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.

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. These programs' 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 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

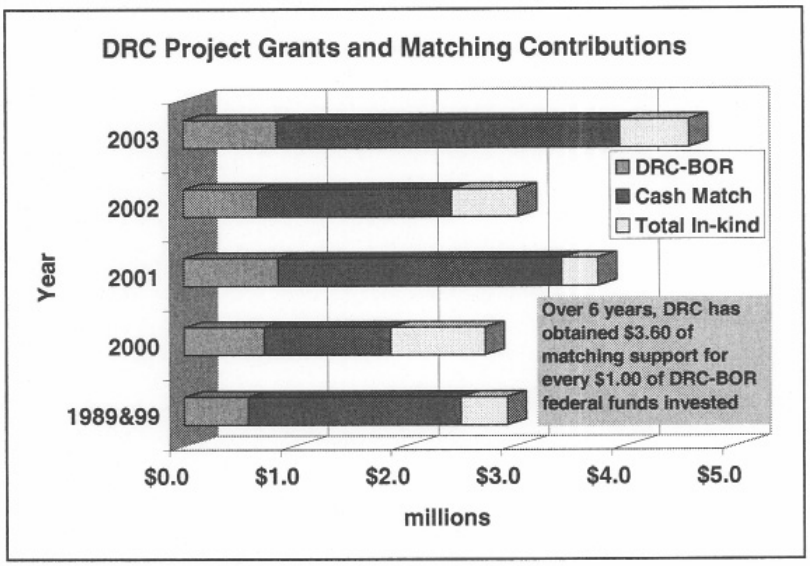
These projects have helped the DRC to attain significant improvements in streamflow and water quality in key basin streams. This past August, below irrigation district diversions Squaw Creek flowed at 5 cubic feet per second (cfs) and Tumalo Creek at 10 cfs—where in years past before the DRC took up 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.

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 FOUR CORNERS POWER PLANT

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 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.

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, non-native, 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 non-native 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.

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 U.S. Bureau of Reclamation's continuing financial participation in these vitally important programs.

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:

—$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 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.

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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 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.

ENERGY EFFICIENCY AND RENEWABLE ENERGY

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

Henry A. Waxman

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

Zoe Lofgren

Ellen Tauscher

Brad Sherman

Howard L. Berman

Susan A. Davis

Loretta Sanchez

Grace F. Napolitano

Michael M. Honda

Lois Capps

Barbara Lee

Hilda L. Solis

Joe Baca

Brad Miller

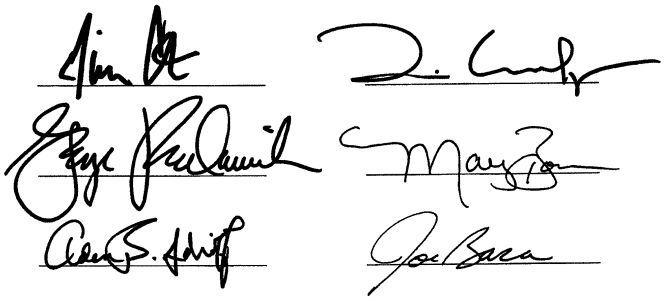
David Dreier

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
SANTANU KHATANIER,
University of Alaska, Fairbanks
DEAN S. OLIVER,
The University of Oklahoma
THOMAS W. ENGLER, PH.D, P.E.,
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ALI PILEHVARI,
Texas A&M University
CRAIG W. VAN KIRK,
Colorado School of Mines
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,

[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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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 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.

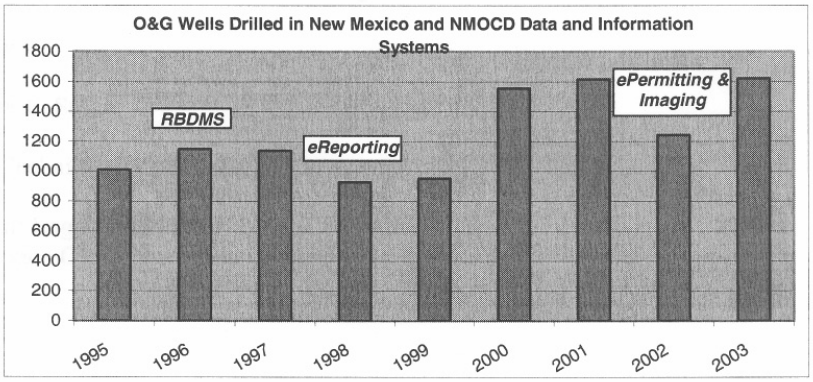
DEAR SENATOR DOMENICI: Mr. Chairman, thank you for the opportunity to provide written comments on the proposed fiscal year 2006 budget. I am writing this letter on behalf of the Ground Water Protection Council (GWPC) and my agency, the New Mexico Oil Conservation Division (NMOCD). I, and other NMOCD 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,

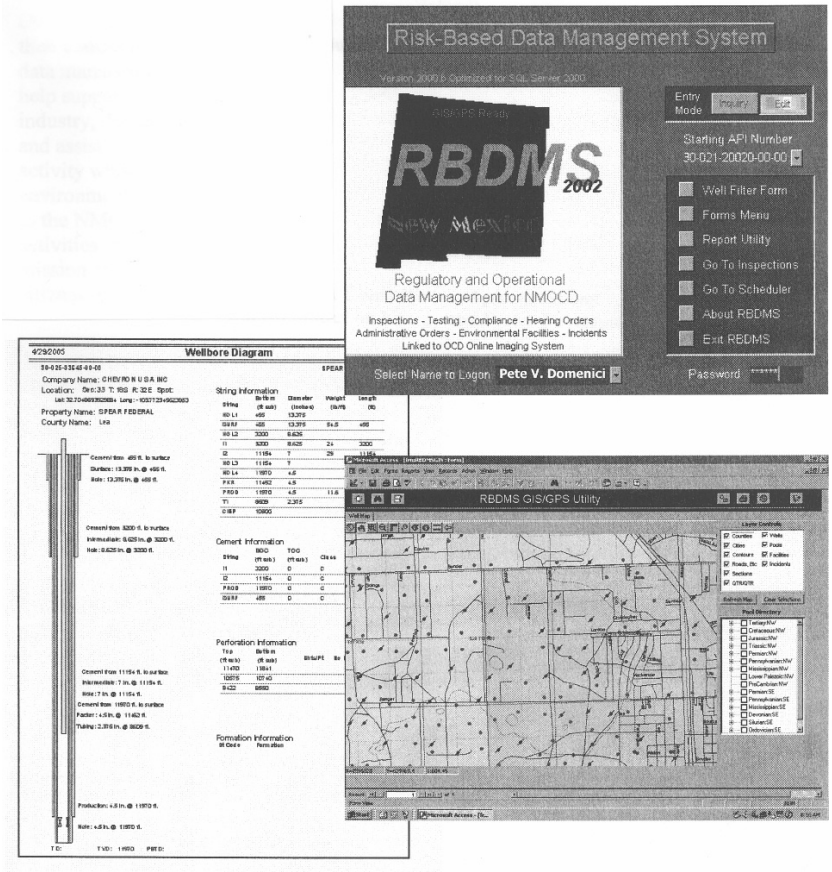
BENJAMIN E. STONE,
Petroleum Engineer.

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