and Ronald J. Pugmire, Associate Vice President for Research, University of Utah.

PREPARED STATEMENT OF THE BIOMASS ENERGY RESEARCH ASSOCIATION

BIOMASS RESEARCH

This testimony pertains to the fiscal year 2006 appropriations for biomass energy research, development, and deployment (RD&D) conducted by the Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy (EERE). This mission-oriented biomass RD&D is funded by the Energy and Water Development Bill, and is performed under the headings Energy Conservation, which was formerly funded under Industrial Technology by the Interior and Related Agencies Bill, Energy Supply, and Hydrogen, for which BERA's recommendations are limited to biomass-based hydrogen research.

BERA recommends a total appropriation of $88,000,000 in fiscal year 2006 under Biomass and Biorefinery Systems R&D (Energy Supply and Energy Conservation), and $7,000,000 under biomass-related Hydrogen Technology, for a total of $95,000,000.

—$1,000,000 for Feedstock Infrastructure.
—$29,500,000 for Platforms R&D: Thermochemical Platform ($17,000,000) and Bioconversion Platform for Sugars ($12,500,000).
—$24,500,000 for Utilization of Platform Outputs: Integration of Biorefinery Technologies, Thermochemical Conversion ($14,500,000) and Bioconversion ($10,000,000).
—$33,000,000 for Utilization of Platform Outputs R&D: Core Technologies for Chemicals ($12,000,000), Biorefinery Systems Development ($16,500,000), State & Regional Partnerships ($4,500,000).
—$7,000,000 for biomass-related projects under Hydrogen Technology.

On behalf of BERA's members, I would like to thank you, Mr. Chairman, for the opportunity to present the recommendations of BERA's Board of Directors for the high-priority projects and programs that we strongly urge be continued or started. BERA is a non-profit association based in Washington, DC. It was founded in 1982

by researchers and private organizations that are conducting biomass research. Our objectives are to promote education and research on the production of energy and fuels from virgin and waste biomass that can be economically utilized by the public, and to serve as a source of information on biomass RD&D policies and programs. BERA does not solicit or accept Federal funding for its efforts.

The level of earmarks in the last few years has resulted in premature reductions of scheduled programs by EERE. BERA respectfully asks the subcommittee to carefully consider the impacts of all earmarks on EERE's biomass energy RD&D. If they are for projects that are not included in DOE's formal funding request, BERA urges that they be add-ons to the baseline funds rather than deductions.

For fiscal year 2006, EERE has again prioritized sugar over thermochemical platform RD&D. BERA urges that this condition be eliminated as soon as possible because both platforms are equally important, particularly for large-scale, virgin biomass growth and waste biomass acquisition integrated with biorefineries. These are the systems that will permit biomass to have a major role in displacing petroleum and natural gas usage.

The original goal of the Biomass and Bioproducts Initiative (BBI) created as a result of "The Biomass Research and Development Act of 2000" and Title IX of the Farm Bill was to triple the usage of bioenergy and biobased products. Congress has provided annual funding for the BBI since fiscal year 2000. A strategic plan was developed by the multi-agency Biomass Research and Development Board (BRDB), co-chaired by the Secretaries of Energy and Agriculture, to achieve this goal. Its achievement is necessary because of environmental and energy security and supply issues, and our increasing dependence on imported oil. We must determine whether practical biomass systems capable of displacing much larger amounts of fossil fuels can be developed. BERA strongly urges that the BBI be continued in fiscal year 2006 at the funding levels recommended by BERA for the cost-shared demonstration projects shown in the table on page 3. The highest priority should be given to this program component.

PROGRAM INTEGRATION, COORDINATION, AND MANAGEMENT

For several years, BERA has urged that all biomass-related research funded by DOE should be coordinated and managed at DOE Headquarters so that the program managers are heavily involved in this activity. We are pleased to note that this process, which began in fiscal year 2002, has been implemented and is in a constant state of improvement. BERA congratulates DOE on the progress made in restructuring the program and its management. BERA also congratulates DOE and USDA for the cooperation and joint coordination of the programs of each department to increase the usage of agricultural and forestry biomass for the production of much larger amounts of affordable fuels, electricity, and biomass-derived products than have been realized in the past. These efforts are expected to help facilitate the transformation of biomass into a major source of renewable energy, fuels, and chemicals.

However, without full incorporation of the BBI into DOE's and USDA's biomass research programs, the time table for this transition will be stretched out for several decades and possibly never happen except to a very limited extent for niche markets. Large, strategically located, energy plantations are ultimately envisaged in which waste biomass acquisition and virgin biomass production systems are integrated with biorefineries and operated as analogs of petroleum refineries to afford flexible slates of multiple products from multiple feedstocks. Unfortunately, relatively large amounts of capital and inducements are required to convince the private sector to get involved in developing even modest size projects in the field. So to help implement this essential program, BERA includes the BBI as a line-item in its annual testimony.

BERA also continues to recommend that implementation of the BBI should include identification of each Federal agency that provides funding related to biomass energy development and each agency's programs and expenditures, as is done today by the DOE and USDA. This is an on-going activity that should be expanded to include other agencies and departments to help fine-tune the critical pathways to program goals. Continuous analysis of the information compiled should enable the coordination of all federally funded biomass energy programs through the BRDB to facilitate new starts focused on high priority targets, and help to avoid duplication of efforts, unnecessary expenditures, and continuation of projects that have been completed or that do not target program goals. Full implementation of the BBI will enhance the value of the Federal expenditures on biomass research to the country in many different ways.

BERA RECOMMENDATIONS

BERA's recommendations have always consisted of a balanced program of mission-oriented RD&D. Advanced thermochemical and microbial conversion processes and power generation technologies, alternative liquid transportation fuels, and hydrogen-from-biomass processes are currently emphasized. Biomass production RD&D for energy uses is expected to be done by the USDA.

BERA continues to recommend that at least 50 percent of the Federal funds appropriated for biomass research, excluding the funds for scale-up projects, are used to sustain a national biomass science and technology base via sub-contracts for industry and universities. While it is desirable for the national laboratories to coordinate this research, increased support for U.S. scientists and engineers in industry, academe, and research institutes that are unable to fund biomass research will encourage commercialization of emerging technologies and serious consideration of new ideas. It will also help to expand the professional development and expertise of researchers committed to the advancement of biomass technologies.

Although progress has been made, EERE has terminated research in several critical thermochemical areas. BERA believes that a balanced program of high-priority research should be sustained and protected, so we continue to recommend both a diversified portfolio of research and an appropriate amount of funding for scale-up without diminishing either EERE's R&D or scale-up programs. BERA's specific dollar allocations are listed in the accompanying table. Additional commentary on each program area is presented on pages 3, 4 and 5. DOE's basic research on biomass energy performed by the Office of Science, which is not shown in the table, should be designed to complement EERE's mission-oriented biomass RD&D. All of DOE's biomass research should have the ultimate goal of commercialization by the private sector and fossil fuel conservation and displacement.

ALLOCATION OF APPROPRIATIONS RECOMMENDED BY BERA FOR FISCAL YEAR 2006

BERA recommends that the appropriations for biomass RD&D in fiscal year 2006 be allocated as shown in the table. Our recommendations are generally listed in the same order as the funding requests under EERE's headings and program area titles except several program areas are included that are either new or that BERA recommends be restored to maintain a balanced program. Note that the recommended budgets for the demonstration projects do not include industry cost-sharing, which is required to be a minimum of 50 percent of each project cost. BERA recommends that funds for the BBI be used for these scale-up projects after evaluating the projected contribution of each project to the BBI's goals.

Office of Energy Efficiency and Renewable Energy	Program Area	Recommended Budget for	
		Research	Scale-Up
Biomass & Biorefinery Systems R&D (Energy Supply):			
Feedstock Infrastructure	Harvesting Equipment/Storage/Logistics	$1,000,000	.....
Platforms R&D	Thermochemical Platform R&D:		
	Advanced Combustion & Controls	2,000,000	.....
	Advanced Gasification Technologies	4,000,000	.....
	Oxygenates from Syngas	4,000,000	.....
	Liquid Fuels from Pyrolysis	3,000,000	.....
	Chemicals from Syngas & Pyrolysis	4,000,000	.....
	Bioconversion Platform R&D:		
	Pretreatment and Hydrolysis	5,000,000	.....
	Organisms and Enzymes	4,000,000	.....
	Fermentation (Ethanol)	3,000,000	.....
	Fermentation (Methane)	500,000	.....
Utilization of Platform Outputs	Integration of Biorefinery Technologies:		
	Thermochemical Conversion:		
	Small Modular Power Generation [2]	.....	$2,000,000
	Biomass Cofiring Power Generation [2]	.....	3,000,000
	Oxygenates and Mixed Alcohols [2]	.....	9,500,000
	Bioconversion:		
	Ethanol from Cellulosics [2]	.....	10,000,000
Biomass & Biorefinery Systems R&D (Energy Conservation, Formerly Part of Industrial Technology):			
Utilization of Platform Outputs	Core Tech., Building Block Chemicals [3]	[3] 5,000,000	.....
R&D	.....	.....	[3] 7,000,000
	Biorefinery Systems Development: [3]		
	Design Optimization, Efficiencies	[3] 2,500,000	.....
	Product Slates, Economics, Markets	[3] 1,000,000	.....
	Siting, Acquisition, Construction Starts	[3] 2,000,000	[3] 11,000,000
	State & Regional Partnerships	.....	4,500,000
Biomass Subtotal	.....	88,000,000	
Hydrogen Technology [1]	Thermal Processes (Reforming) [3]	.....	2,000,000

Office of Energy Efficiency and Renewable Energy	Program Area	Recommended Budget for	
		Research	Scale-Up
	Photolytic Processes (Algae)	1,000,000	.....
	Innovative Conversion Processes	4,000,000	.....
Biomass-Related Hydrogen Subtotal		7,000,000	
Grand Total		95,000,000	

[1] BERA's recommendations pertain only to the biomass-based portion of Hydrogen Technology.
[2] BERA's recommendations should be used for scale-up at the PDU and pilot-plant scales, preferably with industry cost-sharing.
[3] All demonstration projects should be cost-shared with industry and State participation.

Feedstock Infrastructure, Harvesting Equipment, Storage, and Logistics.—EERE terminated biomass production research a few years ago and is now concentrating on infrastructure development, including novel systems for collecting agricultural residues. In fiscal year 2006, EERE plans to focus on single-pass harvester development for wheat straw and corn stover.

Platforms R&D, Thermochemical Conversion.—In fiscal year 2006, EERE will continue to develop technologies for the production and conditioning of biomass syngas and pyrolysis oils suitable for the manufacture of fuels, chemicals, and hydrogen. Unfortunately, much of this research has been phased out. Continuation of advanced biomass combustion and gasification methods could have environmental and economic benefits that can lead to significant growth in power generation from waste biomass and combined energy recovery-disposal methods for certain kinds of high-moisture waste biomass such as biosolids (municipal sewage), MSW, agricultural residues, and wood wastes. BERA recommends continuation of this R&D to develop the next generation of advanced combustion and gasification processes for power generation. Also, the development of medium-Btu biomass gasification provides one of the most promising routes for production of liquid fuels, chemicals, and hydrogen from a broad range of biomass feedstocks including cellulosics and residual materials. Gasification can be the cornerstone of EERE's programs. Investigation into the refinement of gas cleanup technology and other supporting unit operations such as biomass feeding and downstream catalytic operations should be expanded. BERA has also recommended that EERE support thermochemical liquefaction processes such as pyrolysis. It has been a minimally funded R&D effort, particularly when compared with the effort expended on other conversion methods.

BERA urges that thermochemical conversion R&D for biomass combustion, gasification, and liquefaction be restored, expanded, and given a higher priority by EERE.

Platforms R&D, Bioconversion.—Although technology for fermentation of the five sugars in cellulosics is available, the cost of releasing them from recalcitrant biomass is still high. EERE has focused the R&D effort to reduce this cost on three major elements: advanced pretreatment, enzymatic hydrolysis, and process integration. Dilute acid pretreatment is also being studied. In fiscal year 2006, pilot-scale work will be initiated on more chemistries and configurations for thermochemical pretreatment, and a solicitation is planned to address and optimize cellulase activity under these pretreatment regimes.

Methane fermentation (anaerobic digestion) is unique in that it produces methane, the major component in natural gas, at high concentrations in the medium-Btu product gas from a full range of virgin and waste biomass. EERE has terminated most of this research, which can lead to advanced waste disposal-energy recovery processes as well as the alleviation of numerous environmental problems encountered during waste treatment in urban communities and agricultural facilities. This research should be restored.

Bioconversion is useful for converting a variety of biomass and derivatives to a wide range of commodity chemicals or high-value organic chemicals and polymers. The use of selected microbial populations is in fact the only practical route to certain types of chemicals and polymers. An exploratory program to advance this technology is a natural adjunct to EERE's on-going Bioconversion R&D. BERA recommends that part of this research effort should focus on this field.

Utilization of Platform Outputs, Integration of Biorefinery Technologies, Thermochemical Conversion and Bioconversion.—In fiscal year 2006, EERE reports that it will continue to integrate and test the handling, pretreatment, hydrolysis, and fermentation operations to allow for evaluation of the performance and costs of converting biomass to fuels at the bench- and/or pilot-scale to assist in the development of commercialization plans. This implies that thermochemical conversion will not be examined in EERE's program and that it will be limited to microbial systems. BERA strongly recommends that this effort not be limited to bioconversion because there are many thermochemical options that can be applied to design and operate integrated, multiple-product biorefineries. This is much preferred to a technology-limited plant and can often be changed with market conditions to maximize ROIs. Also, projects such as those conducted at the PDU and pilot-plant scales can more readily focus on efficient development of the critical data needed to overcome or eliminate existing scale-up barriers. It is essential that integrated feedstock acquisition-biorefinery systems be designed and built using this information for demonstration in the field on a sustainable basis. The pathways to successful development of these systems are in hand now.

Additional commentary on the value of PDU and pilot-scale R&D is in order. For example, several projects performed at semi-commercial plant scales or that in-

volved modules of commercial plants have been funded and carried out to develop processes for converting low-cost cellulosic feedstocks to fermentation ethanol. Unfortunately, the results of this effort have not led to operating systems despite the excessive time and relatively large budgets that have been provided to conduct the work. It is apparent that although the processes are feasible, the scale-up projects have not yet been successful. But it is still important to commercialize this technology; smaller scale PDU- and pilot-scale work will facilitate this transition.

BIOMASS & BIOREFINERY SYSTEMS R&D (ENERGY CONSERVATION, FORMERLY PART OF INDUSTRIAL TECHNOLOGY)

Utilization of Platform Outputs R&D, Core Technologies, Chemicals.—For fiscal year 2006, EERE reports that this R&D effort will continue the competitive selection of R&D projects aimed at core technology development to enable a broad suite of products. Core technology was defined via an analytical effort that resulted in the selection of the top 12 building block chemicals that can be produced from sugar intermediates via biological or chemical conversions. These 12 chemicals can subsequently be converted to a number of high-value biobased chemicals or materials.

BERA urges that this effort focus on commodity organic chemicals, which have established markets, rather than high-value chemicals, which are normally either new products without established markets or specialty chemicals with limited markets. On commercialization, this will have a greater probability of reducing petroleum and natural gas consumption. In fiscal year 1999 when this program was started under EERE's Industrial Technology program, the goal was to displace 10 percent of the fossil feedstocks with biomass for the production of commodity organic chemicals. BERA estimated that when process energy is also included, this could save a total of about 0.6 quad annually in oil and gas consumption. BERA also urges that this effort not be limited to sugar intermediates; it should include direct conversion of other intermediates and biomass to commodity organic chemicals.

Biorefinery Systems Development.—The recommended budget in Table 3 is much smaller than actually needed, but will permit this program to be started. BERA has long believed that the highest priority should be given to this program component. Its objective should be the sustained operation of biorefineries integrated with biomass acquisition in relatively large demonstration facilities (energy plantations). This effort should address siting, plant design, financing, permitting, construction, environmental controls, waste processing and disposal, and sustained operations; feedstock acquisition, transport, storage, and delivery; all waste disposal and emissions issues; and storage and delivery of salable products to market.

BERA recommends that industrial partners and States should be carefully selected for participation in this cost-shared program. Long-range planning is essential to ensure that each project has a high probability of success and lays the groundwork for continued installation of similar systems by the private sector. Since only a minimal effort has been conducted to date in the United States on this type of program, BERA recommends that the first demonstration facility target the acquisition of waste and/or virgin biomass feedstocks for conversion into electricity, liquid and gaseous fuels, and chemicals. Existing moderate- and large-scale facilities from terminated and continuing EERE projects, such as biomass cofiring, gasification, liquefaction, and fermentation, should be carefully examined to determine whether one or more are suitable for these projects. The partnerships should be in place at the start of each demonstration project.

State and Regional Partnerships (Formerly Regional Biomass Energy Program).—The Regional Biomass Energy Program (RBEP), which covered all States divided into five regions, has been a model outreach program for more than 20 years. The State & Regional Partnerships (SRP) was created last year to succeed the RBEP. Since its creation, the SRP has established and strengthened the regional government councils in each of the five regions, developed a methodology to document the effectiveness of the SRP, collaborated with several States to address market barriers, State policies and programs, initiated work to update State biomass resource assessments, conducted feasibility studies for specific projects, and continued development of guidebooks and software to allow biomass project developers to self-assess project feasibility. BERA strongly urges that the SRP be continued in fiscal year 2006.

Hydrogen Technology.—Research on the thermal reforming of biomass and on splitting water with algae should be continued. In addition, innovative conversion methods such as the use of anaerobic digestion under ambient conditions and catalytic and non-catalytic thermochemical gasification under certain operating conditions that minimize methane formation while maximizing hydrogen formation

should be studied. These technologies may lead to low-cost hydrogen production methods.

PREPARED STATEMENT OF THE STATE TEACHERS' RETIREMENT SYSTEM, STATE OF CALIFORNIA

Department of Energy—Elk Hills School Lands Fund.—$48 million for fiscal year 2006 installment of Elk Hills compensation.

CONGRESS SHOULD APPROPRIATE THE FUNDS NECESSARY TO FULFILL THE FEDERAL GOVERNMENT'S SETTLEMENT OBLIGATION TO PROVIDE COMPENSATION FOR THE STATE OF CALIFORNIA'S INTEREST IN THE ELK HILLS NAVAL PETROLEUM RESERVE

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.

Following the settlement, the sale of the Elk Hills Reserve went forward without the cloud of the State's claims and produced a winning bid of $3.65 billion, far beyond most expectations. Under the terms of the Settlement Agreement between the Federal Government and the State, the State is to receive a 9 percent share of the sales proceeds as compensation for its claims, to be paid in annual installments over 7 years without interest. Each annual installment of compensation is subject to a Congressional appropriation. In each of the past 7 fiscal years (fiscal years 1999–2005), Congress has appropriated a $36 million installment of Elk Hills compensation for the State.

The President's Budget for fiscal year 2006 requests an appropriation of $48 million of Elk Hills compensation for the State, in order to meet the Federal Government's obligations to the State under the Settlement Agreement. The State respectfully requests an appropriation of at least $48 million in the subcommittee's bill for fiscal year 2006.

The Elk Hills appropriation has the broad bipartisan support of the California House and Senate delegation.

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.

CONGRESSIONAL DIRECTION TO SETTLE THE STATE'S CLAIMS

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.)

SETTLEMENT REACHED THAT IS FAIR TO BOTH SIDES

Over the course of 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.

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 $3.65 billion in cash, a sales price that substantially exceeded earlier estimates.

PROPER COMPENSATION FOR THE STATE'S CLAIMS AS CONGRESS DIRECTED

In exchange for the State's waiver of rights to Elk Hills to permit the sale to proceed, the Settlement Agreement provides the State and its teachers with proper compensation for the fair value of the State's claims, as Congress had directed in the Defense Authorization Act.

While the Federal Government received the Elk Hills sales proceeds in a cash lump sum at closing of the sale in February, 1998, the State agreed to accept compensation in installments stretched out over an extended period of 7 years without interest. This represented a substantial concession by the State. Congress had reserved 9 percent of sales proceeds for compensating the State. The school lands owned by the State had been estimated by the Federal Government to constitute 8.2 to 9.2 percent of the total value of the Reserve. By comparison, the present value of the stretched out compensation payments to the State has been determined by the Federal Government to represent only 6.4 percent of the sales proceeds, since the State agreed to defer receipt of the compensation so that it was payable over a 7-year period and will receive no interest on the deferred payments.

Accordingly, under the Settlement Agreement the Federal Government is obligated to pay to the State as compensation, subject to an appropriation, annual installments of $36 million in each of the first 5 years (fiscal years 1999–2003) and the balance of the amount due split evenly between years 6 and 7 (fiscal year 2004–2005). Under the Settlement Agreement, if any installment is not fully paid, the balance rolls over and becomes payable in the following year.

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.

For each of the last 7 fiscal years, Congress has appropriated a $36 million installment of Elk Hills compensation to the State, leaving a balance of at least $66 million owing to the State.

CONGRESS SHOULD APPROPRIATE $48 MILLION FOR THE FISCAL YEAR 2006 INSTALLMENT OF ELK HILLS COMPENSATION, AS REQUESTED BY THE PRESIDENT'S BUDGET

The House Report on the fiscal year 2005 Interior Appropriations measure makes clear that Elk Hills compensation payments to the State should continue: "[T]he payments to date were based on an estimate of the amount that would be required to pay the State of California 9 percent of the net sales proceeds. The final amount due will be based on the resolution of equity determinations and is expected to be more than the amount made available in these seven payments." (House Report No. 108–542 ((Department of the Interior and Related Agencies Appropriations Bill, 2005), at 121).

The administration has now requested appropriation of a $48 million payment from the balance owed to the State for Elk Hills compensation: "In keeping with

the revised equity finalization schedule, the 2006 Budget requests $48 million in new budget authority . . .". (Budget of the U.S. Government—Fiscal Year 2006, Appendix, at 408).

CONCLUSION

The State respectfully requests the appropriation of at least $48 million for Elk Hills compensation in the subcommittee's bill for fiscal year 2006 installment of compensation, as called for by the President's Budget in order to meet the Federal Government's obligations to the State under the Settlement Agreement.

Congress of the United States
Washington, DC 20515

March 17, 2005

The Honorable David L. Hobson
Chairman
Appropriations Subcommittee on Energy and Water Development
2362-B Rayburn House Office Building
Washington, D.C. 20515

Dear Mr. Chairman:

We are writing to strongly urge the appropriation of funds for FY 2006 to carry out the Administration's Budget request for $48 million to pay compensation due to the State of California, for the California State Teachers Retirement System, under the Settlement Agreement with the Federal Government regarding the Elk Hills Naval Petroleum Reserve.

In the Defense Authorization Act for FY 1996 authorizing the sale of the Elk Hills Reserve (Public Law 104-106), Congress acknowledged the State of California's longstanding claims to lands located within the Reserve by setting aside a portion of the proceeds from the sale of Elk Hills to settle the State's claims and directing the Secretary of Energy to negotiate a settlement of the State's claims. The Settlement Agreement that resulted between the Federal Government and the State enabled the Federal Government to maximize the sales revenues for the Federal taxpayer by removing the threat of the State's claims in advance of the sale. In return, the Settlement Agreement provided proper compensation to the State, as Congress had directed, for these lands that had been granted to the State at the time of its admission to the Union. The Settlement Agreement obligated the Federal Government to pay 9 percent of the sales proceeds as compensation to the State in installments.

The Federal Government sold the Elk Hills Reserve for $3.65 billion, substantially more than had been anticipated. The funds necessary to compensate the State are there, having been collected from the sales proceeds and now held in an escrow fund known as the Elk Hills School Lands Fund in the Federal budget for the express purpose of compensating the State, as Congress had directed.

Under the settlement between the Federal Government and the State, the State is entitled to receive compensation in the amount of 9 percent of the sales proceeds (after deducting the direct expenses to conduct the sale) in annual installments over 7 years without interest. The first 5 annual installments are $36 million each (FY 1999-2003) and the balance split evenly between years 6 and 7 (FY 2004-2005). Each annual installment is subject to a Congressional appropriation. Under the Settlement Agreement, if any installment is not fully paid, the balance rolls over and becomes payable in the

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following year. For each of the last 7 fiscal years, Congress has appropriated a $36 million installment of Elk Hills compensation for the State, leaving a balance of at least $66 million owing to the State.

On page 121 of the House Report on the FY 2005 Interior Appropriations measure (H. Rept. 108-542), it was clear that further payments to the State should continue: "[T]he payments to date were based on an estimate of the amount that would be required to pay the State of California 9 percent of the net sales proceeds. The final amount due will be based on the resolution of equity determinations and is expected to be more than the amount made available in these seven payments." In the Administration's FY 2006 budget, the Administration has now requested appropriation of a $48 million payment from the balance owed to the State: "In keeping with the revised equity finalization schedule, the 2006 Budget requests $48 million in new budget authority. . . ."

For the eighth time, the California House delegation has written to the Appropriations Committee in strong support of the Elk Hills appropriation. Congress has appropriated each of the first seven annual installments of compensation due to the State. We strongly urge the appropriation of no less than $48 million for FY 2006, as requested by the Administration, to pay to the State of California the Elk Hills compensation due under the Settlement Agreement with the Federal Government. Finally, we ask that report language be included, similar to the report language accompanying the FY 2005 Interior Appropriations bill, to acknowledge further payments needed, as the Elk Hills School Lands Fund balance is currently greater than $48 million.

Best regards,

Sam Farr

Bill Thomas

Ed Royce

Ken Calvert

Hal Rogers

George Miller

Lynn Woolsey

Howard L. Berman

Randy "Duke" Cunningham

Howard P. "Buck" McKeon

Nancy Pelosi

Maxine Waters

Doris O. Matsui

Dan Rohrabacher

Lucille Roybal-Allard

Tom Lantos

Ellen O. Tauscher

Elton Gallegly

Jane Harman

Bob Filner

Juanita Millender-McDonald

David E. Dreier

Wally Herger

Devin Nunes

Lynn C. Schenk

Gary L. Miller

Ellen Tauscher

Brad Sherman

Howard L. Berman

Susan A. Davis

Loretta Sanchez

Grace F. Napolitano

Michael Honda

Lois Capps

Barbara Lee

Hilda L. Solis

Joe Baca

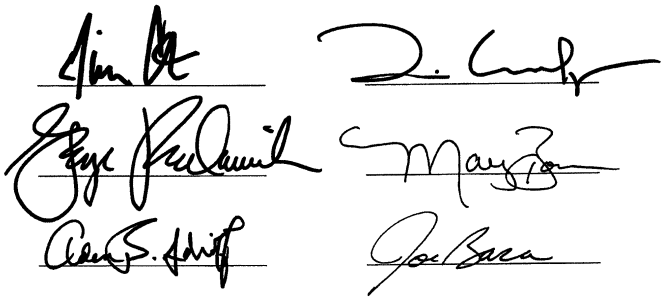
Donald M. Payne

Pete Stark

Diane E. Watson

Anna G. Eshoo

Mike Thompson



PREPARED STATEMENT OF THE SOCIETY OF NUCLEAR MEDICINE

The Society of Nuclear Medicine (SNM) appreciates the opportunity to submit written comments for the record regarding funding in fiscal year 2006 at the Department of Energy (DOE). SNM is an international scientific and professional organization with over 16,000 members dedicated to promoting the science, technology and practical application of nuclear medicine. To that end, SNM advocates the restoration of funding to $37 million for the Medical Applications and Measurement Science Program at the DOE as well as $6.3 million for the creation of a National Radionuclide Enhancement Production (NRPE) program at the DOE in fiscal year 2006. The Society stands ready to work with policymakers at the local, State, and Federal levels to advance policies and programs that will that our Nation have a steady supply of radionuclides for the advancement of nuclear medicine research.

WHAT IS NUCLEAR MEDICINE?

Nuclear Medicine is an established specialty that performs non-invasive molecular imaging procedures to diagnose and treat diseases and to determine the effectiveness of therapeutic treatments—whether surgical, chemical, or radiation. It contributes extensively to the management of patients with cancers of the brain, breast, blood, bone, bone marrow, liver, lungs, pancreas, thyroid, ovaries, and prostate, and serious disorders of the heart, brain, and kidneys, to name a few. In fact, recent advances in the diagnosis of Alzheimer's Disease can be attributed to Nuclear Medicine imaging procedures.

Annually, more than 16 million men, women and children need noninvasive molecular/nuclear medicine procedures. These safe, cost-effective, procedures include positron emission tomography (PET) scans to diagnose and monitor treatment in cancer, cardiac stress tests to analyze heart function, bone scans for orthopedic injuries and lung scans for blood clots. Patients undergo procedures to diagnose liver and gall bladder functional abnormalities and to diagnose and treat hyperthyroidism and thyroid cancer.

FUNDING CUTS AT DOE THREATEN NUCLEAR MEDICINE

The mission of the Medical Applications and Measurement Science Program at the DOE is to deliver relevant scientific knowledge that will lead to innovative diagnostic and treatment technologies for human health. The modern era of nuclear medicine is an outgrowth of the original charge of the Atomic Energy Commission (AEC), "to exploit nuclear energy to promote human health." This program supports directed nuclear medicine research through radiopharmaceutical development and molecular nuclear medicine activities to study uses of radionuclides for non-invasive diagnosis and targeted, internal molecular radiotherapy.

Over the years, the DOE Medical Applications and Measurement Science Program has generated advances in the field of molecular/nuclear medicine. For example, DOE funding provided the resources necessary for molecular/nuclear medicine professionals to develop PET scanners to diagnose and monitor treatment in cancer. PET scans offer significant advantages over CT and MRI scans in diagnosing disease and are more effective in identifying whether cancer is present or not, if it has

spread, if it is responding to treatment and if a person is cancer free after treatment. In fact, the DOE has even stated that this program supports "research in universities and in the National Laboratories, occupies a critical and unique niche in the field of radiopharmaceutical research. The NIH relies on our basic research to enable them to initiate clinical trials."

The majority of the advances in molecular/nuclear medicine have been sponsored by the DOE, including:

—development of PET at Washington University, UCLA, Lawrence Berkeley Laboratory and the University of Pennsylvania (as well as the development of small animal imaging systems that was pioneered at UCLA, with advances also made at the University of Pennsylvania and University of California, Davis);

—use of PET to carry out accurate treatment planning prior to therapy with radionuclides (at many DOE-funded sites);

—development of the molybdenum-99m technetium-99m generator, the mainstay of nuclear medicine studies today, at Brookhaven National Laboratory, as well as radionuclide thallium-201, which is used in cardiac viability studies in the majority of hospitals throughout the world;

—development of NeutroSpec (recently approved by the FDA) for imaging infection at Thomas Jefferson University;

—synthesis of fluorine-18 labeled fluorodeoxyglucose at Brookhaven National Laboratory (this agent is utilized in more than 95 percent of all PET scans carried out today);

—the first imaging of tumor receptors (estrogen receptors were imaged through a collaboration of the University of Illinois and Washington University, St. Louis);

—development of a whole series of ligands to study brain function at many DOE-sponsored sites, and development of agents to study tumor and other organ hypoxia at Washington University, St. Louis;

—pioneering work in the study of brain function (both in normal brains and in the understanding of addiction), carried out largely at UCLA and Brookhaven National Laboratory;

—advances in the application of alpha-particle emitters for therapy (at Duke University and MSKCC); and,

—development of the Anger camera at Berkeley Lawrence Laboratory.

With DOE funding, essential molecular/nuclear medicine research continues at universities, research institutions, national laboratories and small businesses as well as the continuation of research with radiochemistry, genomic sciences and structural biology to usher in a new era of mapping the human brain and using specific radiotracers and instruments to more precisely diagnose neuropsychiatric illnesses and cancer. The future of life-saving therapies and cutting-edge research in molecular/nuclear medicine and imaging depends on funding for the DOE Medical Applications and Measurement Science Program. Without funding for this program, future innovations in nuclear medicine research will never be developed, and millions of patients with heart, cancer and brain diseases will potentially be adversely affected. Therefore, SNM recommends that funding for the DOE Medical Applications and Measurement Science Program be restored to the fiscal year 2005 funding level of $37 million.

CREATION OF A NATIONAL RADIONUCLIDE PRODUCTION ENHANCEMENT (NRPE) PROGRAM

The Nation needs a consistent, reliable supply of radionuclides for medical, security, space power, and research uses. Today, new radionuclides for diagnostic and therapeutic uses are not being developed, critical radionuclides for national security are in short supply, and demand for radionuclides critical to homeland security exceeds supply. New science, such as molecular nuclear medicine, is emerging that will require reliable supplies of radionuclides. The majority of radionuclides used in daily applications today are imported on a daily basis and those required for innovative research are either available sporadically and only in limited quantities or not at all. The demand for radionuclides is rising rapidly due to the blossoming therapeutic and diagnostic applications of nuclear medicine. The future of life-saving therapies and cutting edge research in nuclear medicine and molecular imaging depends on a reliable and reasonably priced supply of radionuclides. The challenge for our Nation is to secure a reliable and enhanced domestic radionuclide supply for the growing medical need of our patients and for research.

Our Nation has only one research reactor, the University of Missouri Research Reactor) (MURR) that provides reactor-produced radionuclides for therapeutic applications. However it has a low power (10MW) that enables it to produce only relatively small quantities of radionuclides at a low specific activity (a few radioactive

atoms and a much greater number of non-radioactive atoms) that limit their use. In addition, the United States has no functional accelerator that can provide cyclotron-produced radionuclides needed for specific diagnostic and therapeutic applications or creative research initiatives. Commercial or university based small and large accelerators exist but they produce only limited quantities of a small number of radionuclides, primarily for routine, approved uses. The resulting crisis in the availability of radionuclides will constrain existing nuclear medicine procedures and will have a chilling effect on research into new procedures to diagnose and treat serious and life-threatening diseases, such as cancer.

Congress should realign current radionuclide resources to create a National Radionuclide Production Enhancement (NRPE) Program to improve the production of radionuclides in the United States so as to assure our Nation of a consistent and reliable supply of necessary radionuclides for research, diagnosis and therapeutic purposes.

Major components of the NRPE Program include:

—To establish a national program to meet the national need for radionuclides. This program should develop the capability to produce large quantities of radionuclides to maintain existing technologies and to stimulate future growth in the biomedical sciences. The overall production capacity must be sufficient to insure a diverse supply of radionuclides for medical use in quantities required to support research and clinical activities. Radionuclides for clinical and research applications should be supplied reliably and with diversity in adequate quantity and quality;

—Collaborate with medical, and industrial users to assess radionuclide needs and transfer technologies to accelerate applications;

—To facilitate the transfer of commercially viable radionuclides programs to the private sector;

—To invest in research and development to improve radionuclide production, processing, and utilization;

—To monitor continuously the radionuclide needs of researchers and clinicians;

—To establish an education program to ensure that the next generation of nuclear and radiochemists are trained and available to support the Nation's needs. (*Note*.—No funds are requested for this goal but the NRPE will provide the infrastructure, personnel and environment, to support an education program.); and

—To upgrade the capability at the University of Missouri research reactor and other existing facilities that produce radioradionuclides and stable radionuclides required for their production.

A National Radionuclide Production Enhancement (NRPE) Program will continue innovation in nuclear medicine to meet the health care needs of the Nation. To that end, SNM advocates the allocation of $6.3 million in fiscal year 2006 for the creation of the National Isotope Program and the upgrade of the capability of the University of Missouri research reactor and other existing facilities.

CONCLUSION

The Society of Nuclear Medicine once again stands ready to work with policymakers to advance nuclear medicine research and innovation as well as ensure that our Nation has a steady supply of radionuclides. Again, we thank you for the opportunity to present our views on funding for these initiatives at the DOE and stand ready to answer any questions you may have.

PREPARED STATEMENT OF GEOPHYSICAL SURVEY SYSTEMS, INC.

It is my understanding that testimony is being solicited in support of the Department of Energy, Office of Fossil Fuels, National Technology Laboratory program.

We just finished a 2-year project with 50 percent collaborative support from the NETL's Office of Fossil Fuels and consider the program to be a vital resource in helping us develop new products. This cooperative agreement finished last year, and since we no longer have any financial interest in the program, I feel I can speak my unbiased support and indeed gratefulness for the role NETL has played in helping us develop a completely new kind of Ground Penetrating Radar.

Since it is only a working prototype, I would be unable to put hard dollar figures on the benefits it will bring to the Gas Industry. Still it is my opinion that this new portable radar system will be an important addition to the arsenal of pipe location and gas leak detection tools. Especially so since the majority of gas distribution lines are plastic, with no other method of location than a fading reliance on corroded tracer wires. This new tool will soon become very necessary. There have been several

collateral benefits as well. It has allowed us to take some of the ideas developed under the program and spin them off into several other new projects.

One thing is clear. Without competitively winning NETL's assistance, we would not have taken the risk, and this great new tool would have remained on the back burner for years. As a small company, with fewer than 50 employees, we rely heavily on cooperative agreements to help leverage our limited resources in directions that would otherwise be unattainable.

Thank you for considering these thoughts; I hope they help you make a more informed decision.

Please feel free to contact me with any questions.

PREPARED STATEMENT OF STEVE LOYA, COSTA MESA, CALIFORNIA

OIL & GAS PROGRAMS

I am writing to voice my displeasure to learn that the above program to develop new drill pipe for the oil and gas industry has been selected for cancellation.

With the rapid increase in gasoline and growing demand for oil, I see this action as short sighted and unwise. In fact, the facts speak for itself, we need to spend research money to develop new technologies to recover oil from existing sources.

I ask your reconsideration of this action and to support this program and reinstate it in the next Federal budget.

PREPARED STATEMENT OF IBACOS, INC.

IBACOS (Integrated Building And Construction Solutions) urges the Subcommittee on Energy and Water to provide $20 million for the Department of Energy's (DOE) fiscal year 2006 Residential Buildings Research Program (formally Building America.) We further urge that at least 60 percent of appropriated funding be directed towards the industry-led core Building America Teams to develop cost effective, production ready systems in five major climate zones that result in houses that produce as much energy as they use on an annual basis.

IBACOS, through DOE, has significantly improved the efficiency and livability of U.S. homes.—IBACOS is a founding team in DOE's Building America Program, which consists of five industry consortiums (teams). The IBACOS Building America Team is made up of more than 30 leading companies from the home building industry, including equipment manufacturers, builders, design firms, and other parties interested in improving the overall quality, affordability, and efficiency of our Nation's homes and communities. Although we are located in Pittsburgh, PA, our team members come from across the country. Our associated building product manufacturers and trade associations include: North American Insulation Manufacturers Association (NAIMA) of Washington, DC; Dupont of Wilmington, DE; Carrier Corporation of Indianapolis, IN; Whirlpool of Benton Harbor, MI; USG Corporation of Chicago, IL; Lithonia of Georgia; and Owens Corning of Toledo, OH. Our builder partners includes such large builders and developers as Pulte Homes of Bloomfield Hills, MI; Tindall Homes of Trenton, NJ; Aspen Homes of Denver, CO; Hedgewood Homes of Atlanta, GA; Summerset Development Partners of Pittsburgh, PA; Noisette Development Partners of North Charleston, South Carolina; Civano Development Partners of Tucson, AZ; Washington Homes (a division of K. Hovnanian) of VA; and John Laing Homes of Denver, CO. Other builders and developers in CA, CO, GA, IN, NC, NJ, NY, NV, SC and TX also participate.

Through these and other partners, Building America has had direct influence in increasing the efficiency of nearly 25,000 homes to date. All of these homes use at least 30 percent less energy than a code compliant home, and many exceed 50 percent in savings.

We have been working with DOE's Residential Buildings Program since the start of the Building America Program in 1993. Along with the four other teams, we represent more than 200 residential builders, developers, designers, equipment suppliers, and community planners. All Building America partners have a common interest in improving the energy efficiency and livability of America's housing stock, while minimizing any increase in home costs. Many of the products used actually result in a lower cost, while others experience only marginal increases in first cost and absolute reductions in cash flow. In pursuit of this common interest, the five Building America teams pursue common activities that will ultimately assist all homebuilders and benefit the Nations' homebuyers.

Building America teams, such as IBACOS, have the ability to research and develop new technologies and processes, as well as demonstrate and diffuse information

throughout the building community.—We are working to significantly expand the active team participation in Building America, but, perhaps more importantly, we are finding innovative new ways to increase the energy efficiency of the Nation's housing stock, and are encouraging the diffusion of information to hundreds of builders through participation in research partnerships, national conferences, technical committees and the Internet. In fact, in working with Owens Corning, we helped introduce a market based program, System Thinking, in which Owens Corning is applying lessons from Building America to more than 100 builders in all regions of the country.

DOE helps develop and implement widespread innovation in the fragmented residential construction industry.—The new residential construction industry accounts for the production of 1.6 million single-family homes per year (over $70 billion in revenue) and approximately 20 percent of total energy use in the United States.

Despite its size and impact, the industry is exceptionally fragmented. It comprises nearly 100,000 builders, many building only a few homes per year, others as many as 35,000. A multitude of residential product manufacturers, architects, trades, and developers further compound the problem of an industry in which it is very difficult to implement widespread technological innovation. Building America acts as an aggregator for identifying and pursuing research needs and consolidating relationships between the industry and National Labs.

Additionally, there has been little incentive for builders to improve on energy efficiency for a number of reasons. First, energy and resource efficiency does not necessarily contribute to the bottom line of the builder; instead, it benefits the homeowner and the Nation. Second, because builders cannot directly recoup costs for up front investments through energy savings (since they do not own the homes), they have little reason to spend more initially. Third, adopting new technologies and training staff and trades to properly install new systems and products is costly and problem-ridden. Fourth, builders are not good at sharing knowledge among competitors, so DOE's role is critical to expanding the practices beyond the first builders in.

For these reasons, we are working to create higher performance, quality homes for no incremental costs, along with associated training, management, and technology transfer methodologies. We believe that because of this work, energy and resource efficiency, durability, and affordability will eventually be commonplace in the home building industry.

DOE plays a critical role in bringing this research, development, and outreach agenda to the marketplace.

Current research activities include:

—Systems integration, technology and process research and development to improve energy efficiency;
—Indoor air quality;
—Safety, health, and durability of housing;
—Thermal distribution efficiency;
—Incorporation of passive and active solar techniques;
—Techniques that increase builder productivity and product quality;
—Reduction of material waste at building sites;
—Use of recycled and recyclable materials;
—Building materials improvements;
—Envelope load reduction and durability; and,
—Mechanical systems efficiencies and appropriate sizing.

Through DOE, significant energy saving results have been achieved in residential construction, and encouraging research results on systems integration have helped to increase overall energy efficiency.—Results of the experience gained by the Building America teams has been reflected in both DOE and HUD roadmapping sessions, development of research priorities for National Labs, and cooperation on programs within DOE/BTS. For example, the Building America Program is working cooperatively with the Windows program at BTS to ensure that advanced window products are incorporated into high efficiency residential housing. Additionally, collaborative research activities with the National Labs, including NREL, ORNL, and LBNL have resulted in the sharing of knowledge and resources that bridges the gap between Federal research programs and the industry.

The Residential Buildings Program improves the affordability of homes by reduced energy use, and results in better use of capital and natural resources. The scale of impact is exemplified by the 50 percent savings in the average new home built today—the equivalent of the energy used by a sports utility vehicle for 1 year. And, the home will have a useful life of 100 years.

Investing in residential construction technology makes economic and market sense. By using improved materials and techniques, the Residential Buildings part-

ners promote wiser use of resources and reduce the amount of waste produced in the construction process. Because of the homes' improved efficiency, emissions from electrical power will be reduced, potentially eliminating 1.4 million tons of carbon from the atmosphere over the next 10 years. DOE's residential programs will also save consumers more than $500 million each year through reduced energy bills. These savings are permanent and significant.

IBACOS supports efforts across the government to integrate activities in the residential building area. This includes work with the Partnership for Advancing Technologies in Housing (PATH), the National Institute of Standards and Technology, the Housing and Urban Development, and the Environmental Protection Agency. We at IBACOS are working with PATH communities as a part of Building America. One of the PATH communities is in Tucson, AZ. IBACOS, through the Building America Program, is working with the developer and builders on a 2,600-home sustainable new town called Civano. Through detailed monitoring, the homes in this community are proving to be at least 50 percent more efficient than comparable homes. Many of these homes are being heated and cooled for less than $1 a day. Other communities in which Building America is serving as a partner with developers, builders, and PATH are Village Green in CA, Summerset at Frick Park in PA, and emerging communities in Denver, CO, North Charleston, SC, and in Florida. Communities are now under construction that will yield upwards of 80,000 units over the next 7 years. All of these units will result in savings between 30 percent and 50 percent of their energy cost and serve to create market momentum, influencing many other local builders.

The Building America Program is also partnering in the Zero Energy Buildings (ZEB) effort.—ZEB activities develop strategies to effectively integrate renewable energy technologies into energy efficient buildings. We feel strongly that renewable energy technologies need to be incorporated into Building America research and development activities in an integrated fashion via the existing teams, which have already begun to include renewable energy technologies and on-site energy into some projects. In truth, additional funding is needed for the Building America Program's new program requirements including increased energy efficiency goals, increased demand from lead builders, contractors and suppliers for direct participation in the program, expansion of applications in existing building stock, and design for integration of on-site power generation. Increased funding will also augment Building America team activities to more quickly achieve program milestones. Additionally, funding is needed to ensure more effective outreach and communications support to the Building America teams to transfer knowledge gained in research activities directly to the market.

Over the past couple years, the mission and requirements of the Building America Program have grown. Three years ago, we began being responsible not only for R&D and builder education in new home construction but also, the teams were asked to take on the renovation market. Existing home renovation is very different from new home construction and, without the additional funding, these activities will continue to be very limited. Additionally, efficiency targets for the Building America Teams have been increased from 30 percent minimum to 50 percent minimum by 2010 and a 70 percent efficiency increase by 2020. The Teams are also now responsible for onsite power goals of 10 percent by 2010 and 30 percent by 2020. All of these new requirements are dependent on requisite funding.

We look forward to continuing to work with DOE to research and develop the technology and process necessary to deliver higher performance homes to the U.S. market, as well build markets for more efficient equipment and technologies.

IBACOS (Integrated Building And Construction Solutions) urges the Subcommittee on Energy and Water to provide $20 million for the Department of Energy's (DOE) fiscal year 2006 Residential Buildings Research Program (formally Building America.) We further urge that at least 60 percent of appropriated funding be directed towards the industry-led core Building America Teams to develop cost effective, production ready systems in five major climate zones that result in houses that produce as much energy as they use on an annual basis. Along with the industry cost share in the program of at least 100 percent, this program has and will continue to significantly catalyze improvements in what has traditionally been a very fragmented industry.

PREPARED STATEMENT OF SAGE ELECTROCHROMICS, INC.

SAGE Electrochromics, Inc., located in Faribault, Minnesota, is a developer of energy saving electrochromic (EC) window products and is working in partnership with the U.S. Department of Energy (DOE). We at SAGE urge you to recommend

a budget level of $7,500,000 for the Windows Technologies Program at the DOE including $1,500,000 million for a competitive electrochromics industry R&D, engineering and systems integration program in fiscal year 2006 Energy and Water Appropriations.

DESCRIPTION OF ELECTROCHROMICS

An electrochromic window (door or skylight) is a solar control device that regulates the flow of light and heat with the push of a button. The window tint can be varied from fully colored to completely clear or anywhere in between. The EC properties are achieved through thin metal oxide layers on one of the glass surfaces, otherwise the construction is similar to the standard insulating glass unit (IGU) used in millions of homes and office buildings.

THE UNIQUE BENEFITS OF ELECTROCHROMICS

Industrial and government partners in the DOE EC program are performing cost shared research and development that will lead to significant energy and cost savings by fundamentally changing the nature and function of window products for tomorrow's buildings. Significant savings in the cooling and lighting loads can be achieved while reducing peak electricity demand. Just as important is the ability of EC technologies to improve visual and thermal comfort and thereby increase worker productivity and the aesthetics of the home or office space.

Traditionally, adding windows to a building envelope has meant reducing energy efficiency because the other materials in the structure are much more energy efficient. However, with EC technology, windows will become multifunctional energy saving appliances in the home or office space and thereby will allow increased use of windows for aesthetic reasons. The Lawrence Berkeley National Laboratories (LBNL) estimated that the use of EC in average size windows in commercial buildings will reduce cooling electricity consumption by up to 28 percent, lower peak electrical power demand by 6 percent and decrease lighting costs by up to 19 percent for the entire building perimeter zone.

In the residential sector, use of electrochromic windows could lead to a 65 percent reduction in cooling over the existing installed base and a 47 percent reduction in cooling over the best performing glass used today—spectrally selective low-E. Heating savings compared to the installed base and that used in new construction today are 61 percent and 31 percent respectively. This will be even more important for the customer's bottom line as the cost of energy becomes increasingly market driven.

National energy savings are also impressive. The calculated national total energy savings for all market segments due to EC glazing adoptions show energy savings of 0.71 quads across all market sectors, which translates into total annual national energy cost savings of $11.5 billion. These estimates are based on current EC technology, which is expected to improve during the marketing period. Additionally, the LBNL estimates do not include the use of occupancy sensors, which could substantially reduce cooling costs in the summer and heating costs in the winter simply by switching the EC glass to the completely darkened or clear states at the appropriate time.

Although energy and energy-related costs savings are significant, additional benefits accrue from using EC technology and may even be more important. Reduced fading of fabrics has significant cost impacts in many installations. Glare control and greater thermal comfort, as well as the ability for full daylighting have been shown to increase worker productivity and reduce absenteeism. Ability to change building design to take advantage of more window space is a significant architectural benefit and may result in additional energy savings. It is estimated that EC windows for architectural applications could easily grow to be a $15 billion industry in the United States alone—with another $12 billion in military, specialty and transportation sectors.

ADDITIONAL WORK TO BE DONE REQUIRES FURTHER INVESTMENT

DOE has supported this research and development for the past few years, but insufficient funding has been split among a number of players in the Electrochromics industry. Traditionally, funding has focused on technical support for development of durable electrochromic materials for building applications. Over those years, it has become clear that the electrochromic industry needs expanded, cost-shared, precompetitive research in three areas. First, continued materials and basic processing research for electrochromic windows. Second, technology and engineering activities focused on large area manufacturing, improved productivity, and high yields. And third, systems engineering and applications research focused on design, specifications, installation and reliability of EC windows in buildings.

In Materials and Processing Research and Development, near term activities must focus on continued optimization of the device and the individual thin film layers. Improved optical performance is needed to ensure user satisfaction and broad adoption of this energy saving technology. Advanced materials for better dynamic range will result in maximum daylighting for building occupants yet still eliminate glare from computer display terminals when direct sunlight impinges on the workspace. Nanocomposite materials must be incorporated to achieve a more neutral color with enhanced fracture toughness of critical films. Low cost materials will be introduced along with rapid processing technologies (e.g. total in-line, high throughput vacuum deposition of all coatings). Additionally, the EC device electrical properties must be adjusted to enable reproducible switching to any transmission state without complex control hardware that adds cost and degrades reliability.

With respect to Large Area Manufacturing Technology and Engineering, future activities should include development of rapid, large area inspection tools to reduce defects for higher yields. Also, advanced manufacturing technologies such as laser patterning and bar coding will be implemented for flexible manufacturing with reduced costs for tooling and product changeovers. High volume production of large area EC glazings will require the implementation of in-situ diagnostics for real-time automatic control of thin film uniformity. Additionally, consensus electrochromic window performance requirements must be developed together with standards setting organizations and will entail significant testing in the initial stage to establish the technical basis for performance requirements.

In Systems Engineering and Application, the DOE program must include extensive field trials of electrochromic windows in buildings. Occupant feedback on performance, comfort level and other parameters will be solicited and utilized to design ergonomic control algorithms and hardware. Multiple window control should also be demonstrated so we can learn how to tie the adjacent windows together for solar management of the overall space. Long term testing of switchable window systems over the full range of outdoor climatic conditions is required to assess product reliability.

An important DOE goal is the attainment of zero energy buildings (ZEB). This requires highly insulated dynamic control windows. Switchable smart windows will be combined with high R-value technologies (e.g. aerogels) to develop the type of "superwindow" needed for maximum energy savings. Partnerships must be established among advanced technology organizations, major window companies, and the DOE to fabricate, install and test these next generation window systems.

PREPARED STATEMENT OF THE COALITION OF NORTHEASTERN GOVERNORS

STATE ENERGY PROGRAM, WEATHERIZATION ASSISTANCE PROGRAM, NORTHEAST HOME HEATING OIL RESERVE, AND STATE AND REGIONAL BIOMASS PARTNERSHIP

The Coalition of Northeastern Governors (CONEG) is pleased to provide this testimony to the Senate Subcommittee on Energy and Water Development regarding fiscal year 2006 appropriations for Energy Conservation and Renewable Energy programs of the U.S. Department of Energy. The Governors recognize the difficult funding decisions which confront the subcommittee this year and appreciate the subcommittee's support for these programs.

At a time of rising energy prices and heightened attention to the security, reliability and efficiency of the Nation's energy systems, we believe that modest Federal investment in these programs provides substantial energy, economic and environmental returns to the Nation. In recognition of the contribution which energy efficiency and conservation programs make to cost-effective energy strategies, the CONEG Governors request that funding for the State Energy Program be increased to $50 million, and that funding for the Weatherization Assistance Program be increased to $250 million in fiscal year 2006. The Governors support the President's request that funding for the Northeast Home Heating Oil Reserve be provided at a level of $7 million in fiscal year 2006. The Governors also request that the subcommittee provide $5 million to continue the State and Regional Biomass Partnership that addresses outreach, education and deployment of renewable energy technologies.

The Department of Energy's State Energy Program and Weatherization Assistance Program provide valuable opportunities for the States, industry, national laboratories and the U.S. Department of Energy to collaborate in moving energy efficiency and renewable energy research, technologies, practices and information to the public and into the marketplace. Administered by the 50 States, District of Columbia and territories, these programs are an efficient way to achieve national energy

goals, as they tailor energy projects to specific community needs, economic and climate conditions.

State Energy Program.—The State Energy Program (SEP) is the major State-Federal partnership program for energy. It provides a vitally important part of total energy funding to State energy offices, allowing them to tailor the energy activities to fit the particular energy priorities and needs of each State. As the Nation moves to enhance the security of its energy infrastructure, the energy emergency preparedness activities long provided by State energy offices take on heightened significance.

Increased SEP funding in fiscal year 2006 will ensure that States can continue to rely upon State energy offices to serve as their essential energy emergency preparedness officials in providing this vital public security and safety function. As part of the Nation's strategy for a balanced, reliable energy system, SEP also helps move energy efficiency and renewable energy technology into the marketplace. Through the SEP, States also assist schools, municipalities, businesses, residential customers and others in both the private and public sectors to incorporate the practices and technologies which help them manage their energy use wisely.

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 a study of the SEP done by the Oak Ridge National Laboratory at the request of U.S. Department of Energy, every dollar in SEP funding yields $3.54 in "leveraged" funding from the State and private sectors, and results in $7.23 in annual energy cost savings. This adds up to over $256 million in annual energy costs savings. These savings estimates do not capture the valuable public benefits, such as energy emergency planning and preparedness, provided by SEP. In short, the Oak Ridge report concludes that the SEP, with its impressive savings and emissions reductions, ratios of savings to funding and payback periods, offers effective operations and a substantial positive impact on the Nation's energy situation.

Weatherization Assistance Program.—The Weatherization Assistance Program (WAP) helps low-income households better manage their ongoing energy use, thereby reducing the heating and cooling bills of the Nation's most vulnerable citizens. According to the U.S. Department of Energy, low-income households spend 14 percent of their annual income on energy, compared to 3.5 percent for other households. The Weatherization Assistance Program strives to reduce the energy burden of low-income residents through such energy saving measures as the installation of insulation and energy-efficient lighting, and heating and cooling system tune-ups. These measures can result in energy savings as high as 30 percent.

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 Reserve provides an important buffer to ensure that the States will have prompt access to immediate supplies in the event of a supply emergency.

State and Regional Biomass Partnership.—Renewable energy plays an increasingly vital role in a strategy to meet the Nation's near and longer-term energy needs. Some of the most promising renewable technologies use biomass to help lessen the Nation's dependence on imported fossil fuels. The State and Regional Biomass Partnership (Partnership) is a primary link among State, private, and Federal biomass activities, to provide outreach and education on biomass. It has been instrumental in building support for bioenergy project development and State support for biofuels and biobased products. For example, a recent study conducted for the U.S. Department of Energy showed that the Partnership has been directly responsible for $25 million in private investment in biomass projects in the Northeast region in 2004. It is a recognized source of objective and reliable information on biomass. In 2004, over 130,000 hours of education representing 2,500 individuals was carried out by the Partnership in the Northeast alone. The Partnership played a key role in a seamless transition to ethanol following the phase-out in New York and Connecticut of MTBE in gasoline. It is also a valued resource for States in their efforts to expand the use of biodiesel in transportation and heating oil and in promoting appropriate use of biomass for expanded electric power and combined heat and power applications. These biomass applications are important to the Northeast's near term goals to increase renewable energy use and in voluntary programs to reduce greenhouse gases.

In conclusion, we request that the subcommittee increase funding for the State Energy Program to $50 million and for the Weatherization Assistance Program to $250 million; that it provide funding at the President's requested level of $7 million for the Northeast Home Heating Oil Reserve, and that it provide $5 million for the State and Regional Biomass Partnership in fiscal year 2006. These programs have

demonstrated their effectiveness in contributing to the Nation's goals of environmentally sound energy management and improved economic productivity and energy security.

We thank the subcommittee for this opportunity to share the views of the Coalition of Northeastern Governors, and we stand ready to provide you with any additional information on the importance of these programs to the Northeast.

PREPARED STATEMENT OF THE SOUTHWEST RESEARCH INSTITUTE

DOE BUDGET FOR 2006—NATURAL GAS INFRASTRUCTURE AND GAS (METHANE) HYDRATES SUPPLY

Southwest Research Institute® (SwRI®) is a major provider of R&D to all sectors of the energy industry. After reviewing the newly released DOE Budget for 2006, we are deeply concerned about two Fossil Energy (FE) R&D programs that are critical to the United States' energy security.

The DOE should support a portfolio of fossil and renewable energy technologies that can provide clean, affordable and reliable energy to the U.S. consumer and ensure U.S. energy security by emphasizing adequate supplies of domestic energy.

The DOE Natural Gas Technologies' Natural Gas Infrastructure and Gas Hydrates Programs are vital to this objective, and no funds were requested for these programs in the administration's request for 2006. Both of these programs are key to the future adequate supply and delivery of domestic natural gas, and should be supported at increased levels over 2005.

The Natural Gas Infrastructure Program is needed to ensure that gas reaches expanding markets throughout the United States. We strongly support this program and request a 2006 funding level of $25 million as necessary to continue the activities funded in 2005, and to accelerate the development and implementation of technologies critical to infrastructure needs. The Gas Hydrates Program is needed to provide future adequate supplies of domestic natural gas for traditional uses of heating and electric power production. We strongly support this program and request a 2006 funding level of $35 million as necessary to accelerate the development and production of the tremendous U.S. gas hydrate reserves.

Natural Gas will continue to be a major source of worldwide energy as energy usage increases by 50 percent over the next 25 years. The majority of this increase will be provided by fossil fuels with natural gas's share increasing because of its worldwide availability and clean combustion characteristics. Currently, the U.S. domestic production of natural gas accounts for over 90 percent of our needs whereas we import 65 percent of our oil needs. Maintaining the country's natural gas independence is vital to our security and will allow the United States to continue to provide world leadership in the development and application of new natural gas technologies. Significant economic benefits to the United States will accrue from maintaining this leadership position, and the Natural Gas Infrastructure and Hydrates Supply Programs are fundamental to this objective.

Natural Gas Infrastructure ($25 million in fiscal year 2006).—We recommend a restoration of the Natural Gas Infrastructure 2006 budget line to $25 million.

If the United States is to realize the significant economic, environmental, and energy security benefits that will accrue from an increased use of natural gas, numerous technological advancements will be required to address gas pipeline infrastructure needs.

The projected 50 percent increase in gas usage in the 2015–2025 time frame cannot be realized without significant new pipeline construction, and improved reliability and deliverability from the existing 275,000 mile gas transmission/storage network, much of which is over 40 years old. All segments of the gas delivery system are important, and the interstate pipelines are crucial to the movement of gas from the producing States to new and expanding markets throughout the United States. Technology developments are needed to:

—Improve the reliability and extend the life of existing pipelines, and reduce the cost of new construction;

—Improve compressor station and pipeline system operations (reliability, efficiency, emissions and rangeability); and

—Improve the effectiveness of gas storage system design and operation.

All of these contribute to public benefits in terms of additional domestic energy supply, increased safety and reliability, lower cost to consumers, and improved environmental performance.

The benefits that will result from technology developments leading to a 30–35 TCF gas economy are significant in both qualitative and quantitative terms. Poten-

tial benefits, based in part, on gas transmission pipeline operational data supplied to FERC include a potential $5 billion savings in construction cost and a $185 million per year savings in reduced fuel and O&M costs for interstate pipelines only. The value of these quantified benefits will be greater when related gas production, gathering, intrastate and distribution pipeline savings are included.

This program, initiated in fiscal year 2001 with an appropriation of $4.9 million, has been met by tremendous enthusiasm and project cost sharing within the natural gas industry. Over 100 proposals, totaling in excess of $75 million, were submitted by industry partners in response to prior DOE funding. These proposals exceeded the available dollars by a 9:1 margin and met or exceeded DOE's 35 percent cost-sharing requirement. This is not the time to eliminate a highly important and successful program, thus losing the investment and support of many ongoing activities vital to our delivery needs.

Congress appropriated $8.5 million for fiscal year 2005 and all indications are that industry partners will respond at least as enthusiastically as last year. Given the need to revitalize the Nation's aging natural infrastructure with new technologies and materials, given the heightened importance of safeguarding that infrastructure, and given the overwhelming response of the natural gas industry to partnering with the government to achieve these objectives, a continuation and expansion of this program to $25 million in fiscal year 2006 is warranted.

Currently, the Office of Pipeline Safety (OPS) in DOT conducts limited infrastructure-related work focusing on near term safety, security and damage prevention projects, and codes and standards development. DOE focuses on the long term energy delivery issues related to natural gas infrastructure. Although, both departments are involved in R&D, the departments have different missions and their R&D programs reflect it.

Meeting a large increase in gas demand in a manner that is in the best interest of the American public will require continued cooperation between DOE, DOT, and the natural gas industry to develop the necessary research tools.

Immediate and substantial investment in research supporting natural gas infrastructure is essential to ensuring energy reliability and security in our Nation. The DOE infrastructure program is critical to this objective because it addresses needs not covered in the DOT Program.

Gas (Methane) Hydrates Supply ($35 million in fiscal year 2006).—It is our recommendation that the Gas Hydrates budget be increased to the $35 million level for 2006. Methane hydrates are naturally occurring deposits that reside beneath the ocean floor throughout the world. They represent a future significant source for gas supply. Today, methane hydrates have been detected around most continental margins. Around the United States, large deposits have been identified and studied in Alaska, the West Coast, the East Coast, and in the Gulf of Mexico.

The U.S. Geological Survey (USGS) in a detailed assessment of U.S. gas hydrate resources, estimates the in-place gas resource within the gas hydrates of the United States to be 200,000 to 300,000 trillion cubic feet of gas, dwarfing the estimated 1,400 trillion cubic feet of conventional recovered gas resources and reserves in the United States. Worldwide, estimates of the natural gas potential of methane hydrates approach 400 million trillion cubic feet; compared to the 5,000 trillion cubic feet that make-up the world's currently known gas reserves.

This huge potential, alone, warrants a new look at advanced technologies that might one day, reliably and cost-effectively detect and produce natural gas from methane hydrates. If only 1 percent of the methane hydrate resource could be made technically and economically recoverable, the United States could more than double its domestic natural gas resource base.

The United States will consume increasing volumes of natural gas well into the 21st Century as U.S. gas consumption is expected to increase from almost 23 trillion cubic feet in 1996 to more than 35 trillion cubic feet in 2020–2025—a projected increase of 50 percent.

Natural gas is expected to take on a greater role in power generation, largely because of increasing pressure for clean fuels and the relatively low capital costs of building new natural gas-fired power equipment. Also, gas demand is expected to grow because of its expanded use as a transportation fuel and potentially, in the longer-term, as a source of alternative liquid fuels (gas-to-liquids conversion) and hydrogen for fuel cells. Given the growing demand for natural gas, the development of new, cost-effective supplies can play a major role in moderating price increases and assuring consumer confidence in the long-term availability of reliable, affordable fuel. Yet, today, the potential to extract commercially-relevant quantities of natural gas from hydrates is speculative at best. With no immediate economic payoff, the private sector is not vigorously pursuing research that could make methane hydrates technically and economically viable. Therefore, Federal R&D is the pri-

mary way the United States can begin exploring the future viability of a high-risk resource whose long-range possibilities might one day dramatically change the world's energy portfolio.

CLOSURE

Continuing technology development for the U.S. natural gas industry is essential not only for growth, but also for maintaining our present competitive position in an expanding and technology oriented worldwide energy market. New technology to insure that gas is a major energy resource to serve the United States' 21st Century growing need for low-cost, environmentally friendly, energy has broad near-term and long-term strategic benefits that serve the public interest.

However, today's competitive environment within the U.S. natural gas industry has resulted in an emphasis on short-term profitability and cost control. This emphasis has, in turn, compromised the gas industry's ability to invest in long-range public benefit programs involving the environment, energy efficiency, and economic growth. The recognized need for urgency in dealing with these longer term issues and objectives can best be achieved with government support of cooperative RD&D with the gas industry in supply and infrastructure, and areas that produce benefits to the gas and power industry, its customers, the U.S. economy, and the public in general. The U.S. Department of Energy, through its Natural Gas RD&D programs, in the Office of Fossil Energy (FE) is the appropriate agency to address this need to ensure the public continues to benefit from reasonable gas costs with its energy efficiency, clean air, and economic and job growth advantages. These advantages can be realized by insuring that sufficient supplies and infrastructure are in place for the next 20 years, supported by joint industry/government RD&D.

We thank you for your consideration of these funding increases in the FE budget as needed to provide a better balance of the DOE energy R&D portfolio that will best serve the public and national interest.

PREPARED STATEMENT OF ADVANCED COMPOSITE PRODUCTS AND TECHNOLOGY, INC.

The National Energy Technology Laboratory, U.S. Department of Energy has been supporting Cooperative Agreement DE–FC26–99FT40262 titled "Development and Manufacture of Cost Effective Composite Drill Pipe" since October of 1999. This program is funded through June 2005 at which time the composite pipe design will be qualified for actual field use and demonstration. The program needs an additional $2.0 million (estimated) through fiscal year 2007 to complete the field demonstration testing and readiness for commercialization. The composite drill pipe, once commercialized, has the potential to generate $100 million in manufacturing sales revenue and create nearly 1,000 new jobs. Short-Radius and Extended Reach applications do not compete with current steel drill pipe products, so no current applications will be displaced or replaced by the new composite technology.

Much of our remaining oil and gas is locked away in geologically complex formations that necessitate deeper drilling, directional drilling, slim hole drilling, and multilateral drilling. The development and use of drill pipe manufactured from advanced composite materials will greatly improve capabilities in these areas and can substantially reduce the cost of many drilling operations. The composite drill pipe program is an enabling technology that may be considered a national strategic issue. The United States oil and gas industry will be able to reach oil and gas reserves previously thought impossible. This can help reduce the dependence on foreign sources of energy and strengthen the U.S. economy in the process.

The current program is in its final development stages. Current funding allows for the completion of laboratory testing, finalizing the design. However, it will not enable a downhole field evaluation that must be completed before the composite drill pipe can be used in actual production situations. This program is viable! A smaller version of the deep water/extended reach composite pipe is currently being successfully used to revitalize once thought to be depleted oil and gas fields. This short-radius composite drill pipe utilizes the superior fatigue resistance of composites to accomplish drilling that metal drill pipe could not.

The program addresses three primary areas of interest as follows:

Extended Reach Horizontal Drilling.—Composite material is lightweight and can be designed into structures with high specific stiffness and strength. By using this material, it is estimated that the horizontal reach distance of a drill pipe can be increased 40 percent from 25,000 to 35,000 feet over the conventional steel counterpart. Torque and drag are critical drilling parameters that are directly related to the weight per foot of a drill string. In offshore E&P operations, drill platforms are very expensive, and often, marginal oil reserves will not be developed until the eco-

nomical justification can be improved. In the current world climate of the absence of large fields, it is very important that extended reach capability can be developed. More oil and gas reserves can be reached from one single drill platform.

At a cost of $100 million to $300 million per drilling platform, substantial savings can be realized from fewer, smaller and lighter structures. More importantly, this new product will enable the development of many new reservoirs to be tapped from existing structures, which otherwise probably would not be developed. This enabling capability is basically priceless.

Logging-While-Drilling (LWD) and Measurement-While-Drilling (MWD).—Real time monitoring of logging while drilling (LWD), and measurement while drilling (MWD), is limited by the rate of transmission of signals to the surface. Current technology utilizing pressure pulses in the mud stream is limited to about 10 pulses per second. Replacing the steel drill pipe with Smart composite drill pipe would permit the deployment of advanced electromagnetic transmission systems, and could potentially increase the transmission rate to megabytes per second allowing for real time logging and measurement. While it is difficult to put a monetary value on the availability of logging information while drilling, it is extremely valuable for a driller to have real time downhole data to make a decision on drilling ahead. This has the potential to save drillers hundreds of thousands of dollars by eliminating the need to trip the drill string in and out of the well and reducing the time it takes to drill a well.

Deep Water Drilling.—Platform weight is a major design factor in deepwater operations, where often, deepwater and ultra-deep wells are testing the limits of conventional steel drill pipe. Current steel drill pipes developed to operate for deepwater drill platforms are used to run long, heavy casing and casing liner strings in deepwater wells. The added weight to support the drilling system will therefore be a cost to the offshore structure, and occupies valuable space on the platform. The composite drill pipe is lighter; it may also eliminate the need for a separate landing string. Substantial platform weight can be saved.

Because of economic factors, it is extremely important in deepwater operations that a lightweight composite drill pipe be developed. It is commonly estimated that a savings of $5–$8 per pound of weight reduction can be realized in deepwater platform design depending on the water depth. Considering a typical 35,000-feet, 5½-inch OD steel drill string, the drill pipe weight is approximately 28 pounds per foot, 50 percent of that weight, or 480,000 pounds, can be reduced by the use of a composite drill string. Approximately, a $2.5 million savings is calculated based on the weight of drill string alone.

The Federal Government has not footed the entire bill nor do we expect the Federal Government to fund 100 percent of the remaining work. This program is a cooperative agreement between U.S. DOE and ACPT, Inc. along with other industry partners such as Chevron/Texaco, OMSCO, Zoltek, Shell and others. As lead contactor, ACPT, Inc., a small business enterprise, has contributed over $250,000 to this program. The industry partners have contributed over $1.7 million, a confirmation of the industry need and interest in this enabling technology.

This program has been ongoing for about 5 years and is close to completion. Between the government and industry partners, almost $6 million will have been spent to develop this technology. It would be a tragedy to fail from lack of support after being so close to the finish line. This project is on the verge of increasing our Nation's strength with respect to our own national resources.

The oil and gas industry is understandably reluctant to take financial risks in utilizing new technology until it has been proven in the field. While the finances required to prove this technology are not large in terms of the Federal budget, or in terms of dollars already spent on the project, the cost is prohibitive to a company the size of ACPT without the type of assistance provided by the DOE–NETL thus far. A successful field demonstration will generate sufficient world-wide industry interest that further Federal assistance will not be necessary to complete the commercialization of this technology. We are asking that you please find a way to fund this program through the final phase of development.

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 43 million people), serving some of the Nation's largest cities. However, the vast majority of APPA's members serve communities with populations of 10,000 peo-

ple or less. We appreciate the opportunity to submit this statement outlining our fiscal year 2006 funding priorities within the Energy and Water Development and Related Agencies Subcommittee's jurisdiction.

FEDERAL POWER MARKETING ADMINISTRATIONS (PMAS)

Market-based Rates for Federal Power

The administration's fiscal year 2006 budget includes a recommendation that rates for hydropower marketed by the four PMAs (Western Area, Bonneville, Southwestern and Southeastern), which are currently cost-based, be increased by 20 percent per year until they reach "market" rates. The proposal to raise the rates PMAs charge for power generated at Federal hydropower facilities is simply a hidden tax on a select group of electricity consumers. The assumptions underpinning this proposal, including the assumption that these rates are subsidized by taxpayers, are false. The rates paid by customers of the PMAs not only cover all of the costs of generating this power, including repayment of the Federal debt, with interest, in many cases they also cover much of the costs associated with other purposes of these projects including recreation, navigation, and irrigation. The House budget resolution appropriately excluded this proposal, and we urge the subcommittee to do the same in the context of its fiscal year 2006 bill.

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. Therefore, we request that the subcommittee authorize the use of receipts in fiscal year 2006 as follows:

—*Western Area Power Administration (WAPA)*.—$279 million authorization needed in the fiscal year 2006 bill ($130.5 million more than the administration's request because of the severe drought conditions in the West that have greatly diminished the availability of the hydropower resource over the last 5 years).

—*Southeastern Power Administration (SEPA)*.—$32.7 million authorization needed in the fiscal year 2006 bill (the amount requested by the administration).

—*Southwestern Power Administration (SWPA)*.—$12.4 million and of that, $3 million would come from customer receipts (the administration's budget request recommends a total of $10.6 million and of that, only $1.2 million from receipts).

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 dating to World War II, the Bureau determined in 2002 that protecting these multi-purpose water projects was a national responsibility and that the costs of increased security measures should remain a non-reimbursable obligation of the Federal Government. We urge Congress to add language to its fiscal year 2006 bill to clarify that costs of increased security at dams owned and operated by the Bureau of Reclamation should continue to be non-reimbursable.

In report language accompanying the Energy and Water Development Appropriations Act of 2005, Congress recognized the dramatic increase in security needs and corresponding costs at Reclamation facilities following the September 11, 2001, attacks on our country. The conference committee then underscored its concern for the reimbursability of security costs by including the following directive to the Bureau: "Reclamation shall provide a report to the conference no later than May 1, 2005, with a breakout of planned reimbursable and non-reimbursable security costs by project, by region. The conference directs the Commissioner [of Reclamation] not to begin the reimbursement process until the Congress provides direct instruction to do so."

CENTRAL UTAH PROJECT RECLAMATION MITIGATION AND CONSERVATION ACCOUNT

The President's fiscal year 2006 budget recommends that a portion of the Central Utah Project Completion Act (CUPCA) be overturned in order to shift the costs of the Utah Mitigation and Conservation Fund from the Federal Government to power

customers in Arizona, New Mexico, Wyoming, Colorado, Nevada and Utah. This would set an unfortunate and inappropriate precedent that would allow the Federal Government to shift other non-power-related Federal costs to power users or other sets of taxpayers. We urge the subcommittee to oppose this proposal and to insist that the contribution continue to come from the Department of Energy through non-reimbursable, non-returnable funds appropriated for the Western Area Power Administration.

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. EPAct 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 (1.8 cents when adjusted for inflation) from electricity generated from solar, wind, geothermal and biomass projects. According to DOE sources, in order to fully fund all past and current REPI applicants, $80 million would be needed for fiscal year 2006. Despite the demonstrated need, however, DOE has asked for only $5 million for fiscal year 2006, citing budgetary constraints. We greatly appreciate the subcommittee's interest in this small but important program as evidenced by its support of funding for the program over and 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.

As is demonstrated by our strong support for REPI, APPA believes that investing in energy efficiency and renewable energy programs is critical. We urge the subcommittee to support adequate funding to ensure that renewable energy usage continues to increase as part of the portfolio of fuel options available to our Nation's electric utilities.

ENERGY INFORMATION ADMINISTRATION

The Energy Information Administration (EIA) has extensive legislative authority to collect data needed to answer a broad range of energy policy questions. In order to fulfill this responsibility in regard to the electric power industry, EIA has had to revise and expand its data collection to include new participants. EIA now collects information from all sectors of the power industry: investor-owned utilities, rural electric cooperatives, public power systems and Federal utilities, as well as power marketers and non-utility generators.

Most EIA data forms are filled out by all industry sectors. However, the Federal Energy Regulatory Commission (FERC) collects data from its jurisdictional utilities (investor-owned utilities) and the Department of Agriculture's Rural Utilities Service (RUS) collects information from its utility borrowers (rural electric cooperatives). EIA does not duplicate electricity data collected by these Federal agencies. Thus EIA uses a small number of forms to collect comparable information from electric industry sectors not subject to the FERC or RUS reporting requirements. EIA–412 is one of these forms.

Funding for the distribution, collection and analysis of EIA–412 was eliminated by EIA in fiscal year 2005, but EIA has not yet abandoned the program. We urge the subcommittee to encourage the EIA to provide funding for this form in fiscal year 2006 within the context of its overall appropriation. The elimination of form EIA–412 will leave a gap in the electricity industry's data coverage.

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 President requested $651 million for fiscal year 2006 for the nuclear waste repository at Yucca Mountain. While somewhat less than we would like, we appreciate the fact that this year's budget does not assume that a portion of the request would be taken "off-budget" through authorizing legislation.

ADVANCED HYDROPOWER TURBINE PROGRAM

APPA is disappointed with the administration's proposal to sharply cut funding from the $5 million it requested and received in fiscal year 2005 to a request of just $500,000 for fiscal year 2006 for the Advanced Hydropower Turbine Program. DOE has indicated its intention to phase out this important program that is a joint industry-government cost-share effort to develop a hydroelectric turbine that will protect fish and other aquatic habitats while continuing to allow for the production of emis-

sions-free hydroelectric power. We urge the subcommittee to consider providing additional 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 2006.

WEATHERIZATION AND INTERGOVERNMENTAL ACTIVITIES

APPA supports the administration's request of $[sic] million for fiscal year 2006 for helping to increase the efficiency of commercial and residential buildings, including weatherization assistance, the State and community energy conservation programs.

COAL RESEARCH INITIATIVE AND CLEAN COAL POWER INITIATIVE

APPA supports the administration's request of $286 million for fiscal year 2006 for the Coal Research Initiative. APPA also strongly urges the subcommittee to support the administration's request of $68 million for fiscal year 2006 for the Clean Coal Power Initiative. This initiative makes possible joint government-industry research, development and demonstration of new technologies to enhance the reliability and environmental performance of coal-fired generators.

DISTRIBUTED GENERATION FUEL CELLS

APPA supports the administration's request of $84 million for fiscal year 2006 for distributed generation fuel cell research and development.

HYDROGEN RESEARCH

APPA supports the administration's efforts to improve the feasibility of making available low-cost hydrogen-powered fuel cell vehicles, and support its request of $260 million for hydrogen research in fiscal year 2006.

NAVAJO ELECTRIFICATION DEMONSTRATION PROGRAM

APPA supports full funding for the Navajo Electrification Demonstration Program at its $15 million authorized funding level for fiscal year 2006. 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

APPA supports the administration's efforts to promote greenhouse gas reductions through voluntary programs and investments in new technologies. We are therefore disappointed that the administration has failed to request funding through the National Climate Change Technology Initiative to spur innovation of technologies that will reduce, avoid, or capture greenhouse gas emissions, and encourage the subcommittee to consider allocating funds for this important research.

FEDERAL ENERGY REGULATORY COMMISSION (FERC)

The Federal Energy Regulatory Commission (FERC) has requested $220.4 million for fiscal year 2006 for its overall operations. APPA supports this request.

PREPARED STATEMENT OF MASI TECHNOLOGIES, LLC

Agency.—Department of Energy, Office of Fossil Energy.

Program.—Gas/Oil—Drilling, Completion and Stimulation.

Project.—"Enhanced Wellbore Stabilization and Reservoir Productivity with Aphron Drilling Fluid Technology," Award Number DE–FC26–03NT42000.

Award.—$1.11 million for 2 years.

This project was initiated to evaluate how aphron drilling fluids decrease fluid invasion in mature gas and oil reservoirs. The novelty of aphron technology necessitates "proof" of its capabilities in order to increase its acceptance by the U.S. drilling industry. Although use of aphron drilling fluids is expected to decrease drilling costs significantly and reduce the cost of gas and oil to American consumers, unfortunately operators and service companies do not have the wherewithal to carry out this kind of study. Consequently, this important work would not be done without the financial assistance provided by DOE.

As world energy consumption grows at an increasing rate, the United States' reliance on foreign sources is also growing. This is happening at a time when oil production may be nearing a peak and inevitable decline. Oil prices are spiking as a consequence, putting pressure on the world's economies. This "perfect storm" clearly demonstrates the necessity of finding and producing new reserves while working to develop alternative renewable energy sources. Just as important, though, is the ability to maximize production of existing reserves as the energy backbone while these longer term objectives are in progress.

Many of the fields in the United States have been producing for many years and, although there is still significant oil and gas in place, the difficulty of exploiting these fields is increasing. For example, the dynamics of these depleted fields change when the pressure of the producing zones is reduced through years of production. The remaining production must be accessed by remediation, secondary recovery, and infill drilling. All these methods require working in conditions made much more difficult by the depletion of the pressures in the payzone. The industry is making tremendous progress in the development of new tools and techniques to explore and drill more challenging wells. This level of progress is necessary to help in maximizing production of the existing reserves to help fill the gap of current demand.

Because of the level of difficulty due to the severe depletion, many wells are now left undrilled or not remediated. They either cannot be drilled or would be so expensive that they have become uneconomical. Aphron drilling fluid technology was developed to provide a new way to address this problem by changing the way the drilling and workover fluid works. This technology has allowed the drilling of many of these wells without problems and with demonstrated protection of the producing zones. Even though they are severely depleted, these zones were drilled or remediated and are now producing. Most of these early aphron-drilled wells were in depleted sands which were the first zones of interest to be exploited by the industry. More difficult to drill and remediate are fractured zones, which are now being drilled as prolific producers especially when horizontal drilling techniques are employed.

Because of the increased understanding of aphron drilling fluid technology that has been made through this grant from the Department of Energy, the depleted sands are now being drilled more effectively. Even more significant is the progress made through this research to increase the efficiency of drilling these fractured reserves. This is proving effective in extending the development of these difficult reserves and enhancing the effectiveness of horizontal drilling techniques in this effort to enhance production. Even though we have made much progress, a great deal of benefit to our domestic, and indeed global production, will be realized by continued support from the Department of Energy for these R&D efforts.

BACKGROUND AND IMPETUS FOR THE PROJECT

Many oil and gas reservoirs in the United States are mature and are becoming increasingly depleted of hydrocarbons, which makes for ever more costly drilling. While the formations above and below these producing zones typically have much higher pore pressures and require high fluid density to stabilize them, exposure of a depleted zone to this high-density fluid can result in significant loss of whole drilling fluid and differential sticking. Both of these events are extremely expensive to correct.

Uncontrollable drilling fluid losses are at times unavoidable in the often large fractures characteristic of these formations. Furthermore, pressured shales are often found interbedded with depleted sands, thus requiring stabilization of multiple pressured sequences with a single drilling fluid. Drilling such zones safely and inexpensively is very difficult with conventional rig equipment. A popular solution is to drill such wells with fluids of density that is low enough to balance the pore pressure in the depleted zone. However, this action results in drilling the zones above and below the depleted zone "underbalanced," a condition that risks wellbore collapse and blow-outs. A new drilling fluid technology was developed recently that does not entail drilling underbalanced, yet is designed to mitigate loss of fluid and differential sticking. This novel technology is based on the use of uniquely structured microbubbles of air called "aphrons."

Aphron drilling fluids have been used successfully to drill depleted reservoirs and other low-pressure formations in a large number of wells in North and South America. However, as the name "aphron" implies, a key component of these fluids is the introduction of air into the fluid. Air in a drilling fluid is generally considered detrimental, for the oxygen in the air causes corrosion, and the air may create variable pressures and well control issues.

Aphrons are composed of two fundamental elements: (1) a core that is usually fluid and which, as applied here, typically is air; and (2) a protective shell. This shell is considerably different from a conventional air bubble, which is stabilized in a liquid medium only by a thin surfactant film. Aphrons possess two additional layers outside of that inner surfactant layer: a sheath of viscosified water overlays the inner surfactant film, and outside of that is a bi-layer of surfactants that ultimately renders the aphron hydrophilic and, therefore, compatible with the continuous aqueous phase. However, the outermost surfactant layer in the bi-layer is thought to be only weakly associated with the rest of the aphron and can be shed by shear or when aphrons are compressed together. Thus, when aphrons are forced together in a pore throat, they may acquire sufficient hydrophobic character that they can agglomerate and help seal off the pore.

Much of the scenario described above about the role of aphrons in reducing fluid losses down hole is conjecture that has not been confirmed under stringent laboratory conditions. Furthermore, the overall manner in which the drilling fluid is able reduce fluid losses down hole has been brought into question. Consequently, some operators have shown considerable resistance to acceptance of aphron drilling fluid technology.

HOW THE PROJECT WILL ADVANCE DRILLING TECHNOLOGY

Lost circulation is one of the most vexing and costly problems of many drilling operations. This is particularly true when drilling into depleted oil and gas reservoirs. Preventive measures currently focus on underbalanced drilling or use of a low concentration of a plugging agent in the entire circulating system. Remediation is the most common alternative. This entails periodic injection down hole of a pill—a 50-bbl to 100-bbl slug of fluid—that contains a high concentration of a plugging agent or a settable/cross-linkable fluid. Underbalanced drilling is hazardous and costly, while the plugging materials are not only damaging to producing formations, they also are not always effective. Aphron drilling fluids use a combination of very high low-shear rheology to slow the progress of fluids through loss zones and specially constructed micro-bubbles (aphrons) to reversibly plug the loss zones. But little is known about the details of these processes in porous/fractured media at the elevated pressures encountered down hole. Developing some understanding of the physicochemical properties of aphron drilling fluids—and aphrons in particular—under down hole conditions would help greatly to elucidate the roles played by the various components of the drilling fluids and provide guidance for optimization of the system.

KEY DISCOVERIES DURING THE FIRST PHASE OF THE PROJECT

In contrast to conventional bubbles, which do not survive long past a few hundred psi, aphrons have been found to survive compression to at least 27.3 MPa (4,000 psi) long enough to enable them to act as a separate phase. When a fluid containing bubbles is subjected to a sudden increase in pressure above a few hundred psi, the bubbles initially shrink in accordance with the modified Ideal Gas Law. However, conventional bubbles begin to lose air rapidly and, in seconds, they disappear. Aphrons lose air, too, but they do so very slowly, shrinking at a rate that depends on fluid composition, bubble size, and rate of pressurization and depressurization. Air is lost via slow diffusion through the aphron shell and dissolution in the aqueous medium. Less important is loss of oxygen by chemical reaction with various components in the fluid, a process that usually takes minutes and results in nitrogen-filled aphrons. Thus, corrosion of tubulars by aphrons is negligible.

When aphrons reach a critical minimum size—either as a result of compression or slow diffusion of air—they undergo a structural change that leads to their rapid demise, and the expelled air dissolves in the fluid. However, decompression to a sufficiently low pressure results in supersaturation of the aqueous medium, whereupon the air is released; most of the expelled air goes into existing aphrons, though it may also create new aphrons.

The base fluid in aphron drilling fluids was shown to yield a significantly larger pressure loss (or, for a fixed pressure drop, lower flow rate) in long conduits than any conventional high-viscosity drilling fluid. Similarly, if flow is restricted or stopped, aphron drilling fluids (at a fixed wellbore pressure) generate significantly lower downstream pressures than do other drilling fluids. The same phenomena are evident in permeable sands. Furthermore, in permeable sands of moderate permeability (up to at least 8 darcy), aphrons themselves slow the rate of fluid invasion and increase the pressure drop across the sands. Lastly, and most importantly, aphrons were shown to move more rapidly through the sands than the base fluid. This phenomenon, called "bubbly flow," appears to follow conventional Navier-

Stokes theory, which has been used successfully in the past to describe transport of both low-density and high-density internal phases. This theory appears to be as applicable to bubbly flow in a conduit or in a permeable medium (flow in opposition to a pressure differential) as it is to buoyancy (upward flow of bubbles in opposition to gravity). For a rigid sphere in a fluid under the influence of a one-dimensional pressure gradient, $\Delta P/L$, the relative velocity of the bubble in an infinitely wide conduit is

$$V=0.23r^2/\mu*\Delta P/L$$

where r is the bubble radius and μ is the fluid viscosity.

Qualitative tests indicated that aphrons have very little affinity for each other or for the mineral surfaces in rock formations encountered during drilling. This lack of affinity does not result from shedding surfactant layers, as was thought before, but is an intrinsic characteristic of the whole aphron structure. Thus, aphrons resist agglomeration and coalescence and can be pushed back out of a permeable formation easily by reversing the pressure differential, thus minimizing formation damage.

Finally, leak-off tests demonstrated that the base fluid in aphron drilling fluids is primarily responsible for sealing permeable zones and is capable of sealing rock as permeable as 80 darcies. Properly designed aphrons can reduce these losses even further. It was learned from flow visualization tests that, although the amount of air in a typical aphron drilling fluid is very small (15 vol percent air at ambient temperature and pressure amounts to only 0.02 wt percent), bubbly flow can cause the aphrons to move at a velocity greater than the liquid phase, thus accumulating at the fluid front and inhibiting movement of the liquid.

POTENTIAL SPINOFFS

Conventional surfactant-stabilized bubbles are not strong enough or impermeable enough to withstand pressures of just a few hundred psi. Compression itself will reduce a bubble of 100 μm diameter at atmospheric pressure to 38 μm when subjected to a pressure of 250 psi, and 19 μm at 2,500 psi. But the biggest effect of pressure by far on the fate of a bubble is increased gas solubility. When a fluid containing 15 percent v/v entrained air at ambient pressure is compressed to just 250 psi, all of the air becomes soluble. If the stabilizing membrane in an aphron is permeable, the air will diffuse into the surrounding medium and go into solution. This is indeed what happens with ordinary bubbles, and it occurs within a matter of seconds after compression. Aphrons do not lose their air as readily; indeed, even at 250 psi, the aphrons are stable indefinitely. Understanding this phenomenon has wide implications, inasmuch as this behaviour has only been observed previously with thick hollow plastic or glass beads. Such technology might be used to encapsulate many different materials in drilling and completion fluids.

PREPARED STATEMENT OF U.S. PETROLEUM ENGINEERING DEPARTMENT HEADS

On behalf of the Heads of Petroleum Engineering Departments in the United States, whose names are attached to this letter, we would like to submit the following written testimony relating to the proposed DOE budget recommendations for fiscal year 2006.

In the administration's recently proposed budget recommendations for fiscal year 2006, the Department of Energy's (DOE) Oil & Natural Gas Technology Programs have been zeroed out. These proposed cuts are intended to terminate all programs that address research and technology development in the domestic oil and gas sector. We, the undersigned, want to bring to your attention the significant negative impact that these cuts would have on domestic oil and gas production and on our efforts to reduce dependence on foreign oil.

The elimination of DOE funding for research related to oil and gas will have three major negative consequences for the domestic energy industry and for our national energy security:

—We will be unable to train sufficient numbers of Petroleum Engineering undergraduate and graduate students for the domestic industry.

—It will significantly curtail our ability to develop new technologies so as to continue to make the United States the world leader in technological innovation in the oil and gas sector and to effectively develop our domestic oil and gas resources.

—Our ability to build bridges with energy producers around the world through educational and technological exchange will be significantly impaired.

Each one of these items is discussed in further detail and specific data are provided below.

IMPACT ON THE DOMESTIC WORKFORCE IN THE OIL AND GAS SECTOR

Since 1982, the number of B.S. programs in Petroleum Engineering has decreased from 34 to 19, a 44 percent decrease. Concurrently, the B.S. Petroleum Engineering enrollment in the United States has decreased from 9,492 in 1982 to 1,845 in 2004, an 80 percent decrease. The number of B.S. degrees granted in Petroleum Engineering has decreased from 1,280 in 1982 to 272 in 2004, a 78 percent decrease.

Studies conducted by independent organizations, such as the American Petroleum Institute and the Department of Labor, have shown that we have a significant shortfall in the available talent pool in Petroleum Engineering. The average age of the engineers and geoscientists in the oil and gas sector in the United States is now 54 and climbing. Within 5 to 7 years more than half of the engineers in the industry will be eligible to retire. With the small number of graduates emerging from Petroleum Engineering schools, the large number of expected retirements and demographics in the oil and gas sector, a workforce crisis is looming. It is, therefore, vital to support programs that train Petroleum Engineers and geoscientists for the domestic oil and gas industry.

The DOE budget for oil and gas research in the United States has a huge impact on our ability to train qualified people for the domestic oil and gas sector. The DOE Oil & Gas Program provides vital support to Petroleum Engineering Departments cross the country. Through this support, faculty is able to interact with oil and gas operators within the United States and develop a better understanding of the problems faced by the industry. This knowledge is transmitted to students in classrooms and through opportunities to work in these research projects, enhancing their understanding and appreciation of the domestic industry. Our ability to retain the best faculty who are needed to train Petroleum Engineers, for the coming decades largely depends entirely on our being able to provide research funding to our faculty to work on domestic oil and gas issues. Lacking this opportunity, there will not be many viable Petroleum Engineering programs left in the United States.

IMPACT OF BUDGET CUT ON DEVELOPMENT OF DOMESTIC OIL AND GAS RESOURCES

The United States has traditionally been a leader in oil and gas research and technology development. We have held this position primarily through cutting edge technology development both at oil and gas companies and at universities across the country. With the globalization of research and technology, this position can no longer be taken for granted. Failing to have technological leadership in this vital energy sector can have profound implications for the United States both in terms of our ability to develop domestic resources and in terms of our dealings with oil and gas producing countries.

A vast majority of our domestic resources are in mature fields that require the use of novel technologies to produce hydrocarbons. Good examples of technology plays are the development of unconventional gas resources (such as the Barnett shale) in many U.S. basins. These energy resources that constitute an ever-increasing proportion of our domestic energy supply would not have emerged as technologically and commercially viable energy sources without the application of new technologies. There are many such examples. DOE oil and gas research programs provided vital support for the development of these technologies.

IMPACT OF BUDGET CUT ON OUR ABILITY TO BUILD BRIDGES WITH ENERGY PRODUCERS WORLDWIDE

The United States has successfully built bridges with energy producing countries around the world through exchange of technology and educational partnerships for many decades. Indeed, some of the world's largest oil and gas producers are lead by graduates of American universities. The shrinking and possible elimination of Petroleum Engineering programs in the United States will have a devastating effect on our ability to continue this tradition. Over the long run this will have a significant negative impact on our ability to partner with and work with many of these oil and gas producing nations in the future. Maintaining healthy and vital centers of higher education in the oil and gas sector should be a priority for the United States because they provide a training ground for engineers and geoscientists not only for the domestic oil and gas industry but also for technology and business leaders in oil and gas producing countries in other parts of the world. This allows significant long-term global partnerships for the U.S. domestic oil and gas industry and has in the past been very successful in facilitating partnerships with these oil and gas rich nations.

SUMMARY

We, the undersigned, would like to request, that the oil and gas budget for DOE Fossil Energy be restored to fiscal year 2005 levels ($78 million). This amount constitutes a very small portion of the overall DOE budget. In our opinion, this budget needs to grow and expand much beyond where it currently stands. Its elimination will most certainly have a devastating effect on the domestic oil and gas industry and educational infrastructure.

Thank you,

MUKUL M. SHARMA,
The University of Texas at Austin
S. AMERI,
West Virginia University
ROLAND HORNE,
Stanford University
JULIUS LANGLINAIS,
Louisiana State University
TURGAY ERTEKIN,
Penn State University
MOHAN KELKAR,
The University of Tulsa
STEVE HOLDITCH,
Texas A&M University
IRAJ ERSHAGHI,
University of Southern California
DR. ROBERT W. CHASE,
Marietta College
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CRAIG W. VAN KIRK,
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LAWRENCE R. WEATHERLY,
University of Kansas
ALI GHALAMBOR,
University of Louisiana at Lafayette
JALAL TORABZADEH,
California State University
SHARI DUNN-NORMAN,
University of Missouri—Rolla.

PREPARED STATEMENT OF THE COMMISSION ON MARGINALLY PRODUCING OIL AND GAS WELLS

The United States contains 654,026 marginal oil and gas wells that contribute 30 percent of the oil production and 10 percent of the gas production on shore. These wells, although insignificant by themselves, together represent a major force in domestic oil and gas production. Not only for the resources they produce, but for the economic impact they have on their local communities.

Specifically, marginal well production in Oklahoma represents 70 percent of the oil production in this State and 10 percent of the gas production. The operators who produce these wells are 3,000 strong in number, operate an average of 17 wells, are an average age of 55, and derive roughly 39 percent of their income from oil and gas production. The total economic impact of the oil and gas industry in Oklahoma is over $7 billion per year, contributes 7 percent of the gross State product compared to 5 percent of the GSP coming from agriculture, farming and agricultural services, and directly employs 57,000 people with an additional 77,000 people impacted or

supported by the industry. Of the 57,000 people, 53 percent of them are self-employed.

The marginal well operators in Oklahoma as well as in the rest of the country depend on the Department of Energy Research and Development Programs to bring new technology to their industry. None of these operators have the resources to fund their own research and development department and the major companies who do have the budget for these departments do not develop technology appropriate for marginal wells.

The marginal well sector of our industry is an area where the Department of Energy Research and Development Programs have had a significant impact. Without the technology being developed by these programs, more and more marginal wells will be plugged and abandoned, their resources lost forever. Once a well has been plugged, it is not economically or technically feasible for it to be re-opened. We not only lose domestic production that is desperately needed, but jobs and income are lost in our communities.

Funding for grant programs through the National Energy Technology Laboratory and specifically through programs such as the Stripper Well Consortium are invaluable in keeping marginal production a viable industry in this Nation. Over the last 4 years, the Stripper Well Consortium has developed new technologies which will help the small producers across the Nation keep their marginal wells producing. The consortium also provides a national venue for operators to discuss problems and solutions in their regions of the country, which in turn helps the industry avoid duplication of effort in solving problems.

The failure by the U.S. Department of Energy to continue to fund programs that directly benefit the marginal well industry will cripple this industry and be seen as a rejection of the continuation of domestic production. If we are to retard the growth of the percentage of foreign production imported in to this country, we must promote the growth of domestic production. This can only be done through the continued funding of DOE research and development programs.

PREPARED STATEMENT OF THE AMERICAN GEOLOGICAL INSTITUTE

Thank you for this opportunity to provide the American Geological Institute's perspective on fiscal year 2006 appropriations for geoscience programs within the subcommittee's jurisdiction. The president's budget requests significant cuts in the Department of Energy (DOE). In particular, the president's request would eliminate the Office of Fossil Energy oil and natural gas research programs, and we ask for restoration of those to their fiscal year 2003 levels. Additionally, as the largest supporter of physical science research in the United States, DOE's Office of Science deserves the subcommittee's full support and restoration of the proposed budget cut.

AGI is a nonprofit federation of 42 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), Natural Gas Technology R&D and Oil Technology R&D accounts as you prepare to craft the fiscal year 2006 Energy and Water Appropriations bill. Over the past 4 years, members of Congress have strongly emphasized the need for a responsible, comprehensive energy policy for the country. The growing global competition for fossil fuels has led to a repeated and concerted request by Congress to ensure the Nation's energy independence. The President's proposal that these programs be eliminated is short-sighted and will not allow us to achieve energy independence.

The research dollars spent by these programs go largely 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 conferees to restore these funds and bring these programs back to at least fiscal year 2003 levels.

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 concentrated on our domestic resources. However, without Federal monetary contributions to basic research that drives innovation, small producers cannot develop new technologies as fast, or as well, as they do today. The program has produced many key successes among the typical short-term (1 to 5 years) projects usually chosen by the DOE for support. And even failed projects have proven beneficial, because they've often resulted in redirection of effort toward more practical exploration and production (E&P) 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 the industry.

In 2003, at the request of the Interior Appropriations Subcommittee, the National Academies of Science 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. Why not continue to fund oil and gas R&D so we can attain the energy independence we need for stable and continued economic growth?

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 both 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 this global and increasingly more expensive commodity.

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 1980's, 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 development of new recovery technologies.

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 both 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 be cut by 3.8 percent from about $3.6 billion last year to $3.5 billion. AGI asks that you restore this cut.

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.

While the Basic Energy Sciences account is slated for an increase, the entire increase would be devoted to Materials Sciences and Engineering (MES) and the Chemical Sciences, Geosciences and Energy Biosciences (CSGEB) account would decline by 7.4 percent. The geosciences activity within CSGEB supports mineral-fluid interactions; rock, fluid, and fracture physical properties; and new methods and techniques for geosciences imaging from the atomic scale to the kilometer scale. The activity contributes to the solution of problems in multiple DOE mission areas, including reactive fluid flow studies to understand contaminant remediation; seismic imaging for reservoir definition; and coupled hydrologic-thermal-mechanical-reactive transport modeling to predict repository performance. In short, this account deserves your full support and well-rounded funding.

Thank you for the opportunity to present this testimony to the subcommittee. If you would like any additional information for the record, please contact me.

PREPARED STATEMENT OF THE AMERICAN FOREST & PAPER ASSOCIATION

FISCAL YEAR 2006 APPROPRIATIONS FOR FEDERAL ENERGY EFFICIENCY AND RENEWABLE ENERGY R&D PROGRAMS

The American Forest & Paper Association (AF&PA) welcomes this opportunity to present its views on the need for sustained and adequate funding of public-private partnerships through the Federal Energy Efficiency and Renewable Energy (EERE) research and development programs. Keeping these partnerships strong and effective is vital to providing a research foundation for the forest products industry to meet competitive challenges, while contributing to strategic national needs associated with energy efficiency, energy security, diversified energy supply, and environmental performance. Therefore, we are writing to strongly recommend funding for the following EERE programs at the Department of Energy: $10.5 million for forest products industry (consistent with the priorities of the current forest products industry technology roadmap) in the Industrial Technologies Program; and designation of $15 million in the Office of Biomass Programs specifically for competitive research for both sugars and thermochemicals technologies and products related to the forest biorefinery. This includes $5 million for pre-digester and $10 million for post-digester activity, including black liquor gasification, leading to the industrial size forest biorefinery demonstration.

AF&PA is the national trade association of the forest and paper industry and represents more than 200 member companies and related associations that engage in or represent the manufacturers of pulp, paper, paperboard and wood products. The forest products industry accounts for approximately 7 percent of total U.S. manufacturing output, employs 1.3 million people, and ranks among the top 10 manufacturing employers in 42 States with an estimated payroll of $50 billion.

Through Agenda 2020, AF&PA members develop and implement our industry's technology vision via collaborative research. Established in 1994 in partnership with the U.S. Department of Energy (DOE), Agenda 2020 has achieved a decade of tangible results by leveraging partnerships with government and universities to develop technologies that hold the promise of reinventing our industry, while providing real solutions for national issues. Agenda 2020's world-class research is designed to address key breakthrough technical hurdles that no one company can accomplish on its own, while meeting technical and economic performance criteria that are consistent with national goals.

The current technology portfolio of the DOE/Agenda 2020 partnership in the Industrial Technologies Program (ITP), if fully funded and developed, can help our industry cut energy use by 25 trillion British Thermal Units (TBTUs) per year by 2010. Additionally, these technologies can help to significantly reduce natural gas use, and cut emissions of NO_X, SO_X, and Carbon Dioxide and volatile organic compounds (VOCs). With adequate funding, Agenda 2020's partnership with the DOE Office of Biomass Programs (OBP) can significantly advance the vision of the Integrated Forest Products Biorefinery (IFPB). The IFPB would evolve existing pulp mills into geographically distributed production centers of renewable, sustainable power, fuels, and chemicals—all while preserving existing infrastructure and core business, creating higher skilled and better paying jobs, strengthening rural communities, and opening new domestic and international markets for American forest products companies. The IFPB would contribute substantially to DOE strategic goals to dramatically reduce dependence on foreign oil, to create new domestic bioindustry, and to improve industrial energy efficiency by reducing fossil energy consumption by over 250 TBTUs/yr, with an additional benefit of cutting approximately 40 million tons of carbon emissions annually.

Agenda 2020's partnerships with Federal agencies are a necessary cornerstone for improving our competitive advantage, and for creating and capturing value through innovation in processes, materials, and markets. The partnerships accelerate our industry's adoption of innovative technologies, its effective use of capital, and its ability to attract the best and brightest people. They allow us to develop more energy efficient and environmentally friendly technologies to benefit both societal and industry needs and avoids forcing our industry to make unproductive investments in aging and inefficient technologies. The Federal partnerships also help our industry continue to provide the world with essential, innovative and environmentally compatible products from abundant, sustainable and reusable biological raw materials.

DOE is Agenda 2020's primary Federal partner in a portfolio of projects that leverages both industry and government investment. In 2004, the 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. This is a remarkable leveraging of Federal investment, given that our industry faces considerable market pressures that hinder new investments of any kind. Agenda 2020's overall Federal partnerships include projects with the U.S. Forest Service, CSREES (Cooperative State Research, Education and Extension Service) program of the U.S. Department of Agriculture and the National Science Foundation.

As is the case with many U.S. manufacturing industries, we face serious domestic and international challenges. Since 1997, 101 pulp and paper mills have closed in the United States, resulting in a loss of 70,000 jobs, or 32 percent of our workforce. An additional 67,000 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. In addition, globalization, aging process infrastructure, few technology breakthroughs, as well as recent financial performance and environmental concerns, 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.

This situation has underlined the importance of a meaningful industry-government partnership to leverage industry RD&D funding, achieve shared industry and national goals, and bring technology risk down to acceptable levels. To capture the full range of value and benefits that can be derived from our wood-based raw materials, multidisciplinary research is increasingly required in emerging technologies, such as biotechnology and nanotechnology, coupled with breakthrough advances in process and conversion technologies. Addressing the associated technical barriers requires sophisticated collaborations bringing together those who conduct and fund research with those who can best translate its results into applications that have economic and social value. In today's world, the complex processes of technology development and product commercialization are inextricably intertwined with government policy and market interactions. It is not possible for the private sector to develop and deploy technology without collaboration with the marketplace and consideration of public policy.

The erosion of DOE support for forest products industry research over the past 4 years has had severe implications for our industry. The ITP has been cut by nearly 40 percent since fiscal year 2002, undermining our progress in achieving crucial energy efficiency and environmental benefits. Fiscal year 2006 proposed ITP funding for forest products research ($3 million) would result in a further 52 percent reduction. Fiscal year 2006 proposed OBP will require complete elimination of most, if not all, basic research and technology development for forest biorefineries.

Fiscal year 2006 proposed funding for ITP will not be sufficient even to sustain our industry's ongoing collaborative projects. Many will have to be halted before they are complete, and no new research could be funded. 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, in particular natural gas. Although we are nearly 60 percent self-sufficient (using biomass), current natural gas prices translate into an additional cost to the industry of more than $2 billion annually—and places us at a significant disadvantage compared with our international competitors. Thus we are in great need than ever for the technology-based energy efficiency solutions that could be provided through our partnership with ITP. AF&PA's recommended ITP funding for forest products research ($10.5 million) would ensure these vital research needs are met.

The proposed fiscal year 2006 budget virtually eliminates funding for research associated with the IFPB. The IFPB vision includes opportunities to produce high value, renewable bio-based fuels and energy at several points during the traditional manufacturing process. At the "pre-digester" stage, before the wood is pulped, the hemicelluloses can be extracted and converted to fuels and/or chemicals. After the

wood has been pulped, or "post-digester", the residual pulping liquors (also known as "black liquor") can be gasified and the resulting synthetic gas converted into power, liquid fuels, and/or chemicals. The IFPB could help make the forest products industry even more energy self-sufficient, which serves 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, which contributes to the DOE strategic goals to dramatically reduce dependence on foreign oil and to create new domestic bioindustry.

In partnership with DOE/OBP, the national labs, and universities, Agenda 2020 has been pursuing vital research in a number of core technologies to enable the IFPB and its products. The shared objective has been to have in place before 2010 one or more facilities that demonstrate the large-scale production of power, chemicals and fuels. The IFPB demonstration is needed to assess technical and economic viability in meeting both industry and national performance criteria, and contribute to national needs for new, renewable fuel supplies.

A core technology for the IFPB is black liquor gasification (BLG). Agenda 2020 is engaged in the sixth year of pre-competitive BLG research to convert 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, these technologies could produce enormous energy and environmental benefits for the industry and the Nation. This new technology provides the research foundation for the potential to produce a net 22 gigawatts of power from a renewable fuel source, displacing as much as 100 million barrels of oil per year. This translates into displacement of 900 BCF of natural gas consumption for power generation by the year 2020, assuming that BLG is placed in service by 2010.

The fiscal year 2006 proposed budget eliminates nearly all funding for IFPB research (and its impacts on and integration with energy efficiency in the core manufacturing process), just as it is advancing to a stage where there can be a full assessment of its technical and economic feasibility. There is no funding for BLG. Even though IFPB-related research has been identified as priority by OBP, it would receive no support because of lack of sufficient funding in the proposed budget. Those research areas include: integrated biorefinery support for thermochemical biorefineries, forest biorefineries, and an fiscal year 2008 industrial size demonstration solicitation; products core R&D in chemicals and fuels from syngas; thermochemical platform core R&D in BLG and syngas cleanup; sugar platform core R&D in optimization of lignin utilization and processes linking pretreatment and enzymes; and feedstock interface core R&D in energy crops. AF&PA is recommending that funding ($15 million) be designated within the OBP budget for competitive research in these critical areas and to complete BLG core research and projects that are underway. This funding will provide the groundwork needed for next vital steps leading to for the 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 NATIONAL ASSOCIATION FOR STATE COMMUNITY SERVICES PROGRAMS

As Chair of the Board of Directors for the National Association for State Community Services Programs (NASCSP), I am pleased to submit testimony in support of the Department of Energy's (DOE) Weatherization Assistance Program (WAP) and in support of DOE State Energy Programs (SEP). We are seeking a fiscal year 2006 appropriations level of $250 million for the WAP and $50 million for SEP. NASCSP believes these funding levels are essential in continuing and improving the outstanding results of these State grant programs for our citizens.

NASCSP is the member organization representing the States on issues related to the WAP and the Community Services Block Grant. The State offices represented by our organization would like to thank this committee for its continued support of the WAP and SEP through the years. The $228.2 million in WAP funds provided by the committee in 2005 is expected to result in:

—An additional 94,000 homes occupied by low-income families receiving energy efficiency services, thereby reducing the energy use and associated energy bills; and

—Greenhouse gases and environmental pollutants being significantly reduced due to the decrease in energy use by these newly weatherized homes; and

—Nearly 16,000 full time, highly skilled, jobs being supported within the service delivery network and in related manufacturing and supplier businesses.

The WAP is the largest residential energy conservation program in the Nation and serves a vital function in helping low-income families reduce their energy use. Developed as a pilot project in 1975, the WAP was institutionalized in 1979 within DOE and is operated in all 50 States, the District of Columbia, and on several Native American reservations. The WAP funds are used to improve the energy efficiency of low-income dwellings using the most advanced technologies and testing protocols available in the housing industry. The energy use reduction resulting from these efforts helps our country reduce its dependency on foreign oil and decreases the cost of energy for families in need. With lower energy bills, these families can increase their usable income and buy other essentials like food, shelter, clothing, medicine, and health care.

The WAP provides an energy audit for each home to identify the most cost-effective measures, which typically include adding insulation, reducing air infiltration, servicing the heating and cooling systems, and providing health and safety diagnostic services. According to the Energy Information Administration's (EIA) Annual Energy Outlook, 2005 projected first-year energy savings for households weatherized during this year are estimated to be $274, reflecting revised assumptions about future natural gas prices. For every dollar spent, the WAP returns $2.96 in energy and non-energy benefits over the life of the weatherized home, based on these same EIA long-term energy prices outlook and studies conducted by the Oak Ridge National Laboratory. These savings occur for several years into the future. Since the program's inception, more than 5.4 million homes have been weatherized using Federal, State, utility and other monies.

As we all know, these are troubling times facing our Nation—war, budget deficits, homeland security needs, and a slowed economic recovery. These times create added financial burdens for all Americans, but especially for those who live at or below the poverty line. Low-income families have always spent a disproportionate share of their income for energy needs than their middle-income counterparts. For example, a typical middle class family pays about 3 to 7 percent of their annual income for energy costs (heat, lights, air conditioning, appliances and hot water). Low-income families pay nearly the same dollar amount each year for energy but this amount represents a significantly higher percentage of their total household income (14 to 20 percent). In times of energy shortages and escalating energy costs, the energy burden for these families can reach 25 to 40 percent or more of their available income.

When energy costs rise, like they have during the 2004–2005 heating season, even a nominal increase can have a dramatic negative impact on low-income families. The expected increase in this year's energy costs may amount to an additional $500 or more for most families. For middle-income families, this increase will amount to less than one-quarter of 1 percent of the total household income. For many low-income families; however, this increase will result in a 3 to 5 percent reduction in their expendable income and will cause families to go without other important essentials like food, medicine, or clothing to meet this higher financial demand.

These families need long-term solutions to help them reduce their energy use both now and in the future—resulting in lower energy bills. That is the primary mission of the Weatherization Assistance Program—"To reduce heating and cooling costs for low-income families, particularly for the elderly, people with disabilities, and children, by improving the energy efficiency of their homes while ensuring their health and safety."

The Oak Ridge National Laboratory reports entitled "State Level Evaluations of the Weatherization Program Conducted From 1990–2001" found that the WAP significantly improved its energy savings results during those years. In 1996, the Program showed savings of 33.5 percent of gas used for space heating—up from 18.3 percent savings in 1989. The increase in savings was based in large part on the introduction and use of more sophisticated diagnostic tools and audits. Families receiving weatherization services can reduce their heating energy use by an average of 22 percent, making the cost for heating their homes more affordable. The Evaluation report also concluded that the WAP possessed a favorable cost-benefit ratio. Simply stated, the Federal funds provided to support the Program have a 140 percent return on investment, or nearly $2.83 in benefits for every dollar invested. Meta-evaluations in 1999 and 2001 confirmed the high level of energy saving potential for the WAP.

The WAP has always served as a testing ground and provides a fertile field for the deployment of research conducted by national laboratories. For example, the

Oak Ridge National Laboratory developed the National Energy Audit (NEAT) for use by local agencies in assessing cost effectiveness of service delivery. Oak Ridge is currently investigating the cost effectiveness of including certain base load measures (water heater replacement, lighting, motor efficiency) into the Program and continues to test other protocols and material installation techniques to help State and local agencies improve their field operations. The Florida Solar Energy Center and the State of Hawaii are working on the development of cost effective solar hot water heaters. The State of New York, working in concert with the local utility companies and the State Energy Research Development Authority, has implemented a refrigerator replacement program to test the impact of providing base-load services to conserve energy and reduce costs.

One of the major outcomes of WAP field deployment is that the private sector eventually adopts these new technologies. This pattern has been established through several advancements including blower door-directed air infiltration, duct system testing and sealing, furnace efficiency standards, and insulation and ventilation protocols. The acceptance of these standards and protocols by the private sector is enormously important as builders attempt to construct new properties or rehabilitate existing ones using a renewed energy efficiency philosophy.

Of equal importance to the technological and programmatic foundation are the WAP contributions in achieving overall national energy policies and social strategies. Some examples of how the Program helps achieve these goals include:

—Reducing harmful greenhouse gas through reduced CO_2 emissions by avoiding energy production. Each time a house is weatherized, the reduction in energy needs reduces the environmental impact associated with creating that energy reduction of sulfur dioxide, carbon, and other pollutants spilled into the atmosphere from the burning of fossil fuels like oil, coal, kerosene, wood, gas, and propane.

—Increasing jobs in communities throughout the country. For every $1 million invested in the WAP, more than 40 full time jobs are created and supported in the States. Another 20 jobs are created in companies who provide goods and services to the Program.

—Investing money into communities through job creation, local purchasing of goods and services, and tax revenues. These investments result in many secondary benefits. These residual benefits, known as "economic benefit multipliers," are applied to local community investment to value the real worth of money used locally. This multiplier is 3.5 to 4 times the actual investment. This means that an investment of $250 million in the WAP could yield nearly $1.0 billion in economic benefits to local communities.

—Reducing consumption of imported fuels by reducing residential energy consumption. Our country currently imports nearly 60 percent of its oil from foreign countries. This figure is higher than the import percentage in the 1970's, when the oil embargo threatened our ability to operate as a Nation. The conservation efforts of the WAP network will help reduce our country's dependency on foreign oil, thereby strengthening our country's national security.

In 2001, the administration earmarked the WAP as a "Presidential Priority" in its National Energy Policy Plan. President Bush committed $1.4 billion to be added to WAP over a 10-year period to help thousands of low-income families meet their energy needs while reducing their energy burden. Each year since then, the administration has asked for higher appropriations levels in their budgets submitted to Congress. In response to these higher budget requests, Congress voted to fund the WAP in 2005 at $228.2 million—$63 million less than the President's request. Again in 2006, the President has maintained his commitment to WAP as a "priority" within his energy strategy and has asked Congress to appropriate sufficient resources to the Program. Our organization strongly supports the President's commitment and respectfully requests this committee to provide the funding at the $250 million level to meet the President's priority status for the WAP.

In addition to the State grant funds included in this year's request, the States are also supporting an initiative by the Office of Management and Budget and the Department of Energy to conduct an overall evaluation of the WAP to re-establish its cost effectiveness as a Federal investment. The last in-depth evaluation of the WAP occurred in 1989, with various meta-evaluations being conducted in subsequent years. This new evaluation initiative will help solidify the Program's claim of outstanding energy conservation and long-term assistance to low-income families in need. The evaluation will take approximately 3 years to complete. NASCSP respectfully requests that a line item in the appropriations bill be created this year to set-aside these funds from the traditional State formula grant activity and that the Department of Energy be given the decision-making authority for how these funds will be set-aside to complete the project.

NASCSP is also concerned about the low level of funding proposed for the State Energy Programs (SEP) in 2006. SEP enjoys a broad constituency, supporting State energy efficiency programs that include energy generation, fuels diversity, energy use in economic development, and promoting more efficient uses of traditional energy resources. SEP funding has fallen steadily from a recent high in 1995 of $53 million to its fiscal year 2005 level of $44 million. The State energy offices are the crucial centers for organizing energy emergency preparedness. They have been asked to do much new work in the sensitive area of infrastructure security. Taking into consideration this growing burden, the increasing difficulty of managing energy resources, together with increasing opportunities for States to implement cost-saving measures, we are supporting their request of $50 million for fiscal year 2006. This level would restore the program's recent funding cuts, enhance their ability to address energy emergency preparedness, and allow for inflationary impacts since 1995.

By the evidence provided herein, this committee can be assured that the increase in WAP and SEP funding will provide essential services to thousands of low-income families, resulting in greater energy savings, more economic investments, increased leveraging of other funds, and less reliance on high-cost, foreign oil—outcomes that will benefit the Nation. NASCSP looks forward to working with committee members in the future as we attempt to create energy self-sufficiency for millions of American families through these invaluable national programs.

PREPARED STATEMENT OF THE NATIONAL HYDROGEN ASSOCIATION

FUNDING FOR THE U.S. DEPARTMENT OF ENERGY HYDROGEN INITIATIVE FOR FISCAL YEAR 2006

Chairman Domenici, Senator Reid and honorable members of the committee, the Members of the National Hydrogen Association thank you for the opportunity to present testimony for the record to the Energy and Water Subcommittee and mark this occasion to recognize the recent change in jurisdictional authority of all U.S. Department of Energy programs to your subcommittee. The membership of the National Hydrogen Association (NHA), which represent all facets of the existing and emerging hydrogen technology industries, request full support of the President's Hydrogen Initiative of $259,544,000 for fiscal year 2006. It is further requested that the committee not jeopardize the viability of this initiative by reassigning spending priorities through congressionally directed projects.

The Presidential Hydrogen Initiative managed by the Department of Energy achieved results this past year:

—The Secretary of Energy announced over $500 million in project awards including $190 million over 5 years for the controlled hydrogen and fleet technology validation demonstrations.

—Under the DOE hydrogen program, three new hydrogen fueling demonstration stations opened in the United States.

—Successful R&D in fuel cells will bring the production cost target of $50/kW for fuel cells in transportation closer to reality.

—Successful R&D in hydrogen production will drop the cost of hydrogen from $5.00/gallon to $3.60/gallon, making the goal of $1.50/gallon more achievable.

—Codes were developed to enable the storage of hydrogen in fueling stations, and additional safety codes are under development.

—Fire marshals, code officials, State energy officials and emergency responders received information and training in hydrogen safety in approximately 17 cities and towns.

—Critical R&D areas like storage, production from renewable resources, nuclear energy, and how to make coal a zero emission source of energy continue. Sharing the results at conferences, program review meetings and elsewhere enable a broad information exchange so efforts within the government and private sector are not duplicated.

—International dialogue continues on many levels on ways nations can collaborate in areas of hydrogen technology policy, trade and R&D. For example, discussions at the ministerial level through the International Partnership for the Hydrogen Economy are focused on collaborative agreements between nations which could help pave the way for sharing R&D results, manufacturing and trade. At the policy and regulatory level, international discussions and negotiations are ongoing on the topics of standards, codes and regulation enforcement. At the research level, attempts are being made to collect, quantify and share

information and lessons learned from international demonstration projects and R&D programs.

This committee's investment in hydrogen is a wise use of resources. Members of Congress and the public are concerned with dependence on foreign supply. Hydrogen provides a clean and secure option. Added value was achieved by the committee-imposed requirement to have Federal dollars cost-shared with the private sector. Members of the National Hydrogen Association are involved in all of the hydrogen technology projects with the Federal Government and are the industries, small businesses, State agencies and universities providing the partnership dollars.

The value of enabling successful demonstrations through public-private partnerships is exemplified by the goals of the "Controlled Hydrogen and Fleet Infrastructure Demonstration and Validation Project" managed by the Hydrogen and Fuel Cell Infrastructure Technologies Program within the U.S. Department of Energy. The Technology Validation Project is an unprecedented collaboration of auto companies and energy companies working together toward a common goal. The Department's request for fiscal year 2006 of $14.9 million for infrastructure and $29 million for autos is part of a competitively bid and cost-shared program. It is important to note that added value is provided by the requirement for data collection and sharing among the teams. The lessons learned will be shared with the community at large, a critical step in the commercialization of hydrogen and fuel cell technologies. This project will provide real world experience and results for program prioritization and decision-making which will help move the technology forward. This learning demonstration project is one of the standard bearing projects of the President's Hydrogen Initiative and should be fully funded.

As the development and implementation of hydrogen and fuel cell technology continues, new opportunities for collaboration will emerge. Consistent execution of a unified and structured Federal strategic plan for R&D is vital to ensuring the commitment required to establish and sustain these critical, public-private partnerships.

In the fiscal year 2005 Omnibus Appropriations Bill, the committee stated education in hydrogen was "too premature," and the budget was cut to zero. The NHA membership disagrees with the committee's view. In fact, the need for education has been identified as one of the top three barriers to commercialization for hydrogen technologies. Education and training of code officials, fire marshals and other emergency responders is a critically important and immediate need. Corporate resources have handled some of the early education needs, like cost-sharing in some of the cities mentioned above but the demand for education materials and opportunities is growing faster than corporate resources alone can accommodate. The new hydrogen energy technologies are being implemented across the breadth of the entire U.S. energy infrastructure. Ensuring the coherent, timely education of officials can best be assured through a neutral, government-funded activity to create and deliver education materials.

The fiscal year 2006 budget request includes support for two important categories of the hydrogen program: $1.8 million for training and education and $6 million for codes and standards development. The members of the National Hydrogen Association acknowledge the budget request for these important topics is inadequate and would request additional funding but we recognize the fiscal constraints of this committee under current national priorities.

On behalf of the 110 members of the National Hydrogen Association, we appreciate the opportunity to submit testimony for the record. We urge the subcommittee to fully fund the President's Hydrogen Initiative through the Department of Energy and to be extremely judicious and limit designating special projects which we believe undermine the capability of the DOE Hydrogen Program to develop this technology.

PREPARED STATEMENT OF SOFTSWITCHING TECHNOLOGIES CORPORATION

This testimony is submitted by SoftSwitching Technologies, Inc., (SoftSwitching) for the information of the committee during its consideration of the Department of Energy's (DOE) fiscal year 2006 budget requests for the Office of Electricity and Energy Assurance.

SoftSwitching is a leading provider of power quality, power reliability and power monitoring systems, including the Dynamic Sag Corrector® (DySC®) and the innovative I-Grid® web-based power monitoring system. The I-Grid® is a grid monitoring system with over 1,000 power monitors deployed throughout the United States. Approximately 200 monitors deployed at industrial, utility, commercial, and residential locations in the Midwest and Northeastern States provided a near real-time record of the August 2003 blackout. Data from the SoftSwitching I-Grid® data

system subsequently was utilized by the joint U.S.-Canadian task force that investigated the blackout.

FUNDING FOR GRIDWORKS

SoftSwitching supports DOE's request for $5 million for the GridWorks program in fiscal year 2006. The GridWorks program has a vital role to play in accelerating the development of new technologies to modernize and expand the electric grid, and in so doing, reducing the likelihood of costly blackouts and power interruptions.[1] The focus of GridWorks is on key grid components, including substations and protective systems, power electronics, and cables and conductors. In the area of substations and protective systems, an important emphasis is on the development of next generation components and subsystems, addressing the need to move from today's primarily mechanical system to one that relies on solid state devices capable of rapid reactions. The GridWorks program also recognizes that the use of the existing grid may be maximized through improved operational and diagnostic tools that will enable faster identification of problems and responses. GridWorks will be coordinated with the other OEAA research initiatives, including transmission reliability R&D and the GridWise program, which concentrates on software-based solutions to grid modernization.

Adequate funding is needed for the core GridWorks program to permit continuing progress on implementation of the GridWorks Multi-Year Plan, which was released on March 8. The GridWorks Plan was developed through extensive consultation with industry on how best to modernize the electric grid through both near-term and longer term activities. It should guide DOE's allocation of research and development funding.

CHALLENGES IN MODERNIZING THE GRID

There is general agreement that the electric transmission grid is under great stress today. The North American bulk power grid was constructed largely from the 1960's through the 1980's. With the opening of wholesale electricity markets, and retail markets in some States, the grid has come to be used in ways for which it was not designed. Grid stress manifests itself not only in occasional, highly visible outages such as the August 2003 blackout that affected 50 million people in the United States and Canada, but also in more subtle ways, such as increasing transmission line congestion, reductions in power quality, and electricity prices that are higher than they should be.

Investment in the transmission system has not kept pace with the growth in demand for electricity. The list of reasons why investment is not made in transmission is lengthy. It begins with the inherent difficulty in siting new transmission. Even if siting difficulties can be overcome, proponents of new transmission face an uncertain regulatory path to recovery of costs. There are also the uncertainties attributable to the changing structure of the electricity industry, with regional transmission organizations in some regions, but not others, and with open markets in some, but not all, States. The result is that progress in upgrading aging transmission infrastructure often is contentious, incremental and slow.

Resolving the uncertainty over recovery and allocation of transmission upgrade costs and simplifying the rules for siting of new transmission lines are important long-term public policy objectives that must be achieved in order to ensure a robust, reliable transmission system. The Federal Energy Regulatory Commission, the States and Congress have an important role here. But while these difficult issues are being addressed, opportunities to optimize the existing grid through the deployment of new technologies should be pursued.

TECHNOLOGY FOR A SMARTER GRID

For all of its technological sophistication, the interconnected interstate AC transmission system is essentially a reactive system that is not easily controlled. Today's grid relies on relatively slow electro-mechanical switches (essentially 1950's technology) and imperfect information. Power flows according to Ohm's law (the path of least resistance), not necessarily to where it is wanted or needed. AC transmission system operators have little ability to control where power flows, except by ramping power generators up and down at various points on the system. The system

[1] A recent study from the Lawrence Berkeley National Laboratory placed the annual cost to the U.S. economy from power interruptions—including momentary interruptions as well as longer power outages—at approximately $80 billion. See Kristina LaCommare and Joseph Eto, "Understanding the Cost of Power Interruptions to U.S. Electricity Consumers, Lawrence Berkeley National Laboratory", September 2004 at xiv.

is subject to unexpected (and usually uncompensated) "loop flows" that cause congestion, impair scheduled transactions and threaten reliability. In addition, adequate real time information regarding the operation of the grid is not always available.

To meet the needs of our highly electricity-dependent economy, the grid must evolve into a real-time, digital electronically controlled "smart" system that is self-healing, more controllable, more fault tolerant and less reliant on error prone human beings. Such a "smart" grid might not have been susceptible to some of the failures that caused the August 2003 blackout.

Breakthrough technologies in the area of digital control of the power delivery network are a building block of a truly 21st Century electricity grid. Such a "smart" power delivery system would link information technology and energy delivery using automated capabilities to optimize the performance and resiliency of the grid, recognize and respond to grid disturbances and restore stability to the system after a disturbance. The basic building blocks for this system would include advanced sensors, data-processing and pattern-recognition software, and solid-state power flow controllers, including flexible AC transmission system (FACTS) and new distributed controllers now in testing. Many of these technologies offer relatively lower cost alternatives to expansion of the transmission system. By making more efficient use of existing rights of way, in some areas of the country, new technologies such as FACTS devices may eliminate altogether the need to expand the existing system by adding new, difficult to site, lines.

While FACTS technology has been commercially available for more than 10 years, still relatively few installations have been purchased by utilities. This is due to a number of factors. Deploying a large number of FACTS systems across the grid would be extremely expensive, due in part to the need for a specially skilled work force to maintain and operate the system. There are certain technical issues regarding insulation requirements and fault currents that stress the power electronics system and make implementation of FACTs systems costly and difficult. Moreover, in today's electricity market, it is hard to value the benefits—decreasing congestion, increasing system capacity or even increasing reliability—that use of FACTs technology would produce.

Active power flow control remains difficult to implement. But the ability to control power flows on a more active basis by effectively changing the line reactance would provide substantial benefits. Technology to control power flows would allow full utilization of line capacity while meeting contingency operating requirements, thereby enabling the transmission system to be operated closer to its thermal limits. Further, the ability to control power flows could reduce line congestion or overloading by diverting current to other lines. The problem of loop flows, which exacts operational and economic costs, could be minimized, allowing power to actually flow along contract paths.

"SMART WIRES"

SoftSwitching is pioneering a new approach for enhancing transmission system reliability and controllability through the use of a massively distributed FACTS approach, known as "Smart Wires." Smart Wires features the deployment of many modules of a Distributed Static Series Compensator (DSSC) device, which can be clamped onto existing power lines. The DSSC devices then can be operated to control the impedance of the conductor, and thereby control the power flow on the line.

The DSSC modules consist of a small rated single phase inverter and a single turn transformer, along with associated controls, power supply circuits and built-in communications capability. The two parts of the module can be physically clamped around a transmission conductor. The weight and size of the DSSC module is low, allowing the unit to be suspended mechanically from the power line. The unit normally sits in bypass mode until the inverter is activated. Once the inverter is turned on, the DSSC module can inject voltage or reactive impedance in series with the line. The DSCC module can increase line impedance and thereby "push" current into other parts of the network, or it can reduce line impedance and "pull" current in from other parts of the network.

The overall system control function is achieved by using a large number of modules coordinated through communications and smart controls. An additional advantage of the Smart Wires system is that modules would also contain appropriate sensors to monitor the condition of the line on a distributed basis so that the line can be fully utilized.

A distributed, technology oriented "smarter grid" solution cannot be expected to solve all problems associated with our stressed transmission system, but it is an important start. Technology offers transmission owners an opportunity to more effi-

ciently operate their systems to effectively increase useable transfer capacity. Distributed solutions, phased into operation, also offer improved return on capital employed; improved system reliability; reduced possibility of cascading outages; reduced delays in expanding system capacity; reduced environmental impact; and the ability to defer the purchase of over-sized assets until required by demand. Massively distributed advanced transmission technologies also may offer a way out of the regulatory gridlock which stymies many needed transmission investments.

CONCLUSION

Public-private partnership will be necessary to take full advantage of opportunities that new technologies present to optimize the existing grid. Continued commitment by government to research and development of "smart grid" technologies, as well as programs to assist in integrating many of the promising technologies being developed today into the grid, would be a wise use of Federal resources. The DOE GridWorks and GridWise initiatives are important first steps.

Smart Wires offers a new approach for realizing a smart, fault tolerant, controllable and asset efficient power grid. A massively dispersed deployment of the Smart Wires system promises much needed system-wide benefits: increased transmission line and overall grid capacity; increased grid reliability and improved operation under contingency situations; greater information about the grid operating conditions; and reduced environmental impacts. DOE's OEAA programs should foster the continued development and deployment of this promising new technology solution.

PREPARED STATEMENT OF THE COAL UTILIZATION RESEARCH COUNCIL (CURC)[1]

Synopsis of CURC Testimony.—This testimony focuses upon the following three topics: (1) the adequacy of funding to achieve the goals of the DOE/CURC/EPRI technology roadmap; (2) total recommended funding increase of $90.7 million for selected, critical DOE coal R&D and demonstration programs; and (3) continued support for funding of the FutureGen project and CCPI program.

INTRODUCTION

Members of CURC believe that use of coal will be assured through the aggressive development of technologies, which improve the cost competitiveness of coal, enhance the efficiency and reliability by which coal is converted to useful energy, and minimize the environmental impacts of coal use through the development of near zero emissions coal-based power plants. A long-term, sustained public and private investment is required if we are to achieve these goals.

THE CLEAN COAL TECHNOLOGY ROADMAP

The CURC, the Department of Energy (DOE), and the Electric Power Research Institute (EPRI) have developed a clean coal technology roadmap (see CURC website at www.coal.org). The roadmap identifies a variety of research, development and demonstration priorities that, if pursued, could lead to the successful development of a set of coal-based technologies that will be cost effective, highly efficient and achieve greater control of air and water emissions compared to currently available technology. The roadmap outlines the technology steps necessary in order to achieve these goals. In addition, the roadmap includes a technology development program for carbon management, defined as the capture and sequestration of carbon dioxide. In the event public policy requires CO_2 management at some future time, cost effective technologies will then already be under development or developed. Importantly, the roadmap identifies several technology development "pathways" that should be pursued concurrently to achieve the roadmap goals. It is desirable, and CURC recommends, that the Nation's coal R&D program include a variety of technology options for power generation. As an example, the roadmap recommends pursuing both gasification and combustion-based technology paths forward.

Using the roadmap as a tool to guide our Nation's coal research and development (R&D) efforts, CURC has examined the fiscal year 2006 budget request for coal. Our specific inquiry is to judge whether DOE's coal program will result in the timely achievement of the agreed upon roadmap goals. While the roadmap identifies the

[1] The CURC is an ad-hoc group of electric utilities, coal producers, equipment suppliers, State government agencies, and universities. CURC members work together to promote coal utilization research and development and to commercialize new coal technologies. Our 50+ members share a common vision of the strategic importance for this country's continued utilization of coal in a cost-effective and environmentally acceptable manner.

need for significantly larger annual budgets than have been requested in the past several budget cycles, the Department of Energy is to be commended for the fiscal year 2006 budget request which strongly evidences this administration's commitment to the development of technologies that will facilitate the use of coal. However, it is important to note, even during a period of increasing budget constraints, fully funding the coal R&D program at the levels suggested in the roadmap would best insure achievement of the goals established in the roadmap; reduced government and industry investments will postpone or may deny our ability to develop these important clean coal technologies.

Advanced Combustion Systems.—CURC recommends that $5.0 million be provided to an Advanced Combustion program. A modest level of funding needs to be directed to an advanced combustion program that supports industry initiatives examining novel methods to improve the efficiency of direct combustion systems as well as promising methods to cost-effectively capture carbon dioxide. Specifically, the recommended level of funding ($5.0 million) should be used to support the following R&D: (1) chemical looping technology development of highly efficient, innovative power generation plants with CO_2 capture and hydrogen generation capability; (2) ultra-supercritical steam cycles for advanced boiler and steam turbine development; and (3) systems analysis and component development including integration with, and for CO_2 capture.

Advanced Research.—The advanced research program includes the ultra supercritical materials program, aimed at the development of advanced materials for steam power generation applications at ultra supercritical modes. This program/consortium is particularly important as these materials can be used in broad applications, including for use in FutureGen and gasification applications, as well as in combustion technologies. Funding for this activity has been reduced from about $4.8 million in fiscal year 2005 to $3.3 million in fiscal year 2006, and CURC recommends that this program be funded at $4 million. CURC also recommends that DOE focus in the advanced research program upon development of instruments, sensors and materials for advanced diagnostics and controls for coal-based systems. Additional funding in these research areas will reduce the technical risk of advanced power generation technologies, such as gasification, that are dependent on sensors and controls.

Advanced Turbines.—The latest generation of advanced gas turbines (the "G" and "H" class of turbines) is not ready to meet the demands of the administration's proposed advanced coal-based power plant cycles (e.g., ITM based IGCC cycles with or without CO_2 capture), or the FutureGen project. CURC believes that a broad based turbine technology development and verification program similar to the Advanced Turbine Program which focused on natural gas applications may be appropriate with respect to coal based applications and in order to support FutureGen and other proposed advanced, electric utility-scale, coal utilization cycles. Four key areas need increased support: (1) additional development of fuel flexible low emissions combustion systems; (2) development of syngas and H_2 tolerant materials and coating systems; (3) development of sensors and monitors for syngas and H_2 gas turbines; and (4) continued support of the University Gas Turbine Research Program. Emphasis upon these four areas would provide added support for the development of advanced gas turbines to meet the requirements of the FutureGen project as well as other advanced coal-based power plant cycles. The fiscal year 2006 advanced turbines program anticipates support for the development of smaller scale turbines (e.g. 1 megawatt size). While laudable and perhaps worthy of support, the limited budgets strongly suggest that such funding would be more effectively used (and funding is needed) in support of turbines that will be used in utility-scale applications. Successful development of these large-scale turbines will enhance the success of large-scale IGCC systems.

Carbon Sequestration.—CURC believes that the fiscal year 2006 budget request of $67.2 million for the carbon sequestration program is adequate. The fiscal year 2006 funding request will support an expansion of the on-going carbon sequestration projects (i.e. the Regional Carbon Sequestration Partnerships) as that program moves into the pilot-scale testing phase. Within the program, however, CURC recommends that more emphasis needs to be placed on carbon capture technology development (in addition to carbon sequestration). The development of technologies to reduce costs for capturing carbon dioxide is critical to enabling practicable sequestration. This applies both to the existing fleet, which consists of essentially all combustion plants, and to new power plant options, such as IGCCs, hybrids, and advanced combustion plants. CURC also recommends increased focus upon measurement, monitoring and verification of sequestered CO_2. To the extent that the subcommittee is not able to increase funding in other important research and development programs (at outlined in this statement) due to budget constraints, then it is

recommended that funding be taken from this program perhaps by delaying or not embarking upon the pilot scale tests in all of the regional partnerships.

Coal Derived Fuels And Liquids.—Additional funding in this area would provide support to coal-to-liquids plants that would enable such plants to compete with traditional petroleum fuels at today's prices. Laboratory and pilot-scale experimental research and testing in reactor design, catalyst life, membranes, process development, and system performance under cycling loads must be continued to prove the economic viability of such plants. Secondly, we recommend added focus on computer simulations and computational process modeling of polygeneration systems for fuels and chemicals designed to reduce the cost and financial risks in constructing polygeneration plants. CURC recommends the addition of $1 million for work in each of these two areas ($2 million total).

IGCC/Gasification.—The scope of activities to be undertaken with the proposed fiscal year 2006 budget suggests that the program will be directed almost exclusively at technologies that will not become available until the 2015 and 2020 timeframe and/or for use in FutureGen applications. It appears that little work will be directed at technology development to support the cost-effective installation of commercially offered gasification systems which are expected to be implemented in the next 5–7 years. A portion of the proposed fiscal year 2006 funding should be directed towards refractory research, field testing and analysis that will assist in improving the availability and on-stream factor of existing gasification systems that will result in a reduction in the cost of these systems by minimizing redundancy requirements. CURC also recommends that funding be provided to continue research, development and field testing of high temperature, slagging atmosphere temperature measurement devices, which are currently being developed in DOE technology R&D programs, but have not yet been implemented in existing systems.

Innovations For Existing Plants.—The EPA CAIR rules have been issued and will be in force at the end of 2007 and the EPA Clean Air Mercury Rule has been issued and will be in force in 2010. Because of these regulations, CURC strongly recommends an additional $3.0 million be added to the Fine Particulate Control/Air Toxics subprogram to support a number of additional mercury emission control field tests. The President's fiscal year 2006 request increases funding above the fiscal year 2005 enacted levels in order to accelerate planned mercury control demonstration tests. This increase is welcomed and much needed. However, the additional funds recommended by CURC would permit several additional field tests to establish the annual average mercury removal and validate that mercury reduction technologies can be applied to the very wide range of power-plant types and wide range of coals fueling those plants. Since the recently proposed utility mercury rule establishes an annual mercury emission limit, it must be established that the mercury co-benefits and new mercury control technologies can achieve the long-term performance targets. Currently, EPA has based the co-benefits analysis on short-term (2 to 4 hour) tests. Results from these field tests will provide increased confidence that the methods/technologies used can assist industry in complying with the new rules. In addition, CURC believes that a modest amount of additional funds should be made available to undertake a study and industry workshop that surveys what should be done (by way of an R&D program) to address the rising problem with SO_3 (sulfuric acid) plumes, for which there is currently no program or funding.

FutureGen/Clean Coal Power Initiative (CCPI).—Commercial scale demonstrations of complete systems are essential in determining whether or not components can be successfully and cost-effectively integrated into a full-scale power generation system. CURC supports funding for the coal demonstration projects anticipated through the CCPI and the FutureGen projects. The DOE fiscal year 2006 budget requests $18 million to fund FutureGen and $50 million to fund the CCPI program. CURC recommends that the Congress consider the following:

—CURC supports the recommendation to fund FutureGen at $18 million in fiscal year 2006. Congress must provide assurance to the private sector participants that the government is committed to the project. The DOE has proposed holding $257.0 million of previously appropriated clean coal technology program funds in an account for future use in FutureGen. This action, along with a clearly articulated plan for providing the additional government funds needed to support the project (beyond the previously appropriated clean coal technology funds), is essential in order to assure potential State and industry participants that FutureGen is worthy of substantial non-Federal cost-share.

—For the CCPI program to be successful, a budget request of $50 million to support the second solicitation is not adequate. For DOE to conduct a robust and meaningful solicitation, it would be necessary to have approximately $300 million available in order to award multiple projects of the size and magnitude necessary to demonstrate full scale, commercial applications. CURC recommends

that this program be increased by at least $80 million in 2006 to a total of at least $130 million. This action would send industry (potential applicants for CCPI demonstration funds) a clear signal that Congress and the administration intend to conduct a third CCPI solicitation in the fiscal year 2007–2008 timeframe.

CURC continues to support the FutureGen project. But, as noted in previous testimony, this support cannot be given if the DOE's base R&D programs are cut back in order to provide funding for the project. The same is true of funding for the Clean Coal Power Initiative. The administration is to be commended for the fiscal year 2006 coal R&D budget request made to Congress, which evidences a concurrent commitment to the base R&D program. A similar commitment must be made to the on-going CCPI program.

CONCLUSION

Success in advanced clean coal technology development promises to preserve the coal option for fuel diversity and assures that continued growth in the use of coal will be accompanied with low costs to consumers, minimal impacts upon the environment, and guaranteed energy security for our Nation now and well into the future. DOE/CURC/EPRI roadmap identifies a variety of advanced coal-based energy systems to achieve those goals. To ensure that these technologies will be developed the government's long-term commitment must be assured with continued and focused funding for these programs.

PREPARED STATEMENT OF DIRECT DRIVE SYSTEMS, INC.

I am writing to request support for specific funding for the DOE National Energy Technology Laboratory, Office of Natural Gas' programs for Transmission, Distribution and Storage of natural gas. I apologize, but I am new to the appropriations process, and the DOE personnel with whom I spoke could only suggest writing to this email address. I do know that there are probably specific program lines and numbers that I should be referencing, but unfortunately, I do not know how to identify them. Also, there is probably a desired format for my submission, but the U.S. Senate Committee on Appropriations press release dated March 8, 2005 announcing a due date of April 30, 2005 for outside witness testimony to the Energy and Water Subcommittee did not provide any specifics. I beg your indulgence on these issues.

I am writing specifically to ask that funding be included in the budget to demonstrate an advanced technology permanent-magnet, high-speed, direct-drive, variable-speed electric motor drive system for natural gas and liquefied natural gas (LNG) compression and pipeline transportation. I realize that this is a confusing series of adjectives, but they accurately describe the product. To elaborate, the product is a variable-speed electric motor that operates at high speeds, which makes it suitable for driving certain applications, such as compressors, directly without a gearbox. The use of permanent magnet technology and the absence of a gearbox make the motor-drive smaller, lower cost, and more efficient, especially under partial-load conditions.

The DOE National Energy Technology Laboratory funded a portion of such an effort in 2003 and 2004 through the IEMDC Totally Enclosed In-Line Electric Motor Driven Compressor Program, DE–FC26–02NT41643. This program advanced the preliminary design of an electric gas compressor that can be inserted directly in-line with the gas pipeline to the point that detailed design of manufacturing drawings could begin. Unfortunately, this program did not use permanent magnet technology, instead choosing less flexible conventional induction motor technology. As a result, the resulting product design was not as small, light, or efficient at partial loads as it might have been. Also, the project was a design effort only and did not result in an actual product.

The technology exists today to build small, reliable, efficient, and inexpensive permanent magnet, variable-speed motor-drives to improve the throughput of the Nation's gas pipeline systems, increase energy efficiency, reduce energy consumption and reduce air pollution emissions. The same motor-drives can also reduce noise emissions, and visual pollution due to their smaller size and quieter operation. This is especially important in urban areas, where natural gas consumption is highest, and the obstacles to building new pipelines the greatest.

A recognized need exists within the gas transmission industry for a new generation of centrifugal compressors. Unfortunately, given the critical demands placed on the gas transmission and distribution infrastructure, utilities and operators are not able to adopt new technologies, even if they offer considerable cost and environmental benefits, without government support. The technology risks, even if minimal,

are simply too great for the "high-reliability" industry to undertake. So, introducing new technology to the industry requires government sponsorship. I propose that DOE be funded to conduct an actual demonstration of a permanent magnet, high-speed, direct-drive natural gas pipeline compressor to meet industry standards, not just conduct a study. The characteristics of the required new compression system include minimal maintenance, capability of starting and stopping several times per day, easy installation, low total life-cycle cost, and minimal environmental impacts. Such a system would answer the evolving requirements driven by the increasing demand for natural gas, more stringent environmental regulations, the high operating and maintenance costs of mechanical (engine-driven) gas compressors, and the advanced age of much of America's pipeline infrastructure.

Considering the current configurations of commercially available pipeline compressor systems, an alternative system designed for increased throughput to meet the growing demands on an aging pipeline infrastructure would provide an attractive solution to the challenges facing the gas industry. This system would need to be capable of readily replacing older compressors, re-powering existing compressor stations, and forming the basis of easily installed new compressor stations for expansion. Currently, there is an aging fleet of 20-year-old to 50-year-old, gas-driven, compressors on pipelines. Maintaining this aging fleet of compression equipment can be a daunting task for pipeline operators due to on-site gas leakage, emissions that cause air pollution, availability and cost of spare parts, system monitoring requirements, and noise. Most of this old compression equipment uses gas-fired gas turbines or reciprocating engines, otherwise known as mechanical drives. Mechanical drives lack operating flexibility, are inefficient relative to electric drives, and have especially poor part-load efficiency. Gas turbines have much higher capital costs than electrical drives, and gas turbines have much higher operating and maintenance costs. Gas turbines consume the expensive fuel that they transport, and they require periodic minor overhauls at least annually and major overhauls every 4–6 years that can cost as much as 25 percent to 50 percent of their capital cost. Electric drives are essentially maintenance-free over their 15–20 year service life. If magnetic bearings are used and gearboxes are eliminated by using direct-drive systems, oil can be removed from the system completely, further lowering maintenance costs and eliminating the potential for environmentally damaging oil spills.

It is important to note in today's era of high energy costs that more than 4 percent of the total natural gas consumed in the United States is used by gas turbines and engines operated to compress and move natural gas through pipeline systems. Given the elasticity of the natural gas price curve, one can only be amazed at the potential impact that an additional 4 percent of supply could have on the market, and on the Nation's natural gas energy costs. Also, gas turbines and reciprocating engines in compression service are rarely more than about 30 percent efficient, where as the electrical supply grid that is available to power an electric compressor is usually 40 percent efficient or more. Switching to electrically-drive compressors could cut the total energy used to move natural gas by a third or more, reducing total energy consumption and greenhouse gas emissions. Also, compressor mechanical drives usually operate without air pollutions emissions controls, or with minimal emissions controls at best. The emissions from the large power plants that run the electrical grid can be more easily monitored and abated. Re-powering existing mechanical gas compressors with variable-speed, permanent-magnet, direct-drive electric motors makes tremendous economic and environmental sense.

I request that funding be provided to DOE to demonstrate just such a program and that the funding be earmarked for and existing, proven supplier of permanent-magnet, high-speed, variable-speed, direct-drive electrical motor drives. The motor-drive should be a multi-megawatt sized machine in the 8–12 MW range. Approximately $7.5 million should be set aside to complete the program, including the production of the first 8–12 MW motor drive unit and the associated power electronics and the completion of the gas compression testing and demonstration program, including sufficient support for DOE.

Thank you for your consideration. I would be pleased to provide additional information, to answer questions or to provide other assistance as may be required.

PREPARED STATEMENT OF BOB BARNETT

My name is Bob Barnett. I am a retired petroleum engineer with over 50 years of experience in the oil and gas industry, both domestic and international. I am writing in support of continued Department of Energy (DOE) funding for the Oil and Natural Gas Technology Programs. I have participated in a partially DOE-funded field demonstration project and have first-hand knowledge of the process and its

effectiveness. The project was accomplished with the able assistance of the National Energy Technology Laboratory (NETL), The Petroleum Technology Transfer Council (PTTC), and the Tertiary Oil Recovery Program (TORP) at Kansas University. These entities depend on the DOE for a portion of their support. All of the people involved in these programs demonstrate the highest standards of knowledge, ability, and professionalism.

There are many reasons for continuing the DOE funding for Oil and Natural Gas Technology and Regulatory Evaluation Programs. These programs are absolutely essential to maintaining a viable domestic energy industry. A strong domestic oil and gas industry is crucial not only to our national security but to our economy and our trade and budget deficits. It makes little sense to be the world's largest oil and natural gas consumer with declining production, when we have the power to change our predicament. A vital oil and gas industry also yields a much better negotiating position, and partnering opportunity, with global energy producers and consumers. The national security aspect is even more important now with the political turmoil in many of the producing countries on whom we depend for our shortfall.

That we are starving for energy is most evident. We will probably never be self-sufficient in hydrocarbons again, but we can and must change our dilemma. This can only be done by improving production of our domestic resources. Accomplishing this will allow our economy and way of life to be sustained while providing time for the development of alternative energy sources.

Alternative energy sources should be pursued. Our government already spends billions on their development and will spend billions more before they become commercially available. Most of the energy sources being touted by Congress are years away from being able to supply a significant portion of our needs.

The principal avenue for improving domestic production is through the aggressive application of Research and Development (R&D) and new technology. This is best accomplished by our independent oil and gas producers who now drill 85 percent of the wells and provide a major and ever increasing portion of our energy.

These independent producers have neither the resources nor the technical personnel to accomplish the R&D and technology development. This situation does not change because of high oil and gas prices. They simply cannot develop and maintain R&D personnel and capability. This is the precise reason that our government, through the DOE, must remain involved in R&D and technology development for fossil energy.

The major oil companies, who had all the R&D capability, are no longer interested in the mature fields of the United States. They have shifted their resources to the higher potential and return afforded by the international marketplace. The service companies have added some R&D but it is targeted to the major company customers and their international operations.

The greatest potential for improving our energy plight lies in increasing the productivity of the mature oil fields within our borders. Of all the oil that has even been discovered in the United States, about two-thirds of it remains in the ground. This amounts to more than 400 billion barrels!! Are we to write off this resource simply because the major oil companies are no longer interested? More production of this oil only awaits the application of new technology and improved techniques.

In addition to the obvious security and trade balance benefits, a concerted effort to produce the known energy resources within our own country would create an unprecedented economic impact. It would create many thousands of jobs and require billions in services, supplies, materials of all kinds, equipment, pipe, chemicals, etc.

Many of the programs and demonstration projects partially funded by DOE have been inordinately successful in spite of negative reports from the Budget Office. These programs are very frugal and are well managed by entities such as the NETL in Tulsa, Oklahoma. The resulting technology and field results are effectively disseminated by the PTTC.

In addition to promulgating critical technology throughout the petroleum industry, PTTC also maintains crucial data bases at universities throughout the country. These are called Regional Lead organizations. The PTTC makes effective use of volunteers in much of its operation. It is a non-profit organization which is doing an outstanding job.

DOE funding is also vital to continuing oil and gas research programs at our universities. These programs are our only avenue for training future petroleum professionals. The average age of our technical force in the petroleum industry is 54 and many will be retiring before they can be replaced. Without funding for university research, we will be unable to train the required petroleum engineers and geologists. We cannot continue to develop the needed technology and maintain our technical edge without the funding.

It should be mentioned that the R&D funding for field research projects is only partially provided by DOE. Cost-sharing is provided by industry, States, and academia. This greatly compounds the effectiveness of the DOE contribution.

Our technology and our petroleum geoscientists are the envy of the world. Representatives of the NETL and other professionals are in great demand for conferences, symposia, and technical exhibitions throughout the petroleum universe. This has provided us the best possible opportunity for educational sharing and development, technology exchange, gaining understanding and trust, and building bridges with foreign energy producers. In an energy starved world it would be a real tragedy to sacrifice this crucial position for the lack of DOE funding of the Oil and Natural Gas Technology Programs.

PREPARED STATEMENT OF MID-WEST ELECTRIC CONSUMERS ASSOCIATION, INC.

The Mid-West Electric Consumers Association ("Mid-West") represents over 300 rural electric cooperatives, municipally-owned utilities, and public power districts in the nine States of the Missouri River Basin: Colorado, Iowa, Kansas, Minnesota, Montana, Nebraska, North Dakota, South Dakota and Wyoming. Mid-West's members serve over 3 million consumers in the region. Mid-West supports the fiscal year 2006 budget request of $186.8 million for operations, maintenance and program direction utilizing the "net-zero" approach proposed by the administration. Mid-West also requests a higher funding level of $279 million in fiscal year 2006 for the Western Area Power Administration's ("Western") Purchase Power and Wheeling ("PP&W") program that more accurately reflects the current reservoir conditions in the Pick-Sloan Missouri Basin Program.

The administration's budget request has several proposals that address some of the issues attendant to the Federal transmission system. Mid-West and its members have a vital interest in maintaining the efficiency and reliability of the Federal power program. Electric utilities throughout the region rely upon the more than 8,000 miles of Federal high-voltage transmission operated by Western for delivery of power.

1. Mid-West supports the fiscal year 2006 budget request of $186.8 million for operations, maintenance and program direction utilizing the "net-zero" approach proposed by the administration.—A net-zero approach that recognizes the nature of Western's annual expenses will enable Western to continue timely operations and maintenance activities. To make this approach truly effective, however, receipts used to pay down the appropriations should be reclassified from "mandatory" to "discretionary."

2. Mid-West also requests a higher funding level of $279 million in fiscal year 2006 for Western's PP&W program that more accurately reflects the current reservoir conditions in the Pick-Sloan Missouri Basin Program.—Also, The language in previous appropriations acts should be retained so that Western can continue to utilize customer-generated receipts to help fund PP&W costs.

3. Mid-West supports the concept, but not the form proposed by the administration, of access to receipts for the hydropower operations and maintenance activities of the Federal generating agencies (U.S. Army Corps of Engineers and the U.S. Bureau of Reclamation).

4. Mid-West opposes the administration's proposal to arbitrarily raise the rates charged for Federal firm power sales to "market" levels.

5. Mid-West encourages the committee to consider increasing Western's appropriations in an amount equivalent to any funds "earmarked" for special activities.

"NET ZERO" APPROPRIATIONS FOR FEDERAL PMAS

Adequate and timely funding is critical to maintaining efficient and reliable operation of the Federal transmission system that is so vital to Western's customers.

Budget deficits present Congress with a daunting task in funding Federal programs. The annual costs of Western are currently included in the budget "scoring" that Congress uses to help keep control of Federal spending. However, those annual costs are returned to the U.S. Treasury every year, and so really are not an outlay by the Treasury.

The administration's fiscal year 2006 budget request proposes a "net-zero" funding approach for operations, maintenance and program direction. The "net-zero" proposal recognizes that certain Federal outlays for a given fiscal year will be returned to the Treasury in that same fiscal year. This approach is not ground-breaking, because it is already used to fund other Federal energy agencies. The Power Marketing Administration's ("PMAs") budgets cover all the costs of their operations. This $186.8 million budget request, in concert with the "net-zero" approach, is sup-

ported by Mid-West. However, a budget scoring adjustment is required to make this approach truly effective. Receipts collected by Western to repay program direction and operation and maintenance expenditures should be reclassified from "mandatory" to "discretionary."

PURCHASE POWER AND WHEELING

Mid-West believes that the administration's budget request of $148.5 million for PP&W funding is based on unrealistic assumptions and is inadequate. Western and the other PMAs are contractually committed to deliver hydropower generated at Federal dams to eligible consumer-owned utilities on a firm basis. The persistent drought in the Missouri River Basin means that the 2005 generation estimated by the Corps of Engineers will be 58 percent of normal. Present projections might reduce hydropower generation in 2006 to 46 percent of normal. In light of the record low reservoir levels and resulting severely reduced generation, Western must purchase much more replacement power to fulfill their firm contract obligations. These increased purchases at soaring energy costs dictate that a higher level of funding is required for PP&W. To insure adequate funding in fiscal year 2006, Western will need access to receipts for $279 million to cover PP&W costs.

The language in the fiscal year 2002–2004 appropriations bills should be retained so that the PMAs can continue to utilize customer-generated receipts to help fund their PP&W costs. Otherwise, small utilities, such as rural electric cooperatives, municipally-owned utilities, Native American tribes, irrigation and public power districts, would have to develop their own transmission and power firming agreements which would increase their costs. Accordingly, Mid-West requests that the following language be included in the fiscal year 2006 Energy and Water Development Appropriations Act:

"Provided, that up to $279,000,000 collected by the Western Area Power Administration pursuant to the Flood Control Act of 1944 and the Reclamation Project Act of 1939 to recover purchase power and wheeling expenses shall be credited to this account as offsetting collections, to remain available until expended for the sole purpose of making purchase power and wheeling expenditures."

CORPS OF ENGINEERS AND BUREAU OF RECLAMATION ACCESS TO POWER RECEIPTS

Mid-West finds some merit in the administration's proposal in the fiscal year 2006 budget request to permit the Bureau of Reclamation access to receipts to fund hydropower operations, maintenance and other activities. However, without specific safeguards and focus, we cannot support the specific proposal. These specific additional provisions are as follows: (1) Congress must set the specific amount of receipts to be provided to the Bureau from Western's receipts; (2) The Western Administrator, after specific consultation with the Bureau and the affected Federal power customers, will determine the amount of receipts to be transferred; (3) The only type of operations and maintenance activity which would be eligible would be annual activities allocated exclusively to the power function; (4) No inclusion of hydropower's share of joint use operation and maintenance; (5) No inclusion of small capital expenditures; (6) Western receipts to the Bureau must be spent in the year those receipts are provided; and (7) No funding for the Bureau's Science and Technology program should be provided from Western's receipts. We are very concerned that without these safeguards Western's customers will be providing an "open checkbook" with no protection from cash flow issues and funding unrelated purposes. With respect to the Science and Technology program, the customers have never participated in this program and the administration even proposed eliminating funding for the Department of Energy's Hydropower Research program because it "has advanced to the point that it can now be conducted by industry."

The administration has also proposed that the Corps of Engineers fund its hydropower operating and maintenance expenses utilizing receipts of the PMAs. Again, Mid-West finds some merit in the concept, but cannot support this provision without modifications to protect both customer and Congressional oversight to ensure only funding of appropriate activities while recognizing the need for rate stability. In addition to the points noted above, Midwest believes that this program cannot go forward without the following safeguards: (1) There is no clear definition of what constitutes hydropower operation and maintenance costs—we are concerned that unrelated costs would be charged to the PMAs and our members; (2) Customer participation and oversight of the operation and maintenance activities is necessary; (3) The appropriate PMA Administrator, rather than the Corps, must make the determination on funding levels to ensure all appropriate costs are covered; (4) Only annual operations and maintenance expenses allocated exclusively to hydropower should be permitted; (5) Joint customer, PMA, Corps planning, in advance, of proposed ex-

penditures should be required; (6) Congressional oversight, including audits of expenditures, on a regular basis should be established; (7) PMA revenues provided to the Corps should specifically remain with the marketing area of that PMA and be dedicated to the intended purpose—Mid-West is concerned that this funding mechanism would be utilized to offset a lack of funding in non-hydropower operation and maintenance activities; (8) No reprogramming of dollars provided by the affected PMA to the Corps should be permitted without the explicit approval of the customers and the affected PMA Administrator; (9) PMA revenues could only be utilized with the agreement of the PMA Administrator; (10) Unused dollars in any fiscal year would be returned to the affected PMA; and (11) A procedure to address cost overruns and priority of use and shortfalls would need to be established in advance.

FEDERAL POWER PROGRAM AND COST-BASED RATES

Mid-West opposes the administration's proposal to require the PMAs to sell power at market-based rates. This would dramatically increase electric rates and have a crippling economic impact on communities served by 1,200 consumer-owned utilities in 33 States, and especially in the Missouri River Basin. This proposal is nothing more than a tax increase on the consumers in our region. Federal hydropower has always been sold at cost through consumer-owned utilities. Charging market rates would devastate farmers, homeowners, business and industry. These proposed 20 percent per year increases, in addition to increases already being imposed because of the longstanding drought, fly in the face of sound, longstanding policy and law. It was contained in the Flood Control Act of 1944 (Section 5) and reaffirmed in Section 505 of the 1992 Energy and Water Development Appropriations Act (105 Stat. 536).

Again, to be clear, these cost-based rates are not subsidized by the U.S. Treasury. The PMA's rates are set to recover the costs of the Federal investment, plus interest, in the hydropower and transmission facilities. Raising PMA rates will take millions of dollars out of fragile local economies.

EARMARKING OF EXPENDITURES WITHIN WESTERN'S APPROPRIATIONS

Congressional "earmarks" in the fiscal year 2005 Appropriations Act have severely disrupted Western's planned construction activities. In Pick-Sloan, without additional appropriations to cover the increased expenditures, construction budgets were slashed by 90 percent, resulting in deferrals of needed construction activities. Mid-West certainly recognizes Congress' prerogative in earmarking funds, but is concerned that, without additional funding to cover increased costs, earmarking seriously disrupts the orderly planning and timely execution of Western's construction program.

CONCLUSION

Thank you for the opportunity to provide written testimony to the subcommittee on these important issues. We stand ready to respond to any questions.

LETTER FROM VIRTUAL ENGINEERING SOLUTIONS, INC.

Melrose, Florida, April 26, 2005.

Senate Committee on Appropriations,
Subcommittee on Energy and Water Development.

SUBJECT: U.S. DOE FOSSIL ENERGY PROGRAM FUNDING RESTORATION

DEAR CONGRESSMAN DOMENICI: Mr. Chairman, thank you for the opportunity to provide written comments on the proposed fiscal year 2006 budget. I am writing this letter on behalf of the State oil and gas regulatory agencies nationwide to encourage you to restore Congressional appropriations of $100,000,000 for the Department of Energy's (U.S. DOE's) Office of Fossil Energy Oil and Natural Gas Supply Research and Development (R&D) program. I can offer you five reasons for why the research and technical assistance this U.S. DOE program is providing is vitally important to the health and security of the United States: (1) Improved environmental protection; (2) Streamlined enforcement of State environmental regulations; (3) Reduced regulatory and compliance costs for producers; (4) A demonstrated increase in exploration activity by small and independent operators; and (5) Increased domestic oil and gas production.

IMPROVED ENVIRONMENTAL PROTECTION

This DOE Fossil Energy Program provides valuable research and technical assistance that benefits all of the citizens of the United States through increased environmental protection made possible through continued monies generated by oil and natural gas production.

An example of these cost-effective research programs is the Risk Based Data Management System (RBDMS). State oil and gas regulatory agencies in partnership with the Ground Water Protection Council (GWPC) are responsible for the development and operation of this information system in 23 oil and natural gas producing States. This project is an example of how Federal/State partnerships can really work. Your home State of Ohio has contributed almost $600,000 in State capital improvement and $400,000 of operations funding to implement RBDMS. California has matched $500,000 of Federal money with $1,500,000 in State funds. Every State now using the system also has contributed to building the system. Through the GWPC, the oil- and natural gas-producing States are working together to protect ground water resources, hold down the cost of environmental compliance, and provide improved access to essential data for new oil and gas exploration.

STREAMLINED ENFORCEMENT OF STATE ENVIRONMENTAL REGULATIONS

Funding from the DOE has given the States the opportunity to develop additional software and information management tools that enable both State and Federal agencies to share data and facilitate electronic commerce via the Internet. The States in turn share that information with the public and companies we regulate, many of which are small businesses that would not otherwise have the ability to access such accurate information. We are learning that electronic commerce mutually saves time and money for both the oil and gas industry and the regulatory agencies. The Federal share of cost for this program was $1.15 million in fiscal year 2004. States collectively contributed over $4 million this fiscal year.

As another example, online permitting and reporting has been targeted as a way to save industry time and money. One California operator estimated that an automated permitting system for new drills and reworks could increase production from one of its larger oil and gas fields by 500,000 barrels per year. Therefore, any delay in issuing a permit caused by the inefficiencies of manual processes and analyses can have a significant impact on production.

Continued funding from U.S. DOE will provide the smaller, independent oil and gas producers access to this environmental data management system. Smaller producers are often the most in need of such systems because high compliance costs hit them the hardest. Without this funding, many of these development efforts would have to be abandoned.

INCREASED EXPLORATION ACTIVITY BY SMALL, INDEPENDENT OPERATORS

At this time, small, independent oil and gas companies produce the vast majority of oil and natural gas in this country. These companies are efficient in their operations, but lack the necessary research programs needed to fully exploit our domestic resources. This research is a role for the Federal Government. We view this program as vital to the health and security of the United States.

The process of planning a drilling program and scheduling equipment use can be easier and less expensive as a result of Internet information lookup. The ability to receive immediate approval of a well recompletion or workover permit allows the operator the opportunity to perform the work the same day the well went down or that a rig becomes available. Therefore, the operator can move a rig from a low-rate well or less important workover to a higher-rate well, thereby producing more oil.

INCREASED DOMESTIC OIL AND GAS PRODUCTION

The largest reserves of oil and natural gas exist in currently operated oil and gas fields. By increasing our recoverable reserves 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 proven reserves would result in the loss of billions of dollars of revenues for this country because the money would instead be sent overseas for oil imports.

The agencies who use RBDMS nationwide have documented that the information access afforded by the DOE-funded research and investment in RBDMS also 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 through new technology, redrilling, or horizontal drilling. For ex-

ample, in North Dakota, more than 250 wells over the last 5 years have been re-entered and drilled horizontally. Before well information was readily available through RBDMS and associated e-commerce initiatives, many of these wells would have been plugged or shut in. The cost savings to drill a well horizontally from an existing well rather than grass-roots well is estimated to be at least $300,000. By keeping these wells available, industry has saved in excess of $75,000,000 in North Dakota alone.

RBDMS is one of the best examples we have seen of how the States, working with the Federal Government and the private sector, can improve both industry production and environmental protection at the same time. Continuing to fund the U.S. DOE's Office of Fossil Energy Oil and Natural Gas Technologies R&D program in this manner allows us to tailor our regulatory program needs to the industry which operate in our respective States. There is no Federal alternative, or "one size fits all" national approach that would work as efficiently as this cooperative multi-State effort.

SUMMARY

DOE Fossil Energy program funding is a sound investment in domestic energy production and environmental protection.—The DOE Fossil Energy program office funds research projects like RBDMS that are leveling the playing field by encouraging small- and medium-sized industry operators to expand into previously cost-prohibitive areas. The better access to information afforded by these projects is increasing industry's ability to make more knowledgeable decisions about resource deployment, exploration, and well management and is reducing overhead costs associated with regulatory compliance. Moreover, reducing obstacles to permitting and reporting requirements through streamlined data management in the agencies is beginning to reduce industry's administrative burdens and ease compliance requirements across regulatory jurisdictions. Finally, the regulatory compliance tracking accomplished through these programs offers enhanced protection of water resources.

I submit to you that this combination of factors makes the restoration of funding for the DOE Fossil Energy Program an urgent priority for smart development of domestic oil and gas and sustained environmental protection. I ask for your support. Thank you.

Sincerely,

DEBORAH GILLESPIE,
Technical Communicator.

PREPARED STATEMENT OF THE ECOTOXICOLOGY AND WATER QUALITY RESEARCH LABORATORY, DEPARTMENT OF ZOOLOGY, OKLAHOMA STATE UNIVERSITY

FISCAL YEAR 2006 BUDGET AND DOE R&D PROGRAM

In 2004, I received a research grant through the Department of Energy's Research and Development Program. The $183,827 that was awarded over a 3-year period is providing full support for a graduate student (at the doctoral level) in addition to providing important data on the potential to reuse the produced water that is generated during the process of drilling and pumping oil and gas (please see the project description below). Studies such as these will actually enhance the cost effectiveness of oil and gas production, but the administration's fiscal year 2006 budget proposes phasing out the DOE program that supports this work. These cuts would not only put a graduate student out of work, but will cut short a research project that is providing useful data in its first year of existence.

Simply put, the type of research supported by DOE has consistently been focused on applied issues that will enhance our Nation's oil and gas production capabilities. As such, I respectfully request that the committee supports re-establishing the funds for DOE's R&D program—the return from the money that is spent is very well worth the cost.

Project Overview.—Project No. DE–FC26–04NT15544

Significant quantities of produced water are generated by inland oil and gas facilities in areas where beneficial reuse would provide a cost effective method of disposal. The quality of produced water, its potential for reuse and its need for treatment prior to reuse will ultimately be determined by State water quality standards for individual chemical constituents and freshwater toxicity bioassays as mandated by Federal and associated State requirements for effluent discharges. While toxicity testing plays an important role in environmental protection and regulation of wastewater discharges, it is important to understand how well the results of laboratory

evaluations actually represent the behavior and potential effects of aqueous wastes in the field. A very limited number of freshwater laboratory bioassays have been conducted on produced water, and practically no field assessments have investigated its influence on freshwater communities. The application of test methods that overestimate impacts may limit the potential for reuse by indicating the need for costly treatment that is actually unnecessary. Given the growing interest in reuse of produced water and the associated increase in toxicity assessments that will accompany its release, it is imperative to generate field data that will evaluate how well laboratory bioassays of produced water represent the true potential for environmental effects and whether existing discharge standards are appropriate. The proposed study will help to fill this critical data gap by comparing the results of standard laboratory bioassays of produced water with field evaluations in a system subject to produced water input. An understanding of how standard indicators of produced water quality relate to true effects in the environment will ultimately lead to better decision making with regard to produced water reuse and surface discharge, will help to optimize methods for both treatment and assessment of produced water quality, and will help avoid over-regulation in cases where predicted environmental effects are not realized in the receiving system.

PREPARED STATEMENT OF APS TECHNOLOGY, INC.[1]

Mr. Chairman and Honorable Senators, I wish to address two related expenditure components of the Department of Energy (DOE) budget proposed for fiscal year 2006.[2] The first item is the "orderly termination of activities" for Oil & Gas Research & Development within the DOE,[3] for which a total of $20 million has been allocated.[4] The other item is the apparent zeroing out of both the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs.[5] I believe strongly that these proposed terminations are not in the best interest of the United States, its energy independence or its technological leadership.

Before stating my arguments, I wish to make perfectly clear that my company has benefited, and continues to benefit, from these programs. We currently have two cost-sharing research contracts[6] [7] from the National Energy Technology Laboratory, one SBIR[8] and one STTR[9] grant. We have recently submitted a proposal for another cost-sharing research project.[10] This support has been critical to the growth of APS and its introduction of new products for the industry.

I will not discuss in detail the general justifications that you know so well—the necessity of our striving toward energy independence or near-independence; the importance of new technologies to reaching this goal, while protecting the environment, etc. While these are clearly important considerations, I would rather cite some particular examples from my personal experience. I will give three: an example of an outstanding success story, a description of the changes in the business environment for oil and gas exploration, and some reasons that DOE support for oil and gas research and development is more important today than ever.

A SUCCESS STORY—TELECO OILFIELD SERVICES INC.

In 1972, I began a new venture, Teleco Oilfield Services Inc., with the support of my then employer, Raymond Engineering[11] and the European oil company, S.N.P.A.[12] The purpose of this new company was to develop and commercialize a new technology, Measurements-While-Drilling (or MWD). Even then, before there was a commercial tool, the industry recognized MWD as a transformative technology. By transmitting data to the surface in real time from the bottom of a well as it was being drilled, it would open the door to directional and horizontal drilling,

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[1] 800 Corporate Row, Cromwell, CT 06416.
[2] Fiscal year 2006 Budget Appendix, pp. 395–411, "Energy Programs".
[3] Ibid, p. 401.
[4] Ibid., p. 400, Identification Code: 89–0213–0–1–271 00.03. This compares with $77 million (actual) and $83 million (estimated) in 2004 and 2005, respectively.
[5] Ibid., p. 395, Identification Codes: 89–0222–0–1–251 00.18 & 00.19, Since these funds represent a fixed fraction of departmental research budget, I assume that they will be cut as well.
[6] DE–FC26–02NT41664, "Drilling Vibration Monitor and Control System;".
[7] DE–FC26–04NT15501, "Novel High-Speed Drilling Motor for Oil Exploration & Production."
[8] DE–FG02–02ER83368, "Rotary Steerable Motor System for Deep Gas Drilling."
[9] DE–AC26–98FT40481, "Downhole Fluid Analyzer".
[10] Under Announcement DE–PS26–05NT42395–1, "Drilling, Completion & Stimulation Program Analysis; Part 1: Deep Trek."
[11] Now a part of Kaman Corporation.
[12] Société Nationale des Pétroles d'Aquitaine, now a part of TotalElfFina.

real-time analysis of the oil and gas content of a well, and other marvels that are now standard operating procedure in oilfields around the world. In 1978, dozens of companies were trying to develop these systems,[13] including large corporations within the oil industry and without. Most, however, were unsuccessfully trying to adapt existing wireline technology to the much more severe environment within a well during drilling. Teleco took the opposite approach[14]—it adapted the proven reliable military and space technology of Raymond Engineering and applied it to the new environment in a effort to attain the reliability needed for such service.

In 1975, after several years of intense and expensive self-funded development, Teleco was ready to build and field test its first prototype tools. The combination of their complexity and the requirement that they work in an extreme environment made this a prohibitive task. The oil companies were unwilling to invest in this technology without a successful field test. It was at this time that the company applied for, and received, $2 million in development funding from the DOE. With these funds, the field testing could proceed and proved successful. At this point, six major oil companies[15] provided an additional $0.9 million funding in return for future repayment through the company's sales. These funds allowed the commercial launch of MWD in 1978.

As anticipated, the commercial introduction of MWD by Teleco revolutionized oil and gas exploration, first primarily offshore, but now on land as well. Teleco was the sole provider of these services for over 2 years, and the leading supplier throughout its existence. Over the next 2 decades, with two successful stock offerings and its acquisition by SONAT, Inc., the company grew to revenues of $140 million in 1992. It had 1,200 employees worldwide, including 850 in the United States, with its headquarters in Connecticut, a major facility in Louisiana, and offices in Texas, California, Wyoming, Alaska and Oklahoma. In 1992, it was acquired by Baker Hughes for ~$380 million, and ceased to exist as a separate company.

What was the role of the DOE in this success? MWD would have certainly been developed in time, but it took over 2 years for other companies to enter the market. The Teleco system remained the leader in reliability over its entire existence. The support of the DOE was critical to making the leap from a laboratory demonstration to fully commercial systems in use worldwide. Thus, the small investment by the DOE led directly to the development of a company and an industry that served to improve the efficiency and safety of oil and gas exploration, led to many advances that help restrain the price of oil including such innovations as horizontal drilling, and created thousands of jobs in the United States.

CHANGES IN THE OIL AND GAS INDUSTRY OVER THE PAST THREE DECADES

In the past 3 decades, the oil and gas industry has undergone dramatic changes. In the 1970's the major production companies were the principal sources of new technology for the industry. Exxon, Mobil, Texaco and ARCO, to cite a few, maintained research facilities staffed by the most experienced experts in their fields. These companies developed many of the key innovations in the drilling and well logging industry, despite their recognition that, as commodity producers, they were neither equipped to market, nor particularly interested in, technology per se. This was the province of the oil service companies, to whom the producers licensed their use, often giving non-exclusive, royalty-free licenses to any company that requested them.

In the ensuing decades, the industry has consolidated. For example, all of the companies mentioned above have either merged or been acquired since then, also consolidating their research programs. In the volatile oil and gas industry, it difficult to justify to shareholders investments in long-term programs that will not produce any direct revenues or competitive advantage. Thus, companies have striven to "right size" their organizations, often at the expense of research.

A similar contraction has taken place in the oilfield services business. New technologies were once transferred from the producers, developed by the major service companies, or introduced by small, specialized companies (such as Numar[16] or Landmark Graphics[17]). Many of the researchers laid off in the consolidation of the producers' research labs found their way to service companies. The service companies also acquired many of the smaller companies, such as those listed above. Now,

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[13] Cf., "MWD: State of the Art," series of articles in the Oil & Gas Journal, 1978.

[14] R.F. Spinnler & F.A. Stone, "MWD: State of the Art—4; MWD Program nearing commerciality," Oil & Gas Journal, May 1, 1978.

[15] Exxon, Shell, Chevron, Conoco, Amoco and Placid.

[16] Now a part of Halliburton Corp, see: http://www.halliburton.com/news/archive/1997/corpnws_093097.jsp.

[17] Now a subsidiary of Halliburton Corp, see: http://www.lgc.com.

after significant consolidation and downsizing on the part of the service companies, and under the continuous, short-term scrutiny of the market, even they are moving away from the costs associated with long-term development. To cite one example, Schlumberger is closing its world-renowned Schlumberger-Doll Research Center in Ridgefield, CT, and relocating to Cambridge, MA. In doing so, they hope to do the work currently done by industry experts using university professors, research associates and student. The service companies are also outsourcing many high-risk projects to small companies such as APS.

In this environment, the growth and success of a Teleco would be impossible. The large companies have become more risk-averse and oriented toward current revenues. Small companies lack the resources to pursue high-risk, long-term developments. The government, through the DOE, is the backer of last resort for these efforts.

CURRENT NECESSITY FOR DOE SUPPORT

The U.S. oil and gas province is quite mature. Production of oil peaked in the 1970's and gas production is nearly at its peak. To produce additional reserves, technical progress is needed in two areas: (a) drilling in deeper waters offshore and in deeper formations onshore, requires operating at higher temperatures and pressures; and (b) more completely producing the hydrocarbons in known fields through reentry or infill drilling into smaller, dispersed pay zones, requires new, lower cost drilling and production techniques to produce them economically.

With Defense Department procurement now emphasizing "off-the-shelf" components, there is little impetus for developing new, higher temperature components and systems. Thus, high-temperature drilling tools become more complex and expensive. In the market climate described above, it will be extremely difficult to successfully launch these new products and service. With the producers concentrating on their core business, and the service companies emphasizing cost efficiencies and outsourcing, it falls primarily to the small, independent companies such as APS to produce these breakthroughs, but they cannot fund them unilaterally. The DOE R&D support, which requires cost-sharing by the applicant and outside sources, is the ideal stimulant.

To cite one example, consider our "Drilling Vibration Monitor and Control System," currently under development. In 2002, the National Energy Technology Laboratory (NETL) of the DOE launched the Deep Trek initiative, aimed at developing new technologies to reduce the cost of deep gas drilling. After review by outside experts of both a pre-application and application, APS was granted a Cooperative Agreement to develop this new tool, with the DOE paying 75 percent of the first phase. During this period we designed and modeled this tool, which senses the vibration of the bit and drillstring, and continually adjusts the stiffness of an active vibration damper located above the bit. As a result, the bit does not bounce off bottom, and applies the optimal force to enhance the rate of drilling. Our calculations show that use of this tool will increase the drilling speed by 10–50 percent, and reduce wear and failure of downhole components. We are now near the end of Phase II (65 percent DOE), and have laboratory results that demonstrate that the system operates as expected. Several major producing and supply companies have expressed interest in supporting the field tests of Phase III (50 percent DOE), and then using or distributing the tool.

None of this development would have been possible without the DOE support. APS was not in a position to fund it; the major service companies were not interested until there was an indication of value to the end user; and, the production companies needed something more concrete before investing in the technology. We anticipate major improvements in efficiency for the oil and gas drilling industry through use of this product, and significant revenues for our company.

As one indicator of the value of this support, APS Technology has been named for the second year in a row as a Connecticut Fast 50 Company, one of the fasted growing technology companies in the State. Our revenues have been growing at ~40 percent per year, and we have increased our employment from ~12 to 48 employees over the past 5 years, in the face of a very weak labor market.

Finally, the current run-up of the price of crude oil, and its effect on our entire economy, is putting additional political pressure on our government to "do something." This "something", to be effective, must address all possible solutions to our energy dilemma. These include greater attention to energy conservation; development of renewable energy sources; environmentally sound exploitation of our existing resources, such as coal; increased domestic exploration and production, etc. The most important key to increased oil and gas production from our mature domestic fields is the development of new technology. For the reasons described above, it is

critical that the government, through the DOE, provide timely support aimed at commercializing these new technologies.

In summary, these DOE research initiatives are essential to "prime the pump" of new technology development. This is even more important in these times of high fuel prices, "lean" corporations and increased dependence on foreign oil source. I urge you, in the strongest possible terms, to restore the funding for these programs at least at the level of the 2005 budget. Thank you.

PREPARED STATEMENT OF THE INDEPENDENT PETROLEUM ASSOCIATION OF AMERICA

Statement of The Independent Petroleum Association Of America, The US Oil & Gas Association, The International Association Of Drilling Contractors, The International Association of Geophysical Contractors, The National Stripper Well Association, The Petroleum Equipment Suppliers Association, The Association Of Energy Service Companies, Public Lands Advocacy, and California Independent Petroleum Association, Colorado Oil & Gas Association, East Texas Producers & Royalty Owners Association, Eastern Kansas Oil & Gas Association, Florida Independent Petroleum Association, Illinois Oil & Gas Association, Independent Oil & Gas Association of New York, Independent Oil & Gas Association of Pennsylvania, Independent Oil & Gas Association of West Virginia, Independent Oil Producers Association Tri-State, Independent Petroleum Association of Mountain States, Independent Petroleum Association of New Mexico, Indiana Oil & Gas Association, Kansas Independent Oil & Gas Association, Kentucky Oil & Gas Association, Louisiana Independent Oil & Gas Association, Michigan Oil & Gas Association, Mississippi Independent Producers & Royalty Association, Montana Oil & Gas Association, National Association of Royalty Owners, Nebraska Independent Oil & Gas Association, New Mexico Oil & Gas Association, New York State Oil Producers Association, Northern Alliance of Energy Producers, Ohio Oil & Gas Association, Oklahoma Independent Petroleum Association, Oklahoma Commission on Marginally Producing Oil and Gas Wells, Panhandle Producers & Royalty Owners Association, Pennsylvania Oil & Gas Association, Permian Basin Petroleum Association, Petroleum Association of Wyoming, Tennessee Oil & Gas Association, Texas Alliance of Energy Producers, Texas Independent Producers and Royalty Owners, Virginia Oil & Gas Association, Wyoming Independent Producers Association.

These organizations represent petroleum and natural gas producers, the segment of the industry that is affected the most when national energy policy does not recognize the importance of our own domestic resources. Independent producers drill 90 percent of domestic oil and natural gas wells, produce approximately 85 percent of domestic natural gas, and produce about 65 percent of domestic oil—well above that percentage of the oil in the lower 48 States.

THE ISSUE

The administration's budget proposal for fiscal year 2006 eliminates all Federal funding of oil and natural gas technology and regulatory evaluation programs. Funding for these programs needs to be restored to fiscal year 2005 levels. The Department of Energy should provide Congress with R&D plans at several levels of appropriations ($50 million, $75 million, & $100 million/year) over at least a 5-year planning period.

The Office of Fossil Energy oil and natural gas technologies programs are a vital investment in domestic oil and natural gas development. They have a proven track record of success. These programs include research and development (R&D), technology transfer, and participation in regulatory development regarding domestic production issues.

Independent producers are the beneficiaries of 85 percent of the programs' R&D focus. Without this Federal research, domestic oil and natural gas production will suffer from the loss of technology development and enhancements that are essential to maintain domestic production from existing resources and to find and produce new ones.

But these programs are more than just R&D. They include funding that supports efforts like the Petroleum Technology Transfer Council (PTTC)—an organization that creates the conduit to move research into the hands of producers, particularly small producers, where it becomes a production tool. Similarly, Federal research is a significant element of the university research that educates the coming generations of petroleum geologists and engineers—professionals that are essential to maintain a strong domestic exploration and production industry. Significantly, these funds also provide for participation within the Federal Government on domestic oil and natural gas issues as they are considered by Federal agencies; they keep the

Department of Energy as an effective voice during these long and complicated processes.

Successful during its initial years, the Fossil Energy R&D program has been plagued recently by inconsistent and decreasing funding. For example, DOE research efforts on coal bed methane yielded a 34-to-1 return on its investment. But now, planning a program based on annual budget requests hampers the continuity that is essential to develop long-term research strategies. Long-term project funding becomes uncertain and short-term projects must be created. A better framework would improve the program. Requiring plans based on different funding levels could provide Congress with a clearer understanding of the potential research that could be done.

Research and Development—Improving Domestic Oil and Natural Gas Production—Looking Over the Horizon for New Technologies

Faced with enormous potential research challenges, changing mandates for research, and inconsistent funding patterns, the Fossil Energy R&D program has, nonetheless, created a diverse R&D program. Moreover, the program requires significant cost sharing from non-Federal partners to assure its projects have a meaningful value. The program broadly addresses two key research needs—projects to improve the development of existing resources, including improved environmental management, and projects to meet future needs that will be essential to domestic resource development. Much of the research is conducted by universities and provides opportunities to attract strong students in petroleum geology and petroleum engineering—disciplines where enrollment has dropped 70 percent over the past 20 years—disciplines that are key to a strong domestic industry. Brief descriptions of some of the projects follow, but more details are available at the Fossil Energy Oil & Natural Gas Supply and Delivery R&D website (http://www.fe.doe.gov/programs/oilgas/index.html).

Marginal and Stripper Well Revitalization

This research effort supports an industry-driven program that identifies technology research and development needs that can sustain and improve the production performance of the Nation's low-producing oil and gas wells. Particular attention is focused on preventing the premature abandonment of marginal properties in the United States where significant quantities of unproduced oil and natural gas remain.

Enhanced Oil Recovery/CO_2 Injection

Production at most oil reservoirs includes three distinct phases: primary, secondary, and tertiary, or enhanced, recovery. With much of the easy-to-produce oil gone from U.S. oil fields, producers have attempted several tertiary, or enhanced oil recovery (EOR), techniques that offer prospects for ultimately producing 30 to 60 percent of the reservoir's original oil. The Department of Energy's Fossil Energy program has worked to develop and test a variety of EOR techniques. EOR still holds considerable promise for recovering literally billions of barrels of oil that left behind in the Nation's oil fields.

The potential dual benefits of CO_2 injection for both oil recovery and carbon sequestration have led the Energy Department to reorganize its EOR research efforts to concentrate on this method in the near-term. CO_2 injection remains a highly specialized niche application, but if DOE's research program can expand its applicability, especially in regions where large power plants are located, the technology could gain additional market acceptance.

"Deep Trek" and Other Drilling R&D

"Deeper" and "smarter" will likely be the watchwords of America's drilling industry in the coming years. To help develop the high-tech drilling tools industry will need to tackle these deeper deposits, Fossil Energy kicked off "Project Deep Trek". The goal is to develop a "smart" economical drilling system to withstand the extreme conditions of deep reservoirs. Project "Deep Trek" builds on a solid track record of achievements in past drilling R&D partnerships. Fossil Energy's drilling program produced what could be the next major advance in downhole telemetry, a new system called IntelliPipe™ that turns an oil and gas drill pipe into a high-speed data transmission tool. Revolutionary new drill bits are also one of the "success stories" of the Energy Department's research program. The prime example is the polycrystalline diamond drill bit, now the industry standard for drilling into difficult formations.

Methane Hydrates—The Gas Resource of the Future

If only 1 percent of the domestic methane hydrate resource could be made technically and economically recoverable, the United States could more than double its domestic natural gas resource base. With no immediate economic payoff, the private sector is not vigorously pursuing research that could make methane hydrates technically and economically viable. Therefore, Federal R&D is the primary way the United States can begin exploring the future viability of a high-risk resource.

Improving Environmental Management

A host of advanced technologies now make it possible for America's oil and gas industry to produce resources from beneath sensitive environments. In the past 30 years, production footprints have shrunk dramatically—by up to 80 percent—providing one of the best ways of protecting the surface environment surrounding exploration and production activities.

TECHNOLOGY TRANSFER—PUTTING NEW TECHNOLOGIES TO WORK

Using its National Energy Technology Laboratory, Fossil Energy has created programs to move technology from the laboratory to the field. For example, the PUMP (Preferred Upstream Management Practices) program helps slow the decline in America's oil production. PUMP pairs "best practices" with solutions coming from new technologies to an active campaign of disseminating information to domestic oil producers. Through organizations like the Petroleum Technology Transfer Council, jointly funded with industry and universities, R&D from the Fossil Energy program expands throughout the Nation. PTTC conducts workshops and seminars throughout the Oil Patch making research efforts and case study applications of new technology available to domestic producers—primarily small producers. Since its inception in 1994, PTTC has conducted over 1,000 workshops and seminars. PTTC recently estimated economic impact in just 11 areas identified and directed by industry where independents are broadly applying technologies. Of 1,266 million barrels of oil equivalent reserves that were realized, 88 million barrels could be clearly attributed to PTTC activity.

Protecting Our National Energy Security—Making the Case in the Regulatory Arena

The Department of Energy lists, as one of its principal strategic goals, protection of " . . . our National and economic security by promoting a diverse supply and delivery of reliable, affordable, and environmentally sound energy." Federal regulation development requires interagency consultation. The Office of Fossil Energy evaluates the impact of Federal regulations and regulatory proposals on domestic oil and natural gas production. Because the May 2001 Executive Order requires agencies to assess the energy impact of major Federal regulations, this role has become more critical. But, it is not a new role. Throughout its history, Fossil Energy has contributed to the regulatory debate. Whether it is EPA regulation of drilling fluids and produced waters under RCRA or OPS regulation of gathering lines or EPA regulation of storm water discharges during the construction of exploration and production operations, Fossil Energy develops the technical analysis of the regulation on domestic production and argues for sound regulatory approaches during the interagency reviews. It does comprehensive reviews of regulations and evaluates the environmental benefits of using advanced oil and natural gas exploration and development technologies. Retaining these key functions is essential for domestic oil and natural gas production to be maintained and expanded.

PREPARED STATEMENT OF THE ECOLOGICAL SOCIETY OF AMERICA

As President of the Ecological Society of America, I am pleased to provide written testimony for the Department of Energy (DOE). The Ecological Society of America has been the Nation's premier professional society of ecological scientists for 90 years, with a current membership of 9,000 researchers, educators, and managers.

Under the President's budget, DOE's Office of Science would see its R&D funding fall 4.5 percent to $3.2 billion. In particular, we are concerned that the fiscal year 2006 budget could effectively eliminate most biological and environmental research conducted at the Savannah River Ecology Laboratory (SREL). Approximately 80 percent ($7.7 million) of SREL's fiscal year 2005 science budget has come from the DOE's Office of Science. The fiscal year 2006 request would eliminate this funding, and would direct SREL to compete for funding within the Environmental Remediation subprogram rather than be included as a separately funded research activity.

The DOE's elimination of funding for SREL would likely result in its closure. Although SREL researchers would be able to compete for funds from other programs,

the physical facilities would likely not be able to stay open. Additionally, the amount of competitive funds available from other programs would fall short of previous funds to SREL.

SREL is an institution that is globally recognized for its scientific excellence and commitment to the highest standards of education. The ecological monitoring and basic research that occur at SREL are extremely cost-effective and valuable to DOE operations. Largely as a result of SREL studies, the Savannah River Site is the best ecologically characterized site in the DOE complex. By having such information available, DOE and its contractors save time and money in environmental risk assessments and regulatory actions. For example, a 1994 decision by DOE not to drain the Savannah River Site and remove contaminated sediments was based on SREL research that suggested the habitat could survive with the sediment intact. This information saved billions of dollars in cleanup costs. SREL is also recognized as a world leader for its expertise on such areas of research as the movement of pollutants in streams and the effects of radiation on reptiles.

The Ecological Society of America urges Congress to consider SREL's historical success in providing valuable scientific research to the DOE and the Nation, and to ensure that it can continue to do so.

PREPARED STATEMENT OF THE NUCLEAR ENERGY INSTITUTE

On behalf of the nuclear energy industry, I thank you for your support of a comprehensive long-term solution to our energy needs, including the Department of Energy's nuclear technology-related programs. I also commend you for your continued oversight of the Nuclear Regulatory Commission for fiscal 2005. My statement for the record addresses three key points:

—*The industry urges continued support for DOE's nuclear energy programs*.—NEI recommends funding the DOE's Office of Nuclear Energy at its request of $503 million. We recommend restoration of the Nuclear Energy Plant Optimizaton program at $10 million. The industry also encourages DOE to increase Next Generation Nuclear Plant funds by $30 million to $75 million and University Fuel and Support program funds by $8 million to $32 million. To support basic science, we recommend funding the Nuclear Energy Research Initiative at $10 million.

—*Congress should provide secure, environmentally responsible management of used nuclear fuel by fully funding the Yucca Mountain project*.—NEI recommends that the program be funded at the President's request of $651.4 million, absent reclassification of the Nuclear Waste Fund. With fund reclassification, the program should receive funding of $750 million—the amount the Federal Government collects each year from electricity consumers specifically for the program.

—*The NRC's budget of $701.7 million should be reassessed*.—This is essential in view of the higher appropriations of the agency, allocation of increased industry resources on plant security upgrades and reduced demands on its budget in fiscal 2005 owing to delays in Yucca Mountain licensing. The NRC must be ready to revise its Yucca Mountain regulations in the second half of fiscal 2005 and fiscal 2006.

I also will discuss briefly several important programs that the nuclear energy industry supports.

The Nuclear Energy Institute is responsible for developing policy for the U.S. nuclear energy industry. NEI's 250 corporate and other members represent a broad spectrum of interests, including every U.S. energy company that operates a nuclear power plant. NEI's membership also includes nuclear fuel cycle companies, suppliers, engineering and consulting firms, national research laboratories, manufacturers of radiopharmaceuticals, universities, labor unions and law firms. The industry is providing electricity for one of every five U.S. homes and businesses and is taking steps to develop energy resources for the future. Nuclear energy is a clean, reliable and sustainable source generated here in the United States. We urge Chairman Domenici, Ranking Member Reid and members of this committee to recognize nuclear energy as an important part of a diverse, comprehensive, long-term energy policy for America for generations to come.

RESEARCH AND DEVELOPMENT NECESSARY FOR NEW NUCLEAR ENERGY SYSTEMS

The industry supports increased funding for fiscal 2006 for DOE's R&D programs for new nuclear energy systems. The nuclear energy industry urges the committee to approve $56 million for the Nuclear Energy 2010 program. Within the program, funding should be allocated for demonstrating NRC regulatory processes for new nu-

clear plants, including those for early site permits and the combined construction and operating license. The industry remains fully committed to these initiatives. DOE should support deployment of proven Generation III+ technology for this program.

The industry believes that the government has an early role in bringing advanced reactor concepts, known as Generation IV reactors, to the marketplace. NEI urges the committee's support for the development of a next-generation nuclear plant at the new Idaho National Laboratory, funded through the Generation IV Nuclear Energy Systems Initiative program at $75 million. The industry also supports the Nuclear Hydrogen Initiative at $20 million.

Although DOE continues to fund the International Nuclear Energy Research Initiative (I–NERI), the domestic version of this program, NERI, has been superseded by a new initiative that continues the basic science of NERI under other nuclear energy programs at DOE. The industry believes a collaborative basic science program between national laboratories, industry and universities like NERI should be continued at $10 million for fiscal 2006.

The administration originally recommended another R&D initiative—the Nuclear Energy Plant Optimization (NEPO) program—to produce additional electricity from America's 103 commercial reactors. Through NEPO, the Energy Department has been working with the nuclear industry and the department's national laboratories to apply new technology to nuclear and non-nuclear equipment. The industry encourages the committee to allocate $10 million for the NEPO program to help fund important research on materials science and materials management issues at nuclear power plants. This research would focus on improving the availability of and maintenance at nuclear plants; developing technology to predict and measure the extent of materials degradation from plant aging; and introducing new materials to mitigate materials effects. DOE proposed no funding for the program in fiscal 2006, despite the benefits that the national laboratories can bring to bear on these issues.

The industry also requests $32 million for DOE's University Support Program, which provides for vital research and educational programs in nuclear science at the Nation's colleges and universities. With nuclear plant license renewal continuing at a brisk pace and the industry developing plans for new nuclear plants, demand for highly educated and trained professionals will continue. NEI encourages the committee to consider a new $2 million program within the Office of Nuclear Energy, Science and Technology to support universities that have undergraduate and graduate programs in health physics. The industry's most recent human resources survey reveals an increasing demand for health physics professionals. This need will become acute in the next few years as many of today's nuclear professionals retire.

INDUSTRY SUPPORTS BUDGET REQUEST OF $651.4 MILLION FOR YUCCA MOUNTAIN

Congress has approved Yucca Mountain, a remote desert site in Nevada about 90 miles northwest of Las Vegas, as suitable for a national repository for used nuclear fuel currently stored at nuclear plant sites around the country. Under a Federal Government plan, used nuclear fuel will be shipped to Yucca Mountain in highly engineered, federally approved containers.

The industry greatly appreciates the support of this committee for funding the Federal used nuclear fuel disposal program. NEI recognizes the difficult challenge that the committee faced in fiscal 2005, in view of assumptions included in the budget request regarding the treatment of the Nuclear Waste Fund. This year, the administration has requested nearly $80 million more than was appropriated for fiscal 2005, including a significant increase in funds for transportation-related activities. However, there is still a funding shortfall that affects the schedule for developing a repository. Absent sufficient funding in fiscal 2006, the industry does not believe the program will meet key milestones for used fuel acceptance. These potential delays will result in higher costs for the program and increased liabilities to the Federal Government resulting from breach of contracts with energy companies.

Although the repository program is the keystone of our national policy for managing used nuclear fuel, the industry also recognizes the value in researching emerging technology for used fuel treatment and management. Such farsighted programs will allow our Nation to remain the world leader in nuclear technologies. However, technologies such as transmutation—the conversion of used nuclear fuel into a smaller volume of less toxic materials—still require a Federal repository for disposal of the radioactive byproducts generated from the process.

CONGRESS SHOULD RECLASSIFY THE NUCLEAR WASTE FUND

The industry urges Congress to reclassify the Nuclear Waste Fund this year, consistent with the President's fiscal 2006 budget recommendation. For each year of

delay in the Yucca Mountain program, the Federal Government accrues another $1 billion in costs relating to disposal of defense nuclear materials and failure to meet contractual obligations to move commercial used fuel.

Congressional action is required in the context of the fiscal 2006 budget resolution and reconciliation process to enact the necessary legislation in a timely manner for the fiscal 2007 budget and appropriations. The Nuclear Waste Fund has three unique characteristics that justify modifying the current budget rules governing its use:

—The Federal Government is obligated by law and contracts signed with electric companies that operate nuclear power plants to implement the used fuel management program.

—The Nuclear Waste Fund is intended to cover the entire cost of the Federal Government's commercial used fuel management program over several decades.

—The disposal of used nuclear fuel from commercial reactors is financed entirely through a fee established by Federal law and paid by consumers of electricity generated at nuclear power plants.

NRC BUDGET AND STAFFING SHOULD BE REASSESSED

The NRC's proposed fiscal 2006 budget totals $701.7 million, an increase of $32 million from the fiscal 2005 budget, and the highest ever for this agency. Five years ago, the NRC's budget was $488 million. Fiscal year 2006 is an appropriate time for the NRC to review its budget and resource allocations in light of current demands, and the other resources available.

In accordance with a 2004 Federal appeals court ruling, the Environmental Protection Agency must review and reconsider its Yucca Mountain radiation standard. This action by EPA may require the NRC to begin revising its Yucca Mountain regulations. Promulgation of the new final NRC rules and related regulatory guidance must not stand in the way of reviewing DOE's Yucca Mountain license application.

The NRC's budget for fiscal 2006 shows that approximately $61 million is for the purpose of regulating security at nuclear plants. The nuclear industry believes that much of this funding is for the purpose of providing for the national defense and should not be included in the NRC's fees, of which 90 percent are reimbursed by the industry. The Senate expressed concern over this issue by including a provision in the energy bill indicating that security funding should not be included in user fees.

America's nuclear power plants were the most secure industrial facilities in the United States before the Sept. 11, 2001, terrorist attacks, and are even more secure today. Over the past 3 years, the industry has invested an additional $1.2 billion in security-related improvements and added one-third more security officers. Security at commercial nuclear facilities is unmatched by any other private sector or area of the critical infrastructure. The industry should not be expected to solely fund efforts to provide for the national defense.

INDUSTRY SUPPORT FOR ADDITIONAL ACTIVITIES

Nuclear Nonproliferation.—The industry supports the disposal of excess weapons-grade nuclear materials through the use of mixed-oxide fuel in U.S. and Russian reactors.

Low-Dose Radiation Health Effects Research.—The industry supports continued funding for the DOE's low-dose radiation research program.

Nuclear Research Facilities.—The industry is concerned with the declining number of nuclear research facilities. We urge the committee to fully fund the new DOE lead lab in Idaho for nuclear energy research and development.

Uranium Facility Decontamination and Decommissioning.—The industry fully supports cleanup of the gaseous diffusion plants at Paducah, KY; Portsmouth, OH; and Oak Ridge, TN. Commercial nuclear power plants contribute more than $150 million to the Decontamination and Decommissioning Fund for government-managed uranium enrichment plants each year. Other important environmental, safety and/or health activities at these facilities should be funded from general revenues.

International Nuclear Safety Program and Nuclear Energy Agency.—NEI supports the funding requested for the DOE and NRC international nuclear safety programs. They are programs aimed at improving the safe commercial use of nuclear energy worldwide.

Medical Isotopes Infrastructure.—The nuclear industry supports the administration's program for the production of medical and research isotopes.

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. The major requests that I address in this document are that funding for the DOE Office of Science be restored in fiscal year 2006 to the fiscal year 2005 level of $3.6 billion, and that, within the Office of Science, the Advanced Scientific Computing Research program be restored in fiscal year 2006 to its fiscal year 2005 level of $234 million.

UCAR is a 68-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 (NSF) 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 DOE Office of Science, but we are troubled by the downward trend in funding. 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 it supports unique and vital parts of U.S. research in climate change, geophysics, genomics, life sciences, and science education. As in previous years, the House Science Committee's recently released "Views and Estimates" for fiscal year 2006, calls the administration's budget request for DOE's Office of Science "inadequate." It points out that the request for the Office of Science is well below the amounts authorized in H.R. 6, the Energy Policy Act of 2003, and H.R. 610, the Energy Research, Development, Demonstration, and Commercial Application Act of 2005.

DOE is the largest Federal sponsor of basic research in the physical sciences, but the level of funding for its peer reviewed, core science programs has remained stagnant for years. If enacted, the fiscal year 2006 request of $3.46 billion, a 3.8 percent cut, will diminish the Office of Science's ability to serve the country. The request would cut the Office of Science by $136.0 million. Of this amount, $79.6 million is the elimination of add-ons, but factoring in inflation, the Office takes a real cut of several percent.

I urge the subcommittee to fund the DOE Office of Science at the level of the fiscal year 2005 Original Appropriation, or $3.6 billion, at the very least, and to enable the agency to apply the entire appropriated amount toward planned agency research priorities. This level of research funding will augment and reinvigorate critical work of researchers throughout the Nation.

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, yet the request of $455.7 million for BER is down over 9 percent from the fiscal year 2005 enacted level of $502.3 million, a figure that does not include add-ons.

Peer-reviewed university research programs play a critical role in the BER program involving the best researchers the Nation's institutions of higher learning have to offer, and developing the next generation of researchers. Approximately half of BER basic research funding supports university-based activities directly and indirectly. All BER research projects, other than those in the "extra projects" category, undergo regular peer review and evaluation. I urge the subcommittee to fund Biological and Environmental Research at the level of the fiscal year 2005 Omnibus Appropriation, or $502.3 million (this figure does not reflect add-ons), and to enable BER to apply the entire appropriated 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.

Climate Change Research.—Within BER, the Climate Change Research long-term goal is to deliver improved climate data and models for policy makers to determine safe levels of greenhouse gases for the Earth system. This work is critical to the health of the planet. The Climate Change Research Request of $142.9 million is a 1.4 percent increase over the fiscal year 2005 appropriated level. I urge the subcommittee to fund Climate Change Research at a level that is consistent with the request for BER stated above.

Also within Climate Change Research, Atmospheric Chemistry and Carbon Cycle is a program that includes Atmospheric Science, the work of which is essential for assessing the effects of energy production on air quality and climate through the quantification of the impacts of energy-related aerosols on climate. Atmospheric Science is down by 1.6 percent in the President's Request. I urge the subcommittee to fund Atmospheric Chemistry and Carbon Cycle at a level that is consistent with the request for Climate Change Research.

ADVANCED SCIENTIFIC COMPUTING RESEARCH (ASCR)

Within DOE's Office of Science, the Advanced Scientific Computing Research program provides 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. 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. The Intergovernmental Panel on Climate Change (IPCC) is drafting its Fourth Assessment Report to be completed in 2007, and ASCR's contribution to this international document is critical. Yet ASCR is proposed to be cut in the fiscal year 2006 request by 11 percent, from the fiscal year 2005 level of $234 million for the fiscal year 2006 request of $207.1 million.

The proposed ASCR cut eliminates one particularly important component of ASCR—the National Collaboratories program. This program develops, integrates and deploys a wide range of software tools that enable geographically-distributed research teams to work together effectively and that facilitate remote access to both facilities and data resources. Researchers from industry, academia and national labs, through this program, share access to facilities, large datasets and environments, support the frequent interactions needed to address complex problems, and speed up discovery and innovation. The National Collaboratories Program has accomplished much in scientific computing in its short history. One example is the establishment of the Earth System Grid, an on-line repository of climate data providing over 100 terabytes of climate data to the U.S. climate research community. The program and its predecessors have produced the innovations that underpin the emerging major grid computing market that is expected to reach a value of $10 billion by 2007.

In order to maintain our international leadership in supercomputing, I urge the subcommittee to provide ASCR with the fiscal year 2005 level of $234 million (this number does not reflect the rescission), and to direct DOE's Office of Advanced Scientific Computing Research to restore full funding for the National Collaboratories program, an economic engine for U.S. competitiveness.

CONCLUSION

A recent report by the Task Force on the Future of American Innovation states, "For more than half a century, the United States has led the world in scientific discovery and innovation . . . However, in today's rapidly evolving competitive world, the United States can no longer take its supremacy for granted. Nations from Europe to Eastern Asia are on a fast track to pass the United States in scientific excellence and technological innovation." DOE plays an important role in sustaining U.S. scientific leadership. On behalf of UCAR and the atmospheric sciences research community, I want to thank the subcommittee for the important work you do for U.S. scientific research. We appreciate your attention to the recommendations of our community concerning the fiscal year 2006 budget of the Department of Energy. We understand and appreciate that the Nation is undergoing significant budget pressures at this time, but a strong Nation in the future depends on the investments we make in science and technology today.

PREPARED STATEMENT OF THE INTERSTATE OIL AND GAS COMPACT COMMISSION

Chairman 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) 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). States strongly oppose the administration's fiscal year 2006 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 huge 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).

As I prepare this testimony we stand as a country very close to yet another "energy crisis." Crude oil prices this month reached price levels not experienced before in our country's history. In addition, the prices of heating oil, natural gas and gasoline also reached record highs. The U.S. domestic oil industry today is the Nation's largest single supplier of crude oil, supplying about 40 percent of the national demand for oil. The rest is imported—a number which is growing 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. Besides 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.

—Despite perceptions to the contrary, large qualities of oil and natural gas remain onshore 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 2006 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.

Several years ago, the Task Force on Strategic Energy Research and Development noted that, "There is growing evidence of a brewing 'R&D crisis' in the United States—the result of cutbacks and refocusing in private-sector R&D and reductions in Federal R&D."

A more recent report being compiled this month 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, their focus has largely moved 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.

The IOGCC report concluded that "[w]hen private R&D is compared to Federal expenditures, the outlook is even more bleak. Private spending is substantiated . . . but Federal spending remains disproportionately small compared to the relative importance of oil and gas to U.S. energy requirements."

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.

At present, our own economic recovery continues to be questioned, and an energy shortage would certainly slow the comeback. Middle East energy supplies are at considerable risk with war and internal conflict that remains a constant threat. The recent anti-U.S. rhetoric from Venezuela has caused companies to back away from future oil and gas investments in this country, creating yet more uncertainties in a major country supplying petroleum to the United States.

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 some of the void left 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 of filling the void and expanding Federal expenditure on R&D, the administration's budget for fiscal year 2006 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.

This is still so much promising work the taxpayers of this country support, including: new methods of drilling that reduce impacts to the environment; new materials that allow better, faster drilling; new chemicals and biological tools that increase production; 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 improve recovery rates and lower 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 in oil and gas research as a first step in implementing an energy plan that makes sense for our country's future and our country's security today.

PREPARED STATEMENT OF THE NATIONAL ASSOCIATION OF STATE ENERGY OFFICIALS

Mr. Chairman and members of the subcommittee, I am Sara Ward of Ohio 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 $50 million for the State Energy Program (SEP) and $250 million for the Weatherization Assistance Program (WAP). We also support an important program which has been a dramatic success: the State Energy Programs Special Projects (SEP Special Projects) account, which should receive at least level funding of $15.1 million. SEP Special Projects has set a standard for State-Federal cooperation and matching funds to achieve critical Federal and State energy goals. 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) and an increase of $600,000 for EIA's State Heating Oil and Propane Program in order to cover the added costs of doubling the frequency of information collection (to weekly), the addition of natural gas, and increasing the number of State participants. EIA funding is a critical piece of energy emergency preparedness and response. NASEO continues to support at least level funding for a variety of critical deployment programs, including Rebuild America, Energy Star and Clean Cities. The States also strongly support increased funding for the State Technologies Advancement Collaborative (STAC). The fiscal year 2005 Interior and Related Agencies conference report allocated $4 million for STAC, and directed that STAC manage the Rebuild America Program. This is a promising new area of cooperation. STAC has increased the speed of the procurement process, dramatically improved multi-State/Federal cooperation and coordination, and produced significant results. NASEO supports the $5 million earmark contained in the fiscal year 2004 bill, as well as an $8.7 million funding level for Rebuild America, with specific report language that it continue to be managed by STAC. NASEO supports funding for the Office of Electricity and Energy Assurance at least at the 2006 request, with $20 million for critical energy assurance activities. The industries program should be funded at a $125 million level to promote efficiency efforts and to maintain U.S. manufacturing jobs, especially in light of the loss of millions of these jobs in recent years. Proposed cuts in these programs are counter-productive and are detrimental to a balanced national energy policy.

State Energy Program.—Over the last year, both oil and gas prices have been rising in response to international events as well as low domestic inventories. We expect $50 oil to continue for an extended period of time, with an expanded crisis situation as summer approaches. In addition, we now have quantifiable evidence of the success of the SEP program, which we did not have in years past, which demonstrates the unparalleled savings and return on investment to the Federal taxpayer of SEP. Every State gets an SEP grant and all States 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 has now updated that study and found that $1 in SEP funding yields: (1) $7.22 in annual energy cost savings; (2) $11.29 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—1,030 metric tons.

State Energy Program Special Projects and Gateway Deployment.—SEP Special Projects provides matching grants to States to conduct innovative project development. It has been operated for the past 10 years and has produced enormous results in every State in the United States. We support funding of at least the fiscal year 2005 funding level of $15.1 million. SEP Special Projects grants are awarded competitively and thus complement the SEP formula grant, with 37 States submitting winning proposals in 2004. These projects have provided successes in virtually every

State. The Gateway Deployment Programs (including Rebuild America, energy efficiency outreach, Building Codes Training and Assistance, Clean Cities, Energy Star, Inventions and Innovations) should receive the fiscal year 2005 funding level of $34.3 million, plus the administration's proposed addition of $1.7 million for Energy Star.

State Technologies Advancement Collaborative (STAC).—STAC is a joint venture between the State energy offices, the Department of Energy and the State research institutions to conduct multi-State research, development, demonstration and deployment. It is a unique partnership initiated in 2002, which is characterized by highly cost-shared, innovative projects which leverage significant State resources, reduce Federal/State duplication of effort and is more efficient than the traditional Department of Energy procurement process (with more involved parties). These multi-State collaborative efforts have included: (1) 16 projects in 33 States in the first round; and (2) 8 projects in 14 States in the second round. We would request that the subcommittee continue the earmark for this program, which has been in place for each of the past 3 fiscal years, at least at the $5 million level. In addition, in fiscal year 2005 Congress directed that the Rebuild America program should be managed by STAC. The transition is in process, and we would urge the subcommittee to include this language again in the fiscal year 2006 bill. Rebuild America should receive funding of $8.7 million, equal to the fiscal year 2005 funding level. Continued recognition of the STAC program in the congressional appropriations process will give increased visibility (and viability) to this new and successful pilot program.

Industrial Energy Program.—A funding increase to a level of $125 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.

Colorado.—This energy office has been promoting biomass programs, include biodiesel in Telluride, use of fire mitigation "thinnings" for energy production and agricultural waste programs in Delta County. The State has been a leader in developing capital improvements for public buildings, including $25 million in energy projects already. The State has also assisted small rural schools on energy efficiency projects. Other diverse projects have ranged from working with CU to install a microturbine, promoting wind projects, updating the State energy emergency plan and expanding the use of alternative fuels and hybrid vehicles.

Idaho.—In Idaho the State has rated homes utilizing the Energy Star tools and signed-up 34 new builders to participate in the program. An aggressive energy efficiency financing program issued 16 loans in this fiscal year alone, for efforts in the hundreds of thousands of dollars. The agricultural energy program has focused on reducing irrigation costs and usage to improve agricultural productivity and costs.

Kentucky.—The energy office is working with over 100 partner organizations, including farmers, schools, civic groups, industries, retailers, etc., to promote cutting-edge energy programs. In the past 18 months, the State has worked with 11 school districts to initiate $20 million worth of energy performance contracts. A similar program for State agencies is saving $2.3 million annually. The energy office is demonstrating new biomass waste as a premium fuel and developing efficient technologies in the aluminum industry (with University of Kentucky), promoting the use of biofuels (biodiesel and ethanol) and utilizing solar technology on schools.

Mississippi.—The State operates an innovative investment loan program, which works with all sectors of the economy to provide energy efficiency design assistance and development, which has helped reduce costs for hospitals, schools, corporate facilities and local governments. The State has developed extensive industrial energy efficiency programs, biomass promotion activities, energy education programs (reaching on average 28,000 students), as well as public transit and carpool/vanpool programs.

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 $62 million each year, with more than 350 projects. The State energy office has also worked with the Public Utility Commission and the utilities within the State to get $11.5 million invested in the past 2 years in residential and commercial energy efficiency programs.

Montana.—The State has issued over $7.5 million in bonds to fund 60 energy efficiency projects in State buildings. The savings pay for themselves very quickly. The State has also upgraded building energy codes and instituted 44 projects impacting over 2 million square feet of building space, with non-Federal leverage of $11.5 million.

Nevada.—A unique program has been developed to work with small businesses to reduce energy costs through energy efficiency activities. The State has also implemented new energy code training and technical assistance to reduce demand in light of rapid population growth. Working with Clark County schools, 10 new district energy managers have been hired to reduce the $41 million electric bill for the sixth largest school district in the country. The State has worked to develop the Temporary Renewable Energy Development trust to guarantee payments for renewable energy projects. Recently, the State opened the first fleet ethanol refueling station in Reno.

New Mexico.—The State has worked with schools and colleges throughout the State to implement energy performance contracts, with 35 now in place leading to annual cost savings of $3.9 million (examples include biomass district heating in Jemez Mountain School, geothermal ground source heating and efficient lighting in Alamogordo and efficient lighting and building energy management controls at New Mexico State University). In addition to the State renewable portfolio standard, other new efforts include tax exemptions for hybrid vehicles, a Clean Energy Grants Program for public entities and a $2.65 million clean energy capital projects program. New initiatives include more solar energy demonstrations, geothermal energy efforts in greenhouses, upgrades of building codes and efficient school construction. All these efforts match Federal funding, especially through SEP.

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 $152 million through energy efficiency projects. Over the next 20 years, Texas estimates that the program will save taxpayers $500 million. In another example, the State promoted the use of "sleep" software for computers, which is now used on 105,000 school computers, saving 33 million kWh and reducing energy costs by $2 million annually.

Utah.—The State has been implementing programs to promote energy-efficient building design for new homes, including educational and demonstration efforts. The State recently upgraded the building code and the State energy office has been working to educate builders and code officials. In addition, the energy office has been working to implement the new renewable energy systems tax credit. In the transportation area the energy office has been working to implement carpool/vanpool programs and promoting the use of alternative fuels and hybrid vehicles, in conjunction with the Utah Transit Authority and the Salt Lake Clean Cities Coalition.

Washington.—The Resource Efficiency Managers (REM) program has been successful. These officials have worked with Federal facilities to produce energy savings. For example, Fort Lewis has achieved over $1.5 million in energy savings and the Puget Sound naval facilities have over $1 million in projects. Other activities include promotion of energy efficient products and services, renewable energy and energy emergency preparedness.

West Virginia.—A focus on innovative industrial energy efficiency programs has been a hallmark of this State's activities. Working with the steel, aluminum, chemical, glass, metalcasting, wood products and mining industries, over $29 million in projects have been developed. The State is also working with other sectors of the economy to reduce energy consumption.

PREPARED STATEMENT OF THE NATIONAL MINING ASSOCIATION (NMA)

NMA represents producers of coal, uranium, metals and minerals, manufacturers of processing equipment, mining machinery and supplies, transporters, and engineering, consulting, and financial institutions.

OFFICE OF FOSSIL ENERGY

The NMA strongly supports the $18 million requested for the FutureGen Initiative, the deferral and designation of $257 million in prior year Clean Coal Technology Program funds for FutureGen's use in fiscal year 2007, and the $283 million requested for base coal research and development programs. However, the NMA believes the $50 million requested for the Clean Coal Power Initiative should be in-

creased to $132 million, thus ensuring a robust demonstration program for advanced coal technologies.

FutureGen Initiative/Coal R&D/Clean Coal Power Initiative (CCPI).—This project will be a prototype of the world's first, near-zero emissions coal-fueled hydrogen and electricity generation plant, and it will be the first power plant in the world to include large-scale sequestration of CO_2. The FutureGen facility will be managed and cost-shared by an alliance of coal and utility companies with extensive experience in building large-scale coal-fueled projects, while meeting budget and performance requirements. The industry alliance, currently negotiating a cooperative agreement with the Department of Energy, remains committed to moving the FutureGen Initiative forward, provided a multi-year funding scenario is secure and the 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, turbines, and carbon sequestration, provide the component technologies that will ultimately be integrated into the FutureGen. Other advanced research efforts focused on coal combustion, mercury control, and coal derived fuels, will provide the United States with a suite of advanced coal technologies necessary to meet environmental requirements while providing the projected 50 percent increase in electricity demand by the year 2025. Industry alone is unable to assume the financial risks associated with the full-scale commercial demonstration of promising technologies, such as those selected in the Clean Coal Power Initiative. Therefore, the government's share in this program should be increased $82 million above the $50 million request.

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 separations program conducts high-risk fundamental research which will lead to revolutionary advances in separation processes for the coal industry and develop technologies which crosscut the full spectrum of mining and minerals industries. This program is highly valued by the mining industry for both making new technology available and for its workforce development in educating graduate students.

OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY

Mining Industry of the Future Program.—The fiscal year 2006 budget request included only $1.1 million for the Mining Industry of the Future program. This request represents a 72 percent cut from the fiscal year 2005 enacted level of $3.9 million. Not only is the requested level not enough to allow any new solicitations or new starts for this important program, but it is unlikely that projects already approved under the Mining Grand Challenge will be given the promised funding. Currently there are 40 projects in the pipeline, and 36 have been completed. The requested level of funding will certainly mean that not all the projects in the pipeline will be completed. According to DOE the proposed reduction is meant to "allow for canceling and closing out lower priority projects . . . "—a clear indication that DOE intends to phase out this important program.

The Mining Industry of the Future Program is an important U.S. government/industry partnership designed to demonstrate, evaluate, and accelerate new technologies in the areas of exploration, extraction, processing, utilization, environment, and safety and health. This program is not only very popular as a technology development program, but as an educational program as well, since each solicitation receives many proposals involving most, if not all, major mining companies and mining universities. Finally, we would like to note that NMA has incorporated Mining Industry of the Future into our Mining Climate Action Plan (MICAP) developed in response to the administration's request to industry to voluntarily reduce greenhouse gas emissions. The fiscal year 2006 proposed level of funding will jeopardize the industry's ability to meet the goals of this plan.

U.S. ARMY CORPS OF ENGINEERS (USACE)

Civil Works Program.—NMA reviewed the proposed fiscal year 2006 request for the USACE's Civil Works Program and supports the request for additional expenditures from the Inland Waterway Users Fund and the strategy to accelerate high-priority projects that provide benefits to the Nation. However, NMA is very concerned that the proposed fiscal year 2006 budget does not provide sufficient funding to keep critical navigation projects on schedule, allow for the start of new projects, and address the maintenance backlog for existing navigation projects. Therefore, NMA provides the following recommendations:

—A minimum of $5.5 billion should be appropriated in fiscal year 2006 for the Civil Works Program. This level balances the need to address the significant

project backlog and the capability of the Corps with our Nation's needs for jobs, economic growth, homeland security and national defense.

—The effort to develop criteria for budgeting purposes is long overdue. However, NMA is very concerned that performance based budgeting and specifically the performance budgeting tool, Remaining Benefit/Remaining Cost (RB/RC) ratio, that was applied to navigation projects for the fiscal year 2006 budget has not been fully developed and will have significant impacts on project appropriations. The navigation projects span many years and the benefits for many of the projects are not realized until completion. In addition, the lack of sufficient funding levels needed to keep projects on schedule compounds the impact. An example is the Kentucky Lock and Dam project that has received zero funding and has been placed on the suspension list for fiscal year 2006. Using the RB/RC, the project has a 2.7 ratio. If the project had received sufficient funding from fiscal year 2002 until now, the ratio would be 3.1 (ratio for the fiscal year 2006 budget is 3.0 or higher to receive funding). With more than 25 percent of the total project cost expended ($163 million of the $639 million has been spent), NMA strongly supports funding this project at its full capability funding level of $40 million.

—The fiscal year 2006 appropriations for the Corps' General Investigations account should be increased from $95 to $200 million. These studies are critical to ascertaining and developing future projects.

—The fiscal year 2006 proposed funding in the amount of $1.979 billion for the Corps' Operations and Maintenance (O&M) functions should be increased by $100 million. More than half of the locks are more than 50 years old and in need of significant maintenance. Delaying necessary maintenance impacts the ability to move commerce efficiently, exacerbates further deterioration and accelerates the need for major rehabilitation and possibly at higher costs than necessary. This was exemplified at Greenup Locks and Dams in 2003 when a scheduled 3-week outage lasted 54 days and conservatively cost the navigation industry (shippers and carriers) an estimated $14 million in lost revenue. The current backlog of critical maintenance is estimated to be more than $1 billion with more than 62 percent for navigation on the inland and coastal systems. Other work, not as sensitive, is estimated to be $1.9 billion. The replacement value of the lock and dam facilities in the United States are estimated to be $125 billion. As a Nation, we cannot abandon our inland waterway system and we must increase the monies spent on O&M.

—Below is a table indicating NMA's fiscal year 2006 Priority Projects needing additional funds.

Construction	Fiscal Year 2005 Enacted	Fiscal Year 2006 Budget Request	Fiscal Year 2006 Efficient Funding Level
Robert C. Byrd L/D, Ohio River, OH/WV	$900,000	$914,000	$3,000,000
Kentucky River Lock Addition, Tennessee River, KY	32,500,000	([1])	40,350,000
Marmet L/D, Kanawha River, WV	75,000,000	68,830,000	73,500,000
McAlpine L/D, Ohio River, IN/KY	68,500,000	70,000,000	70,000,000
Locks and Dams 2, 3, & 4, Monongahela River, PA	35,500,000	50,800,000	63,500,000
J.T. Myers L/D, Ohio River, IN/KY	1,000,000	.....	5,000,000
Olmstead L/D, Ohio River, IL/KY	69,000,000	90,000,000	110,000,000
Winfield L&D, Kanawha River, WV	3,000,000	2,400,000	2,400,000
Major Rehabilitation:			
Emsworth Dam, Ohio River, PA	.....	15,000,000	15,000,000
General Investigations:			
Emsworth, Dashields, & Montgomery (Upper Ohio R.)	500,000	.....	3,000,000
Ohio River Main Stem Study	1,350,000	.....	1,000,000
Greenup L/D, Ohio River, KY/OH	450,000	.....	3,500,000

[1] Suspension List.

Regulatory Program.—NMA requests $160 million for administering the Corps Clean Water Act (CWA), Section 404 permit program and for implementing the Memorandum of Understanding (MOU).

The 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 Clean Water Act Section 404 permits issued by the USACE within a predictable timeframe. NMA is concerned that the $145 million proposed in the President's budget is insufficient for maintaining a robust regulatory program. Therefore, NMA requests an additional $15 million for the Corps' regulatory

program budget. In addition, NMA requests that a portion of such regulatory program funding be used for implementing the MOU issued on February 10, 2005 by the U.S. Army Corps of Engineers, the U.S. Office of Surface Mining, the U.S. Environmental Protection Agency, and the U.S. Fish and Wildlife Service. This MOU encourages a coordinated review and processing of surface coal mining applications requiring CWA Section 404 permits.

PREPARED STATEMENT OF CHEVRONTEXACO TECHNOLOGY VENTURES LLC

ChevronTexaco Technology Ventures appreciates the opportunity to submit a statement for the record, and fully supports the President's Budget fiscal year 2006 Request for Hydrogen Technology and Fuel Cell Technologies. We believe that DOE is on a well-planned path forward in its hydrogen research and demonstration program. Specifically, we are supporting the President's budget request for the "Controlled Hydrogen Fleet and Infrastructure Demonstration and Validation Projects." This is $14.9 million for Infrastructure Validation under Energy Supply (Hydrogen Technology) for the energy component and $24 million for Technology Validation under Energy Conservation (Fuel Cell Technologies) for the auto component. The combined amount is requested by the Department of Energy for the demonstration projects, and is the amount for its cost-share.

As a global energy company, ChevronTexaco is involved in a whole host of advanced clean energy and fuel technologies. As part of this larger effort, ChevronTexacoTechnology Ventures is actively involved in research and development to address the challenges facing hydrogen as a fuel for the future. We readily acknowledge there are multiple challenges facing the future commercialization of this technology. These include, but are not limited to, hydrogen production, delivery, and storage, and infrastructure as well as codes and standards.

Last May, the Department announced teams of both energy companies and auto companies that after a competitive solicitation process are participating together in DOE's 5-year public-private partnership to further development of this Nation's future in hydrogen. These DOE demonstration projects are critical in that they provide test laboratories in real world settings. Vehicle testing, along with the development of the infrastructure, in controlled settings that require data collection and sharing is critical to the future development of this technology. This is an unprecedented effort and resources devoted by both energy and auto companies working together to advance hydrogen technology. We are especially concerned that the infrastructure portion of the demonstration projects be able to keep pace with the development of the vehicle technology, and that without being able to overcome the infrastructure issues this hydrogen technology will not be able to advance.

Under this demonstration program, we opened our first demonstration site in Chino, California with UTC Fuel Cells and Hyundai Motors as our partners. The station opened on February 18, 2005, and will be testing on-site production, compression, storage and dispensing. We are making the hydrogen on-site at the facility with proprietary gas reforming technology.

This demonstration program provides an impetus for the private sector to focus attention and resources on the development of hydrogen technologies in partnership with the U.S. Government. The committee has historically required cost-sharing of DOE-funded projects to foster partnerships in advancing important new technologies. This competitively-bid project does require full cost-sharing by the private sector for participation. By appropriating the full budget request for this demonstration program, a strong message of support is sent to the private sector to allocate its own resources and recognizes their investments in the hydrogen future.

We are concerned about the number of designated Congressional research and demonstration projects that were included in the fiscal year 2005 budget. We believe that these projects seriously undermine the overall DOE program by diverting both staff resources and program funds. The DOE has competitively bid, and specifically asked by Congress to do so, its demonstration programs as part of an overall unified planned approach. In addition, participants in the DOE program are required to share data with each other and the DOE; if the projects are not part of the program there is no requirement for data sharing which is critical to furthering the technology. In addition, they are not required to cost share. We believe that it is critically important to continue with DOE's planned program path in order to further facilitate the development of this technology, and that all projects and demonstrations should be part of this unified program effort.

We appreciate the opportunity to submit testimony for the record. We urge the subcommittee to fully fund the President's request for "Controlled Hydrogen Fleet and Infrastructure Demonstration and Validation Projects."

PREPARED STATEMENT OF THE STATE OF NEBRASKA OIL AND GAS CONSERVATION COMMISSION

Mr. Chairman, thank you for the opportunity to provide written comments on the proposed fiscal year 2006 Budget. I am writing this letter on behalf of the State of Nebraska Oil and Gas Conservation Commission, to encourage you to restore Congressional appropriations of $100,000,000 for the Department of Energy's Office of Fossil Energy oil and natural gas supply R&D program.

This DOE program provides valuable research and technical assistance that benefits all of the citizens of the United States through increased environmental protection and continued monies generated through oil and natural gas production. The largest reserves of oil and natural gas exist in currently operated oil and gas fields. By increasing our recoverable reserves 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 proven reserves would result in the loss of billions of dollars of revenues for this country. This money would instead be sent overseas for oil imports. Currently, small independent oil and gas companies produce the vast majority of oil and natural gas in this country. These companies are efficient in their operations, but lack the necessary research programs needed to fully exploit our domestic resources. This research is a role for the Federal Government. We view this program as vital to the health and security of the United States.

The DOE's Office of Fossil Energy has substantially assisted State regulatory agencies efforts to enhance environmental protection. One example of these cost effective research programs is the Risk Based Data Management System (RBDMS). State oil and gas regulatory agencies in partnership with the Ground Water Protection Council (GWPC) are responsible for the development and operation of this information system in 23 oil and natural gas producing States. This project is not an example of Federal aid to States, but rather Federal/State partnerships that really work. Your home State of New Mexico, has contributed thousands of dollars of operations funding to implement RBDMS. California has matched $500,000 of Federal money with $1,500,000 in State funds. Every State currently using the system has also contributed to building the system. Through GWPC, the oil and natural gas producing States are working together to protect ground water resources, holding down the cost of environmental compliance, and providing improved access to essential data for new oil and gas exploration.

Funding from the Department of Energy has given the States the opportunity to develop additional software and information management tools that enable both State, and Federal agencies the tools needed to share data and facilitate electronic commerce via the internet. The States in turn share that information with the public and companies we regulate, many of which are small businesses that would not otherwise have the ability to access such accurate information. We are learning that electronic commerce mutually saves time and money for both the oil and gas industry and the regulatory agencies. The Federal share of cost for this program was $1.15 million in fiscal year 2004. States collectively contributed over $4 million during this fiscal year. On-line permitting and reporting is cost effective and saves industry time and money. One California operator estimated that an automated permitting system for new drills and reworks could increase production from one of its larger oil and gas fields by 500,000 barrels per year. Therefore, any delay in issuing a permit caused by the inefficiencies of manual processes and analyses can have a significant impact on production. Continued funding from U.S. DOE will provide the smaller independent oil and gas producers access to this environmental data management system. Smaller producers are often the most in need of such a system because high compliance costs hit them the hardest.

RBDMS is one of the best examples we have seen of how the States, working with the Federal Government and the private sector, can improve both industry production and environmental protection at the same time. Continuing to fund the U.S. DOE's Office of Fossil Energy oil and natural gas technologies R&D program in this manner allows us to tailor our regulatory program needs to the industry which operates in our respective States. There is no Federal alternative or "one size fits all" national approach that would work as efficiently as this cooperative multi-State effort.

In summary, the DOE Fossil Energy program funds research projects like RBDMS which provide the following benefits: (1) improved environmental protection, (2) less regulatory and compliance costs for producers, (3) better State enforcement of environmental regulations, (4) increased exploration activity by small and independent operators, and (5) increased domestic oil and gas production.

PREPARED STATEMENT OF TEMBLOR PETROLEUM CORPORATION

Gentlemen, it is with great distress that I have read of the impending cut-off of funding by the Bush Administration for the valuable support that the DOE has given in recent years toward research, development and exploration in the domestic oil industry. Because of the great emphasis by the major oil companies, large independents and major service companies on the international arena, very little attention and funding remains for forward looking projects and prospects on the domestic front. The DOE has been one of the few innovative sources for funding or supplemental funding of these projects. This has included supporting drilling projects that because of cost and perceived risk, although with large potential impact on domestic production, could not be funded without supplemental support from the DOE.

The supplemental support provided by the DOE has proved invaluable in obtaining private participation in these projects so they could be carried forward.

As a recipient and beneficiary of some of this funding I know for a fact the stimulus that the DOE can provide with benefits spreading widely therefrom.

In my experience, the DOE has been cooperative, instructive and helpful in other ways in moving these projects forward.

Because of the emphasis on foreign oil, layers of corporate bureaucracy and other reasons, many large projects with great potential economic impact are ignored by the large sources of private funding required for such projects. As stated above, the DOE, through partial support and grants, has proven to be an important stimulus for obtaining the necessary private funding for these significant projects.

I believe that the DOE participation and support of research and development in the domestic oil industry is a premier example of where government and industry can work together beneficially in areas where it is most needed and is most valuable, namely, in areas where full funding is not otherwise available from private sources, or extremely difficult to obtain.

PREPARED STATEMENT OF GENERAL ELECTRIC ENERGY

The following testimony is submitted on behalf of General Electric Energy (GE) for the consideration of the committee during its deliberations regarding the fiscal year 2006 budget requests for the Department of Energy's (DOE) Fossil Energy program. GE requests that the committee add $15 million to the budget request for the Solid State Energy Conversion Alliance (SECA) program for fiscal year 2006 (in the Distributed Power Generation, Fuel Cells, Innovative System Concepts line item). These added funds should be used to continue the program to develop a MW-Scale SECA Hybrid system for stationary power generation.

MW-SCALE SECA HYBRIDS PROGRAM

Solid-oxide fuel cells (SOFC) utilize an electrochemical process to cleanly convert a range of fuels into electricity. A SOFC/gas turbine system utilizes the fuel cell as the primary power generation source. The residual fuel and energy from the fuel cell is combusted in a gas turbine to create additional power. By combining these two technologies, SOFC/gas turbine hybrid systems have the potential to revolutionize fossil-based power generation with new standards for efficiency and reduced emissions. SOFC/gas turbine systems would be capable of using a range of fuels—coal syngas, biomass derived syngas, hydrogen, and natural gas. Fuel cell/gas turbine systems can be a building block for the hydrogen economy and can be compatible with carbon sequestration. GE sees SOFC/gas turbine systems beginning in the 1MW to 10MW size range being deployed in dispersed power applications. This would mitigate grid congestion, enhance reliability, and enhance power quality while being more efficient and cleaner than any fossil energy electric generating technology today. A successful SOFC hybrid system would reduce fuel consumption by at least 10 percent and perhaps as much as 20 percent, while simultaneously reducing emissions by an even greater amount.

In fiscal year 2005, Congress provided $5 million to initiate MW scale SECA hybrids work. This funding is to be awarded via a competitive solicitation entitled "Fuel Cell Coal-Based Systems." DOE issued this solicitation on April 13, with responses due in early June and initial selections targeted to occur in early July. In fiscal year 2006, DOE's $65 million budget request for the SECA program includes the continuation of the SECA fuel cell and MW-class fuel cell hybrids work, although the amount of funding that would be devoted to SOFC/gas turbine hybrids is not specified. GE envisions the SOFC/gas turbine hybrid program as a multiyear (8 to 9 year) effort. The pace at which the program is conducted is contingent on the availability of Federal funding and the number of participants. The successful

testing of such a SECA-derived system will be an important step on the path toward larger systems and eventually systems in the hundreds of megawatt size.

In view of the uncertainty in the market today, the time frame for development of this technology, and the technical challenges to realize the benefits of cost effective systems, industry is not in the position to develop the technology alone. Additional Federal cost-share funding is required in fiscal year 2006, and will be necessary for several years thereafter, for the MW-Scale SECA Hybrid program. Federal funding will be leveraged with private industry cost share that will grow as the program moves from the early technology development phase toward the technology demonstration phase. Adequate Federal funding now will allow a competitive program to progress.

GE is uniquely able to apply the broad technology resources needed to succeed in this effort. GE will bring its vast technology expertise and its rigorous development process to this important program. GE will have key engagement of our world leading gas turbine technology center of excellence located in Greenville, SC, our leading center of SOFC development in Torrance, CA, and our premier corporate Global Research Center in Niskayuna, NY.

SECA PROGRAM

GE is a SECA participant through our Torrance, CA, Hybrid Power Generation Systems team. GE appreciates the Congressional support for the SECA program in the past, and commends the administration for its substantially increased request for the SECA program in fiscal year 2006.

GE is moving toward completion of the Phase 1 SECA program in September 2005, with the completion of a prototype system demonstrating the Phase 1 milestones of 35 percent efficiency at a projected cost of $800 per kilowatt. As the SECA program transitions into Phase 2, the scope of work will increase, and accordingly an increased funding commitment will be required from government and industry. In view of budget realities, and the necessity of keeping the program on schedule to achieving the ultimate goal of $400 per kilowatt cost, Congress and DOE need to carefully review the structure of SECA Phase 2. Six industry teams are currently participating in Phase 1. Continued SECA funding at traditional levels (excluding funding provided for the MW-Scale SECA Hybrid program) will at most support four industrial teams. A reduction in teams is necessary to maintain a strong, effective program in Phase 2.

We urge the committee not to impose any restrictions on DOE's use or distribution of SECA funds. Such a requirement would limit DOE's ability to manage the SECA program based upon performance and merits of the individual participants. DOE should have the flexibility to direct SECA resources where they can be applied most cost-effectively to advance technology.

IGCC

A resurgence of interest in coal-fired generation is underway. We are experiencing a high level of interest in Integrated Gasification Combined Cycle (IGCC) technology for the next generation of coal plants. IGCC reduces emissions of sulfur dioxide, nitrogen oxides, and particulate matter by approximately 50 percent compared to a state of the art pulverized coal plant. IGCC also is more cost effective at removing mercury and carbon dioxide.

Initially, these plants will be more expensive. GE Energy has taken important steps to reduce the technology and commercial risk that has been associated with this cleaner coal technology. To lower costs, GE will provide a standard plant coal-to-grid IGCC solution. Until recently, an IGCC power plant has required multiple separate technology vendors. With the acquisition last year of ChevronTexaco gasification, GE Energy has joined the two key technology pieces of IGCC—gasification technology and turbine technology. We are making the technology investment and applying the resources to lower cost and improve performance of the integrated IGCC power plant.

In October 2004, GE Energy and Bechtel announced the establishment of an alliance to develop a standard commercial offering that is focused on Bituminous coals for IGCC projects in North America. The GE Energy-Bechtel Alliance will integrate the development, marketing, commercialization and implementation of GE's IGCC process with Bechtel's engineering, procurement and construction expertise to produce a product that can meet utility requirements for cost, performance and schedule. The GE-Bechtel Alliance will offer a standard IGCC plant will full performance and price guarantees and take responsibility from coal pile to putting electrons on the grid. In time, our standard IGCC offering will achieve cost parity with traditional coal plants.

We also need to advance IGCC technology so that it can more efficiently use lower rank coals, such as those from the Powder River Basin, that are increasing in importance as a low cost, domestic fuel source. On April 4, the Governors of Wyoming, Utah, Nevada and California jointly announced their partnership to develop what is known as the "Frontier Line," a 500 kV transmission line that would be a major enhancement to the transmission grid in the West. The Frontier Line is intended to be used to export electricity generated from the coal and wind resources in the region to meet the growing demand for electricity in Western markets, including California.

The Rocky Mountain Area Transmission Study assumes the addition of more than 6,000 MW of new, coal-fired generation to produce electricity to be transmitted via the Frontier Line or other new transmission projects. This presents a significant opportunity for the use of IGCC. However, in recognition of the level of interest in IGCC deployment evident in the Eastern United States, GE's standard IGCC design will operate on bituminous coal. Realizing the great potential for IGCC in the West requires a specific first-of-a-kind engineering design for lower rank western coals.

Unlike natural gas plants, advanced coal plant designs require significant preliminary engineering development for first-of-a-kind designs and technology integration. We therefore recommend that the budget for DOE's IGCC program be increased by $10 million in fiscal year 2006 to be used to partially offset the first-of-a-kind project engineering development costs that are required to deliver commercial IGCC plants capable of utilizing low rank coals. This would relieve launch customers and early adopters of being differentially burdened with advancing this technology, and will ultimately lead to benefits throughout the industry as this up-front development engineering is captured to provide designs for like-plants.

TURBINES

GE recommends that funding be increased by $7 million to a total of $25 million for the Turbines program, within the Fossil Energy/Coal and Other Power Systems/Central Systems/Advanced Systems budget line. This program represents the Department's primary research effort focusing on gas turbines for electricity production and is designed to enable the low cost implementation of major policy initiatives in the areas of climate change, reduced powerplant emissions and future generation technologies. Continued turbine research and development provides a path to greater efficiency and lower emissions in the use of the Nation's most abundant domestic energy resource—coal—as well as the technology base for the eventual use of hydrogen.

Turbines fueled by syngas are an indispensable step on the technology continuum that must evolve for a future hydrogen economy. Thus, while the Turbine program is being transitioned to a Hydrogen Turbine Program, adequate funding must be provided for syngas turbine technology R&D programs. DOE issued a Hydrogen Turbine solicitation this spring. It is essential that efforts under this solicitation be targeted to those research areas with the greatest potential for near term applications (i.e., for the FutureGen power plant). Any other approach would dilute the funding available, to the detriment of program goals.

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.

GE recommends the committee's attention to the testimony submitted by the Gas Turbine Association (GTA) relative to the allocation of additional funding above the budget submission within the Turbine program budget. In particular, GE encourages the committee to assure adequate funding for combustion work at the National Energy Technology Laboratory, and to fully fund the University Turbine Systems Research Program.

HYDROGEN FROM COAL RESEARCH

Early hydrogen production will be provided by centralized reforming of natural gas and distribution of compressed gaseous and liquid hydrogen. However, coal will have to be developed as a primary source for hydrogen and concurrently as a means to low carbon power generation from coal. The synthetic gas produced from feedstock gasification in an IGCC system permits the economical removal of carbon to provide a hydrogen-rich feedstock for either low-CO_2 combustion in a turbine, direct export to transportation demand, or chemical production. IGCC thus offers the opportunity for first commercially relevant steps to a hydrogen economy based on our

most abundant energy resource—coal. GE supports funding for the Fossil Energy hydrogen from coal program, which ties closely to IGCC development.

NATURAL GAS INFRASTRUCTURE RELIABILITY

Within the Natural Gas Technologies program area, funding should be restored to the fiscal year 2005 level ($7 million) for the delivery reliability subprogram within the infrastructure program. Continued activities to assure the reliability of the natural gas delivery infrastructure represent a prudent expenditure of Federal resources, and are particularly important in light of the increased pipeline inspection requirements of the Pipeline Safety Act of 2002. Increased inspections will result in increased costs and also has the potential to affect availability as lines are taken out of service for inspection or repair. To meet these challenges, industry needs new or enhanced technologies to find more of the potential defects faster and with greater accuracy/characterization. Additionally, more risks need to be covered in a single passage of the inspection systems (i.e., corrosion and cracking, metal loss and deformations, etc.). The cost of developing such new tools can be in the tens of millions of dollars. With no proven track record and lacking market acceptance for these new technologies, the investment risk is unacceptably high. The DOE R&D program provides a vital link to bridge the gap between the need for new technology and substantial risks associated with developing that technology.

CROSSCUTTING TECHNOLOGIES—CERAMIC MATRIX COMPOSITES

GE recommends that funding be provided for Ceramic Matrix Composite (CMC) crosscutting technology material development. CMCs offer greater than 200 degrees F capability when compared to current metal plus coating technology in power generation (gas turbine) products. This increased capability provides potential benefits in power output, efficiency, emissions, and part life depending on the component and how it is utilized in product system operation. Other potential energy-related opportunities for CMCs include power generation (gas turbines), nuclear system piping and transportation (truck brakes).

PREPARED STATEMENT OF DEPARTMENTS OF MECHANICAL AND CHEMICAL ENGINEERING, UNIVERSITY OF ILLINOIS AT CHICAGO

As a researcher in the field of Energy and Environment I am concerned about the country's future energy resources. In particular, our natural gas and oil supplies require careful attention so that they can best be used for our country's security and prosperity. It is a considerable solace to me to know that the NETL Strategic Center for Natural Gas and Oil exists. Through the Strategic Center, research critical to the country's needs is addressed. For example, a number of programs are focused on the use of methane hydrates. These hydrates contain more carbon than all the proven sources of oil, coal and natural gas. They may eventually provide us with the fuel our country needs for growth, energy independence and security. NETL's leadership in this area is significant. Similarly, the Oil program's concern for the environment is in accord with our citizens' awareness of and sensitivity to environmental effects on health. Cognizance on the part of our national energy organizations, such as NETL, and the research conducted under its auspices are an essential part of meeting our energy needs while maintaining the public's health and confidence in our government's effort to provide clean and safe energy. For a contrary example, look at how the use of nuclear energy in this country has been bungled.

I have given only two examples of the importance of the Strategic Center for Natural Gas and Oil to our country's welfare. There are many, many more housed under "Exploration and Production", "Environmental Solutions" and "Petroleum Fuels" within the Office of Petroleum and, within the Office of Natural Gas, under "Methane Hydrates", "Transmission, Distribution and Storage", and again "Exploration and Production". A quick look at the Projects buttons on the NETL Strategic Center web site reveals the depth of research being conducted through these Offices. A look at the Reference Shelf buttons further confirms the significance and impact of the research.

In summary, as an active researcher in the fields related to the missions of the Offices of Petroleum and Natural Gas, I can say with certainty that continued support for these Offices and the Strategic Center is critical to the overall research and development programs currently being conducted and those that still need to be conducted. I, therefore, whole-heartedly encourage the Senate Appropriations Committee to continue, if not expand, the financial support of this Strategic Center as

well as the NETL Strategic Center for Coal, the Office of Science, Technology and Analysis, and the Office of Advanced Initiatives.

PREPARED STATEMENT OF THE NATIONAL RESEARCH CENTER FOR COAL AND ENERGY (NRCCE)[1]

This testimony focuses on three accounts from two agencies administered by the subcommittee: (1) Office of Fossil Energy—Coal and Oil & Gas Programs; (2) Office of Energy Efficiency and Renewable Energy—Vehicle Technologies Programs; (3) U.S. Army Corps of Engineers—Construction (General) Programs.

OFFICE OF FOSSIL ENERGY—COAL AND OIL & GAS PROGRAMS

The NRCCE believes that fossil fuels, used in an efficient and wise manner, will provide the bulk of our energy needs in the near term. Clean coal technologies offer the promise of increased efficiency with reduced emissions, including the sequestration of carbon dioxide. We are pleased with the level of support recommended by the administration for the Coal and Power R&D Program for fiscal year 2006. The Nation will also need continued investments in oil and natural gas research; we disagree with the administration recommendation to terminate these programs. We offer the following comments.

Coal Fuels and Combustion Programs

The administration has provided funding for the worthy goal of developing hydrogen fuels from coal. We are concerned, however, that other aspects of our Nation's fuel needs require similar support. C–1 Chemistry research conducted under Advanced Fuels Research in the Fuels program focuses on the production of hydrogen while also developing technologies which can produce clean liquid fuels for transportation using an indigenous fuel (coal) as the feedstock. We recommend continuation of this program at $2 million for fiscal year 2006.

Continued research is also needed in the solids fuels area to develop advanced technologies to improve the environmental performance of the coal sector and to develop new applications for coal products for a wide range of industrial and transportation industries. Advanced separations research conducted under Solid Fuels & Feedstocks in the Fuels program develops new technologies to produce cleaner coal in an environmentally acceptable manner. This research also provides technologies to meet emissions requirements from coal power systems, especially for mercury, in response to the lower emissions limits recently implemented by the Environmental Protection Agency (EPA). We recommend continuation of the advanced separations program at $3 million.

Coal extraction research conducted under the Solid Fuels & Feedstocks subprogram provides new technologies for deriving carbon products from coal. These products replace increasingly scarce petroleum-based coke used in anodes for aluminum and steel manufacturing. Other carbon products can be used to make lighter weight vehicles to reduce gasoline and diesel fuel consumption. We recommend continuation of the coal extraction program in fiscal year 2006 at $0.7 million.

The advent of high-speed multi-processor computing promotes the development of new energy technologies more rapidly and with less expense if the performance of systems and/or individual process components can be studied initially via computer modeling rather than in full scale experiments. We recommend the addition of $1 million to the Computational Energy Science program for a total of $5 million for fiscal year 2006.

We recommend the addition of $6 million for an advanced combustion program with a focus on chemical looping technologies for CO_2 capture, ultra supercritical steam cycles, component development for carbon capture, and design studies of advanced combustion plants. Advanced combustion research will support the continued improvement of existing coal power generation units and develop new technologies. The subcommittee supported this program at $5 million for fiscal year 2005.

We thank the Appropriations Committee for their support of the zero emissions research and technology (ZERT) program in fiscal year 2005 and recommend continued support for this center.

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[1] The National Research Center for Coal and Energy is located at West Virginia University. This statement has been prepared by Richard Bajura, Director. George Fumich, Program Advisor and now deceased, contributed to this statement. For additional information, contact our web site at http://www.nrcce.wvu.edu.

Oil & Natural Gas Programs

Termination of the oil and natural gas extraction programs will be a disservice to our national interests. Many small producers contribute substantially to our oil and natural gas supplies. These smaller producers require R&D support to improve the performance of their reserve fields. Termination of the oil and natural gas programs would deprive these essential industries of advanced technology needed to produce our exceedingly scarcer resources. We recommend reinstatement of the oil and natural gas programs.

Of particular interest is the Petroleum Technology Transfer Council (PTTC) Resource Centers program. With the 10 regional centers, the PTTC program works directly with industry to promote the deployment of advanced technologies. We recommend continuation of this program at a level of $2.6 million for fiscal year 2006. Participants provide a 38 percent match to Federal funding.

OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY—VEHICLE TECHNOLOGIES PROGRAM

Along with the need to provide adequate supplies of liquid transportation fuels, critical R&D is needed for integration of the fuels-emissions-engines-vehicles component systems of transportation vehicles. While we support the administration's programs in developing hydrogen-based transportation technology, we believe that it is also essential to improve the performance of our more conventional vehicles since they will be the mainstay of our transportation infrastructure well into the future. Three programs of interest to NRCCE in Vehicles Technologies are described below.

Transportable Emissions Testing Laboratory.—EPA has established stringent emissions standards for 2007 and 2010. Measuring emissions from vehicles compliant with those standards requires sophisticated techniques, especially for mobile measurement facilities which can be transported to sites where fleet vehicles are located to reduce the out-of-service time of such vehicles. The Office of Freedom Car and Vehicle Technologies has developed a transportable emissions testing laboratory that produces extensive data on alternative liquid fuels, hydrogen, and advanced technologies that can not be obtained from any other laboratory in the world. We recommend continued funding for this laboratory at $2 million.

Composite Materials Program.—Metal matrix and polymer matrix composites are used as lightweight and durable materials for heavy duty vehicles (trucks and trailers). Composites permit substantial weight reductions in critical systems such as chassis, suspensions, brakes, joints, engines, enclosures and support structures. Lighter vehicles increase fuel efficiency, reduce life-cycle-costs and reduce air pollutant emissions. The metal matrix composites program supports the high priority goals of the Freedom Car and Vehicle Technologies programs to reduce energy demand and air pollution, and should be continued at $1 million.

Cylinder Inspection Program.—With increased emphasis on the use of alterative fuels for transportation, there are over 300,000 compressed gas cylinders in vehicles used for road service which carry fuels like natural gas and hydrogen. Current regulations and also equipment manufacturers require that a detailed visual inspection be performed every 3 years or 36,000 miles by certified inspectors. Many vehicles are being resold in the public sector for the first time. Training and certification of inspectors is needed to ensure safe operation of these vehicles. The Office of Vehicle Technologies initiated a cylinder safety inspection program in fiscal year 2005. We recommend continuation of this program in fiscal year 2006 at $0.5 million.

U.S. ARMY CORPS OF ENGINEERS CONSTRUCTION (GENERAL) PROGRAMS

NRCCE recommends consideration for two projects conducted under the U.S. Army Corps of Engineers Construction [General] programs.

Acid Mine Drainage Demonstration Program

Acid mine drainage continues to be the primary source of degradation in Appalachian streams. While Federal and State programs have enabled progress to be made in cleaning many streams, the technologies that are being used now were to a large extent developed 10 to 20 years ago. Since then, there has been little research effort into developing less expensive, more reliable treatment methods that address large volume discharges. The U.S. Army Corps of Engineers (USACE) should undertake a program of research and demonstration that would focus on developing and demonstrating improved reclamation methods in conjunction with the Appalachian States and the National Mine Land Reclamation Center.

This program seeks to identify and develop a new generation of innovative AMD remediation technologies that will demonstrate substantial improvement in cost, performance, and reliability over existing AMD remediation technologies. Recog-

nizing the importance of innovation, the project will encourage phased development with appropriate technical milestones to demonstrate the feasibility of a new technology prior to full-scale demonstration.

The USACE Technical Working Group for the Acid Mine Drainage Demonstration Program will develop a standard set of criteria as a guide to rank the quality of proposed demonstration projects. For example, the proposed projects must demonstrate the development and implementation of innovative technologies to mitigate adverse environmental impacts of acid mine drainage. Other criteria include emphasis on system wide technologies, efficient designs to prevent or mitigate public health and safety hazards and damage to surface and underground water resources. Proposed demonstration projects are expected to quickly generate outcomes of value to the Corps' Ecosystem Restoration Program and also be transferable to other locations.

We recommend that the Corps of Engineers undertake a 5-year, $20 million Acid Mine Drainage Demonstration program in partnership the Appalachian States and request funding of $4 million in fiscal year 2006 to initiate this effort.

Appalachian Water Resource Center

Appalachian States are recognizing the value of their water resources in future economic development. Larger metropolitan areas external to Appalachia seek to obtain future supplies of drinking water from the region. Water facilitates the use of mineral resources to generate electricity and transportation fuels for local and national consumption. Insufficient water resources are already forcing new power generation projects to look for alternate water supplies, an outcome which may be exacerbated in the future if coal conversion technologies are deployed.

Impacts from previous mining impair thousands of miles of streams in Appalachian States and contaminate large segments of our groundwater with the attendant destruction of fisheries and drinking water supplies. Discharges of pollutants from point sources and non-point sources such as farm wastes and other industrial wastes jeopardize the health of our waterways for both local residents and downstream communities and downstream States. Drought and flooding inflict untold damage to communities and businesses. Contaminated drinking water supplies cause illnesses which are particularly dangerous to residents who are economically disadvantaged, as is often the case in Appalachian communities.

We recommend funding of $1 million in fiscal year 2006 to initiate an Appalachian Water Resource Center (AWRC) through the U.S. Army Engineer Research and Development Center. The AWRC will work closely with the National Energy Technology Laboratory and the National Mine Land Reclamation Center. The programs of the Appalachian Water Resources Center would focus on research and technology assessment to enable States to: (1) determine their current status regarding the extent and quality of their water resources, (2) conduct projects to develop cost-effective remediation measures for correcting water problems, and, (3) provide advice to States regarding economic and policy issues which can improve the standard of living within the State.

Thank you for your consideration.

PREPARED STATEMENT OF THE NATIONAL COALITION FOR FOOD AND AGRICULTURAL RESEARCH

On behalf of the National Coalition for Food and Agricultural Research (National C–FAR), we are pleased to submit comments in strong support of enhanced public investment energy biosciences research as a critical component of Federal appropriations for fiscal year 2006 and beyond.

SUMMARY POSITION—FISCAL YEAR 2006

National C–FAR urges the subcommittee and committee to provide for an increase in the administration's fiscal year 2006 request of $32.5 million for the Department of Energy's Energy Biosciences program in the Office of Science and Office of Basic Energy Sciences, to at least $35 million. National C–FAR also urges that funding for the Department of Energy Office of Energy Efficiency and Renewable Energy (EERE) be sustained, and enhanced to the extent practicable.

At a time when our Nation's energy security is being seriously challenged, this modest increase in a small, but highly effective program is a wise investment with potentially momentous benefits to the Nation.

Basic energy research on plants and microbes supported by the Energy Biosciences program contributes to advances in renewable resources for fuel and other fossil resource substitutes from American agriculture, clean-up and restoration of

contaminated environmental sites, and in discovering new knowledge leading to home-grown products and chemicals now derived from petroleum.

INTEREST OF NATIONAL C–FAR

National C–FAR serves as a forum and a unified voice in support of sustaining and increasing public investment at the national level in food and agricultural research, extension and education. National C–FAR is a nonprofit, nonpartisan, consensus-based and customer-led coalition established in 2001 that brings food, agriculture, nutrition, conservation and natural resource organizations together with the food and agriculture research and extension community. More information about National C–FAR is available at http://www.ncfar.org.[1]

National C–FAR is deeply concerned that shortfalls in funding in recent years for food and agricultural research, extension and education—both through the U.S. Department of Agriculture and through relevant programs in other agencies—jeopardize the food and agricultural community's continued ability to maintain its leadership role and more importantly respond to the multiple, demanding challenges that lie ahead. Federal funding for food and agricultural research, extension and education has been flat for over 20 years, while support for other Federal research has increased substantially. Public funding of agricultural research in the rest of the world during the same time period has reportedly increased at a nearly 30 percent faster pace.

National C–FAR believes it is imperative to lay the groundwork now to respond to the many challenges and promising opportunities ahead through Federal policies and programs needed to promote the long-term health and vitality of food and agriculture for the benefit of both consumers and producers. Stronger public investment in food and agricultural research, extension and education is essential in producing research outcomes needed to help bring about beneficial and timely solutions to multiple challenges.

The Department of Energy's biosciences program is an excellent example of where a modest Federal investment can yield tremendous societal benefits. Energy costs are escalating, dependence on petroleum imports is growing and concerns about greenhouse gases are rising. Research, extension and education can enhance agriculture's ability to provide new, renewable sources of energy and cleaner burning fuels, sequester carbon, and provide other environmental benefits to help address these challenges, and indeed generate value-added income for agricultural producers and stimulate rural economic development.

NATIONAL C–FAR FISCAL YEAR 2006 FUNDING RECOMMENDATION

National C–FAR urges the subcommittee and committee to provide for an increase in the administration's fiscal year 2006 request of $32.5 million for the Department of Energy's Energy Biosciences program in the Office of Science and Office of Basic Energy Sciences to at least $35 million. National C–FAR also urges that funding for the Department of Energy Office of Energy Efficiency and Renewable Energy (EERE) be sustained, and enhanced to the extent practicable.

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The Energy Biosciences program supports world-leading research on plants and microbes conducted primarily by university-based scientists throughout the country.

[1] National C–FAR seeks to increase awareness about the value of, and support for, food and agricultural research, extension and education. For example, National C–FAR is hosting an educational series of "Break & a Briefing" seminars on the hill, featuring leading-edge researchers on timely topics to help demonstrate the value of public investment in food and agricultural research, extension and education. The April 11 seminar was entitled "Energy—A 'Growing' Need," featuring Dr. Lonnie Ingram, Director of the Florida Center for Renewable Chemicals and Fuels, Institute of Food and Agricultural Science, University of Florida. National C–FAR also circulates a series of 1-page Success Profiles highlighting some of the many benefits already provided by public investment in food and agricultural research, extension and education. Each provides a contact for more information. Profiles released to date are titled 'Anthrax,' 'Mastitis,' 'Penicillin,' 'Witchweed,' 'Making Wine,' 'Fighting Allergens,' and 'Harnessing Phytochemicals.' The Profiles can be accessed at http://www.ncfar.org/research.asp.

Competitive grants are awarded through a peer review process based on the highest standards of scientific merit.

The Energy Biosciences program is dependent upon the knowledgeable and experienced plant biologists who run the program, but who have either resigned or are retiring. National C–FAR believes that for the program to remain effective, it must be properly staffed. A fully staffed, Energy Biosciences program is necessary for the continued convening of panels, reviewing of proposals and awarding of grants for the best research proposals adhering to the highest scientific selection standards. This could lead to future discoveries that will make environmentally benign, homegrown energy sources more plentiful and cost-competitive with imported petroleum products, such as gasoline and industrial chemicals.

We hope the committee will commend the Office of Science for its support of Energy Biosciences, so that America's producers of domestic energy crops can reach their huge and realistic potential of being able to replace much of the imported petroleum products used for transportation fuels and industrial chemicals, and urge the Office to increase its emphasis in the areas of biology research sponsored by Energy Biosciences.

As a coalition representing stakeholders in both the research, extension and education community and the "customers" who need and depend upon their outcomes, National C–FAR urges expanded public participation in the administration's research, extension and education priority setting and funding decision process and stands ready to work with the administration and other interested stakeholders in such a process.

National C–FAR appreciates the opportunity to share its views and stands ready to work with the Chair and members of the subcommittee and committee in support of these important funding objectives.

PREPARED STATEMENT OF 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 Byron Dorgan as Chairman; Washington Gas Chairman and CEO James DeGraffenreidt, Jr. as Co-Chairman; and Representatives Ralph Hall, Zach Wamp and Ed Markey and Senators Jeff Bingaman, Susan Collins and Jim Jeffords as its Vice-Chairs. More than 90 companies and organizations currently support the Alliance as Associates. The Alliance recommends increases of $15.3 million in several energy efficiency and renewable energy deployment programs, increased funding for building energy efficiency R&D, and $3 million for EIA end-use surveys, compared to last year's appropriated levels.

Energy efficiency programs at DOE are largely voluntary programs that further the national goals of broad-based economic growth, environmental protection, national security, and economic competitiveness. The Office of Energy Efficiency and Renewable Energy does this through the development of new energy-efficient technologies in cooperation with the national laboratories, by working with the private sector to deploy those technologies, and by fostering energy efficiency activities in the States.

BACKGROUND

Rationale for Federal Energy Efficiency Programs.—Both natural gas and oil prices have more than doubled in the last few years, and both continue to rise. High natural gas prices have caused plant closings, loss of manufacturing jobs, and a variety of other direct and negative impacts to the U.S. economy. In a recent survey, business leaders placed energy costs as their second greatest concern after rising healthcare costs.

Energy efficiency and conservation measures taken since 1973 now displace the need for 40 Quads of energy each year, exceeding the Nation's consumption of petroleum. Federal policies and programs such as appliance standards, research and development, and Energy Star made major contributions to these savings. Yet much more remains to be done to increase our Nation's energy efficiency.

Energy efficiency must play a central role in the Nation's energy future. With only 2 percent of known world oil reserves within our domestic borders, flat natural gas production even as prices soar, and an electricity grid that is under significant and growing stress in many regions of the country, there is simply no choice. Even the National Petroleum Council has concluded that natural gas supplies from tradi-

tional North American production will not be able to meet projected demand, and that "greater energy efficiency and conservation are vital near-term and long-term mechanisms for moderating price levels and reducing volatility."

A record of success.—Federal energy efficiency programs provide enormous economic and environmental returns. A 2001 National Research Council report found that every $1 invested in 17 DOE energy efficiency research and development (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. DOE itself estimates that its efficiency and renewables programs will result in major savings, including $134 billion in energy bills, 157 GW of avoided new conventional power plants, 1.9 quads of natural gas, and 213 MMTC of greenhouse gas emissions in 2025.

Budget Studies and Recommendations.—A series of reports and bills have supported a substantial increase in funding for DOE energy efficiency programs. The 2004 energy bill conference report (H.R. 6) would have authorized $772 million for energy efficiency R&D and $725 million for grants in fiscal year 2006. The authorization increases up to a total of $1.625 billion in fiscal year 2008, an increase of 87 percent over the actual fiscal year 2005 appropriation. The National Commission on Energy Policy's December 2004 report recommends a doubling after inflation of current investments in energy RD&D, including on efficiency, over 5 years. These recommendations echo earlier calls for doubling by the President's Committee of Advisors on Science and Technology and the Energy Futures Coalition, and support for expanding the programs in the president's National Energy Policy.

Summary of the President's Request.—The President's overall fiscal year 2006 budget request for DOE energy efficiency programs is $847 million, down $21 million from the fiscal year 2005 appropriation. This continues a gradual slide from the $913 million appropriated for energy efficiency programs in fiscal year 2002. However, in addition to the overall decline, there are some major changes in priorities. The President has requested significant increases for fuel cell vehicle and biorefineries research. The money for these increases was taken from other energy efficiency programs. Thus the core research, development and deployment (RD&D) programs for energy efficiency—buildings, industry, other vehicles R&D, distributed energy, Federal energy management, and deployment programs—would be cut 16 percent overall from fiscal year 2005 levels. Particularly distressing are a 19 percent cut to the appliance standards program—a program that is already plagued by long delays due in part to a lack of financial resources—and a 21 percent cut in work to improve State building energy codes. The proposed budget also cuts other Buildings RD&D, Industrial RD&D, Federal Energy Management, and other critical programs.

ALLIANCE RECOMMENDATIONS

The Alliance to Save Energy believes that a substantial increase in support for DOE energy efficiency programs is vital for addressing the critical energy problems facing our Nation, and that the proven track record of DOE programs in reducing energy demand provides a solid justification for such an increase. Thus the Alliance recommends a doubling of funding for Federal energy efficiency programs over the next 5 years (2006–2010), in line with the budget recommendations above, with an allocation similar to the budget included in the National Commission on Energy Policy report. However, given fiscal realities, we have included much smaller recommendations for funding increases to specific programs below.

The impact of DOE energy efficiency programs has been multiplied by the combination of research to create new technologies, voluntary deployment and market transformation programs to move them into the marketplace, and standards and codes to set a minimum threshold for using cost-effective technologies. All three legs are vital. However, the Alliance believes that energy efficiency deployment programs (including standards) are especially critical right now to meeting our Nation's natural gas and electricity needs. The administration's fiscal year 2006 budget request includes an important increase in funding for the Energy Star program, but cuts other key deployment programs including appliance standards, building codes, Federal energy management, industrial best practices, State Energy Program grants, and all the Gateway Deployment programs other than Energy Star. Such cuts are not consistent with achieving our national energy policy goals of reducing energy costs, promoting environmentally sound economic development, and reducing our reliance on imported oil.

It is important that the program increases in the administration's budget and proposed below not be paid for through cuts to other highly-effective efficiency programs, which also address critical national energy needs. While we support the fuel

cell programs, they do not take the place of core RD&D programs that can have broad energy savings impacts and more certain and more near-term impact than fuel cells. In particular, the Alliance opposes repeated cuts that now threaten the viability of Industrial Technologies research programs.

EERE DEPLOYMENT PROGRAMS

Equipment Standards and Analysis (Building Technologies).—Federal appliance standards already save an estimated 2.5 percent of all U.S. electricity use; existing and draft standards are expected to save consumers and businesses $186 billion by 2020. However, a number of standards are many years behind schedule and appear stalled. DOE has missed Congressionally-set legal deadlines for updating or establishing 18 appliance standards. In fact, some standards are over a decade overdue. DOE has not issued a new energy-saving standard in more than 4 years. In December, the agency announced additional 24 to 30 month delays for the three standards the agency terms its highest priorities. Yet the administration's budget proposes to reduce this line by 19 percent. In recognition of the fact that establishing standards requires a rigorous, time consuming, and costly rulemaking process, the Alliance recommends a $2.5 million increase over the fiscal year 2005 appropriations level for total funding of $12.6 million.

Residential and Commercial Building Energy Codes.—While residential and commercial building codes are implemented at the State level, the States rely on DOE for technical specifications, training, and implementation assistance. We are concerned that the Department is significantly behind in providing information and guidance to the States on both residential and commercial building energy codes. A few States are currently considering the adoption of the current model residential energy code—the 2004 IECC Supplement. This year, the 2006 IECC will be finalized, following the recent publication of the 2004 ASHRAE commercial code. DOE will be required to make determinations as to whether these codes should be adopted; however, DOE still has not made the required determinations on the 2003 IECC, the 2004 Supplement, or the 2001 ASHRAE code. DOE must apply the necessary human and financial resources to ensure timely determinations on the codes.

As the 2006 IECC code will include measures to simplify the code and ease the burden of implementation (as the 2004 Supplement does now), these determinations will lead to exciting opportunities to increase the number of States that adopt the model code.

In addition, compliance with existing codes remains a major problem. DOE needs increased financial resources in order to assist States in the adoption of codes, and to provide training and assistance that can boost compliance. We estimate that full adoption of and compliance with building codes could save 7.2 quads of energy by 2025. Yet the administration proposes to reduce overall codes funding by 21 percent, largely reversing funding Congress added last year. The Alliance recommends:

—a $2.8 million increase for the Building Codes Training and Assistance (Weatherization and Intergovernmental Programs), for total funding of $7.4 million.

Federal Energy Management Program.—The Federal Government is the Nation's largest consumer of energy. Federal agencies use 1 percent of all energy consumed in the U.S. DOE's Federal Energy Management Program (FEMP) has helped cut Federal building energy waste by 24 percent from 1985–2001—a reduction that now saves Federal taxpayers roughly $1 billion each year in reduced energy costs. A vital tool for upgrading the efficiency of Federal buildings is the use of Energy Savings Performance Contracts (ESPCs). However, authority for ESPCs lapsed from October 1, 2003 until late last year, when Congress provided an extension of the ESPC program until October 1, 2006 as part of the defense authorization bill. During the lapse in authority, nearly $500 million worth of energy savings projects were stalled. Additional funding is needed for FEMP to assist agencies in finalizing these contracts and reviving this program. Yet the fiscal year 2006 budget request would cut funding to this program by 4 percent from the fiscal year 2005 appropriated level. The Alliance recommends a $3 million increase, for total funding of $20.9 million.

Energy Star (Weatherization and Intergovernmental Programs).—Energy Star is a successful voluntary deployment program at EPA and DOE that has made it easy for consumers to find and buy many energy-efficient products. For every Federal dollar spent, Energy Star produces average energy bill savings of $75 and sparks $15 in investment of new technology. Last year alone, Americans, with the help of Energy Star, prevented 30 million metric tons of greenhouse gas emissions—equivalent to the annual emissions from 20 million vehicles, and saved about $10 billion on their utility bills. The President proposed a significant increase for the Energy Star program, from $4.1 million to $5.8 million, but even more is needed both to add new products and to increase consumer awareness and market penetration of

Energy Star products. The Alliance recommends a slightly higher $2 million increase for total funding of $6.1 million.

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 BestPractices outreach saved 82 trillion Btu in 2002, worth $492 million. University-based Industrial Assessment Centers have an immediate impact on the competitive performance of hundreds of smaller U.S. factories. The same efforts train industry's next generation of innovators. Additional DOE funding can allow these programs to impact thousands, as opposed to hundreds, of U.S. factories. The Alliance recommends:

—a $3 million increase for Best Practices, for total funding of $11.4 million, and
—a $2 million increase for Industrial Assessment Centers, for total funding of $9.1 million.

OTHER KEY PROGRAMS

Building Technologies R&D.—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. Of all the DOE energy efficiency programs, Building Technologies continues to yield perhaps the greatest energy savings. The National Research Council study found that just three small buildings 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 about $12 million. Current buildings research programs, such as advanced windows and solid state (LED) lighting, are equally promising. Yet the administration's proposed budget would reduce overall Building Technologies funding by 11 percent, and eliminate the important Thermal Insulation and Building Materials R&D. Buildings R&D should be a priority for funding increases, especially for Window Technologies, in addition to the Building Technologies deployment programs highlighted above.

Energy Information Administration (EIA) End-Use Surveys.—Last year, the Congress recognized the value that EIA's energy end-use surveys provide to policymakers, congressional staff, national laboratories and industry with report language urging an increase in funding for this program. This year, the administration's budget request includes $3.5 million (up from $2.2 million), just enough to continue the valuable Residential, Manufacturing, and Commercial Buildings Energy Consumption Surveys (RECS, MECS, and CBECS). The Alliance strongly supports the administration's requested budget increase for the existing surveys. In addition, the Alliance recommends an increase of $1.5 million above the President's request, for total funding of $5.0 million, in order to reinstate the residential transportation energy consumption survey, last conducted in 1994, and to conduct the surveys every 3 years as required by the Energy Policy Act of 1992, instead of the current 4-year schedule.

CONCLUSION

DOE's energy efficiency programs have a proven track record of developing and deploying new energy efficiency technologies. With natural gas and oil prices continuing to skyrocket, there is a compelling need to increase these programs this year, as energy efficiency continues to be the quickest, cheapest, and cleanest way of making energy supplies meet energy needs. The Alliance recognizes that the fiscal situation is tight, but the returns from these programs will be large, and the cost of not making the investment—to the economy, to energy security and reliability, and to the environment—is simply too high.

PREPARED STATEMENT OF THE CENTER FOR ADVANCED SEPARATION TECHNOLOGIES

Chairman Domenici and members 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 2006 Fossil Energy Research and Development budget, U.S. Department of Energy, for Advanced Separations research. Research in advanced separations is an integral part of the Solid Fuels and Feedstocks Program of the Fossil Energy R&D.

I am joined in this statement by my colleagues from the consortium: Ibrahim H. Gundiler, New Mexico Tech; Maurice C. Fuerstenau, University of Nevada-Reno;

Peter H. Knudsen, Montana Tech of the University of Montana; Jan D. Miller, University of Utah; Richard A. Bajura, West Virginia University; and Richard J. Sweigard, University of Kentucky.

FUNDING REQUEST FOR THE CENTER FOR ADVANCED SEPARATION TECHNOLOGIES

Oil is the largest source of energy used in the United States, providing 40 percent of the Nation's energy needs. At present, the United States imports oil to meet nearly 60 percent of its domestic consumption, and the oil import in 2004 accounted for nearly one-third of the increase in the trade deficit that year. The situation can get worse if world oil production reaches a peak any time between now and 2020 as many petroleum geologists predict. In anticipation of the growing imbalance between energy supply and demand, President Bush has developed a comprehensive National Energy Policy which stresses the importance of increasing supplies while protecting the environment. Unfortunately, coal contains many undesirable impurities and, hence, emits pollutants during the course of production and utilization. Therefore, there is a need to develop advanced separation technologies that can be used to efficiently produce cleaner solid fuels in an environmentally acceptable manner.

Availability of the new technologies will help industry meet the stringent requirements of the Clean Air Interstate Rule (CAIR) and the Clean Air Mercury Rule (CAMR) promulgated in March, 2005. The former requires coal-burning power plants to reduce SO_2 and NO_X emissions by 70 and 60 percent, respectively, while the latter requires that mercury emissions be reduced to 38 and 15 tons-per-year levels beginning 2010 and 2018, respectively. CAST is an excellent vehicle to develop advanced technologies that can be used to meet these new requirements.

ORGANIZATION

The Center for Advanced Separation Technologies (CAST) was formed in 2001 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. Initially, the scope of work was limited to developing efficient physical separation methods encompassing solid-solid and solid-liquid separations. In 2002, five other universities, New Mexico Tech; the University of Nevada, Reno; Montana Tech of the University of Montana; the University of Utah; and the University of Kentucky joined the consortium to develop crosscutting technologies that can also be used by the U.S. minerals industry. As a result, the scope of work was expanded to chemical/biological separations and environmental control. By working together as a consortium, the Center can take advantage of the diverse expertise available in the member universities, and the research activities can address the diverse interests at different geographical regions of the country. A recent National Research Council (NRC) report suggested that "consortia are a preferred way of leveraging expertise and technical inputs to the mining sector," and recommended that the U.S. Department of Energy should support "academia, which helps to train technical people for the industry."

PROGRESS AND NEXT STEP

At present, a total of 40 research projects are being carried out at the seven CAST member universities. The project selection was made by an industry panel in accordance with the priorities set forth in the CAST Technology Roadmap, which was created as a result of the workshop held in Charleston, WV, August 14–15, 2002. The research results were presented at the First CAST Workshop, Charleston, WV, November 19–21, 2003. The meeting was attended by 120 participants, 60 percent of whom were from industry. The Second CAST Workshop will be held July 26–27, 2005, in Blacksburg, VA.

The price of coal increased sharply beginning January, 2004, due to factors such as increased demands in export coal markets, low U.S. dollar value, depletion of long-wall mineable coal beds, shortages of skilled manpower, and increasing pressure to reduce SO_2 and mercury. It is unfortunate that despite the favorable market conditions, many coal companies are losing considerable amounts of coal during cleaning operations due to the lack of appropriate separation technologies. The loss of coal, particularly of fine particles, contributes to high production costs and creates environmental problems at mine sites. NRC reported recently that there are more than 760 impoundments in the eastern United States, many of which are rated as "high risk." Therefore, the CAST Roadmap gave the highest priorities to dewatering fine coal (solid-liquid separation) and fines classification (size-size separation).

CAST conducted several fine coal dewatering research projects. In one, pilot-scale tests were conducted on drill core samples from the waste impoundment at the Pin-

nacle Mine, WV. The coal sample was cleaned of ash and sulfur by means of an advanced solid-solid separation device and was subsequently dewatered with an advanced solid-liquid separation method to obtain marketable products. The same samples treated with conventional technologies contained high levels of impurities and contained too much water to be shipped. As a result of the successful test work, Beard Technologies signed an agreement with PinnOak Mining Company in September, 2004, to build a recovery plant which is capable of producing 200 tons/hr of clean coal. It is anticipated that plant construction will be completed by September, 2005. If successful, this will be the first operation that can recover practically all of the coal fines that have been discarded to a waste impoundment without the benefit of the Section 29 tax credit.

In another dewatering project, CAST is developing a hyperbaric centrifuge that can remove water from fine coal using a combination of air pressure and centrifugal force. While a bench-scale semi-continuous unit was being constructed by CAST, a license agreement was signed with Decanter Machine Company in Johnson City, TN, in January of 2005. Based on the bench-scale test results, a proof-of-concept (POC) module will be constructed by Decanter and tested at a mine site. In another dewatering project, a flocculant injection system has been developed to minimize the loss of fine coal in screenbowl centrifuges, which are the most widely used dewatering machines used in the U.S. coal industry. To date, the new injection system has been installed in a total of 18 preparation plants operating in the U.S. coal industry. In addition, CAST is developing 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 refuse ponds.

Most of the coarse coal is cleaned by density-based separators. One can, therefore, determine the efficiency of separation by using density tracers. Typically, tracers of different densities are added to a feed stream and manually collected from product streams, processes which are cumbersome and entail inaccuracies. Therefore, a new method has been developed in which each tracer is tagged with a transponder so that the fate of each tracer can be determined accurately by means of an appropriate electronic device. This technology has been tested successfully in several coal plants and is ready for commercial deployment this year.

Alternatives to copper smelting, e.g., chemical leaching, have been sought for years to reduce cost and minimize environmental impact. It is difficult, however, to leach certain types of copper minerals, such as chalcopyrite, because its leach product (elemental sulfur) forms a coherent layer on the mineral surface and impedes the leaching process. It was found that chalcopyrite leaching is greatly enhanced in the presence of nano-size silica particles, possibly due to their effect on sulfur layer. Based on the successful test results obtained with dilute suspensions, work is continuing on concentrated suspensions. In another leaching project, a method is being developed for extracting gold using alkaline sulfide rather than toxic cyanide as a lixiviant. On the basis of the thermodynamic and kinetic studies conducted during the first year, bench-scale leach tests have been conducted successfully on actual ore samples. Initial tests showed very high (95 percent) gold recoveries.

Processing water-soluble minerals, such as potash (KCl) and trona ($NaCO_3$), poses unique challenges. Potash has been mined in New Mexico for the past 60 years, but depleting high-grade ore reserves threatens the survival of the industry in the future. Therefore, CAST has developed a new method in which potash ore is deslimed prior to flotation and reagent additions are optimized. After a successful plant trial last summer, Mosaic Potash, formerly IMC Potash, implemented the new flotation process to increase the recovery by more than 10 percent. CAST is also working with both Interpid Mining and Mosaic Potash to develop a process of recovering potash from mixed ores containing large amounts of clay, which cannot be processed otherwise.

Almost all of the U.S. soda ash production comes from the Green River Basin of Wyoming. At present, high purity soda ash is being produced by a process involving dissolution in a brine solution, which is costly. CAST has developed a flotation process which can produce trona concentrate with a high purity (99 percent). During the fall of 2004, a series of pilot-scale flotation tests were conducted at the mine site. At present, continuous flotation tests are being conducted at a much smaller scale to establish optimal operating conditions.

CAST is carrying out many other projects that cannot be reported here due to page limit. Many of them are long-term, high-risk research projects, which include fundamental studies, sensor development, modeling, and computations.

RATIONALE FOR FUNDING REQUEST

The United States is the second largest mining country in the world after China, followed by South Africa and Australia. In 2004, the U.S. mining industry produced a total of $63.9 billion worth of raw materials, including $19.9 billion from coal and $44 billion from minerals. Australia is a much smaller mining country but has five centers of excellence in advanced separations as applied to coal and minerals processing. In the United States, CAST is the only such center.

CAST is developing a broad range of advanced separation technologies that can be used by the U.S. coal and minerals industries. Although CAST is a relatively new center, many of our research projects have yielded technologies that have already been transferred to industry. However, many other promising projects are on-going and require continued support. It has been found that working as a consortium is an effective way of exchanging ideas and utilizing different expertise required to solve difficult problems. Continued funding will allow CAST to develop advanced technologies that can be used to remove impurities from coal, including sulfur and mercury, in a manner that is acceptable to the environment. Furthermore, the advanced technologies can be used to clean up the waste impoundments created in the past and to control acid mine water.

For fiscal year 2006, we are requesting $3 million of funding to continue development of crosscutting advanced separation technologies. In view of the CAIR and CAMR promulgated in March, 2005, we will also study methods of removing mercury from coal prior to combustion. Recent research conducted by CAST member universities has shown that approximately 70 to 80 percent of mercury can be removed from eastern U.S. coals. In order to do this, the coal must be pulverized first to liberate iron sulfide minerals such as pyrite (FeS_2) in which most of the mercury is dispersed in solid solution. The fine coal dewatering technologies being developed at CAST can minimize the costs associated with processing the pulverized coal. Some of the advanced separation technologies developed by CAST can also be used to recover kerogen and bitumen from oil shale and tar sands and to help develop zero-emission coal technologies.

PREPARED STATEMENT OF THE OHIO OIL & GAS ASSOCIATION

SUMMARY INTRODUCTION

This is a statement of the Ohio Oil and Gas Association ("OOGA"), a trade association primarily comprised of oil and natural gas producers. OOGA's membership also includes oilfield drilling and service contractors, natural gas pipeline companies, natural gas marketers, and other businesses providing services, goods, and equipment to the oil and natural gas industry in the State of Ohio. OOGA's mission is to protect, promote, foster and advance the common interests of those engaged in all aspects of the Ohio crude oil and natural gas producing industry. The OOGA's membership totals 1,300 members, the majority of which are small business entities.

The administration's budget proposal for fiscal year 2006 would remove all Federal funding that supports oil and gas technology programs. Likewise, and of critical concern, the proposal eliminates funding for the Office of Fossil Fuel, Oil and Gas Program's regulatory evaluation programs that serve to make certain that other Federal agency rulemakings take place with full regard for the potential impacts the action may have on domestic oil and gas production. Therefore, OOGA's members maintain a substantial interest in this appropriation issue and offer the following discussion.

OOGA fully supports and is signatory to comments submitted by the Independent Petroleum Association of America (IPAA) to this committee regarding this issue. We take this opportunity to briefly itemize those issues of particular concern to Ohio's independent oil and gas producers.

OOGA requests that fiscal year 2006 funding of oil and gas technology and regulatory evaluation programs be restored to fiscal year 2005 levels. The Department of Energy should provide Congress with research and development plans at several levels of appropriations ($50, $75 and $100 million per year) over at least a 5-year planning period.

TECHNOLOGY NEEDS

Oil and natural gas stand out as essential fuels and feedstock of the U.S. economy. Together they account for more than 60 percent of U.S. energy consumption. Even though the United States is a mature producing region, still nearly 40 percent

of oil consumed comes from domestic fields. The rest is imported from other sources—usually nationalized petroleum owned by companies who do not have America's best interests at heart.

Of the remaining U.S. resource base two-thirds of all the oil discovered in the country remains in the ground. U.S. natural gas resources remain plentiful. But, as demand increases, U.S. production will increasingly come from more difficult-to-produce, technically challenging resources and settings. In light of the current economic situation characterized by escalating commodity prices caught in increasingly more volatile cycles, it seems Congress is behooved to do all possible to support increased research to exploit the U.S. resource base. Likewise, cutting the primary R&D funding assisting American independents, who drill 90 percent of domestic oil and gas wells, seems entirely inappropriate.

Because there is so much future potential in this region, Ohio and the Appalachian Basin are detrimentally impacted by the R&D funding cuts. The U.S. Geological Survey recently issued a report assessing the undiscovered oil and gas potential of the Appalachian Basin Province.[1] The USGS estimated a mean of 70.2 trillion cubic feet of gas, a mean of 54 million barrels of oil, and a mean 872 million barrels of total natural gas liquids exists in the region. That roughly translates into 7.6 billion barrels of oil equivalents (at current commodity price levels). If only 30 percent of the resource was recoverable, still that would amount to nearly 50 percent of the published proved oil reserves available in Alaska.

Independent oil and gas producers will surely explore for and develop the Appalachian resource. But this resource is contained in a mature basin and within reservoirs that will require new technologies to fully exploit. The Department of Energy's oil and gas technologies programs provide technological products that are principally accessed by small, independent oil and natural gas producers. These producers do not have access to the in-house technology capabilities of large, multi-national oil companies. In fact, 85 percent of the DOE programs are targeted toward exploration and production activities associated with the independent producer community. The survival of these companies and the Nation's remaining oil and natural gas resources often depends on new technologies created by the government-industry partnership fostered through these programs.

Currently, small independent producers directly plug into proven high-success programs such as the Petroleum Technology Transfer Council (PTTC) and the Stripper Well Consortium. Both programs are dependent upon Congress providing continued and adequate funding of the Department of Energy R&D program. As a direct result of these programs the flow of oil and gas has been sustained from thousands of domestic marginal wells while opening new opportunities to tap large quantities of the remaining oil and gas resource in place. Above and beyond PTTC and the Consortium, recent Department of Energy R&D has yielded six new deployment-ready oil and gas technologies that will extend the useful life of more than 650,000 stripper wells that deliver almost 15 percent of America's domestic oil production and almost 8 percent of natural gas production.

TECHNOLOGY AND THE RBDMS DATABASE SYSTEM

There is another outstanding success story that would not have happened were it not for Federal funding of R&D and technology.

In partnership with the Department of Energy and the Ground Water Protection Council (GWPC), the Ohio Division of Mineral Resources Management, the lead oil and gas regulatory agency, developed an oil and gas risk based data management system (RBDMS) designed with risk functions embedded in the line code of the system. RBDMS is populated, and is constantly being updated, with data on all known oil and gas records in Ohio, including data contained in the DMRM's previous database, supplemental electronic records provided by industry, well log cards from the Ohio Division of Geologic Survey, abandoned well site information, and digitized maps showing, among other things, known well locations. It is now used in virtually every aspect of the DMRM program, including permitting, inspection, plugging, enforcement and administrative functions, as well as the DMRM's strategic planning process for the identification and evaluation of enforcement issues and trends.

Access to much of the data contained in RBDMS is also available to the public, industry, and local, State and Federal agencies, through the DMRM website, which has approximately 200,000 user visits annually. Additionally, emergency data is shared with State and local emergency response agencies and local fire departments through the DMRM website.

[1] "Assessment of Undiscovered Oil and Gas Resources of the Appalachian Basin Province, 2002", USGS Fact Sheet FS–009–3, United State Geological Survey, February 2003.

RBDMS serves as a risk based data management model for at least 17 other State oil and gas regulatory programs, and has received an Award of Excellence in Technical Development from the GWPC and was named as one of the U.S. Department of Energy's top 100 technical developments.

Ohio Oil and Gas Emergency Website.—As a direct result of the RBDMS project, the Ohio agency developed a website for use by fire departments and emergency response agencies to quickly and efficiently distribute information on well sites and tank batteries in the event of an emergency. This project was funded by a grant from the U.S. Department of Energy, and was managed and developed by Argonne National Laboratories. The website is an interactive, GIS-based system linked to the RBDMS, and allows emergency responders to locate wells, access Material Safety Data Sheets (MSDS) for chemicals stored at those locations, and obtain related ownership and contact information. Among other things, the website has been recognized at The Council of State Governments, Midwestern Legislative Conference in July, 2004.

The RBDMS system and associated projects are an outstanding reason to continue funding to benefit not only the domestic industry but also the American public that interacts with the industry.

PROTECTING THE ENVIRONMENT

Federal funding of DOE developed technology has resulted in significant environmental improvements. They include:

—Fewer wells and dry holes—today, one well is needed to do the job of four wells in 1985.
—Smaller footprints and well pads result in minimized environmental impacts through horizontal and directional drilling and rig technologies.
—Reduced waste volume.
—Reduced power and fuel consumption using modern drill bits.
—Reduced air emissions.
—Enhanced worker safety.
—Optimized recovery of oil and natural gas resources using advanced hydraulic fracturing stimulation techniques.

ADVOCACY—THE CRUCIAL NEED

Perhaps the most critical function requiring dependable and on going Federal funding is directed to the role that the Office of Fossil Energy, Oil and Gas Program plays as an advocate to make certain that rulemakings at other Federal agencies (DOT, DOI, DOC, EPA) do not move forward unless potential impacts on domestic production are known.

Recently, the Office of Fossil Energy studied and reported on the effects of the Environmental Protection Agency (EPA) construction permitting requirements for stormwater management. The study explains that there is a potential loss of between 1.3 and 3.9 billion barrels of domestic oil and 15 to 45 TCF of domestic natural gas over the next 20 years, should stormwater construction permitting requirements be extended to include oil and gas producing operations, again, domestic production we can ill-afford to lose.

Other significant examples include EPA regulation of drilling fluids and produced water as it relates to the Resource Conservation and Recovery Act and the Office of Pipeline Safety regulation of natural gas gathering lines.

DOE's assessment of regulatory impacts on energy, is critical to achieve the mandates of the President's May 2002 Executive Order requiring agencies to assess energy impacts as part of the regulatory process. Continued Federal funding of DOE's role in interagency consultation on rulemaking is key to assuring a fair and reasoned regulatory environment. To put it bluntly—if we lose this critical oversight, the independent oil and gas industry is exposed to high risk. Don't let that happen!

CONCLUSION

The Ohio Oil and Gas Association strongly urges the U.S. Senate Committee on Appropriations to restore to the Department of Energy all Federal funding of the oil and gas technology and regulatory evaluation programs.

PREPARED STATEMENT OF THE AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

To the chair and members of the subcommittee, thank you for this opportunity for the American Association of Petroleum Geologists (AAPG) to provide its perspective on fiscal year 2006 appropriations for oil and gas research and development

(R&D) programs within the subcommittee's jurisdiction. The administration's budget contains significant reductions for the Department of Energy (DOE), including the elimination of the oil and gas technology programs in the Office of Fossil Energy. AAPG requests restoration of these DOE Fossil Energy oil and gas technology programs to fiscal year 2003 funding levels.

AAPG, an international geological organization, is the world's largest professional geological society representing over 30,000 members. Its purpose is to advance the science of geology, foster scientific research, promote technology and advance the well-being of its members. With members in 116 countries, AAPG serves as a voice for the shared interests of petroleum geologists and geophysicists in our profession worldwide. Included among its members are numerous CEOs, managers, directors, independent/consulting geoscientists, educators, researchers and students. AAPG strives to increase public awareness of the crucial role that geosciences, and particularly petroleum geology, play in energy security and our society.

DOE FOSSIL ENERGY RESEARCH AND DEVELOPMENT

AAPG feels appropriate funding for the Department of Energy's Fossil Energy research and development budgets for the Oil Technology R&D and Gas Technology R&D portions of the fiscal year 2006 Energy and Water Appropriations bill is vital for a viable domestic industry in the near-, mid- and long-term. The return on past R&D funding has proven greater than the investment.

Historically, members of Congress have continually emphasized the need for a comprehensive energy policy containing a strong R&D component. AAPG recognizes the importance of maintaining a strong domestic petroleum industry, and our members also support and emphasize the need for continuing efforts in R&D in order to sustain the standard of living U.S. citizens have earned and expect. While the price of crude oil is established by a global market, the cost of exploration, development and production are strongly influenced by the application of discoveries in geosciences and new developments in technology. Thus, focused R&D can make a significant contribution to sustaining our domestic petroleum industry and to national energy security.

While our dependence on crude oil and natural gas has changed little since the "energy crisis" of 1973, public and private funding of R&D for these commodities have declined significantly. Many of the major companies, and some companies in the related service industry that once maintained strong programs in R&D, have disappeared through mergers and acquisitions. Others have replaced or retooled some of those R&D activities with technical-service functions, primarily in support of their international activities. In addition, Federal funding for R&D programs also has declined significantly. While some States, private foundations, smaller companies and independents are continuing to support R&D in oil and gas, the amount is woefully inadequate to meet the needs of the domestic industry. Thus, absent adequate public support for these endeavors, the continuing flow of new discoveries in the geosciences and new technological breakthroughs that will be needed to continue to support a viable domestic industry in the 21st century will not occur.

Our Nation is the world's largest consumer and net importer of energy. According to the Energy Information Administration, during the first 10 months of 2004 the U.S. consumed 20.4 million barrels of oil per day, producing only 26 percent of this consumption. Our national energy and economic security depends on a vibrant domestic oil and gas industry. Independent producers drill 90 percent of domestic oil and natural gas wells, produce approximately 85 percent of domestic natural gas and produce about 65 percent of domestic oil. Domestic production creates jobs, produces tax revenue, provides royalty income to hundreds of thousands of mineral owners and contributes to economic development in producing areas (mostly rural) of the Nation.

Federal funding of R&D increases the domestic oil and gas supply, and it is not a subsidy. Almost 85 percent of the jointly-funded R&D and technology transfer programs carried out by universities, State agencies and independent companies are focused on the development of new reserves by domestic independent producers. R&D programs, such as those designed for development of unconventional tight sandstone and shale reservoirs, develop and demonstrate new and innovative technologies. These technologies are used to extend the life of existing oil and gas reservoirs as well as to explore and develop reserves such as the U.S. supply of unconventional gas, which was largely driven by focused Federal spending and tax incentive programs. As technology evolves, today's unconventional oil and gas reserves are tomorrow's conventional reserves. It is now more important than ever that the United States leverage its investment to find new sources of oil and gas—the unconventional reserves of tomorrow.

Today, revolutionary oil and gas technology is seldom available in the market at any price. Irrespective of the price of oil and gas, procurement of new technologies will be a continuing challenge for domestic U.S. oil and gas producers. Private sector R&D typically is conducted by major international companies with a strong focus on international projects in super giant offshore fields, which have limited application to domestic onshore production. Most programs jointly funded by DOE result in the transfer of technologies to a much wider range of problems, and thus are more cost-effective and useful for increasing the supply right here in the United States.

The DOE Office of Fossil Energy oil and gas R&D programs play a vital role in domestic oil and gas development. These programs include not only R&D but also incorporate technology transfer through programs like the Petroleum Technology Transfer Council (PTTC), an organization that provides the conduit to move upstream research into the hands of domestic oil and gas producers. Through PTTC, R&D from the DOE Fossil Energy program expands throughout the Nation. PTTC conducts workshops and seminars throughout the United States, disseminating research results and case study applications of new technology available to domestic producers. Since its inception in 1994, PTTC has conducted over 1,000 technology transfer workshops and seminars. PTTC recently estimated economic impact in 11 areas identified by industry where independent producers are broadly applying technologies. Of 1,266 million barrels of oil equivalent reserves that were realized, 88 million barrels could clearly be attributed to technology transfer under the direction of DOE-funded PTTC activity. The research dollars spent by these DOE programs go primarily to universities, State geological surveys and research consortia to address critical issues like unconventional sources of natural gas and enhanced oil recovery.

Further, Federal R&D funds form a crucial element of university programs that foster undergraduate and graduate research initiatives, which replenish the corps of future petroleum geologists, engineers and geophysicists. Enrollment in the geosciences departments across the United States has decreased by 70 percent in the past 20 years, while international oilfield education has increased significantly. Accordingly, our universities will graduate even fewer technical professionals to maintain an already strained national energy sector.

DOE's past R&D programs have helped develop broad advances in many oilfield technologies, such as 3-D and 4-D multi-component seismology. New completion and production techniques provide the opportunity to enhance environmental compliance, thus minimizing industry impact to our environment. Many of these technologies were funded under DOE's Reservoir Class Program in the 1990's and are now significantly paying dividends. DOE's oil and gas R&D programs have enabled producers to reduce costs, improve operating efficiency and enhance environmental compliance, while increasing ultimate recovery and adding new reserves.

The full recognition of the vital importance of R&D programs like those sponsored by DOE's Office of Fossil Energy is of paramount importance to the future of our country and our society. No task before our Nation is more critical than energy security, and this concept is not new—it is a traditional ideal of democracy. But it is time that we moved toward the fulfillment of this ideal with more vigor and less delay. For energy security is both a foundation and unifying force of our democratic way of life—it is the mainspring of our economic progress. In short, R&D programs are at the same time the most profitable investment society can make and the richest return that it can confer. Today, more than at any other time in our history, we need to develop our oil and gas resources to the fullest. Without Federal support for R&D programs this achievement becomes more difficult.

Thank you for the opportunity to present this testimony to the subcommittee. If you would like any additional information for the record, please contact me.

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 con-

[1] Current PSDF participants include Southern Company, the Electric Power Research Institute (EPRI), KBR, Siemens Westinghouse Power Corporation (SWPC), 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-

ceived 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 that the committees continue this 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 (see details below) and to support 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. DOE's FutureGen Program Plan submitted to Congress on March 4, 2004 described the transport gasifier (one of the technologies under development at the PSDF) as a promising candidate for inclusion in FutureGen because:

" . . . its high throughput relative to size, simplicity, and reduced temperature of operation compared with current gasifiers, will yield benefits throughout the FutureGen plant . . . Planned improvements in the coal feed system, particulate control device, and the char cooling and removal system will significantly increase overall reliability of the transport gasifier, which would further reduce costs. The target is to achieve 95 percent availability rather than the 75 percent–80 percent availability typical of today's gasifiers.

"Because of its simplicity in design and lower temperature of operation, the transport gasifier can potentially reduce the capital cost of an IGCC plant by up to 20 percent (or from $1,400 to $1,120/kW) over those employing today's technologies. In addition, the operations and maintenance costs are expected to be lower and availability higher because of the lower temperature of operation."

A key feature of the PSDF is its ability to test new systems at an integrated, semi-commercial scale. Integrated operation allows the effects of system interactions, typically missed in unintegrated pilot-scale testing, to be understood. The semi-commercial scale allows the maintenance, safety, and reliability issues of a technology to be investigated at a cost that is far lower than the cost of commercial-scale testing. Capable of operating at pilot to near-demonstration scales, the 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.

As a follow-on to the ongoing development of the transport gasifier at the PSDF, Southern Company and the Orlando Utilities Commission (OUC) were recently selected by DOE as part of a competitive solicitation under the Clean Coal Power Initiative (CCPI) to build an advanced 285-megawatt transport gasifer-based coal gasification facility at OUC's Stanton Energy Center in central Florida. The facility will use state-of-the-art emission controls and will showcase the cleanest, most efficient coal-fired power plant technology in the world. The transport gasifier offers a simpler, more robust method for generating power from coal than other available alternatives. It is unique among coal gasification technologies in that it is cost-effective when handling low rank coals (sub-bituminous and lignite) and when using coals with high moisture or high ash content. These coals make up half the proven U.S. and worldwide coal reserves.

Southern Company also supports the goals of the Clean Coal Technology Roadmap developed by DOE, EPRI, and the Coal Utilization Research Council (CURC). The Roadmap identifies 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 recently used the modern financial technique called "Real Options" to estimate the value of advanced coal R&D.[2] The major conclusion of this study 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

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owned utilities and rural electric cooperatives from a multi-State area that generate electricity from lignite, serving 2 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. Air Products and Chemicals has also proposed significant future participation at the PSDF. 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), Allentown, PA and Tonawanda, NY (advanced air separation technology); and Deland, FL (filter fabrication).

[2] EPRI Report No. 1006954, "Market-Based Valuation of Coal Generation and Coal R&D in the U.S. Electric Sector", May 2002.

realized the critically important R&D program outlined in the Clean Coal Technology Roadmap must be conducted.

SUMMARY

The United States has always been a leader in energy research. Adequate funding for fossil energy research and development programs will provide this country with secure and reliable energy while reducing our dependence on foreign energy supplies. 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 2006 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 FutureGen. 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.

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 and completely 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 the equipment supplier 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.—Several 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.

Combustion Turbine Burner.—Integrating the existing 3.8 MW combustion turbine with a new syngas burner developed by SWPC has allowed further system automation and controls development.

PSDF FUTURE TEST PROGRAM

Future testing at the PSDF is focused on supporting FutureGen and the Technology Roadmap. These programs aim to eliminate the 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. The focus at the PSDF will remain on supporting commercialization of new coal-based advanced energy technologies including those initially developed elsewhere. Assuming adequate funding, work at the PSDF will include:

Transport Gasifier.—Continue the development of the transport gasifier to further optimize its performance, explore feedstock flexibility, increase system pressure, and provide syngas for testing of downstream systems.

Air Separation Membranes.—Test advanced air separation membrane modules provided by U.S. manufacturers to evaluate membrane performance and system integration issues.

Coarse Ash Handling.—Install and test a new type of coarse ash depressurization system, with no moving parts or valves, which has been developed. Like the fine ash removal system successfully developed earlier, this system will reduce capital and maintenance cost and improve plant reliability.

Advanced Syngas Cleanup.—Test new advanced syngas cleanup systems for reducing hydrogen sulfide, hydrochloric acid, ammonia, and mercury to near-zero levels.

H_2/CO_2 Separation Technologies.—Integrate and test advanced H_2/CO_2 separation technologies to assess their performance on coal-derived syngas.

Syngas Cooler.—Test alternative designs that are less complex, have lower capital cost, and offer better control of the syngas exit temperature.

New Particulate Control Device Internals.—Evaluate alternative filter system internal designs from several vendors.

Improved Fuel Feed Systems.—Evaluate alternatives to conventional lock hopper feed systems that have been identified.

High-Temperature Heat Exchangers.—Test high-temperature heat exchangers as they become available. These exchanger can be used in both advanced combustion and gasification technologies.

Syngas Recycle.—Add a syngas compressor to allow the use of syngas instead of air or N_2 for aeration to promote recycle solids flow, dust filter back pulse gas, and coal feed transport to produce higher heating value syngas and more closely match commercial operating conditions.

Fuel Cell.—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.

LETTER FROM THE STATE OF NEW MEXICO OIL CONSERVATION DIVISION

APRIL 29, 2005.

Honorable PETE V. DOMENICI,
Senate Committee on Appropriations, Subcommittee on Energy and Water Development.

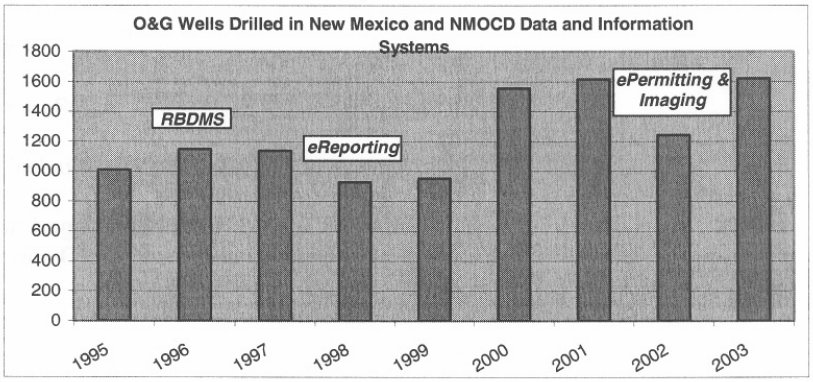
DEAR SENATOR DOMENICI: Mr. Chairman, thank you for the opportunity to provide written comments on the proposed fiscal year 2006 budget. I am writing this letter on behalf of the Ground Water Protection Council (GWPC) and my agency, the New Mexico Oil Conservation Division (NMOCD). I, and other NMOCD staff, request continued funding for the GWPC's successful oil and gas environmental management program and also to encourage you to restore Congressional appropriations of $100,000,000 for the Department of Energy's Office of Fossil Energy oil and natural gas supply R&D program.

This DOE program provides valuable research and technical assistance to State regulatory agencies such as NMOCD and to small oil and gas operators in the United States. Without the technical assistance provided by this applied research program, it is estimated that oil and gas operators will be unable to recover hundreds of millions of additional barrels of oil in the United States. This research pro-

gram has also substantially assisted NMOCD and other State regulatory agencies for protection of the environment.

State oil and gas regulatory agencies in partnership with the GWPC are responsible for the development and operation of the nationally acclaimed Risk-Based Data Management System (RBDMS) system. RBDMS has been proven to assist the States in protecting the environment while at the same time assisting oil and gas operators. Through the GWPC, the producing States are working together to protect ground water resources, holding down the cost of environmental compliance, and providing improved access to essential data for new oil and gas exploration. RBDMS has been operational in New Mexico for nearly 10 years and currently is being utilized in 19 other oil and gas producing States.

Other benefits of the research programs provided by DOE's Office of Fossil Energy Funding is for the States to have the opportunity to develop management tools using newer technology that enable their respective agencies to make decisions that result in the best possible balance of exploration and environmental considerations. We are learning that electronic commerce mutually saves time and money for both the oil and gas industry and the regulatory agencies. In New Mexico, and other States, online permitting and reporting is cost effective and saves industry time and money. Electronic permitting has expedited the processing of applications to drill making it easier for operators to move quickly and adjust their exploration and production programs. Demonstrably, oil and gas agencies with quality data management systems that provide access to oil and gas data experience increased oil and gas development as a result of the improved data access.



Additionally, NMOCD has implemented an imaging system whereby more than 5 million historical documents are available for download and research via the Internet by large and small producers alike. Travel by operators to NMOCD offices to research and copy paper files is no longer needed. This one benefit may save New Mexico operators alone more than $200,000 per year for travel expenses and countless personnel hours. The NMOCD imaging system could be constructed in large part due to the availability of existing RBDMS system data making the indexing and implementation of imaging more intuitive and timely. Continued funding from U.S. DOE will provide the smaller independent oil and gas producers access to this and other environmental data management systems. Smaller producers are often the most in need of such systems because high regulatory costs hit them the hardest and they would otherwise not have ready access to these data and information.

In our home State of New Mexico, NMOCD has contributed over $100,000 and more that $0.5 million in staff resources as in-kind matches over the last 10 years. Every State currently using the system has also contributed to building the system and additional States are planning to use stated dollars in addition to Federal funds. We are thankful for the $1.15 million we received in fiscal year 2005 and request that the committee continue to fund this successful GWPC program at $1.15 million in fiscal year 2006.

RBDMS and the spin-off applications are the best examples we have seen of how the States, working with the Federal Government and the private sector, can improve both industry production and environmental protection at the same time. Continuing to fund the U.S. DOE's Office of Fossil Energy oil and natural gas technologies R&D program in this manner allows us to tailor our regulatory program needs to the industry which operate in our respective States. There is no Federal

alternative, or other national approach that would work as efficiently as this cooperative multi-State effort.

The DOE Fossil Energy program funds research projects like RBDMS which provide improved environmental protection, less regulatory and compliance costs for producers, better State enforcement of environmental regulations, increased domestic exploration activity by large and small operators and increased oil and gas production.

Sincerely,

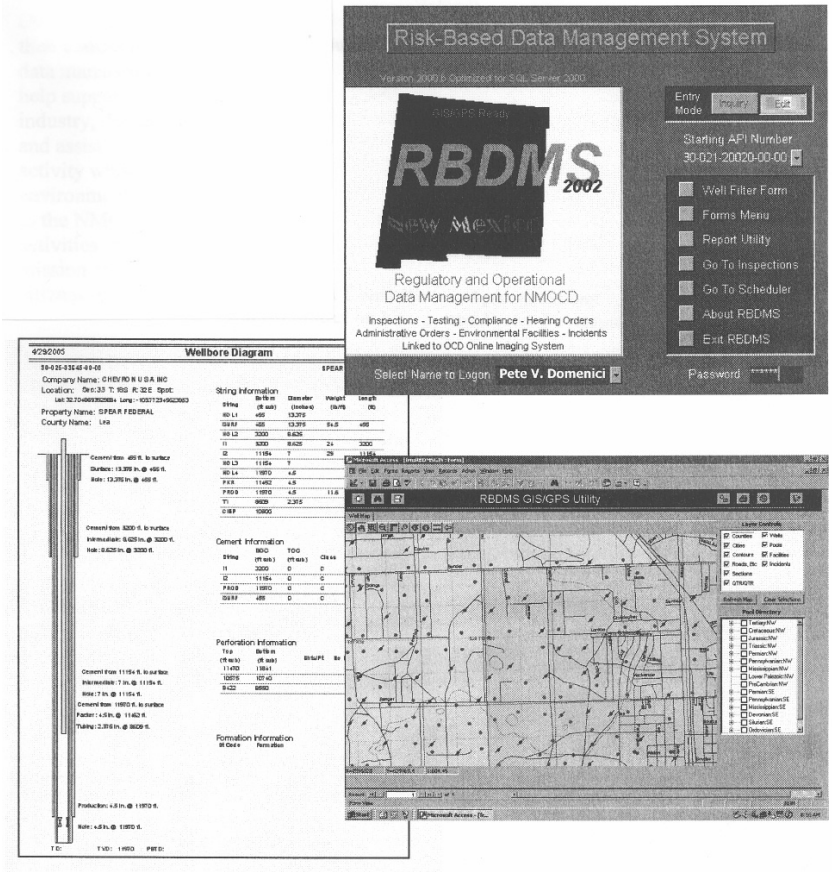
BENJAMIN E. STONE,
Petroleum Engineer.

ATTACHMENT.—RBDMS NEW MEXICO HIGHLIGHTS

RBDMS NEW MEXICO . . . KEY TO NMOCD'S REGULATORY RESPONSIBILITIES

The Risk-Based Data Management System (RBDMS) was developed with funding from the National Petroleum Technology Office (NMPO) of the Department of Energy. Modification to address New Mexico's specific regulatory and operational needs were accomplished by the Oil Conservation division of the Energy, Minerals and Natural Resources Department, with addition funding assistance from DOE through the Ground Water Protection Council (GWPC) and from the Environmental Protection Agency. New Mexico has realized a host of benefits incorporated in the application using the latest technologies including GIS, document imaging and statewide replication of the data with SQL Server.

OCD would like to thank DOE for their continuing support of these data management efforts, which help support the oil and gas industry, the regulatory community and assist in maximizing domestic activity while protecting the environment. RBDMS is essential to the NMOCD in all daily activities toward carrying out its mission responsibilities to the citizens of New Mexico.



PREPARED STATEMENT OF THE GAS TURBINE ASSOCIATION

The Gas Turbine Association (GTA) appreciates the opportunity to provide the United States Senate Committee on Appropriations, Subcommittee on Energy and Water Development with our industry's statement regarding the following fiscal year 2006 Department of Energy (DOE) Turbine R&D funding levels. GTA recommends the following funding levels for DOE R&D.

OFFICE OF FOSSIL ENERGY

Coal and Other Power Systems, President's Coal Research Initiative, Central Systems, Advanced Systems.—$25 million, TURBINES (an increase of $7 million over budget request).

OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY

Distributed Generation Technology Development.—$5.685 million, MICROTURBINES (support budget request level); $3.5 million, INDUSTRIAL GAS TURBINES (an increase of $1 million over budget request); $8.3 million, TECHNOLOGY BASED—ADVANCED MATERIALS AND SENSORS (support budget request level); $2 million, FUEL FLEXIBILITY (an increase of $1 million over budget request).

ADVANCED TURBINE TECHNOLOGY TO SECURE AMERICA'S ECONOMIC FUTURE

U.S. economic growth will be restrained by an inadequate supply of electric power. DOE estimates that power interruptions already cost the United States around $80

billion annually. According to the National Petroleum Council (NPC), a 0.72 percent increase in electricity production is needed to achieve each 1 percent growth in the U.S. GDP. New turbine technologies will improve the power availability and reliability needed to maintain our Nation's economic strength.

Forecasts indicate that, without substantial investment in gas and transmission infrastructure, shortages in electric power supply are likely over the next 2 decades. During the next 20 years, the Energy Information Administration estimates that electricity consumption will increase at an average rate of 1.8 percent per year, and U.S. natural gas imports (LNG) will need to more than double. To further exacerbate the problem, maintaining transmission adequacy at its current level might require an investment of about $56 billion during the present decade, roughly half that needed for new generation during the same period according to Edison Electric Institute (EEI). Unfortunately, EEI also predicted that only $35 billion is likely be invested in transmission upgrades during this timeframe.

Federal investment in the development and deployment of versatile, clean, multi-fuel-capable turbine power generation is needed to ease the burden on the natural gas and transmission grid infrastructures. The turbine technologies being developed through DOE/industry partnerships can help power producers cleanly and efficiently produce electric power from gasified coal, biomass and hydrogen, as well as natural gas. The turbines being developed under the DOE Office of Fossil Energy programs will greatly improve the Nation's large central station fleet by improving coal plant efficiencies and offering superior environmental performance. The DOE Energy Efficiency and Renewable Energy (EERE) turbine programs will produce new technologies that can be deployed in distributed power applications to relieve stress on our over burdened transmission grid, while improving power supply reliability and security.

OFFICE OF FOSSIL ENERGY TURBINES PROGRAM

Technology being developed through the DOE Office of Fossil Energy Turbine program is a prerequisite for the successful development of cost-competitive coal FutureGen systems (near-zero emission Integrated Gasification Combined Cycle [IGCC] system fueled by coal and capable of producing both electricity and hydrogen). The President's fiscal year 2006 budget expressly states that, "developing turbines with superior performance that operate on coal derived synthesis gas and hydrogen is critical to the deployment of advanced power generation technologies such as FutureGen plants." With adequate funding, the following Program Strategic Performance Goals can be met:

—By 2010, a commercial design for a coal-based power system at 45–50 percent efficiency and a capital cost <$1,000/kW, with near-zero emissions; and

—By 2020, a commercial design for a coal-fueled power system at 60 percent (HHV) efficiency with near-zero emissions with competitive costs ($800–900/kW) and a zero CO_2 emissions option.

GTA believes that increasing the plant efficiency and increasing turbine equipment output are keys to driving down IGCC system capital cost to $1,000/kW by 2010. Unfortunately, the fiscal year 2006 budget requests under-fund technology R&D in the Turbines program. This could push the completion dates for turbine R&D necessary for advanced IGCC far beyond 2010. To achieve success by the 2010 goal, as well as reaching the 2020 cost and efficiency targets, Federal investment in Turbines program requires $25 million in fiscal year 2006. GTA recommends Congress appropriate an additional $7 million over the budget request.

The Turbine program funding of $25 million should be allocated to the following subcomponent areas in order to expedite the availability of a 50 percent efficient coal fired IGCC system at less than $1,000/kW with near-zero emissions, and turbines capable of hydrogen combustion.

Syngas Turbine Technology R&D Activities (Funding required.—$18 million)

The basic Syngas Turbine Technology Improvement R&D activities taking place under the program have not received adequate funding. The two fundamental areas of Turbine R&D to be conducted are: (1) Improvement in combustion turbine performance with coal derived synthesis gas, and (2) Development of NO_X emissions reduction technology for fuel flexible turbines. The primary objective of both areas of interest is to improve the overall performance of combustion turbines, in terms of emissions and efficiency, when used in IGCC applications. While initial Phase 1 planning has been accomplished, Syngas Turbine R&D has yet to begin. Funding for Phase II work requires a significant increase over the proposed fiscal year 2006 request. Inadequate funding for Phase II will greatly reduce the potential to achieve the DOE Program Specific Performance Goal of a 50 percent efficient coal fired IGCC plant at a cost of less than $1,000/kW and near zero emissions.

Fully Fund the University Turbine Systems Research Program (Funding required.—$4 million)

The University Turbine Systems Research Program, a consortium of 107 U.S. universities from 40 States working closely with the combustion turbine industry, has demonstrated considerable success in developing new technologies and training people for the industry. The requested funds will address the more difficult technical challenges involved in operating turbines on coal syngas than on natural gas, and respond to the increased need for university fellowships in the industry.

Develop the Capability to Combust Hydrogen in Turbines (Funding required.—$2 million)

As the potential to produce hydrogen from coal becomes attractive the ability to utilize this fuel in a gas turbine becomes paramount. The proposed $2 million funding level would be used to support basic and applied research to address combustion of hydrogen with either oxygen or air. There are limited market incentives for the private sector to address this opportunity and the associated risk.

NETL In-house Syngas Combustion Studies (Funding required.—$1 million)

The NETL in-house combustion group is a recognized world leader in combustion science. The requested funds will allow this group to fully explore the combustion phenomena and emissions associated with the use of coal derived syngas and hydrogen fuels. Without this funding the full range of conditions and gas compositions will not be explored and the ability to achieve the PSPG will be compromised.

OFFICE OF EERE DISTRIBUTED ENERGY RESOURCES TURBINE PROGRAMS

Much of the 21st century's demand for power will be met through the increased use of distributed energy systems. The United States needs to rapidly expand its supply of distributed energy for the Nation's electricity security and economic future. As the Nation's economy rebounds and expands, economic growth will intensify the demand for dependable and secure power. A lack of available, secure and reliable power would stifle economic growth and job creation.

As America confronts the need to modernize and upgrade the electricity grid infrastructure, DOE Office of Energy Efficiency and Renewable Energy Distributed Energy Resources programs are working on the research, development and deployment of clean and efficient turbines and microturbines to provide the dependable and secure power needed in America today. Distributed generation turbines and microturbines provide:

—Secure and reliable electricity at the point of demand through the placement of small customized power plants on-site, isolating critical facilities from grid outages.

—Dependable and secure power for growing high-tech commercial and industrial facility, eliminating economic losses associated with poor power quality.

—New sources of "just-in-time" dispatchable power that can be instantly called upon to shore up instabilities in our country's electricity grid.

—New power capabilities, strategically located to avoid transmission bottlenecks, deferring or even eliminating the need for long-lead-time transmission line approvals and construction.

—Fuel-flexible operation on gaseous and liquid renewable natural resource fuels.

Microturbines (Fund budget request level.—$5.685 million)

Microturbines are currently being deployed in distributed energy applications with competitive costs, performance, and emissions in selected applications. They are ideally suited to alternate fuels, combined heat and power (CHP) applications, and remote siting. While microturbines are now entering the distributed energy market, improved microturbine technologies are needed to expedite the installation of clean, efficient and affordable systems. Once the goals of the DOE EERE Advanced Microturbine Program have been achieved, microturbines can significantly expand distributed energy market potential and deliver the public benefits that flow from distributed energy. The microturbines being developed under the EERE Microturbine program will have with higher electrical efficiency, using significantly less fuel to further conserve natural and renewable resources.

DOE EERE Advanced Microturbine program goals call for a 40 percent electrical efficiency microturbine that can maintain ultra-low-single digit NO_X emissions with a system cost below $500/kW. The Advanced Microturbine Program plans to deliver a single design capable of operating on gas, liquid, biofuels (bio liquids, digester gas and landfill gas) and waste fuels and will be coupled with ultra-low-NO_X technology.

Industrial Turbines (Funding required.—$3.5 million)

The Industrial Gas Turbine program enhances the efficiency and environmental performance of gas turbines for applications up to 20MW. The research focuses on advanced materials research, such as composite ceramics and thermal barrier coatings that improve performance and durability of industrial gas turbines. Work on low emissions technologies R&D under the program promises to improve the combustion system by greatly reducing the NO_X and CO produced without negatively impacting turbine performance. R&D and testing will demonstrate innovative high temperature materials for combustor liners, shrouds, blades and vanes in gas turbines to improve endurance levels beyond 8,000 hours. GTA recommends that Congress provide fiscal year 2006 funding at levels at least equal to last year's appropriations—a $1 million increase over this year's budget request is needed.

Technology Based—Advanced Materials and Sensors (Fund budget request level.—$8.3 million)

This research provides long-term R&D in the area of materials, sensors, information technologies, power electronics, combustion modeling and assessments of cross-cutting impacts and benefits of the developments of distributed generation systems and end-use applications.

Fuel Combustion (Funding required.—$2 million)

EERE will conduct a focused combustion solicitation to evaluate the long-term combustion technologies for low-emissions such as rich combustion, lean-burn combustion, and solonox, focusing on the next-generation of dual fuels (gaseous or liquid) such as propane, digester, land-fill methane, town gas, refinery gas, process natural gas, syngas, associated gas, natural gas liquids, raw natural gas and other variations. Laboratory research will evaluate fuel characteristics and effects of fuel variations on the distributed generation equipment for long-term availability and durability. This work has become extremely important due to shortages in the Nation's natural gas fuel supply. The capability to utilize non-traditional fuels in power generation is essential to ensure national fuel diversification goals. GTA recommends that Congress provide fiscal year 2006 funding at levels to launch a serious effort in this area—a $1 million increase over this year's budget request is needed.

PREPARED STATEMENT OF THE FUEL CELL POWER ASSOCIATION

The Fuel Cell Power Association (FCPA) appreciates the opportunity to submit this statement to the United States Senate Committee on Appropriations, Energy and Water Development Subcommittee regarding fiscal year 2006 Department of Energy (DOE) Office of Fossil Energy Distributed Generation Systems Fuel Cells R&D programs. FCPA urges you to commit the resources needed to this critical effort by appropriating $75 million in fiscal year 2006 to the following areas:

Office of Fossil Energy—Distributed Generation Systems—Fuel Cells—Innovative System Concepts.—$55 million, SECA (Solid State Energy Conversion Alliance); $20 million, MW-SCALE SECA HYBRIDS.

The funding level of $65 million proposed in the administration's fiscal year 2006 Budget represents a 13 percent reduction from last year's appropriation, at such an early stage of this 10-year program. Congress sent a strong message last year—that the SECA program should be fully funded and that DOE should "initiate a competitively awarded turbine hybrid integration program." This Congress' affirmation of the Federal Government's commitment to clean, high-efficiency fuel cell and hybrid technology, should intensify this Nation's determination to achieve the promise of secure, reliable, clean, cost-effective power. FCPA asks Congress to send the same signal of commitment this year by restoring funding to a $75 million level in fiscal year 2006.

REVOLUTIONIZING POWER GENERATION

The fiscal year 2006 budget request states that the DOE programmatic strategic objective for "Energy" is to "protect our national and economic security by promoting a diverse supply and delivery of reliable, affordable and environmentally sound energy." SECA Solid oxide fuel cells and hybrids can deliver on this strategic objective because the systems promise to provide:

—Secure and Reliable Distributed Energy, making electricity available at the location where it is needed, detachable from the transmission grid when it goes down, or able to operate grid free in remote locations.

—Fuel Flexibility, reducing dependence on foreign fuel sources since fuel cells can operate on domestic fuel resources like natural gas, ethanol, methanol, coal gas and hydrogen.
—Superior Fuel Efficiency, resulting in conservation of fuel resources. DOE's simple cycle electrical system efficiency goal is 40 percent on natural gas. DOE's fuel cell/turbine hybrid electrical efficiency goal is 60 percent on coal synthetic gas. On natural gas, hybrids have the potential for efficiencies of 65 percent to 70 percent, and combined heat and power efficiencies of up to 85 percent.
—Environmentally Preferred Power Technology, using non-combustion fuel cell technology to avoid the formation of pollutants, and enables the production of hydrogen and the capture of carbon dioxide for sequestration.
—U.S. Power System Exports, maintaining the Nation's leadership in fuel cell technology, and its position of market preeminence in the area of cost-competitive, ultra-low-emissions power generation systems to meet the rapidly growing global energy market.

SECA SOLID OXIDE FUEL CELLS AND HYBRIDS

The SECA program focuses on the development of cost-effective solid oxide fuel cell systems that use fuel and oxygen from air to create electricity and heat. These systems are different from traditional power generation systems because they use an electrochemical process; that does not rely on combustion of the fuel. This eliminates the formation of NO_X, as well as SO_X, hydrocarbons and particulates. Solid oxide fuel cells are considered to be one of the most desirable fuel cell for generating electricity because the electrolyte is constructed from solid-state ceramic materials. The solid-phase electrolyte materials are tolerant to impurities that affect other fuel cells, can internally reform hydrocarbon fuels, reduce corrosion considerations, and eliminate liquid electrolyte management problems. The systems operate between 700°C (1,292°F) to 1,000°C (1,830°F), producing heat for thermal energy application to deliver ultra-high overall fuel efficiency in the combined heat and power (CHP) applications.

The MW-Scale SECA Hybrids program will combine solid oxide fuel cells and gas turbines to provide the synergy needed to realize the highest efficiencies and lowest emissions of any fossil energy power plant. According to DOE, fuel cell/turbine hybrids "are promising systems offering possibly the only option for meeting the DOE's efficiency goal for advanced coal based power systems of 60 percent (HHV) for fuel-to-electricity, with near zero emissions and competitive costs for multi-MW class central power plants in a 2020 time frame."

To meet U.S. goals for secure, reliable, clean, cost-effective power, our Nation needs to maintain its commitment to SECA and MW-Scale SECA Hybrid power technology development. It is critical that Congress and the administration continue to make these technologies a top funding priority, by budgeting and appropriating the resources needed to drive this much needed power generation technology toward commercialization and deployment.

Following is a summary of DOE SECA and MW-Scale SECA Hybrid programs that need Federal cost-share funding in order to achieve planned program milestones and accelerate system availability.

SECA (SOLID STATE ENERGY CONVERSION ALLIANCE)

The DOE SECA R&D program goal is to develop a new generation of lower cost fuel cells and should be funded at a level of $55 million in fiscal year 2006. To attain an order of magnitude reduction in cost, the program will focus on integration of design, high-speed manufacturing, and materials selection. Ultimately, these fuel-flexible, multi-function fuel cells will provide future energy conversion options for large- and small-scale stationary and mobile applications. The program is targeting the achievement of stack fabrication and assembly costs leading to a system price of $400/kW, with near-zero emissions. Such a low-priced system will be competitive with any power generation system.

The SECA program aims to realize the full potential of fuel cell technology through long-term materials development. The program is focusing on the development and mass production of 3–10kW solid-state fuel cell modules. The program is only in the first phase of a three-phase program plan:

—*Phase 1—Technology development*.—Leading to $800/kW product;
—*Phase 2—Manufacturing development*.—Leading to $600/kW product; and,
—*Phase 3—Cost reduction and commercialization*.—Leading to $400/kW product.

There are six integrated industrial development teams that serve as DOE's cost-sharing partners to provide R&D, manufacturing and packaging capabilities needed to move the technology and complete systems forward into the targeted stationary

and mobile power markets. The teams design fuel cell systems, develop materials and manufacturing processes, and will ultimately deploy technologies. Industrial teams are listed below.

Industrial Development Teams.—Acumentrics, Cummins Power Generation (SOFCo), Delphi Automotive Systems (Battelle Memorial Institute), Fuel Cell Energy (Versa Power Systems/Materials and Systems Research, Inc./GTI/EPRI), General Electric Energy, and Siemens Westinghouse Power Corporation.

In addition, there are 28 core technology developers that support the industrial development teams. They provide problem-solving research needed to overcome barriers and assist the industry teams. The core technology developers are universities, national laboratories, and other research-oriented organizations. Core technology participants are listed below.

Core Technology Organizations.—Argonne National Laboratory, Boston University, California Institute of Technology, Ceramatec, Functional Coating Technologies, Gas Technology Institute, Georgia Tech Research, Lawrence Berkeley National Laboratory, Lawrence Livermore National Laboratory, Los Alamos National Laboratory, Montana State University, NexTech Materials, National Energy Technology Laboratory, North Carolina A&T State University, Northwestern University, Oak Ridge National Laboratory, Pacific Northwest National Laboratory, Sandia National Laboratories, Southwest Research Institute, Texas A&M University, TIAX, University of Florida, University of Illinois, University of Missouri, University of Pittsburgh, University of Utah, University of Washington, Virginia Tech.

MW-SCALE SECA HYBRIDS

In addition to fully funding the 5–10 kW-range SECA program, FCPA encourages the Federal Government to extend the SECA technology to larger scale systems. Thus, it should fund the MW-Scale SECA Hybrid development effort at a level of $20 million in fiscal year 2006 to achieve meaningful results and get it underway. While Congress provided DOE with $5 million seed money in fiscal year 2005 to launch this important effort, significantly increased fiscal year 2006 funding is needed to ensure that the program can sustain multiple developers, competitively chosen, and on a practical schedule.

A MW-Scale SECA Hybrid integrates emerging solid oxide fuel cell technology with proven gas turbine technology to realize the highest efficiencies and lowest emissions of any fossil energy power plant. Such systems will operate on a range of fuels of national interest; coal syngas, natural gas, and hydrogen as well as being compatible with carbon sequestration concepts. The fuel cell's clean electro-chemical process is the primary energy conservation mechanism. Maximum efficiency and cost-effectiveness is achieved by making use of the residual energy exiting the fuel cell to drive the gas turbine and produce additional energy conservation. Various cycles and configurations need to be examined and tested, and both fuel cells and gas turbines adapted for optimal fuel efficiency and cost.

Development of MW-scale SECA Hybrid Systems is the path to DOE's goals of:

—Achieving 60 percent coal syngas efficiency;

—Reducing emissions to ultra low levels of less than 1 ppm NO_X; and

—Providing the basis for meeting Clean Coal and FutureGen system goals.

Building upon a SECA fuel cell foundation, the MW-scale SECA Hybrid program should leverage the historical fuel cell research and development with a focus on scaling the fuel cell technology to larger sizes, and integrating it with the gas turbine to realize cost-effective, high efficiency, clean MW-class systems.

The administration's fiscal year 2006 budget request states, "In fiscal year 2005 . . . initiate MW-scale SECA hybrids work in support of coal-derived gas-based, FutureGen Fuel Cell systems . . ." and " . . . hybrid systems are expected to be available for testing at FutureGen and other sites in the 2010 to 2015 time frame."

Adequate funding is needed to resolve scaling technology and integration challenges, and move forward MW-scale SECA Hybrid systems to a reality. The FCPA urges Congress to continue to support this important initiative by providing $20 million in fiscal year 2006 funding.

FUEL CELL POWER ASSOCIATION

The Fuel Cell Power Association promotes the interests of the fuel cell industry by facilitating communication on the essential role the government plays in improving the economic and technical viability of fuel cells for stationary power. Contact FCPA at www.fuel-cell-power.org.

PREPARED STATEMENT OF TULANE UNIVERSITY

Mr. Chairman, I appreciate this opportunity to submit this statement in support of an important component of the Climate Change Research program sponsored by the Energy Department's Office of Science. I am Nicholas J. Altiero and I am Dean of the School of Engineering at Tulane University in New Orleans, LA. For several years I have served as a member of the Board of Trustees of the National Institute for Global Environmental Change (NIGEC).

By way of background, this subcommittee established NIGEC in the conference agreement to accompany the fiscal year 1990 Energy and Water Appropriations bill. Its objective is to support university researchers developing scientific knowledge of the effects of potential global environmental change associated with energy production on national resources. Currently, the Institute is composed of six regional centers at the Universities of UC-Davis, Nebraska, Indiana, Alabama, Tulane and Harvard. NIGEC, acting through the six Centers, provides funding in the way of grants to academic and other non-governmental organizations that are relevant to the DOE's climatic change research priorities. Each of the regional centers supports and administers research programs that are pertinent to environmental impacts within their region. The research programs of each regional center vary based on their geographical location, but all the Regional Centers have the following general goals as part of their research agenda:

—Exchange of carbon (e.g., uptake of atmospheric CO_2) by U.S. terrestrial ecosystems;
—Effects of environmental change associated with energy production on U.S. terrestrial ecosystems; and
—Development and testing of ecosystem models needed for integrated assessments.

Since the creation of NIGEC has provided policymakers with valuable information related to global climate changes including:

—Identification of potential impact of climate change and seasonal flooding on a bottomland forest ecosystem and its carbon pools;
—Establishment of a long-term carbon flux monitoring station in Colorado;
—Demonstration of grasslands' role in sequestering carbon; and
—Development of cotton model including response mechanisms to temperature and carbon dioxide.

The mission set forth by DOE for the South Central Regional Center (SCRC) located at Tulane University is to provide sound scientific findings to enhance understanding of the response of key forested, agricultural, and grassland ecosystems and important regional economic sectors to environmental changes associated with energy production. Current SCRC projects focus on the likelihood and effects of higher-temperatures and amounts of precipitation in the region due to greenhouse-induced climate change and the implications of climate change on cotton production.

DOE recently notified the six Regional Centers that funding for the NIGEC program will end on August 31, 2006. In its place DOE will establish the National Institute for Climatic Change Research (NICCR) with four regional centers. According to DOE, the mission of NICCR will be the following:

—Experimental study of effects of warming, altered precipitation, elevated carbon dioxide concentration, and/or elevated ozone concentration on the structure and functioning of terrestrial ecosystems of regional or national importance to the United States, with a priority given to studies including multiple factors;
—Development and/or evaluation of models appropriate to the prediction of effects of climatic change on regionally important terrestrial ecosystems, and development of methods for upscaling ecosystem model results to address regional-scale ecological issues; and
—Observation and analysis of contemporary exchanges of mass and energy between the atmosphere and regionally important terrestrial ecosystems or landscapes, and the use of those observations and analyses to evaluate global climate and carbon cycle models.

DOE's current Climate Change Research program has a glaring omission. Overlooked by both NIGEC and NICCR are the impacts of climate change on the Nation's river and coastal environments. These coastal environments have a large economic value, as well as being the home for a large percentage of the Nation's and the world's population. These areas are very sensitive to global change, which will result in increases in relative sea level (and associated flooding of natural and urban areas), changes in temperature and precipitation (with potential impact on wetland sustainability) and increased intensity and impact of tropical storms. The proposed center will support research that will be general and apply to all riparian flows and systems. Since the Mississippi river system is by far the largest river system in the

country and affects a great deal of the coastal areas of the Nation, a good number of the projects will deal with the Mississippi system. Long-term changes of river flows will induce momentous physical changes on the transport of water through the land, the flood-levels of rivers and lakes, the nourishment of wetlands, and the salinity of river-coast interface. Changes in the flow, sediment and nutrients of the rivers will impact significantly the ecosystems and economic activities in regions close to rivers, lakes and the coastal areas. For long-term coastal restoration to be successful we will need to understand the impacts global climatic changes will have on the regions affected by water flow. Better understanding of the future river flows and impending variations and long-term changes of the riparian and coastal processes under the multiple scenarios predicted by the global and regional environmental change models will enable us to plan and prepare the infrastructure that is necessary for the mitigation of any disastrous consequences of climatic change on coastal communities and environments. This task requires effective and coordinated research in the areas of global and regional climate models, the modeling of the transport in rivers as well as in the scientific support for projects related to land-water interfaces.

In order to coordinate such a research effort, the establishment of a fifth NICCR Research Center, within the administrative framework of the NICCR, is proposed. The fifth center will be designed to coordinate and integrate the research strengths of the scientific community in order to achieve significant advances on the impacts of climatic change on the long-term variability of river flows, the effects of these changes on the transport of water, nutrients, pollutants and sediment in the rivers as well as the effects of these climatic changes on the coastal regions of the United States, including the wetlands.

The proposed fifth Research Center will work in collaboration with the other four Regional Centers of NICCR and will address the need for the development of methodologies and tools for the understanding and modeling of the impacts of global and regional climatic changes on riparian and coastal environmental and ecological systems that are throughout the Nation.

Among the objectives of the Climate Change Research within the DOE's Office of Biological and Environmental Research Program is ". . . to understand the basic physical, chemical, and biological processes of the Earth's atmosphere, land, and oceans and how these processes may be affected by energy production and use. The research is designed to provide data that will enable an objective assessment of the potential for and the consequences of human-induced climate change at global and regional scales. It also provides data to enable assessments of mitigation options to prevent such a change. The research goals of the proposed Center fit squarely within these objectives of the DOE.

Congress should direct the Energy Department to establish a fifth center as part of the reorganization of the National Institute for Global Environmental Change as the National Institute for Climate Change Research. The scope of this Center's research would include the following:

—Observation and analysis of simultaneous exchanges of mass and energy between the atmosphere and ecosystems that are influenced by the flow and other processes in rivers, lakes and coastal environments.
—Modeling of long-term, multiple environmental changes associated with energy production, on important riparian and coastal ecosystems.
—Impacts of climatic change on the regional water resources, both inland and coastal.
—Impacts of climatic change on wetlands nourishment, river and coastal flood control, environmental protection and existing navigation channels.
—Impacts of climatic change on the volume of riparian flows, the transport of sediment, pollutants and nutrients and associated effects in coastal environments.
—Impacts of sea-level rise associated with long-term climatic effects on wetlands and coastal environments.
—Impacts of significant changes in river water flows on the cooling systems of current and proposed large-scale electric power plants, chemical plants and oil refineries.

Thank you.

PREPARED STATEMENT OF THE PETROLEUM TECHNOLOGY TRANSFER COUNCIL

This testimony is being submitted by the Petroleum Technology Transfer Council (PTTC). In the mature U.S. natural gas and oil exploration and production (E&P) industry, independent producers are now dominant—drilling 85 percent of the wells,

producing 65 percent of natural gas and 40 percent of domestic crude production. Their role in delivering production and reserves from domestic U.S. reservoirs is only foreseen to increase and independents are forced to accomplish technical feats foreign importers of energy have limited success in developing. A clear distinction should be drawn between the interests of multinational foreign importers of energy and that of domestic producers delivering the majority of natural gas to American consumers. Tens of thousands of American workers deliver local production in 33 oil and gas producing States—a significant tax base for local townships. The domestic industry will be negatively impacted without Federal investment into our industry as independent producers have no means to fund the medium or long term energy Research, Development and Demonstration (RD&D) needed to harvest left behind resources.

PTTC is a non-profit organization whose mission is to transfer E&P technology to domestic producers. DOE's natural gas and oil R&D program provides support funding to PTTC, currently at $2.6 million per year levels. This Federal funding is matched essentially dollar for dollar by States, academia and industry to allow PTTC to "connect" with industry through workshops, the web, trade communications and one-on-one interactions. This is just one of the many programs mentioned below that would not be possible without Federal support and vision of investment in domestic energy that benefit our Nation.

Data confirm that technology is a key driver. Domestic production of oil and natural gas is in the hands of Independent producers and technology enables domestic producers to:

—Increase recovery from existing mature fields,
—Minimize environmental impact of new wells and facilities and increase reclaimation effectiveness,
—Realize recovery from unconventional natural gas reservoirs that are increasingly a source of domestic production and reserves, and
—Profitably develop ever-smaller domestic exploration projects.

Technology uptake in the domestic E&P industry applies to:

—Existing, underutilized proven technologies,
—Technologies being adapted from international applications, and
—Innovations moving from "proof of concept" to commercial product.

Effective technology transfer is integral to the R&D effort.

These definable trends point towards important roles for Federal natural gas and oil R&D in:

—Early-stage R&D of longer-term, higher risk technologies,
—Adaptation of complex technologies to domestic applications,
—Proof-of-concept and field demonstration of innovations targeting mature U.S. production,
—Technology transfer of both private and government R&D, targeted to domestic producers.

The administration's budget proposal for fiscal year 2006 eliminates all Federal funding for the oil and natural gas technology programs within DOE. Does this make sense when both natural gas and oil supplies are strained? Abundant data, following, clearly answer "NO."

Federal funding of oil and natural gas R&D and Technology Transfer directly increases domestic oil & natural gas supply.—Federally-funded (and cost-shared) natural gas and oil R&D programs develop and demonstrate new and innovative technologies to extend the life of existing oil and gas reservoirs as well as to explore and develop reserves such as the new U.S. supply of UNCONVENTIONAL GAS, which was largely driven by focused Federal spending and tax incentive programs.

—The Barnett (UNCONVENTIONAL) Shale Natural Gas Play in North Texas is now the largest domestic onshore gas field. This play was originally pioneered utilizing technology that was developed with Federal funding.
—Another successful program, the DOE-supported Stripper Well Consortium has developed technologies whose target application is the hundreds of thousands of the Nation's low volume stripper wells.

A solid example I can personally speak to is PTTC. In a recent economic impact study PTTC conducted of only a portion of its current activities, PTTD documented that:

—During a recent period when 1,266 million barrels of oil equivalent were realized by industry in 11 selected technology areas, 88 million barrels of that supply can be attributed to PTTC's technology transfer activities.

Contrary to statements made by the Budget office, these programs have proven to be highly effective by any criteria. That this demonstrable return on Federal investment has been achieved with such limited funding suggests that the most ra-

tional response would be to increase, not eliminate, the DOE natural gas and oil programs that support such activities.

Technology for mature U.S. production is not always available in the marketplace.—Regardless of the prices for natural gas and oil, industry funding for E&P appropriate to mature U.S. production is limited. R&D funding from major oil companies has been greatly reduced with the burden now shifted to the service sector. Business drivers for the service sector dictate that their effort focus on higher potential and productivity international markets. Technologies that may be developed for those international markets need "economic or technical adaptation" to be appropriate for mature U.S. production. Historically and in the present, independents participate sparingly in R&D, lacking both the human and financial resources to individually participate. Innovations from very small companies or individuals, while often targeting U.S. mature production, need support to refine the concepts and demonstrate field performance. Throughout the private sector, short-term business drivers make pursuing long-term, higher-risk R&D difficult.

Federal R&D funding stimulates cost-sharing by industry, States and academia.—With no Federal funding, States lose a lot more than just the Federal dollars.

Research groups and independent energy producers in States like Texas, Oklahoma, California and others contribute significant cost-share when performing DOE-supported R&D projects. This cost share highly leverages every Federal dollar spent. These compounded losses are of a proportion sufficient to have considerable negative impact on long-term domestic supplies.

—For example, if Federal R&D funding is ended to Texas-based Universities, producers and technology providers, 150 programs and an economic benefit amounting to over $340 million will be lost over the next 3 years.

Federal R&D funding stimulates university programs that must deliver tomorrow's energy professionals.—Enrollment in the geosciences and petroleum engineering departments across the United States has decreased by 70 percent in the past 20 years, while oilfield technical education has boomed overseas. Although U.S. enrollments are increasing with strong natural gas and oil demand, Federal research dollars still play a key role in supporting graduate research work essential for students to fully developing their potential. Without research we will have even fewer graduates and continue to lose our technical edge.

Environmental advances are made through new technology.—Beyond increasing production and reserves, newer technologies are delivering "environmental advances" that minimize the footprint or environmental impact of domestic O&G operations. The DOE's R&D investments had helped with technologies such as 3-D and multicomponent seismology, hydraulic fracturing and smart completions, and horizontal drilling directional control and logging while drilling.

The DOE industry advocacy role in interacting with other governmental agencies when regulations are being developed ensures regulations stay technically sound. DOE maintains numerous models to delivers technology sound cost/benefit analysis. Federal support for technology transfer spreads "Preferred Environmental Practices" more broadly through the industry. There is significant positive environmental impact from natural gas and oil R&D funding.

SUMMARY

Restoring the DOE Fossil Energy budget is a necessary step for secure energy supply. This testimony highlights only a few of the benefits of what this investment has meant to consumers in the past. America needs a good plan going forward that offers a near, medium and long term plan with steady support.

PREPARED STATEMENT OF THE GROUND WATER PROTECTION COUNCIL

Mr. Chairman, thank you for the opportunity to provide written comments on the proposed fiscal year 2006 budget. I am writing this letter on behalf of the Ground Water Protection Council (GWPC) to request continued funding ($1,150,000 in fiscal year 2005) for the GWPC's successful oil and gas environmental management program and also to encourage you to restore Congressional appropriations of $100,000,000 for the Department of Energy's Office of Fossil Energy oil and natural gas supply R&D program.

This DOE program provides valuable research and technical assistance to State regulatory agencies and to small oil and gas operators in the United States. Without the technical assistance provided by this applied research program, it is estimated that oil and gas operators will be unable to recover hundreds of millions of additional barrels of oil in the United States. This research program has also substan-

tially assisted State regulatory agencies for protection of the environment. We view this program as vital to the health and security of the United States.

I would like to take this opportunity to discuss one unique benefit of the research programs provided by DOE's Office of Fossil Energy. State oil and gas regulatory agencies in partnership with the GWPC are responsible for the development and operation of the nationally acclaimed Risk Based Data Management System (RBDMS) system. Surveys indicate that oil and gas agencies with advanced data management systems that provide access to oil and gas data experienced an estimated 10 percent increase for new oil and gas developments as a result of the much improved data access. RBDMS has been proven to assist the States in protecting the environment while at the same time assisting oil and gas operators. Through the GWPC, the producing States are working together to protect ground water resources, holding down the cost of environmental compliance, and providing improved access to essential data for new oil and gas exploration.

Funding from the Department of Energy has given the States the opportunity to develop additional software and management tools that enable States to make decisions that result in the best possible balance of exploration and environmental considerations. The States in turn share that information with the public and companies we regulate, many of which are small businesses that would not otherwise have the ability to access such accurate information. The system is currently operational in Alaska, California, Montana, Nebraska, Mississippi, Indiana, North Dakota, Ohio, New York, Pennsylvania, Utah, New Mexico, Alabama, Kentucky, Missouri, Arkansas, Florida, Kansas, Nevada, as well as the Osage Tribe in Oklahoma. We are learning that electronic commerce mutually saves time and money for both the oil and gas industry and the regulatory agencies. On-line permitting and reporting is cost effective and saves industry time and money. One California operator estimated that an automated permitting system for new drills and reworks could increase production from one of its larger oil and gas fields by 500,000 barrels per year. Therefore, any delay in issuing a permit caused by the inefficiencies of manual processes and analyses can have a significant impact on production. Continued funding from U.S. DOE will provide the smaller independent oil and gas producers access to this environmental data management system. Smaller producers are often the most in need of such a system because high regulatory costs hit them the hardest.

I want to stress that States are dedicating their own financial resources to DOE sponsored programs like RBDMS. For example Ohio, is using almost $600,000 in State capital improvement and $400,000 of operations funding to implement RBDMS. California has matched $500,000 of Federal money with $1,500,000 in State funds. Every State currently using the system has also contributed to building the system and additional States are planning to use stated dollars in addition to Federal funds. We are thankful for the $1.15 million we received in fiscal year 2005 and request that the committee continue to fund this successful GWPC program at $1.15 million in fiscal year 2006.

RBDMS is one of the best examples we have seen of how the States, working with the Federal Government and the private sector, can improve both industry production and environmental protection at the same time. Attached is a listing of documented benefits to the environment and energy production as a result of the RBDMS system. Continuing to fund the U.S. DOE's Office of Fossil Energy oil and natural gas technologies R&D program in this manner allows us to tailor our regulatory program needs to the industry which operate in our respective States. There is no Federal alternative, or "one size fits all" national approach that would work as efficiently as this cooperative multi-State effort.

In summary, the DOE Fossil Energy program funds research projects like RBDMS which provide the following benefits: (1) improve environmental protection, (2) less regulatory and compliance costs for producers, (3) better State enforcement of environmental regulations, (4) increased exploration activity by small and independent operators and (5) increased oil and gas production.

PREPARED STATEMENT OF THE AMERICAN SOCIETY OF PLANT BIOLOGISTS

My name is Roger Hangarter, President of the American Society of Plant Biologists (ASPB) and Professor at Indiana University. I am submitting this testimony on behalf of ASPB, a non-profit society of nearly 6,000 scientists based primarily at universities. ASPB urges the subcommittee to increase funding 7 percent above current year levels for the Department of Energy's Office of Science and for the Office of Basic Energy Sciences. We have joined with the Energy Sciences Coalition in recommending an increase of 7 percent for the Office of Science.

ASPB joins with National C–FAR, a broad-based coalition of agricultural producers (including producers of energy crops), universities and science societies, in urging the subcommittee and committee to provide for an increase in the administration's fiscal year 2006 request of $32.5 million for the Department of Energy's Energy Biosciences program in the Office of Science and Office of Basic Energy Sciences to at least $35 million.

Basic energy research on plants and microbes supported by the Energy Biosciences program contributes to advances in renewable resources for fuel and other fossil resource substitutes, clean-up and restoration of contaminated environmental sites, and in discovering new knowledge leading to home-grown products and chemicals now derived from petroleum.

The Energy Biosciences program supports leading research on plants and microbes conducted primarily by university-based scientists throughout the country. Grants are awarded through a competitive process utilizing rigorous peer-review standards.

Energy Biosciences grantees include scientists who have received recognition from a number of distinguished science institutions and organizations, including national and international science societies, the National Academy of Sciences, and a Nobel Prize selection committee. Basic research on plants and microbes contributes to advances that help address the Nation's future demands for domestically-produced energy sources, such as energy crops.

There is concern in the plant science community that the current attrition of staff administering the Energy Biosciences program will adversely affect the program, unless they are promptly replaced.

The Energy Biosciences program is dependent upon the knowledgeable and experienced plant biologists who run the program, but who have either resigned or are retiring. ASPB believes that for the program to remain effective, it must be properly staffed. A fully staffed Energy Biosciences program is necessary for the continued convening of panels, reviewing of proposals and awarding of grants for the best research proposals adhering to the highest scientific merit selection standards. This could lead to future discoveries that will make environmentally benign, home-grown energy sources more plentiful and cost-competitive with imported petroleum products, such as gasoline and industrial chemicals. Please encourage and support expedited efforts by the Department to hire two plant biologists to replace two plant biologists who are Biosciences Team Leader and Program Manager, who have announced resignations.

The rigorous standards consistently followed by the Energy Biosciences program in reviewing grant proposals and making awards have contributed to the outstanding success of the program. For example, research sponsored by the Biosciences program led to new findings on the capture of energy from photosynthesis. This research led to the presentation to Biosciences-program-grantee Dr. Paul Boyer of the shared award of the 1997 Nobel Prize in Chemistry (biochemistry). Photosynthesis is an essential energy conversion process upon which all life on earth depends. Photosynthesis in plants is nature's way of utilizing sunlight to produce chemical energy and to bring carbon dioxide into biological organisms. Increased knowledge in this area could lead to a better understanding of how to manage carbon dioxide in the atmosphere. Further research in this area could also contribute to development of alternative energy sources.

At the latter part of the 1800's, plants and animals provided people of the world with the only sources of fibers, coatings, lubricants, solvents, dyes, waxes, fillers, insulation, fragrances, detergents, sizing, wood, paper, rubber and many other types of materials. In 1930, fully 30 percent of industrial organic chemicals were still derived from plants.

The discovery of extensive petroleum reserves and advances in chemistry and petroleum engineering resulted in a major shift to reliance on fossil sources of organic feedstocks such as petroleum. These developments also led to the development of petroleum-based materials, such as plastics, with properties that could not be duplicated at the time by abundantly available natural materials.

Advances in modern plant research made possible by support from the Energy Biosciences program is making possible a shift toward use of feedstocks from domestically grown plants for chemical products. Plant-produced products can provide the chemical industry with much greater diversity than is available from the comparatively limited structures found in crude oil.

Advances in basic plant research are contributing to subsequent development of home-grown sources of polyurethane, new biodegradable lubricants and superior quality nylon. The U.S. produces nylon, polyurethane and other plastics to supply multi-billion dollar markets. Genetically modified crop production of nylon alone could create over $2 billion in new income for America's growers.

Plants are a major source of renewable and alternative fuels in the United States. Greater knowledge of the basic biology of plants will lead to further economies in domestic production of renewable fuels. For example, the current level of U.S. production of more than 4 billion gallons of ethanol a year could be projected to increase by at least three times that much and likely by a higher multiple with further breakthroughs in basic plant and microbial research.

We deeply appreciate the continued strong support of the subcommittee for innovative research on plants and microbes sponsored by the Office of Science through its Office of Basic Energy Sciences' Energy Biosciences program.

PREPARED STATEMENT OF THE STATE OIL AND GAS BOARD OF ALABAMA

Mr. Chairman, thank you for the opportunity to provide written comments on the proposed fiscal year 2006 budget. I am the Oil and Gas Supervisor of the State Oil and Gas Board of Alabama, and I am writing this letter to encourage you to restore congressional appropriations of $100,000,000 for the U.S. Department of Energy's (DOE) Office of Fossil Energy oil and natural gas supply R&D program.

This DOE program provides valuable research and technical assistance that benefits all of the citizens of the United States through increased environmental protection and continued monies generated through oil and natural gas production. The largest reserves of oil and natural gas exist in currently operated oil and gas fields. By increasing our recoverable reserves 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 proven reserves would result in the loss of billions of dollars of revenues for this country. This money would instead be sent overseas for oil imports. Currently, small independent oil and gas companies produce the vast majority of oil and natural gas in this country. These companies are efficient in their operations, but lack the necessary research programs needed to fully exploit our domestic resources. This research is a role for the Federal Government. We view this program as vital to the health and security of the United States.

The DOE Office of Fossil Energy has substantially assisted State regulatory agencies' efforts to enhance environmental protection. One example of these cost effective research programs is the Risk Based Data Management System (RBDMS). State oil and gas regulatory agencies in partnership with the Ground Water Protection Council (GWPC) are responsible for the development and operation of this information system in 23 oil and natural gas producing States, including Alabama. This project is not an example of Federal aid to States, but rather Federal/State partnerships that really work. Through GWPC, the oil and natural gas producing States are working together to protect ground water resources, holding down the cost of environmental compliance, and providing improved access to essential data for new oil and gas exploration.

Past funding from the Department of Energy has given the States the opportunity to develop additional software and information management tools that enable both State and Federal agencies to have the tools needed to share data and facilitate electronic commerce via the internet. The States in turn share that information with the public and the regulated companies, many of which are small businesses that would not otherwise have the ability to access such accurate information. We are learning that electronic commerce saves time and money for both the oil and gas industry and the regulatory agencies. The Federal share for this program cost was $1.15 million in fiscal year 2004. States collectively contributed over $4 million during that fiscal year.

Future development and enhancement of the system continues to be focused on expanded e-commerce due to the growing demand and need for State regulatory agencies to have electronic commerce capabilities. Such capabilities will be cost effective and will save the oil and gas industry time and money. Any delays resulting from the inefficiencies of manual processes and analyses can have a significant impact on production. Continued funding from the Department of Energy will provide the smaller independent oil and gas operators access to this environmental data management system. Smaller producers often have the most need for such a system because high compliance costs hit them the hardest.

RBDMS is one of the best examples of how the States, working with the Federal Government and the private sector, can improve both industry production and environmental protection at the same time. Continuing to fund the DOE Office of Fossil Energy oil and natural gas technologies R&D program in this manner allows the State regulators to tailor their program needs to the industry which operates in their respective States. There is no Federal alternative or "one size fits all" national approach that would work as efficiently as this cooperative multi-State effort.

In summary, the DOE Office of Fossil Energy program funds research projects like RBDMS which provide the following benefits: (1) improved environmental protection, (2) less regulatory and compliance costs for producers, (3) better State enforcement of environmental regulations, (4) increased exploration activity by small and independent operators, and (5) increased domestic oil and gas production.

PREPARED STATEMENT OF THE AMERICAN SOCIETY FOR MICROBIOLOGY

The American Society for Microbiology (ASM), the largest single life science organization in the world, with more than 43,000 members, appreciates the opportunity to provide written testimony on the fiscal year 2006 budget for the Department of Energy (DOE) science programs. The mission of ASM is to enhance microbiology to gain a better understanding of basic life processes and to promote the application of this knowledge for improved health, economic, and environmental well being. Microbiological research is related to DOE programs involving microbial genomics, climate change, bioremediation, and basic biological processes important to energy sciences. The ASM supports a 7 percent increase, for a total of $3.85 billion, for the DOE Office of Science in fiscal year 2006.

STRONG SUPPORT IS NEEDED FOR THE DOE OFFICE OF SCIENCE

Scientific progress and the U.S. economy continue to benefit from investments in the basic sciences made by the DOE Office of Science. The DOE Office of Science, the Nation's primary supporter of the physical sciences, is also an essential partner in the areas of biological and environmental science research as well as in mathematics, computing, and engineering. Furthermore, the Office of Science supports a unique system of programs based on large-scale, specialized user facilities that bring together working teams of scientists focused on such challenges as global warming, genomic sequencing, and energy research. The Office of Science is an invaluable partner in several scientific programs of the National Institutes of Health (NIH) and the National Science Foundation (NSF), and it supports peer-reviewed, basic research in DOE-relevant areas of science in universities and colleges across the United States. These cross-disciplinary programs contribute to the knowledge base and training of the next generation of scientists, while providing scientific cooperation across the sciences.

The Office of Science will play an increasingly important role in the administration's goal of U.S. energy independence in this decade. Many DOE scientific research programs share the goal of producing and conserving energy in environmentally responsible ways. Programs include basic research projects in microbiology as well as extensive development of biotechnology-based systems to produce alternative fuels and chemicals, to recover and improve the process for refining fossil fuels, to remediate environmental problems, and to reduce wastes and pollution.

The administration's proposed budget for fiscal year 2006 requests $3.46 billion for the Office of Science, a decrease of about $140 million compared to the fiscal year 2005 appropriation. This nearly 4 percent proposed cut for the Office of Science in fiscal year 2006 is a significant departure from the congressionally authorized level of $4 billion. ASM recommends that Congress increase the DOE Office of Science to a level of $3.85 billion in the fiscal year 2006 appropriation, an increase of $250 million over fiscal year 2005.

BIOLOGICAL AND ENVIRONMENTAL RESEARCH (BER) PROGRAMS

The proposed budget for Biological and Environmental Research (BER) in fiscal year 2006 is nearly $456 million, which is $126 million below the fiscal year 2005 appropriation for these programs. DOE is the lead Federal agency supporting genomic sequencing of non-pathogenic microbes through its Genomics: GTL Program. The sequence information being compiled through this program provides clues into how we can design biotechnology based processes that will function in extreme conditions and potentially could address pressing national priorities, such as energy and environmental security, bioremediation of waste sites, global warming and climate change, and energy production.

BER GENOMICS: GTL PROGRAM

ASM supports the administration's request of $87.2 million for the Genomics: GTL program in fiscal year 2006, a $20 million increase over fiscal year 2005. Because microbes power the planet's carbon and nitrogen cycles, clean up our wastes, and make important transformations of energy, they are an important source of biotechnology products, making DOE research programs extremely valuable for ad-

vancing our knowledge of the non-medical microbial world. Knowing the complete DNA sequence of a microbe provides important clues about the biological capabilities of the organism and is an important step toward developing strategies for efficiently detecting, using, or reengineering particular microbes to address various national issues. The DOE Genomics: GTL genomic sequencing program has an important impact on nearly every other activity within BER.

In addition to this program, a substantial portion of the DOE Joint Genome Institute's (JGI) sequencing capacity continues to be devoted to the sequencing of microbial genomes as well as DNA in mixed genomes obtained from microbial communities dwelling within specialized ecological niches. As part of these efforts, DOE continues to complete DNA sequences of genomes in microbes with potential uses in energy, waste cleanup, and carbon sequestration.

About 40 percent of the JGI capacity is dedicated to serving direct DOE needs, primarily through the Genomics: GTL program, while the remaining 60 percent of this capacity serves as a state-of-the-art DNA sequencing facility for whose use scientists submit proposals that are subject to merit review. These sequencing projects will be conducted at no additional cost for the extramural scientific community and are expected to have a substantial impact on the BER Environmental Remediation Sciences program, with much of this program focusing on such uses of microbes. In addition, the Genomics: GTL program will continue to have a major impact on the BER Climate Change Research program because of the role microbes play in the global carbon cycle and the potential for developing biology-based solutions for sequestering carbon.

The ASM urges Congress to fully support this exciting program and applauds DOE's leadership in recognizing this important need in science and endorses an expansion of the department's microbial genome sequencing efforts, particularly in the use of DNA sequencing to learn more about the functions and roles of the many microorganisms that cannot be grown in culture and sees this program as the basis for an expanded effort to understand more broadly how genomic information can be used to understand life at the cellular and at more complex levels.

ENVIRONMENTAL REMEDIATION

The overall goal of the DOE Environmental Management Science Program (EMSP), which was transferred from Environmental Management to the BER program, is to support basic research that improves the science underpinning the cleanup of DOE sites. Traditional cleanup strategies may not work or be cost effective for remediating DOE sites. The EMSP, through its support of basic research, aims to develop and validate technical solutions to complex problems, providing innovative new technologies that reduce risks and provide savings in terms of costs and time.

DOE bioremediation activities are centered on the Natural and Accelerated Bioremediation Research (NABIR) program that supports basic research focused on determining how and where bioremediation may be applicable as a reliable, efficient, and cost-effective approach for cleaning up or containing metals and radionuclides in contaminated subsurface environments. In the NABIR program, research advances will be made from molecular to field scales; on genes and proteins used in bioremediation and in overcoming physicochemical impediments to bacterial activity; in non-destructive, real-time measurement techniques; on species interaction and response of microbial ecology to contamination; and in understanding microbial processes for altering the chemical state of metallic and radionuclide contaminants.

Additional EMSP research efforts focus on contaminant fate and transport in the subsurface, nuclear waste chemistry and advanced treatment options, and novel characterization and sensor tools. EMSP projects will continue to be subject to a competitive peer review process that identifies the most scientifically meritorious research proposals and applications to support, based on availability of funds and programmatic relevance to ensure a research portfolio that addresses DOE needs. Research will be funded at universities, national laboratories, and at private research institutes and industries. This research will be conducted in collaboration with the Office of Environmental Management.

The administration's proposed fiscal year 2006 budget for remediation research, including the NABIR program, is $94.7 million, a nearly $10 million decrease compared to $104.5 million for fiscal year 2005. The DOE environmental remediation programs deserve sustained support.

CLIMATE CHANGE RESEARCH

The ASM is pleased to see the administration's support of Climate Change Research continue in its fiscal year 2006 budget. The President's proposed $143 million

budget for this activity in fiscal year 2006, is a modest increase over fiscal year 2005. The Climate Change Research subprogram seeks to apply the latest scientific knowledge to the potential effects of greenhouse gas and aerosol emissions on the climate and the environment. This program is DOE's contribution to the interagency U.S. Global Change Research Program proposed by President George Walker Bush in 1989 and codified by Congress in the Global Change Research Act of 1990 (Public Law 101–106).

The Ecological Processes portion of the subprogram is focused on understanding and simulating the effects of climate and atmospheric changes on ecosystems. Research will also identify potential feedbacks from changes in the climate and atmospheric composition. This research is critical to better understanding of the changes occurring in ecosystems from increasing levels of atmospheric pollutants.

The ASM recommends continued support for this important research within the DOE Office of Science. This program is vital to advance understanding of energy balances between the surface of the Earth and the atmosphere and how this will affect the planet's climate and ecosystems.

BASIC ENERGY SCIENCES

The administration's requested funding for the Office of Basic Energy Sciences (BES) for fiscal year 2006 is $1.146 billion, representing an increase of $41.4 million over fiscal year 2005. This program is a principal sponsor of fundamental research for the Nation in the areas of materials sciences, chemistry, geosciences, and biosciences as it relates to energy. The program supports initiatives in the microbiological and plant sciences focused on harvesting and converting energy from sunlight into feedstocks such as cellulose and other products of photosynthesis, as well as how those chemicals may be further converted into energy-rich molecules such as methane, hydrogen, and ethanol. Alternative and renewable energy sources will remain of strategic importance in the Nation's energy portfolio, and DOE is well positioned to advance basic research in this area. Advances in genomic technologies are giving this research area a tremendous new resource for advancing the Department's bioenergy goals.

NEW TECHNOLOGIES AND UNIQUE FACILITIES

New technologies and advanced instrumentation derived from DOE's expertise in the physical sciences and in engineering have become increasingly valuable to biologists. The beam lines and other advanced technologies for determining molecular structures of cell components are at the heart of current advances to understand cell function and have practical applications for new drug design. DOE advances in high throughput, low-cost DNA sequencing; and protein mass spectrometry, cell imaging, and computational analyses of biological molecules and processes are other unique contributions of DOE to the Nation's biological research enterprise.

DOE has unique field research facilities for environmental research important to understanding biogeochemical cycles, global change, and cost-effective environmental restoration. DOE's ability to conduct large-scale science projects and draw on its unique capabilities in physics, mathematics and computer sciences, and engineering is critical for future biological research.

CONCLUSION

The ASM strongly supports DOE's basic science agenda across the scientific disciplines and encourages Congress to maintain its commitment to these important research programs. ASM recommends that Congress increase funding for the DOE Office of Science to $3.85 billion in fiscal year 2006.

The ASM appreciates the opportunity to provide written testimony and would be pleased to assist the subcommittee as it considers its appropriation for the DOE for fiscal year 2006.

SCHEDULE OF FEDERAL AWARDS 2005

Federal Grantor/Pass-through Grantor/Program Title	Cost Center	Federal CFDA Number	Program or Award Amount	Grants Receivable 1/1/2005	Receipts or Revenue Recognized	Disbursements/Expenditures	Grants Receivable 12/31/2005
MAJOR PROGRAMS: Resident Postdoctoral Research	783	93.28	$1,157,764.00	$83,055.50			$83,055.50
Total Major Programs			1,157,764.00	83,055.50			83,055.50
OTHER FEDERAL ASSISTANCE:							
HHS:							
NIGMS-MARC	789	93.88	431,300.00	155,195.00			155,195.00
DNA Repair and Mutagenesis	457	93.39	25,000.00	25,000.00			25,000.00
Candida and Candidiasis	434	93.12	10,000.00	10,000.00			10,000.00
ASM Conf New phage Biology	430	93.86	10,000.00	10,000.00			10,000.00
ASM Conf Cell Cell	470	93.86	18,000.00	17,000.00			17,000.00
ASM Conf Signal Transduction	429	93.86	20,000.00	20,000.00			20,000.00
ASM Conf Viral Immune Evasion	428	93.86	20,000.00				
National Science Foundation:							
Plant Biotechnology	678	47.07	15,000.00				
Pathogens	697	47.07	110,000.00				
Cell-Cell Communications	470	47.07	5,000.00	5,000.00			5,000.00
Colloquium Genome Annotation	672	47.07	63,408.00	2,421.00			2,421.00
U.S. Department of Energy:							
DNA Repair and Mutagenesis	457	81.05	20,000.00	20,000.00			20,000.00
Prokaryotic Development	472	81.05	10,000.00				
Geobiology	675	81.05	15,000.00				
Microbial Ecology and Genomics	676	81.05	25,000.00				
Multicellular Cooperation	671	81.05	15,000.00				
Integrating Metabolism	477	81.05	10,000.00	10,000.00			10,000.00
Beyond Microbial Genomics	691	81.05	94,520.00				
USDA: Conf Salmonella Pathogenesis	421	10.21	10,000.00				
EPA:							
Microbial Eolocy	676	66.50	20,000.00				
Infectious Disease GI Tract	670	66.61	50,000.00				
Total Other Awards			997,228.00	274,616.00			274,616.00
Total Federal Awards			2,154,992.00	357,671.50			357,671.50

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