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ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 2010

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

HOUSE OF REPRESENTATIVES

ONE HUNDRED ELEVENTH CONGRESS

FIRST SESSION

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

PETER J. VISCLOSKY, Indiana, *Chairman*

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NOTE: Under Committee Rules, Mr. Obey, as Chairman of the Full Committee, and Mr. Lewis, as Ranking Minority Member of the Full Committee, are authorized to sit as Members of all Subcommittees.

TAUNJA BERQUAM, ROBERT SHERMAN, JOSEPH LEVIN, JAMES WINDLE, and CASEY PEARCE, *Staff Assistants*

PART 9

WITNESSES

Printed for the use of the Committee on Appropriations

PART 9—ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 2010

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WITNESSES

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Project Management Institute

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Statement for the Record of the Project Management Institute

Project management is a defined professional skill set, which effectively, "initiates, plans, executes, controls, and closes" projects. In addition, program management uses these skills and others to manage groups of projects. Finally, portfolio management looks at the strategies of the organization and determines what are the best projects and programs to ensure success of the organization's goals. We refer to these three capabilities together as the disciplines of project management.

We are grateful to Chairman Visclosky and the Energy and Water Subcommittee for their continued desire to make the Department of Energy's project management a top priority. We believe oversight efforts such as these are vital to improving the performance of all agencies.

PMI commends the work that the Department of Energy has done to date addressing project management in its root-cause assessment and workforce skills assessments. Over the past decade, we believe considerable progress has been made in the Department's project management structure and capability. As noted by the latest release of the GAO High Risk list in January 2009, GAO found within the Office of Science that of 42 projects completed or under way from fiscal years 2003 through 2007, more than two-thirds were completed or being carried out within original cost and schedule targets. We believe this shows the benefit of an emphasis on project management.

As tremendous as this finding is, obviously more work needs to be done. The time to extend and deepen the use of project, program and portfolio management within the federal government is now. We have several recommendations on the way to effectively do so.

First, project managers should have their own unique career path within the federal government. A career path would include a formal job classification and benchmarks for becoming an agency project, program and portfolio manager.

Second, we believe it is vital Department senior executives be given training in project management before they reach the Senior Executive Service. The work of project managers is too important for their managers not to have a baseline level of knowledge about their staff's project management skills.

Finally, we believe the US Government should seriously examine the potential benefits of adopting globally recognized project management standards for use throughout the federal government.

We think there are several reasons, building on the work of the Department of Energy, for the government as a whole to focus on project, program and portfolio management. First, it is clear the government faces

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enormous challenges rebuilding the US economy. There must be an emphasis on managing better to achieve better results. This includes ensuring the right projects are being done to accomplish the objectives of agencies through portfolio management. Second, and while not directly the purview of this hearing, the federal workforce itself will be undergoing great changes as the baby-boomer generation of federal workers retire. Congress should be considering every way to make federal service an attractive career choice for the newest generation of workers, including developing career paths and increasing their skill set. Finally, and most importantly, the American people want good results from their government. We believe increased used of project, program and portfolio management will make those results possible.

We thank Chairman Visclosky and Subcommittee for the opportunity to submit this statement.

The Project Management Institute (PMI) is a non-profit professional organization that advocates for its members and credential holders trained as project managers throughout the world. We currently have 440,000 members and credential holders in 175 countries. PMI is the global leader in project management; our credentials and standards are recognized and requested throughout the world by industry and governments.

B. Sykes Sturdivant, President
Board of Levee Commissioners for the Yazoo-Mississippi Delta

U.S. Army Corps of Engineers
Mississippi River & Tributaries Project
FY 2010 Request -- $500 Million

As the front line flood protection provider for the approximately 300,000 Mississippians who reside within the 10 counties of our levee district, the Yazoo-Mississippi Delta Levee Board humbly requests that you allocate adequate funding to fully fund the Mississippi River and Tributaries Project (MR&T) at the Corps of Engineers' capability level for the 2010 fiscal year—$500 million.

And yes, we do know that is a lot of money. Even in this time—one which many of us believed we'd never see— of trillion dollar deficits and untold trillions in evaporated wealth, we do indeed know that $500 million is a lot of money.

We know that these are perilous times for our nation, times in which the collective wisdom and sound judgment of you men and women will be nothing less than critical to our well being as a people. We know there are simply fiscal limits and we know that priorities must be and will be set.

But we also know that flood control is nothing less than vital to America's heartland. In many cases, such as our part of the Mississippi Delta, flood control is the primary factor allowing those who live there to live there. The heartland produces much of the food and fiber which allows us to feed and clothe not only our nation, but much of the world. But there can be no food, there can be no fiber if the most fertile soils this side of the Nile delta were to be under water—were to be again inundated by the same water which created them.

The Mainline Mississippi River Levee System, truly one of the world's greatest engineering marvels, is literally all that stands between the human beings who live and produce and prosper up and down, along either side of the Mississippi River—the largest, most powerful and often most fickle flowing waterway on the North American continent. Our levees are strong, true and tested, but like all the creations of man, they must be maintained; they must be vigilantly strengthened and repaired from the ravages of the power they contain every day.

We ask that the MR&T's levees be funded at levels of $69.972 million for construction, $61.2 million for channel improvements, $13.522 million for levee maintenance and $79.309 million for channel maintenance.

There are many projects, many efforts within the flood control umbrella that is the MR&T, and there are many who will speak to you on behalf of them, but for our people, for the lives and livelihoods of those we are dedicated to protect, there is only this levee board to speak. And so we now will.

For us there must remain one overriding priority—the Upper Yazoo Project. Ladies and Gentlemen, this effort designed to protect thousands from chronic flooding along the Yazoo/Coldwater river system, is perhaps the least controversial flood control project in the nation, favored not only by our citizenry but the environmental community, as well. It is designed and it is demonstratively effective within its completed reaches. It need only be adequately funded to provide long awaited relief to those who have suffered for many years.

We ask that you provide the Corps capability funding level of $24.4 million in 2010.

We also ask that this collective Congress provide funding for the following projects affecting our district and its people at the 2010 capability levels:

CONSTRUCTION
- Backwater—$325,000
- Main Stem—$25,000
- MS Delta Headwaters—$25 million
- Big Sunflower River—$2.18 million
- Reformulation Study—$3 million.

MAINTENANCE
- Revetments and Dikes—$58.2 million
- Sardis Lake—$14.483 million
- Arkabutla Lake—$13.793 million
- Enid Lake—$12.69 million
- Grenada Lake—$13.231 million
- Greenwood—$1.85 million
- Yazoo City—$550,000
- Yazoo Main Stem—$3.154 million
- Yazoo Tributaries—$953,000
- Big Sunflower—$4.311 million
- Yazoo Backwater—$905,000.

Thank you for your careful consideration of our requests and we trust that once again, as has been so critical for our people on so many occasions over the years, the old adage will once again be validated: "The President proposes, but the Congress disposes."

Respectfully submitted,

The Yazoo-Mississippi Delta Levee Board

B. Sykes Sturdivant, President

Kelly Greenwood, CEO, Chief Engineer

MISSISSIPPI VALLEY FLOOD CONTROL ASSOCIATION
FISCAL YEAR 2010 CIVIL WORKS REQUESTED BUDGET
MISSISSIPPI RIVER AND TRIBUTARIES APPROPRIATIONS

($000)		
PROJECT AND STATE	**PRESIDENT'S BUDGET**	**MVFCA REQUEST**
	$240.0 M	
SURVEYS,CONTINUATION OF PLANNING AND ENGINEERING & ADVANCE ENGINEERING & DESIGN		
Memphis Metro Storm Water Management, TN	$ 34	$ 100
Spring Bayou, LA	0	350
Southeast Arkansas	0	282
Coldwater Basin Below Arkabutla Lake, MS	125	84
Donaldsonville, LA to the Gulf of Mexico	100	1,200
Atchafalaya Basin Floodway Land Study, LA	100	200
Collection-Study of Basic Data	400	4,930
Memphis	115	115
Vicksburg	170	4,700
New Orleans	115	115
Goose Pond Pump Station, Cairo, IL	0	100
10th & 28th Pump Stations, Cairo, IL	0	200
PRECONTRSTUCTION ENNGINEERING & DESIGN		
Morganza, LA	0	6,000
Alexandria to the Gulf, LA	790	1,000
TOTAL GENERAL INVESTIGATIONS	$ 1,449	$ 14,446
CONSTRUCTION		
Mississippi River Levees	$ 20,000	$ 69,972
Channel Improvements	45,223	61,200
Atchafalaya Basin, LA	6,300	27,000
Atchafalaya Basin Floodway, LA	2,025	4,525
MS Delta Region, LA	2,259	2,250
St. John's Bayou-New Madrid Floodway, MO	0	1,000
St. Francis Basin, MO & AR	0	4,700
Yazoo Basin, MS	**0**	**55,434**
Backwater	0	325
Upper Yazoo Projects	0	24,400
Main Stem	0	25
Miss Delta Headwater Project (DEC)	0	25,000
Yazoo Backwater Pumps	0	504
Big Sunflower River	0	2,180
Reformulation Study	0	3,000
West Tennessee Tribs., TN	0	3,500
Grand Prairie, AR	0	26,200
Bayou Meto, AR	0	78,675
TOTAL CONSTRUCTION	**$ 75,807**	**$ 334,456**

MISSISSIPPI VALLEY FLOOD CONTROL ASSOCIATION
FISCAL YEAR 2010 CIVIL WORKS REQUESTED BUDGET
MISSISSIPPI RIVER AND TRIBUTARIES PROJECT
MAINTENANCE

($000)		
MR&T OPERATIONS & MAINTENANCE	**PRESIDENT'S BUDGET**	**MVFCA REQUEST**
Mississippi River Levees	$ 15,873	$ 13,522
Memphis	9,207	4,000
Vicksburg	2,211	5,067
New Orleans	4,455	4,455
Bonnet Carre, LA	2,346	6,096
Total for Channel Improvement	**65,211**	**79,309**
Dredging	**16,869**	**21,109**
Memphis	11,000	13,500
Vicksburg	5,149	6,889
New Orleans	720	720
Revetments & Dikes	**48,342**	**58,200**
Memphis	18,652	21,800
Vicksburg	11,490	12,000
New Orleans	18,200	24,400
Old River Control Structure, LA	13,882	15,320
Atchafalaya Basin, LA	8,619	37,499
Atchafalaya Floodway System, LA	2,116	2,117
Memphis Harbor McKellar Lake, TN	3,283	4,100
Helena Harbor, AR	128	611
Greenville Harbor, MS	436	549
Vicksburg Harbor, MS	424	537
Baton Rouge Harbor Devil's Swamp, LA	162	162
Mississippi Delta - Caernarvon	578	578
Wappapello Lake, MO	4,567	10,737
St. Francis River & Tribs, AR & MO	4,445	13,950
White River Backwater, AR	1,039	1,550
North Bank, Arkansas River, AR	256	1264
South Bank, Arkansas River, AR	161	2,866
Boeuf & Tensas Rivers, LA	1,880	2,562
Red River Backwater, LA	2,501	4,876
Sardis Lake, MS	6,971	14,483
Arkabutla Lake, MS	6,248	13,793
Enid Lake, MS	6,388	12,690
Grenada Lake, MS	6,234	13,231
Greenwood, MS	1,650	1,850
Yazoo City, MS	534	550
Yazoo, Main Stem, MS	1,128	3,154
Yazoo, Tributaries, MS	694	953
Whittington Aux Channel, MS	272	294
Big Sunflower, (Bogue Phalia), MS	171	4,311
Yazoo Backwater, MS	393	905
Lower Red River, South Bank, (Bayou Rapides) LA	53	55
Bayou Cocodrie & Tribs., LA	42	42
Red-Ouachita River Basin Levees, AR & LA	0	3,000
Inspection of Completed Works	**2,571**	**2,683**
Memphis	844	933
Vicksburg	752	775
New Orleans	975	975
Mapping	**1,488**	**1,600**
Memphis	473	560
Vicksburg	425	450
New Orleans	590	590
TOTAL O&M	**$ 162,744**	**$ 271,799**
SAVINGS & SLIPPAGE		**$ (120,701)**
TOTAL MR&T	**$ 240,000**	**$ 500,000**

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COLORADO RIVER COMMISSION
OF NEVADA

March 31, 2009

VIA ELECTRONIC MAIL

Honorable Peter Visclosky, Chairman
Subcommittee on Energy and Water Development
House Committee on Appropriations
Room 2362B Rayburn House Office Building
Washington, D.C. 20515-6020

Subject: Support for Fiscal Year 2010 Appropriations for the Bureau of Reclamation

Dear Chairman Visclosky:

As a Nevada representative of the Colorado River Basin Salinity Control Forum, the Colorado River Commission of Nevada (CRC) submits this testimony in support of $17,500,000 for funding the Fiscal Year 2010 budget for the Bureau of Reclamation's Colorado River Basin Salinity Control Program. The CRC urges the Congress to appropriate funds requested by the Administration to continue to maintain and operate salinity control facilities as they are completed and placed into long-term operations. Reclamation has completed the Paradox Valley Unit which involves the collection of brines in the Paradox Valley of Colorado and the injection of those brines into a deep aquifer through an injection well. The continued operation of this project and the Grand Valley Unit will be funded primarily through the Facility Operations activity. The CRC also supports funding to allow for continued general investigation of the Salinity Control Program as requested by the Administration for the Colorado River Water Quality Improvement Program.

Salinity remains one of the major problems in the Colorado River. Congress has recognized the need to confront this problem with its passage of P.L. 93-320 and P.L. 98-569. Your support of the Forum's current funding recommendations in support of the Colorado River Basin Salinity Control Program is essential to move the program forward so that the congressionally directed salinity objectives embodied in P.L. 93-320 and P.L. 98-569 are achieved.

Sincerely,

George M. Caan
Executive Director

cc: Representative Shelley Berkley, State of Nevada
Representative Dina Titus, State of Nevada
Representative Dean Heller, State of Nevada

NE/jln

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Cedar Bayou Navigation District, Texas
House Energy & Water Subcommittee on Appropriations
US Army Corps of Engineers

We express full support of the inclusion of the full capability of the USACE for FY'10 for construction of the project to deepen and widen Cedar Bayou, Texas and for maintenance dredging of the channel

FUNDS NEEDED IN FY'10- $12,000,000 (CONSTRUCTION GENERAL)
1,790,000 (OPERATION & MAINTENANCE)

CONTACT: PAT YOUNGER, GOVT. RELATIONS LIAISON
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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 10ft. deep and 100ft. wide channel from the Houston Ship Channel to a point on Cedar Bayou 11 miles above the mouth of the bayou. In 1931, a portion of the channel was constructed from the Houston Ship Channel to a point about 0.8 miles above the mouth of Cedar Bayou, approximately 3.5 miles in length. A study of the project in 1971 determined that an extension of the channel to project Mile 3 would have a favorable benefit to cost ratio. This portion of the channel was realigned from mile 0.1 to mile 0.8 and extended from mile 0.8 to Mile 3 in 1975. In October 1985, the portion of the original navigation project from project Mile 3 to 11 was deauthorized due to the lack of a local sponsor.

In 1989, the Corps of Engineers, Galveston District completed a Reconnaissance Report dated June 1989, which recommended a study for an improvement to a 12ft. by 125ft. channel from the Houston Ship Channel Mile 3 to Cedar Bayou Mile 11 at the State Highway 146 Bridge. The Texas Legislature created the Chambers County-Cedar Bayou Navigation District in 1997 as an entity to improve the navigability of Cedar Bayou. The district was created to accomplish the purpose of Section 59, Article XVI, of the Texas Constitution and has all the rights, powers, privileges and authority applicable to Districts created under Chapters 60, 62, and 63 of the Water Code - Public Entity. The Chambers County-Cedar Bayou Navigation District then became the local sponsor for the Cedar Bayou Channel.

PROJECT DESCRIPTION AND REAUTHORIZATION

Cedar Bayou is a small coastal stream, which originates in Liberty County, Texas, and meanders through the urban area near the eastern portion of the City of Baytown, Texas, before entering Galveston Bay. The bayou forms the boundary between Harris County on the west and Chambers County on the east. The project was authorized in Section 349 of the Water Resources Development Act 2000, which authorized a navigation improvement of 12 feet deep by 125 feet wide from mile 2.5 to mile 11 on Cedar Bayou. Corps studies have indicated that the preferred plan is to widen the channel to 100' and deepen it to 10' which is the current plan of action.

JUSTIFICATION AND INDUSTRY SUPPORT

First and foremost, the channel must be improved for safety. The channel is the home to a busy barge industry. The most cost-efficient and safe method of conveyance is barge transportation. Water transportation offers considerable cost savings compared to other freight modes (rail is nearly twice as costly and truck nearly four times higher). In addition, the movement of cargo by barge is environmentally friendly. Barges have enormous carrying capacity while consuming less energy, due to the fact that a large number of barges can move together in a single tow, controlled by only one power unit. The result takes a significant number of trucks off of Texas highways.

The reduction of air emissions by the movement of cargo on barges is a significant factor as communities struggle with compliance with the Clean Air Act. Several navigation-dependent industries and commercial enterprises have been established along the commercially navigable portions of Cedar Bayou. Several industries have docks on 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 FY '01 for the Corps of Engineers to conduct the feasibility study to determine the federal interest in this improvement project. The study
indicated a benefit to cost ratio of the project of 2.8 to 1. The estimated total cost of the project is $16.8 M with a federal share estimated at $11.9 M and the non-federal sponsor share of approximately $4.9 M. Total annual benefits are estimated to be $4.8 M, with a net benefit of $3 M. Congress thus far has appropriated nearly $1.7 Million for this project.

It has also become an important project for the Port of Houston Authority – the Nation's busiest port in foreign tonnage. They hope to institute a container on barge facility as soon as this project is accomplished. We would appreciate the subcommittee's support of the required add of the $9,056,000 for construction of this important improvement project. The users of the channel deserve to have the benefits of a safer, most cost-effective federal waterway.

CURRENT STATUS

In July 2006, the project feasibility report was accepted and approved by Asst. Secretary of the Army John P. Woodley and OMB as a viable, economically justified and environmentally accepted project. The project is ready for construction. The federal government has already invested nearly one million dollars for the studies to justify this project and the local sponsor has advanced the total local share. We are ready to begin construction.

THE PORT OF HARLINGEN – HARLINGEN, TEXAS

HOUSE ENERGY AND WATER DEVELOPMENT SUBCOMMITTEE ON APPROPRIATIONS

US ARMY CORPS OF ENGINEERS

Contact: Pat Younger, Government Relations Liaison for the Port of Harlingen
713-465-6343 (office)
713-816-6477 (cell)
Email: youngerandassoc@aol.com

We express full support of the inclusion in the FY'10 budget for the full capability of the USACE of..... $3.2 - $O & M

HISTORY AND BACKGROUND

Port Harlingen, also known as the Rio Hondo Port, is on the Arroyo Colorado and Farm Road 106, on the eastern city limits of Harlingen. The channel connecting Arroyo Colorado with the Gulf Intracoastal Waterway was completed and dedicated on February 27, 1952. It is 12 feet deep and 125 feet wide and has a turning basin measuring 400 by 600 feet. By 1962 the port was handling $2.5 million in commerce. In 1983 commodity shipments amounted to 455,430 short tons, and they increased to 801,003 short tons in 1984, when the port housed ten industries with commercial leases. In 1989 Port Harlingen handled 728,954 short tons.

The port is located four miles east of Harlingen, Texas on Highway 106. It is 25 miles west of Mile Marker 646 on the Gulf Intracoastal Waterway, which stretches from the Mexican border at Brownsville, Texas, along the entire coast of the Gulf of Mexico to St. Marks, Florida. The Gulf Intracoastal Waterway provides over 1,300 miles of protected waterway. The Harlingen channel is maintained to a width of 125 feet and a depth of 12 feet and is supplied by the Arroyo Colorado, a fresh water river.

PROJECT DESCRIPTION

The project is located in the vicinity of Rio Hondo and Harlingen in Cameron and Willacy Counties, Texas. The project consists of a channel 25.8 miles long. The channel extends with the main channel of the GIWW through the Arroyo Colorado to the turning basin at Harlingen. It also included a barge-mooring basin near the channel's junction with the GIWW. Authorized channel dimensions are 12' by 125 '. 100% of all the sugar (180,000 tons), 95% of all commercial fertilizer products and 30% of all gasoline products for south Texas is shipped through the Port of Harlingen. Maintenance of the project to authorized dimensions is a Federal responsibility. Safe and efficient commercial navigation is of national interest. The inability to maintain the project at authorized depths will cause safety hazards and severe economic loss to the agricultural and petrochemical industries in the region.

ECONOMIC IMPACT OF THE PORT OF HARLINGEN

The Port of Harlingen provides efficient and economical transportation to points as close as Corpus Christi and as far as the Great Lakes. Terminal docks and other facilities ease shipments into and out of the Port of Harlingen, and over 150 acres of on-and-off channel sites are available for industrial firms requiring economical transportation and attractive land lease rates. The port is also an important link in the comprehensive transportation network of the Rio Grande Valley of Texas. Southern Pacific Company rail lines at the port, along with switching capabilities with Union Pacific Railways, keep products moving to Texas locations and on throughout the U.S. and Mexico. Additionally, as was stated in the project description above, 100% of all the sugar (180,000 tons), 95% of all commercial fertilizer products and 30% of all gasoline products for south Texas is shipped through the Port of Harlingen.

COMMUNITY AND INDUSTRY SUPPORT

One industry the Port of Harlingen is involved in is sugar. The Port of Harlingen Authority has bid and is building a $3,800,000 sugar transfer building to load barges of sugar for shipment to Louisiana. The sugar mill shipped 171,962 short tons of sugar to Louisiana in 2006-2007 and should ship in excess of 180,000 short tons in 2007-2008. The mill cannot ship raw sugar by rail because the finish mills in Louisiana are not currently capable of receiving raw sugar by rail, and instead are organized to ship finished sugar by rail. To ship the sugar by truck would take over 6,878 truckloads at four times the cost. If this occurs, recent economic studies have determined that it would put the mill out of business.

Additional industries present at the Port are Agro Alliance, Helena Chemical, UAP and Wilber Ellis, which have facilities at the port or down stream that handle 99% of all of the commercial liquid and dry fertilizer for south Texas. CMX also has a terminal at the port that handles much needed concrete sand shipped from Victoria and Cement shipped in from Mexico.

Valero Energy Corporation, which once actively sent gas and diesel fuel to the Port of Harlingen by barge, also has projects underway at the Port. In October of 2005, Valero finished a pipeline to the valley to service all three terminals and stopped all barge traffic. In July 2006 they started barging (about two barges a month) ultra low sulfur diesel to the valley. They are currently shipping the entire ultra low sulfur diesel by barge and the traffic is almost back to levels achieved before their pipeline was built.

WHAT WE NEED FROM THE SUBCOMMITTEE IN FY'10

The Administration's FY'10 budget for project-specific funding is has as of this writing not been presented; therefore, we do not know if the Corps capability will be a plus up or an add or be included fully in the budget. However, maintenance dredging of this channel is a federal responsibility. As deliberations on the Energy and Water Subcommittee on Appropriations commence, we would appreciate your help in securing the Corps capability of $3.2 so that this project can move forward and ensure that the Gulf Intracoastal Waterway – Port of Harlingen receive essential maintenance dredging at the federally authorized depth.

BRAZOS RIVER HARBOR NAVIGATION DISTRICT-FREEPORT, TEXAS

HOUSE ENERGY AND WATER SUBCOMMITTEE ON APPROPRIATIONS

US ARMY CORPS OF ENGINEERS

Contact: Pat Younger, Government Relations Liaison for Port Freeport
713-465-6343 (office)
713-816-6477 (cell)
Email: youngerandassoc@aol.com

We express full support of the inclusion in the FY'10 budget for the full capability of the USACE of..... $700,000 – PED
$6,500,000 Million – O & M

HISTORY AND BACKGROUND

Port Freeport is an autonomous governmental entity authorized by an act of the Texas Legislature in 1925. It is a deep-draft port, located on Texas' central Gulf Coast, approximately 60 miles southwest of Houston, and is an important Brazos River Navigation District component. The port elevation is 3 to 12 feet above sea level. Port Freeport is governed by a board of six commissioners elected by the voters of the Navigation District of Brazoria County, which currently encompasses 85% 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 sink hole. Future expansion includes building a 1,300-acre multi-modal facility, cruise terminal and container terminal. Port Freeport is conveniently accessible by rail, waterway and highway routes. There is direct access to the Gulf Intracoastal Waterway, Brazos River Diversion Channel, and, State Highways 36 and 288. Located just three miles from deep water, Port Freeport is one of the most accessible ports on the Gulf Coast.

PROJECT DESCRIPTION

The FY'02 Energy and Water Appropriations signed into law included a $100,000 appropriation to allow the United States Army Corps of Engineers (USACE) to conduct a reconnaissance study to determine the federal interest in an improvement project for Freeport Harbor, Texas. The USACE, in cooperation with the Brazos River Harbor Navigation District as the local sponsor, has completed that study. The report indicates that "transportation savings in the form of National Economic Development Benefits (NED) appear to substantially exceed the cost of project implementation", thus confirming "a strong federal interest in conducting the

feasibility study of navigation improvements at Freeport Harbor". Congress has to date appropriated over $ 4 Million for the study phase of the channel improvement project. This last phase of study for PED will move the project to completion of the feasibility report and ready the channel for construction.

Port Freeport has the opportunity to solidify significant new business for Texas with this improvement project. In addition, the improvement to the environment by taking a huge number of trucks off of the road, transporting goods more economically and environmentally sensitive by waterborne commerce is infinitely important to the community, the State, and the Nation. Moreover, the enhanced safety of a wider channel cannot be overstated. The emergence of an LNG facility at Port Freeport – a joint venture of Conoco-Philips and Cheniere Energy further solidifies the importance of keeping this critical waterway at optimum depth and width.

ECONOMIC IMPACT OF PORT FREEPORT

Port Freeport is 13th in foreign tonnage in the United States. It is responsible for augmenting the Nation's economy by over $9 billion annually and generating over nearly 24,000 jobs in Texas, over 11,000 direct. It also augments the economy by providing annual state and local taxes of over $150,000 and an additional of over $300 million in federal tax revenues. Its chief import commodities are bananas, fresh fruit and aggregate while top export commodities are rice and chemicals. The port's growth has been staggering in the past decade, becoming one of the fastest growing ports on the Gulf Coast. Port Freeport's economic impact and its future growth is justification for its budding partnership with the federal government in this critical improvement project.

Examples of existing tenants at the Port include:

Dole Fresh Fruit- Dole has a weekly sailing arriving at Port Freeport with green fruit and other exotic fruits, mainly from Guatemala and Honduras. Dole has been a tenant of Port Freeport for the past 23 years, occupying lease sites comprising of 12 acres and has just renewed its lease for another 5 years. There are approximately 450 jobs associated with this operation.

Chiquita Fresh North America — Chiquita is very similar to the Dole operation. Chiquita also has a weekly sailing and has been a tenant of Port Freeport for the past 12 years. There are about 400 jobs associated with this operation.

Turbana Banana & Isabella Shipping- Turbana and Isabella, divisions of Uniban, based in Colombia import 2000 pallet loads of green fruit and other exotic fruits into Port Freeport weekly. The fruit is processed in a newly built chiller, which the Port undertook and built 2 years ago at a cost of $7M dollars. In addition to their import activities, they also export general cargo back weekly to ports in Costa Rica and Colombia. Since moving to Freeport 2 years ago, Turbana has increased their business 38%. This highly labor-intensive company accounts for 500 + jobs. Turbana and Isabella recently announced a significant expansion of their Freeport operations that will double their cargo throughput within the next 4 months.

American Rice Inc. /Grupo SOS - As a 20-year tenant of the Port, this company has the largest rice milling operation in the United States located on water. They are one of the largest suppliers to Iraq in the effort to help rebuild their economy. American Rice was recently acquired by the Spanish firm Grupo SOS, based in Madrid. Grupo SOS recently announced an expansion project at the Port Freeport site totaling $150M dollars. Once all the new facilities are built, Port Freeport will be the distribution center for all North America, sending product out by ship, truck, and rail to Mexico, Canada, the Tropics, and South America as well as throughout the United States. With the expansion, there will be approximately 2000 jobs associated with this operation.

Freeport LNG/ConocoPhillips — Port Freeport was successful 4 years ago in attracting Freeport LNG to a site on Quintana Island, owned by the Port. This facility, the first new liquefied natural gas plant to be built in the United States in the last 25 years, will begin operations in the first quarter of 2008. The volume of natural gas imported in Phase I will be equal 10 % of the total gas production of the State of Texas and Phase II will equal over 20 % of the entire State's production from this one terminal. The docks at the terminal are designed to handle the largest LNG ships being designed for the future, will require a wider ship channel which will need to be maintained for these larger ships. The investment in the LNG facility is $1B dollars. The importance of this facility cannot be understated. With gas prices spiking at $13/bcf (from $3) recently, local petrochemical plants had to shut down some production units, as an example, Dow Chemical Freeport purchases $1M dollars of LNG daily to fire up their various production facilities.

In addition to the Port tenants listed above there a numerous U.S. and international chemical and crude processing facilities in the immediate area. Some of the larger international corporations utilizing the Freeport ship channel are as follows:

Dow Chemical — A diversified chemical company that offers a broad range of products and services to customers in more than 175 countries, helping them to provide everything from fresh water, food and pharmaceuticals to paints, packaging and personal care products. Dow has annual sales of $49B dollars and employs 43,000 people worldwide, with 4000 full time employees in the Texas operations and another 3000 contract employees. Texas Operations in Freeport is Dow's largest integrated site where 44% of Dow's products are sold in the United States and more than 21% of Dow's products sold globally are manufactured. Dow's Freeport Marine Terminal and Operations (FMTO) uses the Freeport Harbor channel and handles the movement of 100 different Dow products at 15 billion pounds annually. Marine vessels transport 46% of Dow's volume through Dow docks on the Freeport channel.

ConocoPhillips owns and operates a 247,000 bpd refinery at Old Ocean, Texas, that relies heavily on marine operations for the delivery of crude oil and other feedstock supplies; and, to a lesser extent, for product shipments. In particular, ConocoPhillips utilizes both its own proprietary terminal and the Teppco crude oil terminal at Port Freeport. Maintaining and improving the Port Freeport channel is critical to overall refinery operations.

Seaway Crude Pipeline Company is a partnership between wholly owned subsidiaries of TEPPCO and ConocoPhillips. The pipeline transports crude oil from the Texas Gulf Coast to Cushing, OK, a crude distribution point for the central United States and a delivery point for the New York Mercantile Exchange (NYMEX). The Seaway system is a critical link in the crude oil supply chain for Central and Midwest refining centers. Seaway also provides marine terminaling and storage services for Texas Gulf Coast area refineries. TEPPCO is the operator of Seaway Crude Pipeline. The Freeport, TX, marine terminal is the origin point for the 30-inch diameter crude pipeline. Three large diameter lines carry crude oil from Freeport to the Jones Creek Tank Farm, which has six storage tanks capable of handling approximately 3.3 million barrels of crude. This private terminal also acts as the receiving terminal for crude delivered to the Bryan Mound Strategic Petroleum Reserve operated by the Department of Energy.

Schenectady Chemical, Shintech, Air Liquide, Nalco, Rhodia, Rhone-Poulenc, S F Sulfur Corp and Silica Products are other large international companies in the immediate area. All of these companies depend on, in some form or fashion the delivery or dispatch of product, crude or feedstock by vessel. There is well over $100B dollars in assets in the immediate area, assets that are in the ground, provide for 30,000 direct jobs supplying our country with everything gasoline for our vehicles to baby diapers.

Recent Port improvements include the Velasco Terminal, which was launched last October as our first major container terminal. This facility, presently under construction will boast a berthing line of 2400 linear feet with 90 acres of backland for development. Phase I, building Velasco terminal will cost $35M dollars and should be completed in 18 months. We have three, large international companies submitting proposals to act as terminal operators. Overall build out cost could go as high as $200M dollars and is designed to handle as many as 700,000 containers.

DEFENSE SUPPORT OF OUR NATION

Port Freeport is a strategic port in times of National Defense of our Nation. It houses a critically important petroleum oil reserve – Bryan Mound. Its close proximity to State Highways 36 and 288 make it a convenient deployment port for Fort Hood. In these unusual times, it is important to note the importance of our ports in the defense of our Nation and to address the need to keep our federal waterways open to deep-draft navigation.

COMMUNITY AND INDUSTRY SUPPORT

This proposed improvement project has wide community and industry support. The safer transit and volume increase capability is an appealing and exciting prospect for the users of Freeport Harbor and Stauffer Channel. The anticipated positive benefit to cost ratio that was indicated from the Corps of Engineers reconnaissance study firmly solidified the federal interest.

WHAT WE NEED FROM THE SUBCOMMITTEE IN FY'10

At this writing, the Administration's budget for project specific listings is has not been finalized; therefore, we cannot comment on whether we will need a plus up or an add. We know basically what the Corps will need to continue to move this important project through the system on an optimum schedule and most cost-efficient time frame for the federal government and the local sponsor. We respectfully request that the full amount of the Corps capability for PED and O & M be included in the House mark-up.

Not only is the widening and deepening project currently under consideration as a feasibility study by the Corps needed to ensure the continued growth of the port and surrounding industries, we need continued support from the Federal Government to insure our channel is maintained at it's Federally authorized depth of 45 ft. to assure our current customers that we will continue to be able to serve them.

PERKINS COUNTY RURAL WATER SYSTEM, INC.
104 W. Main St PO Box 160
BISON, SD 57620
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Toll Free: 1-866-244-5608
e-mail: pcrws@sdplains.com

March 16, 2009
House Committee on Appropriations
Sub-committee for Energy and Water Appropriations
Prepared by
Paul Adcock, General Manager
Perkins County Rural Water System, Inc.

Perkins County Rural Water System, Inc. respectfully submits this written testimony to the Appropriations Sub-Committee on Energy and Water Development for appropriations of $6.0 million dollars for fiscal year 2010. This project was authorized under PL 106-136.

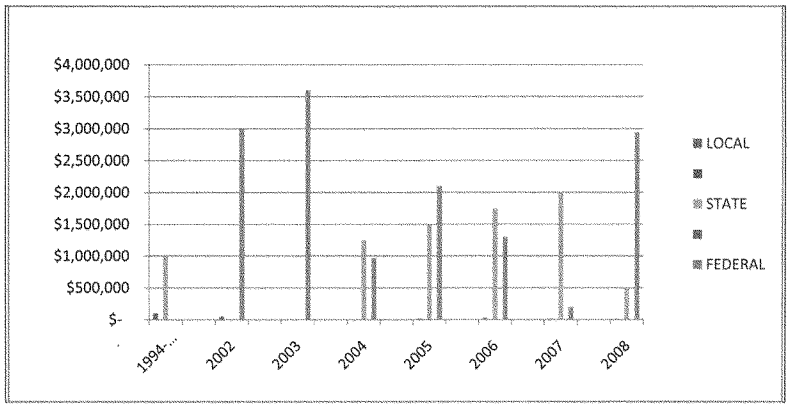
Perkins County Rural Water System, Inc. (PCRWS) gained the approval of the Office of Management and Budget and the Bureau of Reclamation to proceed with construction in 2004. With funding for 2009, we have been appropriated to date $15.9 million. In 2008 & 2009, we received $2.9 and $2.265 million respectively. Three million dollars is basically the lowest amount that we could receive and still do enough construction to move our project forward. Cost share for the System is 75% Federal, 25% State and local funds. The State of South Dakota has legislated to loan PCRWS the local share for forty years at 3% interest to keep costs down to the consumer. We have used all of our State of South Dakota funds. With local and State funds to date, we would be able to cost share up to 36.4 million dollars. Total project funds are projected at 32.0 million dollars to finish with $24 million of that amount to be Federal funds.

Breakdown for the project for 2010 is as follows:

2010 BUDGET	
INCOME	
BUREAU OF RECLAMATION	***$6,000,000***
STATE OF SOUTH DAKOTA	***$ 0***
LOCAL FUNDS	***$ 25,000***
TOTAL	***$6,025,000***
EXPENSE	
FINISH WORK FOR 2008	***$ 450,000***
NORTH DAKOTA STATE WATER COMMISSION	***$1,320,000***
PRAIRIE CITY AREA	***$ 925,000***
BISON RURAL	***$ 925,000***
BOOSTER STATION	***$ 200,000***
ENGINEERING	***$ 450,000***
CONSTRUCTION, OPERATION, MISC	***$1,755,000***
TOTAL	***$6,025,000***

PCRWS would need 7-8 million dollars for the next two years to complete the project by 2011. This consists of 550 miles of various pipe sizes ranging from 1.5" to 8", booster stations, and a pump station capable of moving 800 gallons of water per minute, two or more storage tanks and telemetry to operate the whole system from one localized location.

The chart below shows the amount of Federal funds in comparison to State and local funds. The amount of State and local funds has exceeded the cost share for both. Therefore, all funds except for approximately $25,000 per year will have to be federal funds.



The quality of water in northwest South Dakota is the main concern for the health and well being of the people. Although the water typically meets primary standards established by the USEPA, most of the dissolved solids are exceedingly high by the State of South Dakota standards. Water quality and quantity in Perkins County, South Dakota has been a plague for the county over many years.

Droughts, such as the one Perkins County is in now, are a fact of life for the people in this area. With surface water gone and wells being depleted, farmers and ranchers are desperately trying to hold onto their livestock herds. Rains will raise grass and small crops, but water for drinking is a constant problem for all.

On behalf of the Board of Directors of PCRWS and the people of Perkins County, South Dakota, thank you for allowing us to enter this testimony in the Sub-Committees report.

TESTIMONY OF SUSAN BITTER SMITH, BOARD PRESIDENT,
CENTRAL ARIZONA WATER CONSERVATION DISTRICT,
BEFORE THE HOUSE COMMITTEE ON APPROPRIATIONS,
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT,
ADDRESSING FY 2010 APPROPRIATIONS FOR THE BUREAU OF RECLAMATION

The Central Arizona Water Conservation District (CAWCD) is pleased to present written testimony regarding the fiscal year 2010 (FY 2010) proposed budget for the Bureau of Reclamation (Reclamation). Preparing testimony on the FY 2010 budget is somewhat hampered by the fact that the President's complete budget request will not be delivered to Congress until late April or early May. Therefore, our testimony is based on past budget requests, the FY 2009 Omnibus Appropriations Bill, and the summary version of the FY 2010 budget request. CAWCD may wish to add additional information or comments to this testimony after the final version of the complete budget has been released.

CAWCD is a political subdivision of the State of Arizona, governed by an elected 15-member board of directors. CAWCD was created in 1971 for the purpose of contracting with the United States to repay the reimbursable construction costs of the Central Arizona Project (CAP) authorized by the Colorado River Basin Project Act of 1968. CAWCD subsequently assumed the responsibility for operating and maintaining the Project. CAWCD has and continues to meet its repayment responsibility. In addition to a $175 million upfront contribution from CAWCD, Reclamation has been paid about $820 million in principal and interest since repayment began in January 1994.

Bureau of Reclamation

CAWCD generally supports Reclamation's budget request. However, we believe that there are opportunities in the Colorado River Basin to more effectively use the limited funds available. The Colorado River system is still feeling the effects of one of the most severe droughts in its recorded history. In December 2007 Reclamation adopted new guidelines for managing the Colorado River system reservoirs. The Guidelines include Lower Basin shortage declaration and shortage sharing criteria. As the largest junior water rights contractor in the Lower Basin, these shortage criteria are essential for CAWCD to plan its water future. But it is just as important that Reclamation act affirmatively to preserve, enhance and more efficiently manage the Colorado River water supply. Accordingly, it is imperative that Reclamation's Lower Colorado River Operations budget include sufficient funds for structures and programs to improve operational efficiency and augment supplies. We urge the Committee to reorder priorities in Reclamation's budget to emphasize these important strategies for the Lower Colorado River.

Lower Colorado River Water Conservation

Specifically, we are concerned about the lack of concrete focus on preserving storage capacity in Lake Mead by undertaking activities that would augment water availability and improve system operational efficiency.

Congress is well aware of the huge impacts that a multi-year drought has imposed on this region, and of the significant drawdown of stored water in the river's reservoirs that has resulted from this drought. A significant amount of water has been released over these years from Hoover Dam that could have been retained if effective downstream strategies had been implemented.

One example of an effective strategy to save water is the construction of an off stream regulatory storage reservoir near Drop 2 of the All-American Canal. This reservoir was identified as capable of saving approximately 70,000 acre-feet of Colorado River water each year. Construction of this critical reservoir is well underway using contributed funds available from Southern Nevada Water Authority, the CAWCD and the Metropolitan Water District of Southern California in exchange for a portion of the conserved water. The estimated cost is about $172 million.

Yuma Desalting Plant

Another effective strategy to conserve additional water is the operation of the Yuma Desalting Plant (YDP). Unfortunately, we believe that Reclamation will not request the funds necessary to operate the YDP. Every year that the YDP remains idle results in the loss of over 100,000 acre-feet of Colorado River water, enough water to supply the annual water needs of half a million people. Reclamation's budget justification concerning the YDP continues to be disingenuous. Reclamation continues to say that the plant is in "ready reserve" status, but also states it would take four years and adequate funding to have the YDP fully operational. Despite this admission, none of the funding necessary to make YDP operational is identified or requested. Decisions need to be made and resources need to be applied to bring the YDP into actual operation. The appropriations bill for FY 2009 directed Reclamation to make the YDP operational at one-third capacity by June 30, 2009 and to report formally to Congress concerning the status of the YDP by September 30, 2009. At this late date in 2009, it is clear that Reclamation will not meet the directive of operation at one-third capacity in 2009. Lessons learned from the pilot operations in FY 2007 identified what actions are needed to make the plant fully operational. We believe that the FY 2010 budget request contains no requests for funds and no stated intention to operate the YDP in the future. The Lower Basin States, along with Reclamation, are developing alternate plans for one or all of the states to fund the rehabilitation and operation of the YDP at partial capacity. Nonetheless, it is the responsibility of the United States to operate the YDP at full capacity to satisfy the Mexican Treaty obligation without using additional system water. We urge the Committee to direct Reclamation to make the Yuma Desalting Plant operational at one-third capacity, to initiate regular operations as soon as possible, and to seriously explore other opportunities to enhance the Colorado River supply.

Colorado River Augmentation

CAWCD would like to call the Committee's attention to the provisions of Sections 201, 202 and 203 of Title 1 of the Colorado River Basin Project Act of 1968 (P.L. 90-537). These provisions

call for studies and actions to augment the supply of water available for distribution within the Colorado River Basin. These provisions specifically make satisfaction of the obligations of the 1944 Treaty with Mexico a national obligation and anticipate that such obligation will be met through augmentation of the Colorado River supply. The Seven Basin States (States) have completed a process, led and funded primarily by the Southern Nevada Water Authority, to review previous augmentation studies and evaluate new concepts. Reclamation participated in this process. A final report was completed in FY 2008. The States, using funding from a variety of state and local organizations, are actively involved in cloud seeding and control of non-native, water-wasting plants, such as salt cedar. At the very least, Reclamation needs to commit sufficient funds to support implementation of some of these programs beginning in FY 2010. CAWCD recommends that at least $500,000 be committed from Reclamation's overall appropriations for such activities as General Planning, Research and Development, or the Water for America Institute. CAWCD urges the Committee to direct Reclamation to take action and provide funding to fulfill the commitment Congress made 40 years ago to augment the water supply in the Colorado River Basin.

Tucson Reliability

We believe Reclamation has requested almost $3.0 million in FY 2010 for "Tucson Reliability." We strongly support that request. The local Reclamation office is working with CAWCD and the Tucson-area CAP water users to identify the facilities necessary to provide those users the same degree of CAP reliability enjoyed by CAP users in the Phoenix area. We expect that the FY 2010 funding will be sufficient for Reclamation to determine the cost and cost sharing requirements for a complete program. Once a complete program has been identified, CAWCD is willing to address the associated increase in our repayment obligation. It is time to determine what will be done concerning "Tucson Reliability" and allow the water providers to move ahead with their plans.

Lower Colorado River Operations Program

Reclamation's FY 2010 budget request for the Lower Colorado River Operations Program is anticipated to be about $20 million for the Lower Colorado River Multi-Species Conservation Program (MSCP), which includes just over $7 million from the non-federal partners. The MSCP is a cost-shared program among federal and non-federal interests to conserve endangered species and their habitat along the Lower Colorado River from Lake Mead to Mexico. CAWCD is one of the cost-sharing partners. This program will provide habitat for threatened and endangered species and, at the same time, allow current water and power operations to continue. CAWCD supports Reclamation's budget request for the Lower Colorado River Operations Program. This funding level is necessary to support the MSCP effort as well as environmental measures necessary to fully implement the interim surplus criteria for the Lower Colorado River. These are critical programs upon which Lower Colorado River water and power users depend.

Increased Security Costs for Reclamation Hydro Power Facilities

We continue to oppose the funding of post-9/11 increased security costs for Reclamation facilities through hydropower rates. The increased costs are being incurred for national security reasons, not project maintenance or operation. Details of these costs must be kept secret and cannot be disclosed like other data in Power Marketing Administration rate cases, raising serious due process issues. Other project beneficiaries are not and, in some cases, cannot be charged a fair share of these costs. Congress should make these increased national security costs non-reimbursable. We acknowledge and appreciate efforts by Congress to cap these costs.

Conclusion

We have worked for over three decades with the Congress and all the succeeding Administrations to make the Central Arizona Project a reality, as envisioned by Congress in the 1968 Act, and to ensure its contribution to the economic welfare of the State of Arizona. Improving the ability of the Lower Colorado River system to conserve and store precious Colorado River water supplies is central to our mission and, we believe, a core directive of the 1968 Act. The lengthy drought on the Colorado River has proven the need for the CAP and the wisdom of Congress in passing the 1968 Act. It is time to move forward to aggressively accomplish the additional tasks that have been identified. We look forward to working with the Congress, the Bureau of Reclamation, the other federal agencies and the Basin States to get this additional work done.

THE FY 2010 FOSSIL ENERGY RESEARCH AND DEVELOPMENT BUDGET

Testimony of Kerry W. Bowers - Director, Power Systems Development Facility
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Phone: 205.670.5073, Fax: 205.670.5843; email: kwbowers@southernco.com
To the Committee on Appropriations, Subcommittee on Energy and Water
U.S. House of Representatives
March 30, 2009

Mr. Chairman and Members of the Committee:

Southern Company operates the Power Systems Development Facility (PSDF) in Wilsonville, AL (http://psdf.southernco.com) for the U. S. Department of Energy's (DOE's) National Energy Technology Laboratory (NETL) and several industrial participants[1]. The PSDF was conceived as the premier advanced coal power generation research and development (R&D) facility in the world. It has fulfilled this expectation. I would like to thank the House of Representatives for its past support of the PSDF and request the committee's continued support as the PSDF responds to the need for developing cost-effective CO_2 capture technology for coal fueled power generation. This statement supports the Administration's budget request for DOE coal R&D which includes about $41.5 million for work at the PSDF. These funds are necessary to conduct the future test program developed in collaboration with DOE which includes wide-ranging support of the DOE Carbon Sequestration Technology Roadmap. The future focus of the PSDF is to conduct sufficient R&D to advance emerging CO_2 control technologies to commercial scale for effective integration into either combustion or Integrated Gasification Combined Cycle (IGCC) processes.

A key feature of the PSDF is its ability to test new carbon capture technologies for coal-based power generation systems at an integrated, semi-commercial scale. Integrated operation allows the effects of system interactions, typically missed in un-integrated pilot-scale testing, to be understood. The semi-commercial scale allows the maintenance, safety, and reliability issues of a technology to be investigated at a cost that is far lower than the cost of commercial-scale testing. Capable of operating at pilot to near-demonstration scales, the PSDF is large enough to produce data to support commercial plant designs, yet small enough to be cost-effective and adaptable to a variety of technology research needs.

In addition to semi-commercial scale testing, the PSDF will serve as a test bed for cost-effective technology screening by providing slipstreams of actual syngas from coal gasification and flue gas from coal combustion. Future test work at the PSDF will include the scale-up and continued development of several carbon dioxide (CO_2) capture technologies being developed either at DOE's NETL facility, at private R&D laboratories or at the PSDF. The DOE program for CO_2 capture in coal-fueled power plants is divided into three areas: post-combustion capture for conventional pulverized coal plants, pre-combustion capture for coal gasification power plants, and oxy-combustion processes which produce a more CO2-rich flue gas than conventional combustion for easier CO2 capture. The PSDF's CO_2 capture efforts would address all three areas.

[1] Current PSDF participants include Southern Company, the Electric Power Research Institute (EPRI), American Electric Power, Luminant, Peabody Energy, Arch Coal, Inc., and Rio Tinto.

Southern Company also supports the goals of the Clean Coal Technology Roadmaps developed by DOE, EPRI, and the Coal Utilization Research Council (CURC). These Roadmaps identify the technical, economic, and environmental performance that advanced clean coal technologies can achieve over the next 20 years. Over this time period coal-fired power generation efficiency can be increased to over 50 percent (compared to the current fleet average of ~32 percent) while producing *de minimis* emissions and developing cost-effective technologies for CO_2 management.

Summary

The United States has historically been a leader in energy research. Adequate funding for fossil energy research and development programs, including environmental and climate change technologies will provide our country with secure and reliable energy from domestic resources while protecting our environment. Current DOE fossil energy research and development programs for coal, if adequately funded, will assure that a wide range of electric generation options are available for future needs. Congress faces difficult choices when examining near-term effects on the Federal budget of funding energy research. However, continued support for advanced coal-based energy research is essential to the long-term environmental and economic well being of the U. S. Prior DOE clean coal technology research has already provided the basis for $100 billion in consumer benefits at a cost of less than $4 billion. Funding the Administration's budget request for DOE coal R&D and long-term support of the Clean Coal Technology Roadmap can lead to additional consumer benefits of between $360 billion and $1.38 trillion.[2] But, for benefits to be realized from advanced coal R&D, the critically important R&D program outlined in the Clean Coal Technology Roadmap must be conducted.

One of the key national assets for achieving these benefits is the PSDF. The FY 2010 funding for the PSDF needs to be about $41.5 million to support construction of new facilities to test technologies that are critical to the goals of the DOE Carbon Sequestration Technology Roadmap and to the success of the development of cost-effective climate change technologies that will enable the continued use of coal to supply the nation's energy needs. The major accomplishments at the PSDF to date and the future test program planned by DOE and the PSDF's industrial participants are summarized below.

PSDF Accomplishments

The PSDF test-bed has operated successfully for many years in support of US-DOE's advanced coal program. Skilled staff from disciplines essential for a successful research program has gained experience by designing and operating the test equipment and by working with vendors to develop and improve their technologies. The 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. In some instances, testing has eliminated technologies from further consideration. Such screening is valuable in that it concentrates R&D effort on those technologies most likely to succeed and is an essential part of managing the US-DOE's financial resources. Major subsystems tested and some highlights of the test program at the PSDF include:

[2] EPRI Report No. 1006954, "Market-Based Valuation of Coal Generation and Coal R&D in the U.S. Electric Sector", May 2002

Transport Reactor: The transport reactor has been operated successfully on sub-bituminous, bituminous, and lignite coals as a pressurized combustor and as a gasifier in both oxygen- and air-blown modes and has exceeded its primary purpose of generating gases for downstream testing. Since modifications were made in 2006, subsequent testing with air-blown gasifier operations has indicated substantial improvements in syngas heating value and carbon conversion. This transport technology is projected to be the lowest capital cost coal-based power generation option, while providing the lowest cost of electricity and excellent environmental performance.

Advanced Particulate Control: Two advanced particulate removal devices and 28 different filter elements types have been tested to clean the product gases, and material property testing is routinely conducted to assess their suitability under long-term operation. The material requirements have been shared with vendors to aid their filter development programs.

Filter Safe-Guard Device: To enhance reliability and protect downstream components, "safe-guard" devices that reliably seal off failed filter elements have been successfully developed.

Coal Feed and Ash Removal Subsystems: A key to successful pressurized gasifier operation is reliable operation of the coal feed system and ash removal systems. Developmental work on the pressurized coal feed systems has increased the understanding and optimization of their performance. Modifications developed at the PSDF and shared with equipment suppliers allow current coal feed equipment to perform in a commercially acceptable manner. An innovative, continuous process has also been designed and successfully tested that reduces capital and maintenance costs and improves the reliability of fine and coarse ash removal.

Syngas Cooler: Syngas cooling is of considerable importance to the gasification industry. Devices to inhibit erosion, made from several different materials, were tested at the inlet of the gas cooler and one ceramic material has been shown to perform well in this application.

Advanced Syngas Cleanup: A slipstream unit has provided a very flexible test platform for testing numerous syngas contaminant removal technologies to improve environmental footprint and reduce costs in IGCC gas clean-up.

Sensors and Automation: Significant progress with sensor development and process automation has been achieved. More than 20 instrumentation vendors have worked with the PSDF to develop and test their instruments under realistic conditions. Development of reliable and accurate sensors for the gasification process has concentrated on coal feed, Transport Gasifier, and filter systems. Automatic temperature control of the Transport Reactor has been successfully implemented.

Fuel Cell: Two test campaigns were successfully completed on 0.5 kW solid oxide fuel cells manufactured by Delphi on syngas from the transport gasifier marking the first time that a solid oxide fuel cell (SOFC) has been operated on coal-derived syngas. In addition, a NETL-erected SOFC multi-cell array test skid was used at PSDF to successfully conduct parallel testing of many cells directly on coal syngas.

CO2 Capture – Slipstream CO2 capture testing has been completed on both simulated and actual syngas and results have been used to design larger test equipment.

PSDF Future Test Program

Developing technology options that will reduce CO_2 emissions is a primary goal for future work at PSDF. These technologies will be screened in close collaboration with NETL for selection for testing at the PSDF. This facility will serve as a productive test-bed for developing advanced technology and is capable of operating from bench- and pilot-scale to near demonstration scales allowing results to be scaled to commercial application. The PSDF will concentrate on developing cost-effective, commercially viable carbon capture technology for coal-fueled power plants through

scale-up and continued development of several technologies (including for example those being developed either at DOE's facilities or by third party technology developers).

For both new and existing power plants, post-combustion capture technology must be made more efficient and cost-effective. In post-combustion capture, CO2 is separated from the flue gas in a conventional coal-combustion power plant downstream of the pulverized coal boiler. Many technologies are under consideration for post-combustion capture, but these technologies need to be proven and integrated in an industrial power plant setting. Activities at the PSDF for post-combustion capture technology will include:

Pilot-Scale Test Modules: Pilot-scale test modules of advanced post-combustion technologies will be designed, installed, and operated in an existing pulverized coal plant adjacent to the PSDF. The flexible design of these test modules will allow the testing of a wide range of technologies on actual flue gas.
Technology Screening: Available solvents developed by NETL, PSDF and others will be screened to assess readiness for testing at the site using improved contacting devices that are now under development.
Alternative Solvent Processes: Alternative solvents with lower heats of regeneration and more compact, lower cost gas-liquid contacting equipment will be developed and tested.
Advanced Technology: Compact membrane contactors and solid phase CO_2 sorbents that are currently being investigated by DOE-NETL and private companies will be assessed and installed. PSDF will provide a scaled-up testing platform for these technologies as development progress warrants.

In pre-combustion capture, CO2 is separated from the syngas in a coal gasification power plant upstream of combustion in the gas turbine. Research & development activities at PSDF for pre-combustion capture technology for application to gasification-based power generation include:

Advanced CO2 Capture Systems: New solvents and gas-liquid contacting devices will be evaluated on air-blown and oxygen-blown syngas. New sorbent-based or membrane-based CO2 separation technologies will be scaled-up and tested based on progress in fundamental R&D by third party developers.
Water Gas Shift Enhancements: New water gas shift reactor configurations and sizes are planned for testing at the PSDF. The operation of shift catalysts when exposed to syngas at the PSDF will be optimized and their technical and economic performance will be evaluated.
Advanced Syngas Cleanup: New advanced syngas cleanup systems will be tested for reducing hydrogen sulfide, hydrochloric acid, ammonia, and mercury to near-zero levels.

In order to develop a cost-effective advanced coal power plant with CO_2 capture, all process blocks within the power plant must be optimized in addition to the capture block. Including CO_2 capture in an advanced coal power plant will increase the plant cost of electricity (COE), so opportunities to reduce cost in every part of the process will be explored. Although highest priority will be given to low-cost CO_2 capture process development, projects that reduce overall process capital and operating costs will also be included in the PSDF test plan to partially offset incremental cost increases due to the addition of CO_2 capture. These cost reduction projects include technology development for syngas cleanup, particulate control, fuel cells, sensors and controls, materials, and feeders.

STATEMENT OF MR. BRAD OBERG
CHIEF TECHNOLOGY OFFICER - IBACOS, INC.
SUBMITTED TO THE SUBCOMMITTEE ON
ENERGY AND WATER DEVELOPMENT
HOUSE COMMITTEE ON APPROPRIATIONS
APRIL 3, 2009

IBACOS (Integrated Building And Construction Solutions) urges the Subcommittee on Energy and Water Development to provide $46 million for the Building America Program at the Department of Energy's (DOE) Office of Building Technologies in Fiscal Year 2010 Appropriations under the Office of Building Technologies, Residential Building Integration, Energy Efficiency and Renewable Energy. We further urge that the following language is included to ensure that the competitively selected Building America teams are funded at a percentage comparable to their historic funding: Of these funds, $35 million shall be provided for the research activities of the competitively selected Building America research teams, the Building America lead research laboratory, and other national laboratories conducting research to achieve Building America's specified energy performance targets.

Residential Buildings currently account for over 20% of the primary energy consumed by the United States. Each year, more than one million new homes are constructed and over a million are remodeled. Significant energy savings can be achieved at minimal increases in construction costs provided that a long term and consistent commitment is made to work in partnership with the housing industry. DOE's Building America Program has developed an industry-driven research approach that can reduce the average energy use in new housing by 50% by 2015, providing significant benefits to homeowners in terms of reduced utility bills and significant benefits to the US economy by maintaining housing as a major source of jobs and economic growth. If building in significant energy savings isn't done now, the nation risks using an extravagant amount of energy in the future. In order to reduce reliance on foreign energy supplies and to support the stabilization of greenhouse gas emissions, we must invest appropriately in research in the areas of technology, systems integration, and builder processes to upgrade the performance of our housing stock; otherwise, *we are mortgaging our future.*

Research, development, and outreach activities performed by the competitively selected industry Teams in the Building America Program are *the* key element in DOE's strategy to reduce energy consumption in residential buildings. The Teams' activities focus on increasing the performance of new and existing homes by developing advanced energy systems that can be implemented on a production basis, while meeting consumer and building performance requirements.

While the Teams have been working on improving efficiency in housing since 1992, with successes being embodied in EPA's Energy Star Home program and DOE's Builders Challenge, they are now focused on the more difficult goal of creating strategies to achieve Zero Energy Homes (ZEH) - homes that produce as much energy as they use on an annual basis.

A New Frontier in Research – Zero Energy Homes

The research needed to develop systems and strategies to achieve the long term goal of ZEH is not simply applying lessons learned; rather, fundamental research is still required. This R&D, performed by the Building America Teams, is truly high-risk, high-payoff research.

The research required to meet the goal of ZEH is costly and high risk:

- Significant basic research is required to develop and integrate new technologies into homes before they are proven effective enough to be applied in the field.
- This research is costly and risky, and not going to be undertaken by the industry alone.
- The life cycle of this research is significantly longer than that of comparable industries.
- The homebuilding industry is extremely fragmented, with homebuilders having little ability to drive research, and a lower than average financial commitment to investing in research.
- Mechanisms do not currently exist within the homebuilding industry to integrate new technologies and strategies effectively.

The research required to meet the goal of ZEH is also high-payoff for the following reasons:

- Once constructed, homes have a long lifespan, providing the opportunity for a durable long term reduction in energy use.
- Effective strategies to reduce energy use will positively impact consumers, as well as the nation's energy demand.
- Successful research into integration strategies will allow new, high-risk technologies to be adopted more quickly and effectively.

Building America Competitive Teams: Research and Implementation in the Real World

The work of the Teams allows industry leadership to drive cost effective solutions that move us towards Zero Energy Homes. Building America partners have shown that homes with improved efficiency levels can have equal or lower purchase prices than conventional homes, in addition to much lower energy bills and operating costs, and increased building durability as well as occupant safety, health, and comfort. In addition to performing the fundamental research needed to advance the energy efficiency of our nation's housing stock, the Building America Teams provide recommendations to a broad range of residential deployment partners including the EPA's Energy Star Homes Program, HUD's Partnership for Advancing Technologies in Housing Program, DOE's Builders Challenge, and many industry associations and universities. Furthermore, the Teams are perhaps the best resource for DOE to educate the builder community on technology and integration breakthroughs. This education has been, in part, demonstrated through successful projects, where high efficiency housing is being built and bought, such as Summerset at Frick Park (Pittsburgh, Pennsylvania); Noisette (North Charleston, South Carolina); Civano (Tucson, Arizona); The Landover Group (Virginia and Maryland); Forest Glen development in (Carol Stream, Illinois); Hunters Point Shipyard (San Francisco, CA); Stapleton (Denver, Colorado); Habitat for Humanity (Georgia, Colorado, Tennessee, Florida, Michigan, Texas and throughout the U.S.); Summerfield (San Antonio, Texas); Sun City (Las Vegas, Nevada); and others throughout the nation as documented on www.buildingamerica.gov. The more than 500 private sector partners who work with the Teams are experts in home construction, building products and supply, architecture, engineering, community planning, and mortgage lending. All construction material and labor costs for homes and communities constructed by Building America Teams are provided by DOE's private sector partners.

DOE's Role in the Residential Buildings Research Partnerships:

- Catalyzing research in residential construction necessary to increase the energy performance, and bringing together industry partners to leverage research dollars and expertise
- Matching advanced product research programs to the system integration efforts of the Building America Teams to ensure realistic approaches to increasing energy performance
- Reducing risk and increasing reliability of emerging technologies
- Providing scientific expertise through the involvement of the National Renewable Energy Laboratory (NREL) and other national laboratories
- Sharing critical information about research with several thousand associated building industry professionals and leveraging information through EPA, HUD, and private sector energy efficiency programs.

Program Goals:

- Reduce energy use in America's housing stock by 50% by 2015 and provide ZEH by the year 2025, integrating renewable energy when and where practical.
- Research and develop the systems and strategies necessary to allow our nation to deliver high performance houses in order to increase our national energy security.

Program Status:

Through the competitively selected Teams, Building America works closely with America's lead builders, who produce approximately 50% of the nation's new housing stock. Additionally, the program has been tasked with providing the research and development basis for the President's Partnership for Housing Energy Efficiency (PHEE). More than 30,000 homes have been constructed in thirty-four states. Increased funding is needed to address new program requirements including increased energy efficiency goals, increased need for technical support of lead builders, contractors, and suppliers for effective participation in the program, expansion of applications in existing building stock, expansion to multi-family housing stock, and design for integration of on-site and renewable power. Specifically, the incorporation of the ZEH goals into Building America research and development activities must be done in an integrated fashion via the existing competitively selected Building America teams, which have begun to include renewable energy technologies and on-site energy into some projects. The stated DOE goals of the program are unreachable without significant Team funding.

Recommendation for FY10 Funding:

Provide $46 million, for the Building America Program at the DOE's Office of Building Technologies in Fiscal Year 2010 Appropriations (under the Office of Building Technologies, Residential Building Integration). Additionally, include language as follows to ensure that the competitive teams are funded at a percentage comparable to their historic funding:

> "Of these funds, $35 million shall be provided for the research activities of the competitively selected Building America research teams, the Building America lead research laboratory, and other national laboratories conducting research to achieve Building America's specified energy performance targets"

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April 1, 2009

The Honorable Peter Visclosky
Subcommittee on Energy and Water Development
House Appropriations Committee
United States House of Representatives
2362B Rayburn House Office Building
Washington, D.C. 20515-6016

Dear Chairman Visclosky:

The Colorado River Basin Salinity Control Forum has adopted a position supporting funding for Title II of the Bureau of Reclamation's Colorado River Basin salinity control program in the amount of $17,500,000. The testimony of the Forum is attached.

We would appreciate you making this statement a part of the formal hearing record concerning FY 2010 appropriations for the Bureau of Reclamation. We thank you for your Subcommittee's support of this program in years past and hope that you will again support adequate funding to continue this valuable program.

Sincerely,

Jack A. Barnett
Executive Director
jbarnett@barnettwater.com

attachment

Statement of
the
COLORADO RIVER BASIN SALINITY CONTROL FORUM

to the
HOUSE COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

Presented by
JACK A. BARNETT, EXECUTIVE DIRECTOR
April 1, 2009

Requesting Appropriations
for the
COLORADO RIVER BASIN SALINITY CONTROL PROGRAM, TITLE II

'or the Department of the Interior

Bureau of Reclamation – FY 2010 Appropriation

Colorado River Basin Salinity Control Forum's Recommendation:

1.	Title II Program (Basinwide Program) Authorized in 1995 (PL 104-20)	$17,500,000
2.	Colorado River Water Quality Improvement Program	Administration Request
3.	Paradox Valley Unit and Grand Valley Unit	Administration Request

This testimony is in support of funding for the Title II Colorado River Basin Salinity 'ontrol Program. The Congress has designated the Department of the Interior, Bureau of 'eclamation (Reclamation), to be the lead agency for salinity control in the Colorado River 'asin. This role and the authorized program were refined and confirmed by the Congress when 'L 104-20 was enacted. A total of $17,500,000 is requested for FY 2010 to implement the eeded and authorized program. Failure to appropriate these funds will result in significant conomic damage in the United States and Mexico.

In recent years, the President's requests have dropped to below $10 million. The 'olorado River Basin Salinity Control Forum (Forum) finds this unacceptable. Reclamation has equested for funding many very cost-effective proposals through its Basinwide Program that far xceed this funding level. In the judgment of the Forum, this amount is inappropriately low. Vater quality commitments to downstream United States and Mexican water users must be onored while the Basin states continue to develop their Colorado River Compact-apportioned vaters. Concentrations of salts in the river cause about $353 million in quantified damage in the Jnited States with significantly greater unquantified damages. Damages occur from:

- a reduction in the yield of salt sensitive crops and increased water use for leaching in the agricultural sector,
- a reduction in the useful life of galvanized water pipe systems, water heaters, faucets, garbage disposals, clothes washers, and dishwashers, and increased use of bottled water and water softeners in the household sector,
- an increase in the use of water for cooling, and the cost of water softening, and a decrease in equipment service life in the commercial sector,
- an increase in the use of water and the cost of water treatment, and an increase in sewer fees in the industrial sector,
- a decrease in the life of treatment facilities and pipelines in the utility sector,
- difficulty in meeting wastewater discharge requirements to comply with National Pollutant Discharge Elimination System permit terms and conditions, and an increase in desalination and brine disposal costs due to accumulation of salts in groundwater basins,
- increased use of imported water for leaching and the cost of desalination and brine disposal for recycled water.

The Forum, therefore, believes implementation of the program needs to be accelerated to a level beyond that requested by the President in the past.

The program authorized by the Congress in 1995 has proven to be very successful and very cost effective. Proposals from the public and private sector to implement salinity control strategies have far exceeded the available funding and Reclamation has a backlog of proposals. Reclamation continues to select the best and most cost-effective proposals. Funds are available for the Colorado River Basin states' cost sharing for the level of federal funding requested by the Forum. Water quality improvements accomplished under Title II of the Colorado River Basin Salinity Control Act also benefit the quality of water delivered to Mexico. Although the United States has always met the commitments of the International Boundary & Water Commission's (Commission) Minute No. 242 to Mexico with respect to water quality, the United States Section of the Commission is currently addressing Mexico's request for better water quality at the International Boundary.

Some of the most cost-effective salinity control opportunities occur when Reclamation can improve irrigation delivery systems at the same time that the U.S. Department of Agriculture's (USDA) program is working with landowners (irrigators) to improve the on-farm irrigation systems. Through the USDA Environmental Quality Incentives Program, adequate on-farm funds appear to be available and adequate Reclamation funds are needed to maximize the effectiveness of the effort. These salinity control efforts have secondary water conservation benefits at the point of use and downstream at the point of reuse.

OVERVIEW

In 2000, the Congress reviewed the program as authorized in 1995. Following hearings, and with Administration support, the Congress passed legislation that increased the ceiling authorized for this program by $100 million. Reclamation has received cost-effective proposals to move the program ahead and the Basin states have funds available to cost-share up-front.

The Colorado River Basin Salinity Control Program was originally authorized by the Congress in 1974. The Title I portion of the Colorado River Basin Salinity Control Act responded to commitments that the United States made, through Minute No. 242, to Mexico concerning the quality of water being delivered to Mexico below Imperial Dam. Title II of the Act established a program to respond to salinity control needs of Colorado River water users in the United States and to comply with the mandates of the then newly legislated Clean Water Act. Initially, the Secretary of the Interior and Reclamation were given the lead federal role by the Congress. This testimony is in support of adequate funding for the Title II program.

After a decade of investigative and implementation efforts, the Basin states concluded that the Salinity Control Act needed to be amended. The Congress revised the Act in 1984. That revision, while leaving implementation of the salinity control policy with the Secretary of the Interior, also gave new salinity control responsibilities to the USDA and to the Bureau of Land Management (BLM). The Congress has charged the Administration with implementing the most cost-effective program practicable (measured in dollars per ton of salt removed). The Basin states are strongly supportive of that concept as the Basin states cost share 30% of federal expenditures up-front for the salinity control program, in addition to proceeding to implement salinity control activities for which they are responsible in the Colorado River Basin.

The Forum is composed of gubernatorial appointees from Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming. The Forum has become the seven-state coordinating body for interfacing with federal agencies and the Congress to support the implementation of the program necessary to control the salinity of the river system. In close cooperation with the Environmental Protection Agency (EPA) and pursuant to requirements of the Clean Water Act, every three years the Forum prepares a formal report analyzing the salinity of the Colorado River, anticipated future salinity, and the program elements necessary to keep the salinities at or below the concentrations in the river system in 1972 at Imperial Dam, and below Parker and Hoover Dams.

In setting water quality standards for the Colorado River system, the salinity concentrations at these three locations have been identified as the numeric criteria. The plan necessary for controlling salinity and reducing downstream damages has been captioned the "Plan of Implementation." The 2008 Review of water quality standards includes an updated Plan of Implementation. The level of appropriation requested in this testimony is in keeping with the agreed upon plan. If adequate funds are not appropriated, significant damages from the higher salt concentrations in the water will be more widespread in the United States and Mexico.

JUSTIFICATION

The $17,500,000 requested by the Forum on behalf of the seven Colorado River Basin states is the level of funding necessary to proceed with Reclamation's portion of the Plan of Implementation. In July of 1995, the Congress amended the Colorado River Basin Salinity Control Act. The amended Act gives Reclamation new latitude and flexibility in seeking the most cost-effective salinity control opportunities, and it provides for utilization of proposals from project proponents, as well as more involvement from the private as well as the public sector. The result is that salt loading is being prevented at costs often less than half the cost under the previous program. The Congress recommitted its support for the revised program when it enacted PL 106-459. The Basin states' cost sharing up-front adds 43 cents for every federal dollar appropriated. The federally chartered Colorado River Basin Salinity Control Advisory Council, created by the Congress in the Salinity Control Act, has met and formally supports the requested level of funding. The Basin states urge the Energy and Water Development Subcommittee to support the funding as set forth in this testimony.

ADDITIONAL SUPPORT OF FUNDING

In addition to the funding identified above for the implementation of the most recently authorized program, the Forum urges the Congress to appropriate funds requested by the Administration to continue to maintain and operate salinity control facilities as they are completed and placed into long-term operation. Reclamation has completed the Paradox Valley unit which involves the collection of brines in the Paradox Valley of Colorado and the injection of those brines into a deep aquifer through an injection well. The continued operation of this project and the Grand Valley Unit will be funded primarily through the Facility Operations activity.

The Forum also supports funding to allow for continued general investigation of the Salinity Control Program as requested by the Administration for the Colorado River Water Quality Improvement Program. It is important that Reclamation have planning staff in place, properly funded, so that the progress of the program can be analyzed, coordination between various federal and state agencies can be accomplished, and future projects and opportunities to control salinity can be properly planned to maintain the water quality standards for salinity so that the Basin states can continue to develop their Colorado River Compact-apportioned waters.

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FY10 Funding Request for University Research Reactors

Ralph A. Butler, John Bernard, Jere Jenkins

National Organization of Test Research and Training Reactors

The nuclear university community is extremely pleased that, in enacting the FY2009 Omnibus Appropriations Bill, Congress has reinvigorated federal funding for the nation's nuclear science and engineering academic discipline. The National Organization of Test, Research and Training Reactors (**TRTR**) recommends that Congress continue the course taken by the Omnibus Bill into the 2010 appropriations cycle. The TRTR does request that the **"Research Reactor Infrastructure" account be funded at $8.1 million to support US research reactor fuel, equipment, and upgrades.**

This testimony represents the views of the National Organization of the Test, Research, and Training Reactors (TRTR), which is an organization of professionals at research reactor facilities across the Nation and from government, national laboratories, industry and universities. TRTR membership includes managers and directors of research reactors, administrators, educators, research scientists and engineers. The organization promotes science and engineering education, fundamental and applied research, the application of technology in areas on national concerns, and improving U.S. technological competitiveness around the world.

What are University Research Reactors?

- University Research Reactors (URRs) are small-scale, low-thermal power nuclear reactors that provide incomparable education and research opportunities in a number of diverse disciplines and applications, such as nuclear science and engineering, physics, human and animal medicine, archaeology, human and animal nutrition, agriculture and geology, to name a few.
- URRs present multiple uses that include teaching and research in the medical, industrial, and power applications of nuclear science and technology as well as analytical and production services for multiple laboratories and industries.
- URRs range in power level from upwards of 10 Megawatts for broad-range research, to as low as a few watts for education and training.
- URRs are unique national assets that are at risk of being irrevocably lost as the number of URRs decline from their peak of 65 to the current 26.

What national interests are served by training and research reactors?

- Development of high technology applications in fields such as materials science, fluid dynamics, and biomedical science
- Research fundamental to the future of nuclear power reactors, including establishing the scientific basis for new concepts, safeguards and safety
- Education and training of personnel necessary (1) to operate, maintain and improve reactors and other facilities associated with national defense and nuclear power activities and (2) to direct the technology development and nuclear science research critical to maintaining the nation's infrastructure

Some brief examples:

- University of Missouri in Columbia (MU) has a long-standing record in medical isotope research, education and production, with networks of collaborations in areas such as comparative oncology, radiopharmaceutical development and archaeological research. MU is a cornerstone of the Nuclear Energy Technology (NETWORK) Center that pairs academic institutions with nuclear power plants to train tomorrow's nuclear technicians, radiation workers and engineers.
- University of California-Davis has key programs in radiation effects research on materials and significant facilities for neutron radiography and tomography imaging
- University of Texas-Austin has strong programs in neutron physics, including development of a novel reactor design for destroying nuclear waste, plus a federally funded nuclear forensics graduate fellowship program and an impressive distance learning program
- Texas A&M has the largest enrollment in nuclear engineering in the nation, producing qualified engineers in nuclear energy production, space applications and radiological health technologies as well as graduate research opportunities as varied as nuclear design and materials, computational methods development, space nuclear power systems, nuclear security and policy, and medical applications.
- Oregon State University has nationally important programs in thermal hydraulics for the next generation of reactor designs and radiation instrumentation for national security applications as well as growing national and international recognized research collaborations in geology and archeology.
- University of Florida-Gainesville has a substantial nuclear science education outreach program with a two-fold purpose: expand learning opportunities that promote understanding of nuclear energy issues and attract pre-college students to the sciences
- University of Massachusetts-Lowell has developed a web based reactor control room for remote outreach
- Purdue University has the second largest enrollment in Nuclear Engineering in the nation, and the reactor supports the education mission of the department by supporting two undergraduate and one graduate level class. Every student in the NE program will have used the reactor in at least two experiments, with each student gaining at least 10 hours of valuable operations experience.
- Reed College in Portland, OR, currently has approximately 40 students licensed as reactor operators who conduct their own research and provide irradiations and analyses for academic institutions, private research organizations and for industrial applications

Training and research reactors at universities are vital for generating innovations and increasing knowledge in nuclear science and engineering at the graduate level and provide powerful tools for advancements in multiple other disciplines. They afford undergraduate and graduate students with an otherwise unobtainable "hand-on" educational experience and allow for discovery of nuclear fission reactor processes, understanding of critical nuclear systems, interaction of radiation with matter and involvement in the nuclear regulatory and safety process. These experiences not only enrich the students' general and technical education but also forge a training path toward becoming the next generation of nuclear power reactor operators.

Reactors have pioneered the development of cold neutron beams that are valuable for macromolecular studies on polymers, colloids and complex fluids. Neutron radiography and neutron activation analysis services are also supplied by reactor facilities to inspect the integrity of components and analyze materials for a variety of disciplines.

TRTR believes that maintaining U.S. competence in nuclear research and education should be one of the nation's high priorities. Government support is essential to regaining U.S. leadership in the field. A principal component is support for university research reactors and programs.

Reactors at-Risk

The population of URRs had fallen precipitously from 65 to 26. Many URRs had been underfunded for years despite the remarkable scientific contributions—past, current and potential—made possible by these facilities. The Research Reactor Infrastructure account is a primary source of funding for the URRs and assists with reactor instrumentation and equipment upgrades necessary for continued safe operation and fuel replacement. The Research Reactor Infrastructure account should be funded adequately to revitalize reactor operating capabilities, halt the further loss of university research and training reactors and bolster the academic environment to enhance student enrollments and training opportunities.

Considerations

The U.S. is keenly aware of the importance of secure and affordable energy supply for the present and future well-being of the nation. Nuclear energy can play a crucial role in stabilizing and reducing energy prices and in meeting the energy needs of the country by the production of electricity as well as hydrogen for transportation.

The importance of nuclear science and engineering programs is enormous for meeting the infrastructure and workforce requirements for sustained nuclear technology development related to (a) current and future generations of nuclear power plants, (b) radiation sciences with industrial, medical and biotechnology applications, (c) national security and weapons nonproliferation programs, and (d) nuclear propulsion in the U.S. Navy.

URRs are well utilized facilities. A premature demise of any of these URRs would be a major blow to the nation's nuclear energy program and a loss of valuable national scientific research and training resources with far-reaching implications. Such a loss would be particularly tragic as the nation considers expanding nuclear electricity generating capacity to meet the increasing energy demand for the nation. Because contributions of nuclear scientist and engineers extend well beyond traditional nuclear power—including national defense, homeland security, medical understanding, including diagnosis and treatment of disease, plus extensive industrial applications—the shortage of technically trained nuclear professionals will have an even greater impact.

University research reactors provide incomparable support for both instructional and research programs on 26 university campuses. For example, these campus reactors offer programs in (a) in-core irradiations for materials science study, isotope production in medical and industrial applications, neutron activation analysis in manufacturing, geological, archaeological and environmental applications, and nuclear wasteform study, (b) neutron beam port applications for neutron scattering as a materials diagnostic tool, neutron radiography as a nondestructive testing

tool, semiconductor processing, characterization of materials in nuclear and non-nuclear applications, and boron neutron capture therapy, (c) reactor control study involving digital instrumentation and control for advanced reactors as well as for the current generation of nuclear power plants, (d) neutron and reactor physics studies offering research in medical imaging, radiation detectors for homeland security, nuclear fuel development, and advanced reactor design and safety features. In addition, each URR serves as a magnet for recruiting students in a variety of disciplines and is a focal point for community outreach.

Summary

We respectfully request a total funding of $8.1M for FY10 be appropriated for the Research Reactor Infrastructure account. This represents a $2.0M increase from FY09.

Strengthening university research reactors is essential in guaranteeing the nation secure energy sources for the future and in enhancing scientific, medical, and industrial applications of nuclear science and technology for the well-being and advancement of the nation.

Respectfully,

Ralph A. Butler
Chair, TRTR
Director, University of Missouri-Columbia Research Reactor

John Bernard
Immediate Past Chair, TRTR
Director Operations, MIT Research Reactor

Jere Jenkins
In-coming Chair TRTR
Director, Purdue University Radiation Center

OUTSIDE WITNESS TESTIMONY

Energy and Water Development Subcommittee on Appropriations
Honorable Pete Visclosky, Chairman

Mni Wiconi Project (PL 100-516, as amended), testimony submitted by
Oglala Sioux Rural Water Supply System, Frank Means, Director
West River/Lyman Jones Rural Water System, Jake Fitzgerald, Manager
Rosebud Rural Water System, Syed Huq, Director
Lower Brule Rural Water System, Jim McCauley, Manager

Agency: Bureau of Reclamation

1. FY 2010 Request

The Mni Wiconi Project beneficiaries respectfully request $31.427 million in appropriations for construction and $ 10.526 million for operation and maintenance (OMR) activities for FY 2010, a total request of $41.953 million:

FY 2010 Total Request		
Construction	OMR	Total
$31,427,000	$10,526,000	$41,953,000

The construction request includes $1.1 million and the OMR request includes $1.4 million for Bureau of Reclamation oversight.

2. Construction Funds

Construction funds would be utilized as follows:

Project Area	Construction Request FY2010
Oglala Sioux Rural Water Supply System	
Core	Complete
Distribution	19,736,000
West River/Lyman-Jones RWS	5,356,000
Rosebud RWS	6,335,000
Total	$31,427,000

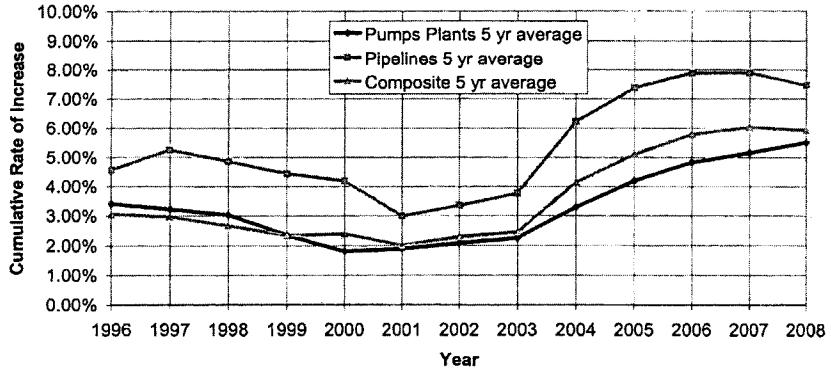
As shown in the table below, the project will be 83% complete at the end of FY 2009. Construction funds remaining to be spent after FY 2009 will total $78.962 million within the current authorization (in October 2008 dollars). Additional administrative and overhead costs of extending the project, additional construction costs, and inflation at 7.5% over the next 5 years are expected to increase project costs to $125.708 million after FY 2009.

Total Federal Construction Funding (Oct 2008 $)	$ 467,654,356
Estimated Federal Spent Through FY 2009	$ 388,692,000
% Spent Through FY 2009	83.12%
Amount Remaining after 2009	
Total Authorized (Oct 2008 $)	$ 78,962,356
Overhead Adjustment for Extension to FY 2013 and Other	$ 105,361,000
Adjusted for Annual Inflation	$ 125,708,000
Completion Fiscal Year (Statutory FY 2013; PL 110-161)	2 013
Years to Complete	4
Average Annual Required for Finish	$ 31,427,000

Cost indexing over the last five years has averaged 7.5 % for pipelines. Pipelines are the principal components yet to be completed (see chart below). Assuming an average 7.5% inflation in construction costs in the remaining four years to complete the Project, average funding of $31.427 million is required. Cost indexing last year using Reclamation indices was 13.8% for the type of construction remaining in the Project, nearly double the rate projected in last year's testimony. This accounts for some of the increase in the annual rate of appropriations needed to complete the Project from last year's estimate of $27.43 million. The other significant factor was the $23 million appropriation for FY 2009, which was $4.5 million short of the average of average appropriations projected last year.

The request will create an estimated 251 full-time equivalent (FTE) construction jobs and 84 FTE OMR jobs in an area of the nation with the lowest per capita income and deepest poverty.

RATE OF CONSTRUCTION COST INCREASE FOR ANNUAL AND 5-YEAR RUNNING AVERAGES SINCE 1992, US BUREAU OF RECLAMATION



3. Oglala Sioux Rural Water Supply System (OSRWSS)

Core System

The Oglala Sioux Tribe will complete the core system with FY 2009 funds. The completion of the OSRWSS core system is an historic milestone and permits greater focus in the remaining years of the project on completion of the distribution systems.

Distribution System

The Pine Ridge Indian Reservation will receive water from the OSRWSS core system in FY 2009. This is another historic milestone, but considerable work remains to distribute the water supply throughout the Reservation. Over 40% of the project's population resides on the Pine Ridge Indian Reservation. The Reservation public has awaited delivery of Project water from the Missouri River since 1994.

Project funds in FY 2010 will permit the continued building of the on-Reservation transmission system between the community of Kyle in the central portion of the Pine Ridge Indian Reservation and Wounded Knee and Pine Ridge Village. The latter community is the largest on the Reservation and the point of greatest demand. More than half of the funds for FY 2010 will be used for this purpose. Of the 21,000 persons in the design of the project only 5,000 will be served by the Missouri River source at the end of FY 2009.

Other funds requested will be used for development east of Pine Ridge Village where groundwater is the most feasible water source for the future.

Delivery of Missouri River water to Kyle, scheduled in FY 2009, will allow distribution to completed OSRWSS pipelines that serve the communities of Kyle, Sharps Corner, Rocky Ford, Red Shirt, Manderson, Evergreen and Porcupine and the large number of rural homes between the communities along these pipelines. FY 2010 funds will be used to extend service to Western portions of the Reservation, particularly in the Red Shirt area, that have not been served and are without a safe water supply.

As set forth above, activity on the Pine Ridge Indian Reservation in FY 2010 continues to focus on constructing the transmission system that serves as the "backbone" of the Project on the Reservation. The Tribe will focus on the disinfection requirements to blend Missouri River water and high quality groundwater without creating harmful contaminants. State-of-the-art planning has been implemented in this regard, and the Project will serve as a model for other projects in addressing disinfection byproducts.

The Oglala Sioux Tribe is supportive of the funding request of other sponsors.

4. West River/Lyman-Jones Rural Water System

Completion of the OSRWSS core pipeline to the Philip Junction now allows WR/LJ to deliver Missouri River water to the City of Philip and WR/LJ service areas West of Philip. Finishing the core pipeline from Kadoka to Philip Junction provides a safety net backup to the North and South core pipelines that are critical to delivering water to WR/LJ and the Pine Ridge Reservation.

Completion of the Powell service area in FY 2009 will be a major milestone toward completing service to the WR/LJ membership. The focus for FY 2010 will be construction of mainline improvements, pump station upgrades and SCADA facilities to bring those facilities up to full design capacity.

Near average rainfall and favorable summer temperatures in 2008 made it possible for WR/LJ to meet member water requirements with limited delivery capacity. Completing the planned FY2010 improvements will bring WR/LJ significantly closer to full design capacity and the ability to serve it membership in the unavoidable drought years that all too frequently affect the Mni Wiconi Project area.

5. Rosebud Sioux Rural Water System – Fiscal Year 2010

In FY 2010 the Rosebud Sioux Tribe will continue progress on both the transmission and distribution components of the Sicangu Mni Wiconi. In 2009 surface water became available in Todd County and 2010 funding will be used to complete the Mission Connector. This project provides a reliable source of high quality water to the community of Mission, the largest on the reservation, and connects to the previously constructed transmission line that serves the area from Antelope to Okreek.

The new water storage reservoir at the Rosebud well field will also be completed with FY 2010 funding. This project was started in 2009 but requires 2010 funding for completion. This million gallon reservoir increases the reliability of the portion of the Sicangu Mni Wiconi supplied from groundwater and also includes storage to replace the amount lost when the old welded steel tank in the community of Rosebud was taken out of service.

The major new transmission system initiative is a 10-inch pipeline between the Mission well field and Sicangu Village. Sicangu Village is a growing population center close to the Nebraska border and the Tribe's casino, motel and convenience store. With surface water available for the community of Mission, capacity in the well field is now available to serve the rural homes south of Mission and Sicangu Village.

The remaining funds will be used to expand the rural distribution system and construct service lines to rural homes. Most of this work is completed by tribal construction crews and it has not only provided reliable water to rural homes but the construction has also provided a reliable source of employment for several tribal members.

6. OMR

The Sponsors will continue to work with Reclamation to ensure that their budgets are adequate to properly operate, maintain and replace (OMR) respective portions of the core and distribution systems. The Sponsors will also continue to manage OMR expenses to ensure that the limited funds can best be balanced between Construction and OMR.

The project has been treating and delivering more water each year from the OSRWSS Water Treatment Plant near Fort Pierre. Completion of significant core and distribution pipelines has resulted in more deliveries to more communities and rural users. The need for sufficient funds to properly operate and maintain the functioning system throughout the project has grown as the project has now reached 83% completion. The OMR budget must be adequate to keep pace with the system that is placed in operation.

The Mni Wiconi Project tribal beneficiaries (as listed below) respectfully request appropriations for OMR in FY 2010 in the amount of $10.526 million.

Project Area	FY 2010 OMR Request
Oglala Sioux Rural Water Supply System	
Core	$2,630,000
Distribution	2,648,000
Lower Brule	1,571,000
Rosebud RWS	2,277,000
Reclamation	1,400,000
Total	$10,526,000

Peter Raabe
Policy Director for Budget and Appropriations
American Rivers

American Rivers, on behalf of our 65,000 supporters nationwide urges the Committee to provide $2,327,995,000 for the following programs in the Energy and Water Development Appropriations bill for Fiscal Year 2010, including programs run by the U.S. Army Corps of Engineers, the Department of Energy and Department of Interior. I request that this testimony be included in the official record.

1. U.S. Army Corps of Engineers

The **Project Modification for Improvement of the Environment**(Section 1135) allows the U.S. Army Corps of Engineers (Corps) to restore river systems degraded by existing Corps projects. Under Section 1135, the Corps can modify existing dams and flood control projects to increase habitat for fish and wildlife, and restore areas affected by Corps projects. Non-federal interests must provide for 25 percent of project costs, and modifications must not interfere with a project's original purpose. American Rivers urges the Committee to appropriate $25 million for the Project Modification for Improvement of the Environment program in FY 2010.

The **Aquatic Ecosystem Restoration** (Section 206) program allows the Corps to undertake small-scale projects to restore aquatic habitat, even in areas not directly harmed by past Corps projects. Projects carried out under this program must improve the quality of the environment, be in the public interest, and be cost-effective. American Rivers urges the Committee to appropriate $25 million for the Aquatic Ecosystem Restoration program in FY 2010.

Flood Hazard Mitigation and Riverine Restoration (Challenge 21)- Escalating flood losses are a national concern. Over the past 25 years, the federal government has spent more than $140 billion for traditional structural flood control projects and flood damage recovery. Flooded communities are increasingly seeking and implementing non-structural solutions to reduce flooding. In addition to reducing flood losses, non-structural projects help meet many other goals of riverside communities, including improving water quality, increasing opportunities for recreation, and improving and restoring wildlife habitat. Challenge 21, a flood damage reduction program authorized in 1999, is designed to help support non-structural flood control solutions. Challenge 21 allows the Corps to relocate vulnerable homes and businesses in smaller communities, restore floodplain wetlands, increase opportunities for riverside recreation, and improve quality of life in riverside communities. Challenge 21 also authorizes the Corps to work with other federal agencies to help local governments reduce flood damages and conserve, restore, and manage riverine and floodplain resources with local communities providing 35 percent of project costs. American Rivers urges the Committee to appropriate $50 million for the Flood Hazard Mitigation and Riverine Restoration program in FY 2010.

The **National Levee Safety Program** (NLSP) was established by the Water Resources Development Act of 2007 with two primary requirements- form a Committee on Levee Safety to develop recommendations and an implementation plan for a National Levee Safety Program, and inventory and inspect federal and non-federal levees across the nation. There are thousands of miles of levees across the U.S. that were constructed and are maintained in a haphazard way by

all levels of government and private entities. Millions of people live and work in the flood risk areas behind these levees and have the right to know the condition of the structures they rely on. The Corps has been gathering data on the levees under its jurisdiction but significant work remains to be done for the NLSP to adequately protect communities. American Rivers urges the Committee to appropriate $20 million for the National Levee Safety Program in FY 2010.

Navigation and Ecosystem Sustainability Program (NESP) is a long term plan to balance navigation needs and ecological restoration in the Upper Mississippi River System. It will tackle many of the cumulative environmental impacts incurred from operating the river as a navigation system. The Corps will have a wide range of options from floodplain restoration and dam removal to land acquisition through easements to accomplish its restoration goals. Projects developed under this program will undergo independent analysis and will be monitored to assure that project goals are being met and taxpayer dollars are being used wisely. The NESP was authorized as part of the Water Resources Development Act of 2007 and works in concert with the Upper Mississippi River and Illinois Waterway System. American Rivers urges the Committee to appropriate $44.7 million (including $10.4 million for monitoring) for the Navigation and Ecosystem Sustainability Program in FY 2010.

Upper Mississippi Environmental Management Program- The Upper Mississippi River Environmental Management Program (EMP), the primary habitat restoration and monitoring program on the Upper Mississippi, has a goal of restoring more than 97,000 acres of habitat; the Army Corps reports that EMP has restored or created 28,000 acres of habitat to date. American Rivers urges the Committee to appropriate $33.5 million for the Upper Mississippi River Environmental Management Program in FY 2010.

Lower Mississippi River Resource Assessment- The Lower Mississippi River Resource Assessment (LMRRA) was authorized by Congress in the Water Resources Development Act of 2000. Conducting the Lower Mississippi River Resource Assessment is the first step in consolidating into one region-wide assessment all information about the current status of aquatic habitat in the 954-mile-long Lower Mississippi River, specific habitat development/enhancement opportunities to restore the river ecosystem, and recreational needs. American Rivers urges the Committee to appropriate $1.5 million for the Lower Mississippi River Resource Assessment project in FY 2010.

Missouri River Fish and Wildlife Recovery Project: IA, NE, KS & MO- The Missouri River Fish and Wildlife Recovery Project is the primary habitat restoration program for the lower Missouri River between Sioux City and St. Louis. Congress established it in 1986 to primarily help reverse the long-term impact on habitat due to the federally sponsored channelization and stabilization projects of the Pick-Sloan era. Supporting the Missouri River Fish and Wildlife Recovery Project will help reverse the decline of river wildlife by restoring historic chutes, side channels, wetlands, backwaters, and other habitat that fish and wildlife need survive. American Rivers urges the Committee to appropriate $100 million for the Missouri River Fish and Wildlife Recovery Project in FY 2010.

Lower Columbia River Ecosystem Restoration OR & WA- Coastal estuaries in the Pacific Northwest play a vital role in supporting healthy stocks of wild salmon and steelhead trout and

other species and improving the quality of life of countless communities. The Northwest Coastal Estuary Program is designed to restore more than 16,000 acres of critical fish and wildlife habitat, augment existing monitoring efforts, and help citizens protect and manage resources by bringing together local governments, state and federal agencies, environmental groups, ports, and citizens. American Rivers urges the Committee to appropriate $3 million for the Lower Columbia River Ecosystem Restoration project in FY 2010.

Individual River Restoration Projects- Over the past 100 years, the United States has led the world in dam building for a variety of uses, including hydropower, irrigation, flood control and water storage. While they can provide benefits to society, numerous dams have outlived their intended purpose and no longer make sense. Many are old, unsafe, and represent a threat to their river ecosystems. Several individual dam removal projects will restore natural river functions, restore access to migratory fish habitat, and provide economic benefits to neighboring communities. American Rivers urges the Committee to appropriate to the Corps the following for individual river restoration projects in FY 2010:

i) $5 million for the removal of the Matilija Dam on the Ventura River in southern California;
ii) $595,000 for the feasibility study on the removal of Rindge Dam on Malibu Creek, CA.

2. Department of Energy Programs

Federal Energy Regulatory Commission, Hydropower Licensing- The Federal Energy Regulatory Commission is responsible for issuing licenses and permits that govern the operation and construction of non-federal hydropower dams. Congress authorizes the amount of money FERC may spend in a given year, but that money is collected entirely from licensees through annual fees and not from tax dollars. Thus, an increase in FERC's authorized hydropower budget will be passed onto the dam owners and will not impact taxpayers or the deficit. American Rivers urges the Committee to appropriate $57.5 million for FERC hydropower relicensing in FY 2010.

Energy Efficiency & Renewable Energy Resources- Many different types of energy production, including hydropower dams and fossil fuels, affect our rivers. As we advance in energy-efficient technology and the use of renewable energy sources, we can reduce demand and soften the impacts of energy production on rivers. Congress should take steps to eliminate our dependency on fossil fuels by supporting enhanced appropriations for DOE's energy supply and energy conservation programs. American Rivers urges the Committee to appropriate $1.9 billion for the Energy Efficiency & Renewable Energy Resources program in FY 2010.

3. Department of Interior- Bureau of Reclamation:

Savage Rapids Dam Removal and Pump Replacement (Rogue River, OR) - The Savage Rapids Dam, built in 1921, is the single largest killer of salmon on the Rogue River, including coho salmon, which are listed as threatened under the federal Endangered Species Act. Removing Savage Rapids dam will provide an enormous boost to the Rogue River's imperiled salmon and steelhead populations. American Rivers urges the Committee to appropriate $1.2 million Savage Rapids Dam Removal and Pump Replacement in FY 2010.

Yakima River Basin Enhancement Project- The Yakima River Basin is home to Washington's largest Native American tribe and contains one of the largest Bureau of Reclamation (Bur. Rec.) projects in the west. The various Bur. Rec. projects in the basin have depleted and polluted river flows, and water rights conflicts in this basin are legendary. This program aims to restore the river and make better use of the existing water supplies. American Rivers urges the Committee to appropriate $14 million for the Yakima River Enhancement Project in FY 2010.

The **Deschutes Resources Conservancy** (DRC) is focused on restoring streamflow and improving water quality in the Deschutes Basin of Central Oregon. The DRC acts as a catalyst, bringing together all groups working to restore the Deschutes through its restoration grants program, enterprise programs creating markets for environmental services, and community development work aimed at developing a shared vision for basinwide restoration smoothing the endangered species recovery process. American Rivers urges the Committee to appropriate $2 million for the Deschutes Ecosystem Restoration Project in FY 2010.

California-Federal Bay Delta Program is a partnership between federal and California agencies to provide a balanced, collaborative approach to the water resource demands on the San Francisco Bay and San Pablo Bay watersheds. The Ecosystem Restoration and Watershed program within CalFed works to restore and improve wildlife habitat through out the watershed, improve fish passage, integrate flood control and ecosystem restoration, and implement specific watershed restoration projects in conjunction with watershed plans. American Rivers urges the Committee to appropriate $40 million for the CalFed Ecosystem Restoration and Watershed Program in FY 2010.

The **Water Conservation Field Services Program** partners with water users, States, and other interested parties to improve water resource management and the efficiency of water use in the western United States. The early projects of the Bureau converted desert and arid western lands into some of the most intensely used agricultural areas and urban centers in the world. In order to continue to serve those purposes, more efficient water use is becoming a key component of the water resource management strategy. The programs efforts to implement efficiency not only increase water supply for future use and ecological protection but reduces costs of water supply, improves reliability of existing water supplies, increases the resilience to droughts, improves and protects water quality by reducing waste water, and reduces energy consumption. American Rivers urges the Committee to appropriate $5 million for the Water Conservation Field Services Program in FY 2010.

WRITTEN STATEMENT OF

THE STATE TEACHERS' RETIREMENT SYSTEM
STATE OF CALIFORNIA

BEFORE THE

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
HOUSE COMMITTEE ON APPROPRIATIONS

Submitted for the Record
April 2, 2008

Department of Energy – Elk Hills School Lands Fund:
$9.7 million for FY10 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. The State respectfully requests an appropriation of at least $9.7 million in the Subcommittee's bill for FY 2010, in order to meet the Federal Government's obligations to the State under the Settlement Agreement.

Background

Upon admission to the Union, States beginning with Ohio and those westward were granted by Congress certain sections of public land located within the State's borders. This was done to compensate these States having large amounts of public lands within their borders for revenues lost from the inability to tax public lands as well as to support public education. Two of the tracts of State school lands granted by Congress to California at the time of its admission to the Union were located in what later became the Elk Hills Naval Petroleum Reserve.

The State of California applies the revenues from its State school lands to assist retired teachers whose pensions have been most seriously eroded by inflation. California teachers are ineligible for Social Security and often must rely on this State pension as the principal source of retirement income. Typically the retirees receiving these State school lands revenues are single women more than 75 years old whose relatively modest pensions have lost as much as half or more of their original value to inflation.

State's Claims Settled, as Congress Had Directed

In the National Defense Authorization Act for FY 1996 (Public Law 104-106) that mandated the sale of the Elk Hills Reserve to private industry, Congress reserved 9 percent of the net sales proceeds in an escrow fund to provide compensation to California for its claims to the State school lands located in the Reserve.

In addition, in the Act Congress directed the Secretary of Energy on behalf of the Federal Government to "offer to settle all claims of the State of California. . . in order to provide proper compensation for the State's claims." (Public Law 104-106, § 3415). The Secretary was required by Congress to "base the amount of the offered settlement payment from the contingent fund on the fair value for the State's claims, including the mineral estate, not to exceed the amount reserved in the contingent fund." *(Id.)*

Over the year that followed enactment of the Defense Authorization Act mandating the sale of Elk Hills, the Federal Government and the State engaged in vigorous and extended negotiations over a possible settlement. Finally, on October 10, 1996 a settlement was reached, and a written Settlement Agreement was entered into between the United States and the State, signed by the Secretary of Energy and the Governor of California, under which the State would receive 9 percent of the sales proceeds in annual installments over an extended period.

The Settlement Agreement is fair to both sides, providing proper compensation to the State and its teachers for their State school lands and enabling the Federal Government to maximize the sales revenues realized for the Federal taxpayer by removing the threat of the State's claims in advance of the sale.

Federal Revenues Maximized by Removing Cloud of State's Claim in Advance of the Sale

The State entered into a binding waiver of rights against the purchaser in advance of the bidding for Elk Hills by private purchasers, thereby removing the cloud over title being offered to the purchaser, prohibiting the State from enjoining or otherwise interfering with the sale, and removing the purchaser's exposure to treble damages for conversion under State law. In addition, the State waived equitable claims to revenues from production for periods prior to the sale. The Reserve thereafter was sold for a winning bid of $3.53 billion in cash, a sales price that substantially exceeded earlier estimates.

Congress Should Appropriate $9.7 Million for the FY10 Installment of Elk Hills Compensation

The State's 9 percent share of the adjusted Elk Hills sales price of $3.53 billion is $317.70 million. To date, Congress has appropriated seven installments of $36 million and one installment of $48 million that was reduced to $47.52 million by the one percent across-the-board rescission under the FY 2006 Defense Appropriations Act, for total appropriations to date of $299.52 million of Elk Hills compensation owed to the State. Accordingly, the Elk Hills School Lands Fund should have a positive balance of at least $18.18 million.

We understand that Department of Energy personnel under the Bush Administration had proffered 4 purported grounds for suspending further payments of Elk Hills compensation to the State. Each of these is a "red herring".

Red Herring #1. Finalization of respective equity shares of Federal Government and ChevronTexaco as selling co-owners of Elk Hills oil field still not completed. The Bush Administration's FY09 Budget request stated that "the timing and levels of any future budget request [for Elk Hills compensation] are dependent on the schedule and results of the equity finalization process" between the Federal Government and ChevronTexaco to determine the relative production over the years from their respective tracts in the Elk Hills field. (FY09 Budget Appendix, at p. 403). But DoE already has held back $67 million, including $6.03 million from the State's share, to protect the Federal Government's interests in a "worst case scenario" for this equity process. The State has agreed to a "hold-back" of that amount to protect the Federal Government's interest. This reduces the available balance in the Elk Hills School Lands Fund to $12.15 million. In addition, DOE's FY 2009 Congressional Budget Request detail stated that the equity determination is in its final stages: "Of the four applicable zones [in Elk Hills], the Dry Gas Zone and Carneros Zone are finalized. The Stevens Zone [the largest in Elk Hills] is expected to be completed in 2008. A final recommendation for the Shallow Zone is pending." (p. 142). Accordingly, remaining uncertainty in the equity process thus provides no basis for withholding further payment of the State's Elk Hills compensation.

Red Herring #2. There is no money left in the Elk Hills School Lands Fund right now. The Bush Administration's FY 09 Budget request stated: "Under the Act [that mandated the sale of Elk Hills], nine percent of the net proceeds were reserved in a contingent fund in the Treasury for payment to the States.* * *Under the settlement agreement, $300 million has been paid to the State of California." (FY 09 Budget Appendix, at p. 403). The FY 1999 Budget Request at the time of the sale notes that $324 million was deposited into the Elk Hills School Lands Fund. (FY 1999 Budget Appendix, at pp. 378-9). A post-sale adjustment to the Elk Hills sales price reduced this amount to $317.7 million. Accordingly, after deducting the $300 million in payments to the State to date and the $6 million hold-back to protect the Federal Government's interests in the "worst case" scenario for the equity process, the Elk Hills Fund has ample funds available for appropriation of a further payment of compensation to the State.

Red Herring #3. No payment can be made to the State because of pending litigation between ChevronTexaco and DoE. DoE has pointed to pending litigation brought by ChevronTexaco against DoE in the U.S. Court of Federal Claims (Docket No. 04-1365C) as a reason to suspend further payments to the State. This litigation alleges DoE personnel committed misconduct in the equity finalization process by having improper *ex parte* contacts and having the same DoE staff serve as both advocate for DoE's position and advisor preparing the decision documents for the decisionmaker. However, the California State Attorney General has analyzed this litigation and advised that this litigation is a claim for money damages for DoE staff misconduct that has no effect on the Federal Government's equity share, and so there is no effect on the State's share of compensation. Indeed, under the governing agreement between DoE and Chevron, Chevron had waived any right to contest the final equity determination in court. Hence this litigation provides no basis for withholding the rest of the State's compensation.

Red Herring #4. No payment can be made to the State because the State's share must be reduced by the equity finalization costs and environmental remediation costs and the final amount of such costs is not yet known. The State's share of compensation is properly reduced by the "direct costs of sale" as required by Congress. Since the sale took place over a decade ago, those costs are fixed and known. The State has agreed to bear its share of these sales expenses. However, DoE is seeking to charge against the State's share two additional categories of costs – costs of determining the equity ownership and environmental remediation – that constitute ongoing costs of operating the oil field, not sales expenses. The California State Attorney General advises that these do not properly constitute sales expenses chargeable against the State's share.

More specifically, the Settlement Agreement between the Federal Government and the State provides that the Federal Government shall pay the State "nine percent of the proceeds from the sale of the Federal Elk Hills Interests that remain after deducting from the sales proceeds the *costs incurred to conduct such sale.*" This reflects the Congressional direction that, "In exchange for relinquishing its claim, the State will receive seven [nine in the final legislation] percent of the gross sales proceeds from the sale of the Reserve that remain after the *direct expenses of the sale* are taken into account." (House Rept. No. 104-131, Defense Authorization Act for FY 1996, Public Law 104-106)).

The State has agreed that the $27.13 million incurred for appraisals, accounting expenses, reserves report, and brokers' commission are appropriate sales expenses. Accordingly, the State's 9 percent share of these proper sales expenses reduces the available balance of the Elk Hills School Lands Fund by $2.44 million to $9.7 million.

Costs of conducting the equity adjustment are properly viewed as ongoing costs incurred due to the joint operation of the Elk Hills oil field by the Federal Government and ChevronTexaco, since the equity adjustment already was required under their joint operating agreement and related to pre-sale production revenues. Similarly, costs of environmental remediation of the Elk Hills field was a cost attributable to the prior operation of the field, which created any environmental problems that exist. The ongoing operational nature of this cost is underscored by the fact that the Federal Government is currently engaged in the phased environmental remediation of a Naval Petroleum Reserve that it is not selling – NPR-3 (Teapot Dome), as evidenced by the FY 09 budget request.

Conclusion

Therefore, of the current Elk Hills School Lands Fund balance of $18.18 million, taking into account the "hold-back" for worst case scenario under equity finalization and deducting the appropriate direct costs of conducting the sale, the State respectfully requests the appropriation of at least $9.7 million for Elk Hills compensation in the Subcommittee's bill for the FY 2010 installment of compensation, in order to meet the Federal Government's obligations to the State under the Settlement Agreement.

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The National Hydropower Association Statement for the Public Record on

The FY 2010 Energy & Water Appropriations

Presented to the

House Energy & Water Appropriations Subcommittee

2362B Rayburn House Office Building

Washington, DC 20515

April 2, 2009

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The National Hydropower Association (NHA)[1] appreciates the opportunity to submit this statement regarding hydropower R&D funding priorities for the FY 2010 appropriations budget cycle. **NHA requests a minimum of $91 million in FY 2010 Energy & Water Appropriations** for the Department of Energy's Waterpower Program.

Continued growth for hydropower, the nation's largest renewable energy resource, requires accelerated federal R&D support

The nation is at a critical crossroads with the immediate need to address multiple policy challenges including the impacts of global climate change and increased demand for electricity, all at a time of significant economic uncertainty.

As the United States is rising to meet these challenges, so too is the hydropower industry. As a country, 75 years ago we turned to hydropower development as an engine for job creation, economic stimulus, and abundant, domestic electricity. Today, a new generation of hydropower technologies, including new waterpower resources such as ocean, tidal and in-stream hydrokinetics, will help support our national energy, economic, and environmental goals.

But if we are to realize the continued growth of the hydropower sector, the federal government must support a robust R&D program within the Department of Energy to bring advancements in waterpower technologies to fruition quickly. The fact that the Nation's largest renewable resource historically receives the least amount of R&D support must be corrected and is the basis for NHA's FY 2010 request.

Hydropower's system benefits are critical to bringing additional variable renewable energy online

Currently, as the largest source of renewable electricity, hydropower generation provides millions of Americans with clean, climate-friendly renewable power. In addition to its own sizeable contribution to the Nation's energy portfolio and its associated clean air benefits, hydropower generation offers additional advantages to the electric power sector.

Importantly, hydropower (including pumped storage projects) has the ability to firm intermittent renewables such as wind and solar, providing the load balancing required to accommodate the addition of large amounts of this variable generation. Hydropower has both the baseload and the flexible energy options necessary to meet demand and to follow changing load.

As we have seen in states enforcing renewable portfolio standards, variable renewable energy generation sources have grown rapidly. Associated with this rapid growth is the challenge of managing and ensuring the reliability of the grid in times when excess energy from intermittent resources does not correspond to demand. An additional challenge is the lack of enough firming power to provide on-demand capacity when wind and solar plants cannot generate.

[1] NHA is a non-profit, national trade association dedicated to promoting the nation's largest renewable resource and advancing the interests of the hydropower and new ocean, tidal and instream hydrokinetic industries and the consumers they serve.

Integration of hydropower and other renewable energy resources will be a keystone to unlocking the potential of all these industries and more planning and research is needed on a national level to investigate this potential.

NHA supports President Obama's call for immediate and significant increases in renewable energy. Hydropower can help meet these short and long term goals.

President Obama has called on the renewable energy industries to double in the next three years. NHA and the hydropower industry are responding to this call. Currently, over 33,000 MW of new hydropower capacity, from the suite of conventional and new technologies, is in the FERC pipeline for development.

The industry estimates that 85,000 to 95,000 MW of new capacity (a doubling of hydropower's current contribution) could be built with appropriate public policy support. This includes:

- capacity gains and efficiency improvements at existing hydropower facilities;
- adding capacity to existing non-powered dams[2];
- pumped storage projects;
- new small and low head power conventional hydropower;
- ocean and tidal energy technologies;
- in-stream hydrokinetic technologies; and
- conduit power

However, development of some of this capacity requires necessary and needed R&D investment (both short and long term) in order to advance the state of the technology, study potential environmental impacts, understand the extent of the developable resource, and more. Without an accelerated level of R&D support, some of this resource that could be used to meet President Obama's ambitious renewable energy goals, could be needlessly left on the table.

Hydropower's R&D needs span all sectors of the industry – conventional, pumped storage, and new hydrokinetic technologies

In order for hydropower to achieve its full potential and to help address current energy and environmental goals, increased funding support is needed on:

- increasing capacity and efficiencies at existing facilities through the development and installation of the "next generation" of hydropower equipment and operation methods;
- maximizing the full potential of pumped storage projects for use as transmission system tools providing storage, generation and other ancillary services, such as the firming benefits available needed to support the growth of the wind and solar industries;
- assisting developers of instream hydrokinetic, tidal/wave energy technologies, and systems for manmade conduits to test and demonstrate advancements in technology as well as answer potential environmental impact questions.

[2] Approximately only 3 percent of dams in the U.S. have hydropower generation. Other uses for dams are water supply, flood control, irrigation, navigation and recreation.

The above list highlights broad research areas for the waterpower community and should not be considered exhaustive. In fact, NHA encourages Congress and the Department to "think outside the box" and pursue initiatives, like climate forecasting and modeling and energy/water nexus issues, which will certainly affect energy production in the coming years.

In addition, NHA analyzed the 2007 Electric Power Research Institute's (EPRI) report assessing the Nation's waterpower potential and needed R&D initiatives.[3] NHA concluded that it provided a useful model and roadmap from which to guide activities under the DOE Waterpower R&D program. As such, this statement recommends, and incorporates by reference, the suite of initiatives identified in NHA's FY 2009 statement to the House and Senate Appropriations Committees. These directives are intended to address the needs left unfunded by the previous DOE R&D program for hydropower and would expand the Department's efforts.

Finally, Congress has recognized the need for research, development and deployment of new advanced technologies, both for conventional hydropower and the ocean, tidal and instream hydrokinetic industries. NHA directs attention to Title IX, Section 931 in the Energy Policy Act of 2005 directing the Secretary of Energy to:

> *"conduct a program of research, development, demonstration and commercial application for cost competitive technologies that enable the development of new and incremental hydropower capacity, adding diversity of the energy supply of the United States, including: (i) Fish-friendly large turbines. (ii) Advanced technologies to enhance environmental performance and yield greater energy efficiencies. (...) The Secretary shall conduct research, development, demonstration, and commercial application programs for – (i) ocean energy, including wave energy (...) and (iv) kinetic hydro turbines."*

Conclusion

Hydropower is already a major source of energy for the nation. The ocean, tidal and in-stream hydrokinetic technologies are at the early stages of commercial deployment. Yet both technologies have a tremendous growth potential that could be realized through sustained federal R&D support.

These renewable resources are climate-friendly technologies that can provide significant baseload power to the U.S. at a time when our demand for electricity continues to increase dramatically as well as the firming benefits needed for the tremendous growth experienced by the intermittent renewables.

By accelerating the funding for the DOE Waterpower R&D program, the Nation could soon realize the tremendous energy and environmental benefits of maximizing our existing hydropower projects and infrastructure as well as the suite of emerging ocean, tidal and instream hydrokinetic technologies.

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[3] *Assessment of Waterpower Potential and Development Needs*, Number 1014762, EPRI, March 2007

Testimony on the Department of Energy's FY 2010 Budget Request for Energy Efficiency Programs

Jared O. Blum
President
Polyisocyanurate Insulation Manufacturers Association

Submitted to:
U.S. House of Representatives
Subcommittee on Energy & Water Development, and Related Agencies
Committee on Appropriations

April 3, 2009

The Polyisocyanurate Insulation Manufacturers Association (PIMA) is pleased to submit testimony on the Department of Energy's (DOE) Fiscal Year 2010 appropriations request for energy efficiency programs. PIMA believes that the following programs within the Office of Energy Efficiency and Renewable Energy (EERE), which directly affect energy use in residential and commercial buildings, are effective and achieve significant energy savings.

- **Building Technologies Program:** PIMA's recommendation is for $175 million (F.Y. 2009 funding is $140 million).
    - **Building Energy Codes** (Training and Assistance): PIMA's recommendation is for $25 million (F.Y. 2008 funding was $3.7 million, but F.Y. 2009 funding for this program is not specified). *As part of the Energy Policy Act of 2005, Congress reviewed the Building Energy Codes program and strengthened it at a higher authorized funding level of $25 million.*

PIMA is the trade association for manufacturers of rigid polyiso foam insulation, a product that is used in over 60 percent of new commercial roof construction, in 30 percent of new residential construction, and in most re-insulation of existing commercial building roofs. PIMA members have a nationwide presence with 26 polyiso manufacturing facilities in 16 states and Canada. PIMA and its members are strong supporters of federal programs and policies that promote cost-effective improvements in the energy efficiency of buildings, both residential and commercial.

In terms of energy use and CO2 emissions, buildings are the largest and fastest growing sector. The energy used to operate our homes and buildings and the appliances they hold, accounts for 40% of the energy consumed in the United States. By comparison, industry uses 32% and transportation uses 28%. Buildings account for 39% of U.S. carbon dioxide (CO2) emissions and 9% of global emissions, an amount that is equal to the emissions of Japan, France, and the United Kingdom, combined. Also, buildings account for 72% of U.S. electricity use.

In the context of energy and climate change policy, the building sector offers several attractive options for achieving significant reductions in greenhouse gas emissions that would actually result in net benefits or savings for the economy. Improvements in lighting, building envelopes (*e.g.,* insulation and windows), residential water heaters, and appliances are some of the cost-effective energy efficiency policies that have been identified in numerous policy reports, including the December 2007 McKinsey & Company report, "Reducing U.S. Greenhouse Gas Emission: How Much at What Cost." Because these programs actually have a positive economic impact, their implementation will help lower the cost of any climate change legislation that may be enacted in the future.

The **Building Technologies program** is DOE's key program for creating a positive change in the efficiency of commercial and residential buildings. The long-term goal of developing zero energy homes and buildings, the Department's support for building envelope R&D, and the development of Advanced Energy Design Guides in cooperation with the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), are among the important efforts undertaken by this program that are laying the groundwork for a more efficient building stock.

More specifically, PIMA strongly supports increased funding for the **Building Energy Codes program**. Increased funding for this program would allow the Department to assist in the development of stronger model energy codes and to assist states in adopting and enforcing those codes. Building energy codes are the most effective tool for reducing energy use in buildings. 40% of the commercial and residential buildings that will be in existence in 2030 have not been built yet, and the amount of energy these buildings consume will be determined by the codes that are in place at the time they are constructed.

In an effort to reduce the global warming impact of commercial buildings; ASHRAE, the organization that develops the model energy code for commercial buildings, has pledged to improve the ASHRAE Standard 90.1 by 30% over the 2004 version by 2010. The recently approved 2007 version of ASHRAE Standard 90.1-2007 already moves us about 7% to 10% towards that goal. In addition, there is a significant stakeholder effort underway to improve the International Energy Conservation Code (IECC) by 30% with the next edition.

However, improvements to the model energy codes is just the first step in a process that includes state adoption and enforcement of the codes. Although several states have adopted and regularly update their building energy codes, a significant number do not. Building energy efficiency will not improve until states adopt these model codes. Help from the federal government in the form of technical assistance has a direct and immediate affect on the willingness and speed at which states adopt the newer codes.

In addition, an increase in funding for this program would allow DOE to implement section 128 of EPAct 2005 regarding new financial incentives for building energy code compliance. Also, increased funding would help spur faster development of the commercial building energy code in support of Department's zero-energy building goal.

In FY 2008, the Building Technologies Program received an appropriations of $108.9 million. Of this amount, only $3.7 million was allocated for the Building Energy Codes (Training and Assistance) program. As part of the Energy Policy Act of 2005, Congress reviewed the Building Energy Codes program and strengthened it at a higher authorized funding level of $25 million.

Below are three programmatic examples where DOE funding has a direct impact on the pace of state code adoption and where improvements could be made.

- DOE has not kept up with its requirement under the Energy Policy Act of 1992 to review and make determinations on updated versions of the IECC and ASHRAE codes. The determination for ASHRAE Standard 90.1-2004 was not completed until December 2008, about a year after the next version (90.1-2007) had already been released. The last time DOE performed its review of the IECC was for the 2000 version. The 2003, 2006 and the 2009 versions have been released since that time. These reviews, if done in a timely manner, would help to accelerate the pace of state code adoption efforts.

- DOE should increase the number of building energy code technical analyses/reports that are prepared for states considering a code adoption or update. These reports, prepared by DOE, quantify state-specific energy savings that would result from the adoption of new, more up-to-date versions of the model building energy codes. Without this technical assistance, some states have a very difficult time justifying the resources required for the code adoption and implementation process. It is our understanding that DOE is currently not able to keep up with state requests for these analyses.

- The COM*check* and RES*check* software developed by DOE and used by states to demonstrate compliance with building energy codes are extremely valuable tools that create an incentive for states to adopt and enforce the most up-to-date energy codes. It is important that DOE continues to quickly update this software to cover the most recent versions of the model energy codes. In fact, many states will not move forward with adoption of a new code until the new version is covered by COM*check* and RES*check*.

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UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER
DEVELOPMENT APPROPRIATIONS
THE HONORABLE PETER VISCLOSKY, CHAIRMAN

CALIFORNIA STATE COASTAL CONSERVANCY

STATEMENT REGARDING FISCAL YEAR 2010
ARMY CORPS OF ENGINEERS APPROPRIATIONS REQUESTS BEFORE THE SUBCOMMITTEE

Summary
On behalf of the California State Coastal Conservancy, I want to thank the Subcommittee for this opportunity to present our priorities for Fiscal Year 2010 and, at the same time, express our appreciation for your support of the Conservancy's projects in past years. The Conservancy respectfully requests needed funding for the following critical U.S. Army Corps of Engineers projects during fiscal year 2010. All of these requests reflect Corps of Engineers capability for the individual projects: $18,000,000 for the Matilija Dam Ecosystem Project (Construction General); $8,000,000 for Napa River Salt Marsh Project (Construction General); $20,500,000 for the Hamilton Bel-Marin Keys Wetland Restoration Project (Construction General) and $2,800,000 for the South San Francisco Bay Shoreline Study (General Investigations).

Conservancy Background
The California Coastal Conservancy, established in 1976, is a state agency that uses entrepreneurial techniques to purchase, protect, restore and enhance coastal resources while providing public access to the shore. We work in partnership with local governments, other public agencies, nonprofit organizations, and private landowners to accomplish these goals.

To date, the Conservancy has undertaken more than 950 projects along the 1,100 mile California coastline and around San Francisco Bay, resulting in completed projects in every coastal county and all nine San Francisco Bay Area counties. Through these projects, the Conservancy: protects and improves coastal wetlands, streams, and watersheds; works with local communities to revitalize urban waterfronts; assists local communities in solving complex land-use problems; and protects agricultural lands and supports coastal agriculture, to list a few of its main activities.

Since our establishment in 1976, the Coastal Conservancy has: helped build more than 300 access ways and trails opening more than 80 miles of coastal and bay lands for public use;

assisted in the completion of over 100 urban waterfront projects; and joined in partnership endeavors with more than 100 local land trusts and other nonprofit groups, making local community involvement an integral part of the Coastal Conservancy's work.

Matilija Dam Ecosystem Restoration Project- Corps of Engineers, Los Angeles District
In fiscal year 2010 we are seeking $18,500,000 in Construction funding for the Army Corps of Engineers Construction General account to finalize design and begin the removal of the Matilija Dam in Ventura County, California. Approximately $1,000,000 will be utilized to finalize design activities and the remaining $14,000,000 in Corps capability will be used to advance construction of the project. Of that amount, approximately $7,500,000 would be designated for construction activities associated with the high-flow bypass of the dam with the remaining $5,500,000 million being utilized for the building of levees downstream from the site.

The Matilija Dam Ecosystem Restoration Project, authorized in Public Law 110-114, is a project of vital importance and consists of the removal of the no longer needed or functional 200-foot tall Matilija Dam, located on a tributary to the Ventura River. The dam is currently unusable as sediment has filled in its reservoir. Completion of the project will reopen 17.3 miles of unimpeded habitat for the endangered steelhead trout and other aquatic species. In addition, the project will restore over 2,800 acres of habitat that will support a wide variety of native species, including 25 special status species while replenishing area beaches by allowing sand (now trapped behind the Dam) to flow to coastal beaches upon the Dam's removal.

The removal of Matilija Dam will also provide extensive economic benefits in addition to the environmental benefits that will be accrued. Specifically, over the life of the project we can expect an increase in California's economic output of $250,000,000 and the creation of 1,500 jobs for the $100,000,000 investment in the construction of the project. In the more immediate future (3 years) there would be an economic benefit of $150,000,000 and the creation of over 900 jobs making the project a sound investment in California and the nation's economy.

This project is one of the largest dam removal projects in the Country and enjoys broad support from many local, state and federal agencies. To remove the dam, six million cubic yards of sediments will be moved or recontoured and a high flow sediment bypass system will be constructed at a water diversion downstream. In addition, a silt removal system will be installed along the diversion canal. Furthermore, levees will be built in several places along the river channel to protect property from flooding due to the expected increases in stream channel elevation in the first years after removal of the dam. The project also involves removal of invasive plants and the installation of replacement water wells.

Napa River Salt Marsh- Corps of Engineers, San Francisco District
For fiscal year 2010, we are seeking $8,000,000 in Construction funds to continue to advance this critical project that is nearly two-thirds complete. The only remaining work is that which was authorized for construction in Public Law 110-114 and must be undertaken by the U.S. Army Corps of Engineers. The funds requested would allow the Corps of Engineers to complete design and begin construction of their portion of the Napa River Salt Marsh Project which includes the restoration of Ponds 6-8. It is important to note that the project can be completed

quickly as it only requires a total of $13,000,000 to construct the Ponds 6-8 improvements over an estimated two-year construction period.

Substantial funding during the current fiscal year is essential to ongoing project success as the local sponsors have spent their full share and have no additional State or local funds dedicated to the project to continue its implementation. State and local partners expended their share on completion of Phases I and II of the project. Phase I involved opening 3,000 acres of salt ponds (Ponds 3, 4, and 5) to full tidal action in 2006 and is the largest tidal restoration project in the San Francisco Bay to date. Phase II involved the restoration of 1,700 acres (Ponds 1/1A, and 2) to managed ponds for waterfowl and shorebirds in 2007. Without federal funding this fiscal year, the project will continue to be halted, benefits will continue to be delayed and project costs will increase greatly.

The project is part of a larger environmental restoration effort to restore the nation's second largest estuary the San Francisco Bay, and its watershed, to its natural state. This restoration effort is expected to improve the environmental sustainability of the Estuary while providing great scenic and recreational values for the local community. Federal funds are critically required for the completion of the project whose extensive benefits to the region include: providing extensive wetland habitat in San Francisco Bay; the beneficial use for recycled water in the North Bay; improved open space and recreational opportunities; and resolving urgent issues associated with deterioration of the site's levee, water control structures, and water quality.

Our request reflects Corps capability and funding will be utilized to complete design of Ponds 6-8. In addition, funding will initiate design of the recycled water pipeline, an item expressly included by Congress in the project's authorization. Funds will also be used to secure necessary permits and approvals and begin construction of Ponds 6-8.

The 10,000 acre Napa River Salt Marsh was purchased by the State of California from Cargill in 1994 and is managed by the California Department of Fish and Game. The State Coastal Conservancy has been the non-federal sponsor working with the Corps on the Feasibility Study. The Corps' Feasibility Study was completed and the Chief's Report was signed in December of 2004.

Hamilton Bel-Marin Keys Wetland Restoration Project- Corps of Engineers, San Francisco District

In fiscal year 2010, the California State Coastal Conservancy is seeking $20,500,000 million in Construction funding for the Hamilton Bel-Marin Keys Wetland Restoration Project. The project was authorized by Congress in 1999 (PL 106-53) and our request reflects Corps capability for the project.

This project is of critical importance as it will provide nearly 700 acres of restored tidal and seasonal wetlands at a former Army base and provides much needed habitat for several threatened and endangered species; as well as, shorebirds and waterfowl migrating along the Pacific Flyway. Because the project requires large volumes of dredged sediment for completion, this project will result in a greatly reduced need to dispose of sediment in the Bay and Pacific Ocean, which has direct benefits to aquatic life. Furthermore, the project also beneficially uses

dredged material from the San Francisco Bay which provides for increased navigation and maritime commerce, a much needed economic stimulus for the region. In addition to the extensive environmental and maritime navigation benefits, the project will also serve as a key driver for the regional economy as implementation and full funding is expected to bring approximately 304 jobs to Marin County, California.

Thanks in part to the Subcommittee's support of full funding for the project in the Omnibus Appropriations Act of 2009 work is currently underway. As a result of this significant commitment, the majority of the required site preparation has been completed on the former Army Airfield, including the construction of miles of levees. The main runway and taxiways are now in the process of being buried under millions of cubic yards of clean dredged sediment. Subsequently, the easterly levee will be breached allowing tidal waters to once again flood the site. Significant progress has been made as over 2.4 million cubic yards being delivered to Hamilton as of January 2009. To complete the Airfield portion of the project an additional 5 million cubic yards of sediment is needed. Under the current schedule it is expected that completion of the Airfield portion of the project will occur between 2013 and 2015. Following completion of the Airfield, the Corps will work on the adjacent Antenna field and Bel Marin Keys V property for a total project area of nearly 2,500 acres.

The project enjoys broad support from environmental groups, labor and maritime interests as well as local government in Marin County. Key supporters include the San Francisco Bay Joint Venture, the County of Marin, the Port of Oakland, Bay Planning Coalition, the Bay Institute, Save San Francisco Bay Association, National Audubon Society, and many others.

South San Francisco Bay Shoreline Study- Corps of Engineers, San Francisco District
The Conservancy is seeking $2,800,000 in Investigations funding to continue the Feasibility Study for this groundbreaking project that will provide tidal and fluvial flood protection to the South San Francisco Bay Area. The study was initiated in fiscal year 2005 and has been ongoing thanks to the support of the Subcommittee. In fact, in the Omnibus Appropriations Act of 2009 the project received $2,800,000 representing full capability for the project.

This project is of national significance as it will provide tidal and fluvial flood protection for the South San Francisco Bay Area, including Silicon Valley, protecting approximately 42,800 acres, 7,400 homes and businesses, and significant urban infrastructure, including major highways, hospitals and airport facilities. In addition, the project is being pursued in conjunction with the 2nd largest wetlands restoration project occurring in the United States and as such will provide extensive habitat for federally endangered species and migratory waterfowl.

To continue to advance this important study it is imperative that local interests and the federal government work together to ensure a reliable funding stream for the project. To that end, continued federal funds are necessary to keep the project on schedule as the Conservancy's co-local sponsor for the project, the Santa Clara Valley Water District, will be approaching voters in 2012 to secure local funding for the construction of the recommended project. When this occurs, the District needs to have a deliverable product that they can showcase to voters given the fact that California's Proposition 13 requires that any new taxation be approved by a two-thirds majority of voters.

During fiscal year 2010 we are seeking $2,800,000 in accordance with Corps of Engineers capabilities for the project during the current fiscal year. Funds in fiscal year 2010 are expected to be used for the following activities: Hydrology, Hydraulics and Coastal analysis - $1,000,000; Economics Analysis - $250,000; Plan Formulation - alternatives Development $250,000; Habitat Evaluation analysis - $150,000; NEPA - EIS development - $400,000; Engineering & Design / Geotech - $200,000; Project Management - $400,000 and Surveys & Mapping - $150,000.

The project enjoys substantial support among Federal, state and local agencies with the following agencies serving as active project partners: California State Coastal Conservancy; California Department of Fish and Game; U.S. Fish and Wildlife Service; U.S. Army Corps of Engineers, NOAA, U.S. Geological Survey; Santa Clara Valley Water District; Alameda County Flood Control and Water Conservation District; Hewlett, Packard, and Moore Foundations and the Goldman Fund. The project is also supported by the San Francisco Bay Joint Venture, the City of San Jose, The Bay Institute, Save the Bay, the Bay Trail Program, the National Audubon Society, and many other local governments, environmental groups, community groups, businesses, and recreation organizations.

Written Testimony of Rob Wallace, GE Energy
Submitted to the
Subcommittee on Energy and Water Development Appropriations
Committee on Appropriations, U.S. House of Representatives
April 3, 2009

The following testimony is submitted on behalf of GE Energy (GE) for the consideration of the Committee during its deliberations regarding the FY 2010 budget requests for the Department of Energy (DOE). Among GE's key recommendations are: 1) in the Renewable Energy Area - increased funding for the Wind program to $200 million to support DOE's goal of 20 percent wind by 2030; within the Solar program, $50 million for thin film technologies and $80 million for solar grid integration; 2) in the Fossil Energy program – $75 million for off-the-shelf carbon capture plant designs to accelerate the near-term deployment of large-scale carbon capture and sequestration, $45 million for advanced turbines in support of advanced IGCC with carbon capture, increased funding for Water technologies which will reduce water consumption from power generation; 3) in Nuclear Energy - additional funding for loan guarantees and for licensing of the PRISM reactor. The investments recommended below in these important programs will help to meet the challenges of assuring a diverse portfolio of domestic power generation resources for the future.

RENEWABLE ENERGY

The Department of Energy has played a critical role in the development of renewable energy technologies over the past three decades. The Omnibus Appropriations Act, 2009 provided $55 million for Wind and $175 million for Solar. These levels represent 10 percent and 4 percent increases, respectively, from FY 2008 appropriations—though the Wind funding remains below the $63 million peak of FY 1980. GE welcomes these funding increases but believes that a larger step-up in funding, both through the American Recovery and Reinvestment Act and FY 2010 appropriations, will be needed to meet the Administration's long-term goals for renewable energy growth.

Wind: Over 80 members of the American Wind Energy Association (AWEA) have recommended a quadrupling of annual DOE Wind funding, to roughly $200 million, to meet the scenario of 20 percent wind by 2030 as described in the DOE's 2008 report. The AWEA recommended action plan for allocating these funds focuses on key barriers identified in the DOE 20 Percent Wind Study, including: wind turbine technology and manufacturing; system integration and transmission, and workforce development and training.

DOE's draft "Proceedings from the Wind Manufacturing Workshop; Achieving 20% Wind Energy in the U.S. by 2030" captures the wind technology improvements needed to enable dramatic growth in wind power production over the next two decades. In our comments on this document, GE highlighted four areas that deserve special emphasis: 1) blade manufacturing and technology; 2) drivetrain technology; 3) turbine life extension; and 4) grid integration technology. Government investment in these areas, when combined with industry cost share, can significantly accelerate technology advancements beyond what industry can accomplish on its own.

Blades are one of the most critical wind turbine components. Key research areas for blade technology include linkage of design limits to manufacturing quality; inspection methods; low-cost carbon fiber supply; design for logistics; airfoil innovation; and testing.

Drivetrain technology improvements are also central to achieving 20% wind. Research and development into technologies such as high efficiency permanent magnet generators and power conversion systems can increase reliability and energy production and lower operations and maintenance costs. For offshore applications, highly reliable and maintainable drive systems are especially critical.

As high penetration of wind energy increases, so does the need to develop solutions for grid operators faced with the integration of this variable resource. Significant advances are needed in areas such as managing variability, ramp rate control, frequency regulation, and fault response.

Solar Photovoltaics: Advancements in solar photovoltaic (PV) technology will enable a dramatic reduction in the cost of this clean source of energy, and will facilitate the successful integration of a large volume of solar systems with the electrical grid. In addition, if planned to optimize grid interface and interaction, solar PV systems can extend the life, usefulness and reliability of our current transmission and distribution infrastructure. Realizing these benefits requires: 1) an increase in the availability of low cost modules; and 2) advanced control and diagnostics of solar assets at the grid operator and utility level.

Thin film PV holds great promise for realizing the lowest cost per watt of any large scale PV technology in existence today. Cadmium telluride (CdTe) based panels have already demonstrated a much lower cost baseline in the industry, and currently experience supply limitations. Enabling competition in this space by supporting the ramp-up of additional manufacturing not only creates jobs, but also provides a larger volume of this low-cost technology into the marketplace. Additional research and development for thin film PV will result in products with higher efficiency and reliability, which will enhance the value to the consumer and support broader technology deployment. $50 million should be included in the FY 2010 appropriation for thin film manufacturing and R&D.

Grid integration of solar PV assets, especially at a high volume of penetration, requires a much more sophisticated set of controls and remote access to the PV resources, as well as functionality of the PV inverters that does not currently exist. Codes and standards for PV electrical systems must be updated to fully realize the potential that this resource provides to enhance grid operation. Funding of $80 million in FY 2010 is required for the development of these functions and subsequent demonstrations.

FOSSIL ENERGY

Commercial Scale CCS Demonstrations: An urgent imperative for coal power generation is that we quickly and aggressively demonstrate CCS at commercial scale. The continued use of our nation's abundant coal resources requires proving that integration of power plants and sequestration resources can provide competitive and reliable electrical generation. It is also necessary to demonstrate to the public that geologic sequestration of CO2 is a safe and environmentally acceptable solution for low carbon coal power.

GE strongly recommends that DOE focus on the near-term deployment of large-scale CCS and also that FY 2010 funding be significantly increased over the FY 2009 level in order to drive rapid CCS deployment. A sharp focus on CCS needs to be achieved by requiring that any

funded research program 1) has an explicit goal of reducing CCS cost and 2) can be commercially implemented no later than 2020. We know how to capture carbon today. There are 33 industrial plants using GE gasification technology in operation today that are capturing carbon. GE has also invested in the development of its Carbon Island™ that is available today for GE's 630MW commercially offered IGCC plant.

The surest and quickest path to prove and significantly reduce the cost of CCS is to build plants with CCS today. It is well established that following first-of-a-kind plants, technology costs rapidly decline with cumulative deployment. CCS will be no different. By building plants with CCS, cost reduction will result from design standardization and optimization, establishment of supply chains, material substitution, and reduction of engineering cost and cycle time. To accelerate development of commercial CCS projects, GE recommends that $75 million be provided in FY 2010 to fund the development of off-the-shelf Front-End Engineering Designs (FEEDs). These would be used for Greenfield coal IGCC plants optimized for CCS for Bituminous and Western coals. Off-the-shelf CCS plant designs will remove a major barrier to deployment of CCS. This barrier stems from the difficulty that utilities face in having public utility commissions approve recovery of project development costs. In today's economic environment, the development of these FEEDs will not be undertaken by the private sector.

The development of these FEEDs will employ significant engineering resources. They will deliver both immediate and long-term job creation. Each FEED would require approximately 120 job-years. Each IGCC project consequently undertaken would lead to investment of approximately 2.5 Billion dollars. Construction of each plant will take about 3-1/2 years with construction labor averaging 900 jobs over the construction period. Indirect and induced effects included would generate 36,000 total job-years with $1.9 Billion dollars labor income through the economy. Ongoing annual employment at each plant has been projected at 270 direct jobs and with multiplier effects, 1,260 total jobs would be supported.

FutureGen. FutureGen's primary goal should be to support rapid deployment of commercial CCS. The DOE needs to clearly differentiate requirements for commercial, research and technology demonstration projects. DOE's restructured FutureGen program correctly targeted the deployment of CCS technology at a commercial scale. Unfortunately, it also required a carbon capture level of 90%. Any implementation of FutureGen should be commercially relevant in terms of currently available technology, scale, performance and cost. Requiring a standard for coal that is more stringent than natural gas places an unnecessary and unwarranted burden on coal. While achievable with IGCC, a 90% target incurs higher capital expense and significantly higher operating costs that are especially onerous in our current challenging economic period.

Carbon Sequestration: Another significant barrier to the deployment of first-mover CCS projects is the uncertainty associated with availability of geologic storage. Comprehensive and expensive geologic characterization is necessary to ensure that a plant will have a sequestration resource with sufficient capacity for the 30-40 year life of the plant. As with up-front engineering costs, public utility commissions are reluctant to approve cost recovery of studies relating to the availability of geologic storage, although they are necessary to assure project viability. GE therefore recommends that funding of $100 million be provided for co-funding of the detailed geologic characterization to validate storage sites for commercial CCS projects that are starting development.

Clean Coal Power Initiative: We commend the Congress for increasing funding for Round 3 of the CCPI through the American Recovery and Reinvestment Act of 2009. GE supports the CCPI and its role in validating advanced technology but only in combination with increased focus on immediate deployment of commercial plants with CCS

DOE is urged to reduce any additional risk to capital-intensive projects resulting from aggressive performance criteria, *e.g.*, a requirement of 90% CO2 capture. The requirement prescribed in the original CCPI Round 3 Funding Opportunity Announcement of demonstration of minimum 90% carbon capture is not consistent with the coal performance standards in draft congressional climate legislation nor with the performance standards that have been recommended by the U.S. Climate Action Partnership in its Blueprint for Legislative Action. We recommend that DOE target the development of technology to provide both performance and cost parity with natural gas in any future solicitations.

Advanced Turbines: GE recommends that annual funding of $45 million be provided in FY 2010 to maintain needed progress in the Advanced Turbines Program to develop technologies that help offset part of the performance penalties associated with IGCC carbon capture and sequestration. This recommendation is particularly important in light of anticipated congressional climate change legislation. The Advanced Turbines program represents the Department's high priority research effort focusing on the development of enabling technologies for high efficiency hydrogen turbines for advanced gasification systems. Unless the FY 2010 budget for the Advanced Turbines program is increased, funding will be inadequate for this promising high priority work, and the progress and benefits of this research will be delayed accordingly.

Water: With water use being one of the largest environmental issues associated with power generation and a key enabler to energy security, GE supports DOE's efforts in reducing water-related environmental impacts from energy production and use. In order for the DOE to achieve its aggressive goals of reducing freshwater withdrawals and consumption 50% by 2015 and 70% by 2020, increased funding will be necessary. GE recommends that water-related funding under Innovations for Existing Plants program, which is the sole water specific funding vehicle within Fossil Energy, be significantly increased above the $6 million allocated under the FY 2009 budget. Increasing funding to existing programs including Non-traditional Waters for Cooling Make-up, Water Reuse and Recovery, Advanced Cooling Technologies, and Water Treatment and Detection will help to ensure DOE's goals are met.

NUCLEAR ENERGY

Nuclear power plant operation provides baseload energy generation with no greenhouse gas emissions. Each operating nuclear plant avoids the production of 8 million tons of CO2 annually and in total the U.S. fleet of 104 reactors avoids nearly 1 billion tons of CO2 annually. GE supports the use of nuclear energy as part of a diverse portfolio of power generation technologies and fuels.

Loan Guarantees: Federal investment has been instrumental in the licensing and partial development of standardized designs for advanced light water reactors and has helped form the foundation for a nuclear renaissance. However, more actions are required ensure successful commercialization of new nuclear technologies. The Energy Policy Act of 2005 authorizes loan guarantees to support advanced nuclear energy facilities. Due to the capital-intensive nature of

nuclear plant deployment, these loan guarantees are key to the ability of utilities' to attract financing and move forward with this clean, carbon-free technology. The current credit crisis in the US makes it increasingly difficult to finance these and other capital-intensive projects. The original $18.5 Billion in available loan guarantees is sufficient to support 2 to 3 new nuclear projects. DOE has already received applications for significantly more than that number of projects and to have meaningful progress on both climate change and energy security certainly more are needed. Based on this level of industry demand, the benefit to be derived, and the fact that these loan guarantees are self-funded and have no budget impact, GE supports a substantial increase to the Federal Loan Guarantee program.

Energy Parks – Research and Development for Commercial Deployment: GE believes that a strong private public partnership should be formed to support the Energy Park concept outlined as part of the Office of Environmental Management's efforts for footprint reduction of the legacy DOE sites. GE believes that the installment of advanced light water reactors and research and development to support advanced recycling at the existing DOE sites in the Energy Park concept is a logical application for these locations. These sites are well understood from a permitting aspect and their existing workforce has skills that would be directly transferrable to commercial nuclear power application. The Environmental Management office has received funding in the American Recovery and Reinvestment Act of 2009. GE supports near term actions as part of this program including the community outreach, permitting, siting, design, and license application development for new nuclear reactors.

Non-proliferation and Waste Minimization: GE supports used nuclear fuel recycling as a means to close the fuel cycle, to minimize nuclear proliferation risks and provide an alternative to Yucca Mountain. Further, GE supports and requests to be a member of the soon to be formed Blue Ribbon Waste Panel. The GE team has decades of experience in nuclear methods and designs based on U.S. technology that are available to close the nuclear fuel cycle. It is in the best interests of national security that U.S. technology be used to close the fuel cycle in a manner that does not result in separated plutonium. GE believes that the government should charter a quasi-governmental agency (Nuclear Fuel Authority) (independent from DOE) to include academia, government, and industry to actually implement commercial solutions for closure of the nuclear fuel cycle consistent with any recommendations from the Blue Ribbon Waste Panel.

President Obama recently stated that "It is unlikely that we can meet our aggressive climate goals if we eliminate nuclear power as an option. However, before an expansion of nuclear power can be considered, key issues must be addressed including: security of nuclear fuel and waste, waste storage, and proliferation." Consistent with this vision, GE believes that the DOE should fund U.S. technology (including R&D) and U.S. suppliers to generate a near term used fuel-recycling success with advanced reactors (like GE's PRISM reactor) that will simultaneously underpin and support light water reactor expansion in the U.S.

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Official Written Testimony for Fiscal Year 2010

Submitted by: Douglas Arnold, Ph.D.
President, Society for Industrial and Applied Mathematics (SIAM)

Submitted to the Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives
Washington, DC

Testimony on the Fiscal Year 2010 Appropriations
for the Department of Energy Office of Science

April 3, 2009

Summary: My name is Douglas Arnold and I am the President of the Society for Industrial and Applied Mathematics (SIAM). I am submitting this written testimony on behalf of SIAM to ask you to continue your support of the Department of Energy (DOE) Office of Science in fiscal year (FY) 2010 by providing the DOE Office of Science with $5.2 billion, an increase of 8 percent over its FY 2009 funding level.

Written Testimony

My name is Douglas Arnold and I am the President of the Society for Industrial and Applied Mathematics (SIAM). Today I am submitting this written testimony for the record to the Subcommittee on Energy and Water Development of the Committee on Appropriations of the U.S. House of Representatives.

SIAM has over 12,000 members, including applied and computational mathematicians, computer scientists, numerical analysts, engineers, statisticians, and mathematics educators. They work in industrial and service organizations, universities, colleges, and government agencies and laboratories all over the world. In addition, SIAM has over 400 institutional members—colleges, universities, corporations, and research organizations.

First, I would like to emphasize how much SIAM appreciates your Committee's continued leadership on and recognition of the critical role of the Department of Energy (DOE) Office of Science and its support for mathematics, science, and engineering in enabling a strong U.S. economy, workforce, and society. In particular, we thank you and your colleagues for the very substantial increases in funding for DOE Office of Science in the fiscal year (FY) 2009 omnibus appropriations bill and the *American Recovery and Reinvestment Act of 2009*.

Today, I submit this testimony to ask you to continue your support of the DOE Office of Science in FY 2010 and beyond. In particular, we request that your provide the Office of Science with $5.2 billion in FY 2010, an 8 percent increase over its regular FY 2009 appropriations. This would continue the effort to double funding for the Office, as endorsed by Congress in the *America COMPETES Act* and consistent with President Obama's plan to double the Federal investment in the basic sciences within the next decade.

The nation faces critical challenges in energy, including in energy efficiency, renewable energy, improved use of fossil fuels and nuclear energy, future energy sources, and reduced environmental impacts of energy production and use. As DOE and the research community design a long-term strategy to tackle these issues, the tools of mathematics and computational science (theory, modeling, and simulation) have emerged as a central element in designing new materials, predicting the impact of new systems and technologies, and better managing existing resources. Already, mathematical and computing researchers in universities, national laboratories, and industry are providing insights that propel advances in such fields as climate modeling, nanotechnology, biofuels, genomics, and materials fabrication.

For the past seven years I served as Director of the Institute for Mathematics and its Applications on the campus of the University of Minnesota. I know from experience the tremendous gains that can come from bringing mathematical research and analysis to bear on the pressing problems facing our society.

One of the challenges in advancing technology to improve our use and sources of energy in this country is the great complexity of the systems already in place today for energy production, transmission, storage, and use. Complex systems, like these, have high levels of uncertainty, lack master plans and are susceptible to breakdowns that could have catastrophic consequences. Stronger foundations for the science of complex systems are needed to mitigate these risks and manage these continually evolving systems. A deeper understanding of complex systems will also facilitate the development of controls and strategies to make systems more efficient. Two examples of how research on models improves our handling of complex systems are the study of cascading failures in the power grid and integrated building design for energy efficiency.[1]

Department of Energy Office of Science

SIAM members come from many different disciplines, but have a common interest in applying mathematics in partnership with computational science towards solving real-world problems. DOE was one of the first federal agencies to champion computational science as one of the three pillars of science, along with theory and experiment, and SIAM deeply appreciates and values DOE activities.

In August 2007, an independent panel of mathematicians reviewed the challenges and strategic plans of all units of DOE in order to better define the goals for the DOE Applied Mathematics Program, which is located within the Office of Advanced Scientific Computing Research in the

[1] Foundations for Complex Systems Research in the Physical Sciences and Engineering, Report from a National Science Foundation Workshop, September, 2008. Available on line at http://www.siam.org/about/pdf/nsf_complex_systems.pdf.

Office of Science.[2] The panel considered a broad and varied array of questions that the DOE must answer in the coming years. A representative subset of such questions includes:

- Can we predict the operating characteristics of a clean coal power plant?
- How stable is the plasma containment in a tokamak?
- How quickly is climate change occurring and what are the uncertainties in the predicted time scales?
- How quickly can an introduced bio-weapon contaminate the agricultural environment in the U.S.?
- How do we modify models of the atmosphere and clouds to incorporate newly collected data of possibly new types?
- How quickly can the U.S. recover if part of the power grid became inoperable?

In these and many other cases, the answer is dependent on improved understanding of complex systems. In light of this broad need, the panel recommended that DOE focus on three strategies for addressing the gaps in our understanding.

1. Predictive modeling and simulation of complex systems.
2. Mathematical analysis of the behavior of complex systems.
3. Using models of complex systems to inform policy makers. (This includes advancing the mathematics that supports risk analysis techniques for policy-making involving complex systems that include natural and engineered components, and economic, security and policy consequences.)

To support research that begins to fulfill these needs, we recommend that robust support be provided for the Applied Mathematics Program within DOE Office of Science. In addition, programs that support interdisciplinary research, such as the very successful Scientific Discovery through Advanced Computing (SciDAC) program and the recently funded Energy Frontier Research Centers, are critical for ensuring that the discoveries from the Applied Mathematics Program are applied across multiple fields and brought to bear on the full spectrum of societal challenges being tackled under DOE's mission.

Supporting the Pipeline of Mathematicians and Scientists

All of us who are closely connected with the education and development of young scientists and engineers are greatly alarmed at the prospects they now face. I remember very well the difficult situation that arose from the 1990-91 recession. Unemployment rates among new math PhDs spiked to above 10 percent from their historical range of 2-3 percent. The gloom was palpable among undergraduate and graduate students, new PhDs, and their advisors, and many young people decided against studying math. The number of U.S. citizens starting full-time graduate study in mathematics fell 27 percent from 1992 to 1997. Of course, this took its toll in the production of PhDs five or so years later, and the number of U.S. citizen math doctorates, which had increased steadily for a ten year period peaking at 586 in 1997-98, fell for six consecutive years, dropping by 26 percent. We have only recently recovered, and returned to the earlier

[2] Applied Mathematics at the U.S. Department of Energy: Past, Present and a View to the Future. A Report by an Independent Panel from the Applied Mathematics Research Community, May 2008. Available on line at http://brownreport.siam.org/Document%20Library/Brown_Report_May_08.pdf.

levels of production. The shortage of these most highly trained quantitative minds has been sharply felt, and the cost to U.S. innovation and competitiveness was surely very great.

Without bold action, it is likely that such a situation will return, at a much greater level. Although the financial crisis arrived recently, it is already evident that it has caused many universities and companies to cancel or severely curtail their hiring. The number of employment ads placed in the Notices of the American Mathematical Society was down 28 percent this fall over last and would surely be lower were it not for advertising deadlines in the summer. The Employment Center at the Joint Mathematics Meetings in Washington in January had a record number of job seekers but 15 percent fewer employers. My own department generally hires two or three postdoctoral fellows a year as Dunham Jackson Assistant Professors, but this year we have cancelled our search. Of course, it is not only the young mathematicians we will not be hiring who will suffer. Our department will suffer from the loss of ideas and energy that these postdoctoral fellows bring to the department and the country will suffer from the lost innovation. A similar situation is playing out with respect to students as well. Our department has just been notified of a substantial cut in the teaching assistant budget, and plans to cut drastically back on graduate admissions. The result of this scenario, replayed across the country and in related fields as well, is likely to be many talented young people who could have entered careers in science, technology, engineering, or mathematics, and are instead swelling the ranks of the unemployed and underemployed.

Maintaining the pipeline of the mathematical workforce with programs that fund research and students is especially important because of the foundational and cross-cutting role that mathematics and computational science play in sustaining the nation's economic competitiveness and national security, and in making substantial advances on societal challenges such as energy, the environment, and public health. DOE programs support the educational and professional development of the researchers who will, at universities, companies, and the national laboratories, tackle the research problems (such as the complex system modeling as described above) needed to change energy usage in this country.

Within the Office of Advanced Scientific Computing Research, the Computational Science Graduate Fellowship program is a highly successful and model program that enables students to receive robust training in mathematics and also learn to interface with a wide variety of other fields. We request that strong support for this program continue, as well as ongoing support for post-doctoral fellows at DOE national laboratories and universities.

Conclusion

As we are reminded every day, our nation's economic strength, national and energy security, and public health and welfare are being challenged in profound and unprecedented ways. Addressing these challenges requires that we confront fundamental scientific questions. Computational and applied mathematical sciences, the scientific disciplines that occupy SIAM members, are particularly critical to addressing U.S. and societal challenges across a broad array of fields: medicine, engineering, technology, biology, chemistry, computer science, and others. Furthermore, in the face of economic peril, federal investments in mathematics, science, and engineering create and preserve good jobs; stimulate economic activity; and help to maintain U.S. pre-eminence in innovation, upon which our economy depends.

The programs in the Office of Science, particularly those discussed above, are important elements of DOE's efforts to fulfill its mission. They contribute to the goals of dramatically transforming our current capabilities to develop new sources for renewable and low-carbon energy supplies and improve energy efficiency, positioning the U.S. to lead on climate change policy, technology, and science, and facilitating DOE's effort to increase U.S. competitiveness by training and attracting the best scientific talent into DOE and the American research and green jobs enterprise.

I would like to conclude by thanking you again for your ongoing support of DOE Office of Science and the actions you have already taken this year to enable DOE and the research and education communities it supports, including thousands of SIAM members, to undertake the activities that contribute to the health, security, and economic strength of the U.S. The DOE Office of Science needs sustained annual funding to maintain our competitive edge in science and technology, and therefore we respectfully ask that you continue your robust support of these critical programs into the future, starting with providing $5.2 billion for the DOE Office of Science for FY 2010.

I appreciate the opportunity to provide testimony to the Committee on behalf of SIAM and look forward to providing any additional information or assistance you may ask of us during the FY 2010 appropriations process.

Statement of

Santa Clara Valley Water District
San Jose, California

April 2009

before the

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable Peter Visclosky, Chairman

U.S. Army Corps of Engineers Budget

for

Upper Guadalupe River Project
Santa Clara County, California

Summary

This statement urges the Committee's support for a Fiscal Year 2010 appropriation of $12.5 million to continue 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 and was completed in 1998. Preconstruction Engineering and Design commenced in 1999 and currently several reaches are ready for construction.

The Upper Guadalupe River Flood Protection Project was first authorized for federal construction in the Water Resources Development Act of 1999 (Section 101). This authorization was for a project cost of $140 million with an unfavorable cost-sharing formula. In November 2007, Congress passed the Water Resources Development Act of 2007 (Public Law 110-114, Section 3037) for an estimated revised project cost of $256 million with a federal share of $136.7 million and local share of $119.3 million.

Project cooperation agreement signed on July 21, 2007, a groundbreaking ceremony held on June 30, 2008, and construction is scheduled to commence in June 2009.

Fiscal Year 2009 Funding. Congress appropriated $2.871 million to the project in the Fiscal Year 2009.

Fiscal Year 2010 Funding Recommendation. It is requested that the Congressional Committee support an appropriation of $12.5 million in Fiscal Year 2010 to continue construction on the Upper Guadalupe River Flood Protection Project.

Statement of

Santa Clara Valley Water District
San Jose, California

April 2009

before the

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable Peter Visclosky, Chairman

U.S. Army Corps of Engineers Budget

for

Guadalupe River Project
Santa Clara County, California

Summary

This statement urges the Committee's support for a Fiscal Year 2010 appropriation of $12 million to complete 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 two 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 2009 pending sufficient federal appropriations.

Fiscal Year 2009 Funding. Congress appropriated $2.871 million to the project in Fiscal Year 2009.

Fiscal Year 2010 Funding Recommendation. It is requested that the Congressional Committee support an appropriation of $12 million to complete construction of the final phase of the Guadalupe River Flood Protection Project.

Statement of

Santa Clara Valley Water District
San Jose, California

April 2009

before the

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable Peter Visclosky, Chairman

U.S. Army Corps of Engineers Budget

for

Llagas Creek Project
Santa Clara County, California

Summary

This statement urges the Committee's support for a Fiscal Year 2010 appropriation of $2 million 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, 2002, and 2008. 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 (PL-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 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.

Until 1996, the Llagas Creek Flood Protection Project was funded through the traditional PL-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 PL-566 construction program since 1990, the Llagas Creek Project had not received adequate funding to complete the PL-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. In November 2007, Congress passed the Water Resources Development Act of 2007 (Public Law 110-114, Section 3022) revising the estimated total project cost for the remaining reaches of the project to $105 million with a federal share of $65 million and a local share of $40 million. The bill language also directs the Corps to complete the construction of the project.

Fiscal Year 2009 Funding. Congress appropriated $287,000 to the project in Fiscal Year 2009.

Fiscal Year 2010 Funding Recommendation. Based upon the high risk of flood damage from Llagas Creek, it is requested that the Congressional Committee support an appropriation of $2 million in Fiscal Year 2010 for planning, design, and environmental updates for the Llagas Creek Flood Protection Project.

Statement of

Santa Clara Valley Water District
San Jose, California

April 2009

before the

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable Peter Visclosky, Chairman

U.S. Army Corps of Engineers Budget

for

South San Francisco Bay Shoreline Study
Santa Clara County, California

Summary

This statement urges the Committee's support for a Fiscal Year 2010 appropriation of $2.8 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 six feet near Alviso, as well as the structural uncertainty of existing salt pond levees, increases the potential for tidal flooding in Santa Clara County.

In July 2002, Congress authorized a review of the Final 1992 Letter Report for the San Francisco Bay Shoreline Study. The final Fiscal Year 2004 appropriation for the Corps included funding for a new start Reconnaissance Study.

Project Synopsis. At present, large areas of Santa Clara, Alameda and San Mateo Counties would be impacted by flooding during a 1-percent high tide. The proposed restoration of the South San Francisco Bay salt ponds will result in the largest restored wetland on the West Coast of the United States, and also significantly alter the hydrologic regime adjacent to South Bay urban areas. The success of the proposed restoration is therefore dependent upon adequate tidal flood protection, and so this project provides an opportunity for multi-objective watershed planning in partnership with the California Coastal Conservancy, the lead agency on the restoration project. Project objectives include: restoration and enhancement of a diverse array of habitats, especially several special status species; tidal flood protection; and provision of wildlife-oriented public access. A Corps Reconnaissance Study was completed in September 2004 and the Feasibility Study was initiated in September 2005.

Fiscal Year 2009 Funding. Congress appropriated $2.877 million to the project in Fiscal Year 2009.

Fiscal Year 2010 Funding Request. It is requested that the Congressional Committee support an appropriation of $2.8 million to continue the Feasibility Study to evaluate integrated flood protection and environmental restoration.

Statement of

Santa Clara Valley Water District
San Jose, California

April 2009

before the

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable Peter Visclosky, Chairman

U.S. Army Corps of Engineers Budget

for

Coyote/Berryessa Creek Project
Berryessa Creek Project Element
Santa Clara County, California

Summary

This statement urges the Committee's support for a Fiscal Year 2010 appropriation of $2.25 million to complete the General Reevaluation Report, update of environmental documents, and commence design work 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 four years. The most recent flood in 1998 resulted in significant damage to homes and automobiles. The proposed project on Berryessa Creek, from Calaveras Boulevard to upstream of Old Piedmont Road, will protect portions of the Cities of San Jose and Milpitas. The flood plain is largely urbanized with a mix of residential and commercial development. Based on the U.S. Army Corps of Engineers (Corps) 2005 report, a 1-percent or 100-year flood could potentially result in damages exceeding $179 million. Benefit-to-cost ratios for the six project alternatives being evaluated range from 2:1 to 7.3:1.

Study Synopsis. In January 1981, the Santa Clara Valley Water District (District) applied for federal assistance for flood protection projects under Section 205 of the 1948 Flood Control Act. The Water Resources Development Act of 1990 authorized construction on the Berryessa Creek Flood Protection Project as part of a combined Coyote/Berryessa Creek Project to protect portions of the Cities of Milpitas and San Jose.

The Coyote Creek element of the project was completed in 1996. The Berryessa Creek Project element proposed in the Corps' 1987 feasibility report consisted primarily of a trapezoidal concrete lining. This was not acceptable to the local community. The Corps and the District are currently preparing a General Reevaluation Report which involves reformulating a project which is more acceptable to the local community and more environmentally sensitive. Project features will include setback levees and floodwalls to preserve sensitive areas (minimizing the use of concrete), appropriate aquatic and riparian habitat restoration and fish passage, and sediment control structures to limit turbidity and protect water quality. The project will also accommodate the City of Milpitas' adopted trail master plan. Estimated total costs of the General Reevaluation Report work are $6.5 million, and should be completed in 2009.

Fiscal Year 2009 Funding. Congress appropriated $138,000 to the project in Fiscal Year 2009.

Fiscal Year 2010 Funding Recommendation. Based on the continuing threat of significant flood damage from Berryessa Creek and the need to complete the General Reevaluation Report, it is requested that the Congressional Committee support an appropriation of $2.25 million for the Berryessa Creek Flood Protection Project element of the Coyote/Berryessa Creek Project.

Statement of

Santa Clara Valley Water District
San Jose, California

April 2009

before the

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable Peter Visclosky, Chairman

U.S. Army Corps of Engineers Budget

for

San Francisquito Creek Flood Damage Reduction and Ecosystem Restoration Project Santa Clara County, California

Summary

This statement urges the Committee's support a Fiscal Year 2010 appropriation of $700,000 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 four 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. The Reconnaissance Study was completed in March 2005 and the Feasibility Study was initiated in November 2005. Progress on the Feasibility Study has slowed in recent years due to inadequate Congressional appropriations.

Fiscal Year 2009 Funding. Congress appropriated $335,000 to the project in Fiscal Year 2009.

Fiscal Year 2010 Funding Recommendation. It is requested the Congressional Committee support an appropriation of $700,000 to continue the Feasibility Study.

Statement of

Santa Clara Valley Water District
San Jose, California

April 2009

before the

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable Peter Visclosky, Chairman

U.S. Army Corps of Engineers Budget

for

Upper Penitencia Creek Flood Protection Project
Santa Clara County, California

Summary

This statement urges the Committee's support a Fiscal Year 2010 appropriation of $386,000 to complete 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 an August 2004 U.S. Army Corps of Engineers' (Corps) Economics Analysis, over 5,000 homes and businesses in the cities of San Jose and Milpitas are located in the 1 percent or 100-year flood area. Flood damages were estimated at $455 million. Benefit to cost ratios for the nine project alternatives range from 2:1 to 3.1:1.

Study Synopsis. Under authority of the Watershed Protection and Flood Prevention Act (PL 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 2009.

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 2009 Funding. Congress appropriated $191,000 to the project in Fiscal Year 2009.

Fiscal Year 2010 Funding Recommendation. It is requested that the Congressional Committee support an appropriation of $386,000 for the Upper Penitencia Creek Flood Protection Project to complete the Feasibility Study.

Statement of

Santa Clara Valley Water District
San Jose, California

April 2009

before the

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable Peter Visclosky, Chairman

U.S. Army Corps of Engineers Budget

for

Coyote Creek Watershed Study
Santa Clara County, California

Summary

This statement urges the Committee's support for a Fiscal Year 2010 appropriation 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 and Funding. The Coyote Watershed Study was one of only three *"new start"* studies proposed for funding nationwide in the Administration Fiscal Year 2006 budget request. Congress did not include funding for the study in the final Fiscal Year 2006 appropriations bill, or in any subsequent bills.

Fiscal Year 2009 Funding. Congress did not appropriate any funding to the project in Fiscal Year 2009.

Fiscal Year 2010 Funding Recommendation. It is requested that the Congressional Committee support an appropriation of $100,000 to initiate a multi-purpose Reconnaissance Study within the Coyote Creek Watershed.

Statement of

Santa Clara Valley Water District
San Jose, California

April 2009

before the

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable Peter Visclosky, Chairman

U.S. Army Corps of Engineers Budget

for

Bay Area Regional Desalination Project
San Francisco Bay Area, California

Summary

This statement urges the Committee's support for a Fiscal Year 2010 appropriation of $4 million for the project.

Statement of Support
Bay Area Regional Desalination Project

Background. The Bay Area Regional Desalination Project is a joint effort between the Contra Costa Water District, the East Bay Municipal Utility District, the San Francisco Public Utilities Commission, and the Santa Clara Valley Water District to explore the development of regional desalination facilities that will benefit over 5.4 million Bay Area residents and businesses served by these agencies. One or more desalination facilities would supply as much as 71 million gallons per day of desalinated water to the Bay Area. The project aims to provide an additional source of water during emergencies such as earthquakes or levee failures; provide a supplemental water supply source during extended droughts; allow other major facilities, such as treatment plants, water pipelines, and pump stations, to be taken out of service for maintenance or repairs; and increase supply reliability by providing water supply from a regional facility. Pre-Feasibility studies have concluded there are at least three locations in the Bay Area where a regional desalination facility could be located. A further Pre-Feasibility study of the three sites has been conducted to better define the desalination project facilities, conveyance options, and institutional issues. A Feasibility Study has developed additional information on potential benefits, appropriate technologies, environmental impacts, and costs of the various options. Moreover, a pilot test is currently underway at Contra Costa Water District's Mallard Slough Pump Station site in the eastern part of Contra Costa County to collect data on technical feasibility (pretreatment options, membrane performance, design parameters) and the environmental impacts (brine disposal, marine life).

Project Synopsis. Project is a regional initiative authorized under the Water Resources Development Act of 2007 (Section 5158 (88)) for $4 million under the Section 219 Program (WRDA 1992), Environmental Infrastructure. The project offers the region a solution to water supply shortages created during natural and manmade disasters that could limit or impose severe water shortages upon the San Francisco Bay region. Because the project enjoys broad support from each of the key water suppliers in the region it serves as a model for other regions to develop similar water projects that are dedicated to protecting the environment and public health during times of water shortages.

Budget Breakdown and Total Cost:

Site Selection & Investigation –	$1,100,000
Pre-Design –	$1,950,000
Environmental & Permitting –	$1,495,000
PR/Education –	$ 287,500
PM/Framework –	$ 517,500
Total (including local funds):	$5,350,000

Fiscal Year 2009 Funding. Congress did not appropriate any funding to the project in Fiscal Year 2009.

Fiscal Year 2010 Funding Request. It is requested that the Congressional Committee support an appropriation of $4 million for the project.

Statement of

Santa Clara Valley Water District
San Jose, California

April 2009

before the

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable Peter Visclosky, Chairman

U.S. Bureau of Reclamation Budget

for

CALFED Bay-Delta Program
Santa Clara County, California

Summary

This statement urges the Committee's support for a Fiscal Year 2010 appropriation of $40 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 passage of HR 2828 (PL 108–361) in 2004 reauthorized federal participation in the CALFED Bay-Delta Program and provided $389 million in new and expanded funding authority for selected projects, including the San Luis Reservoir Low Point Improvement Project. The San Luis Project is one of six new projects, studies or water management actions authorized to receive a share of up to $184 million under the conveyance section of the bill. It is critical that federal funding be provided to implement the actions authorized in the bill in the coming years.

Fiscal Year 2009 Funding. Congress appropriated $40 million to the program in Fiscal Year 2009.

Fiscal Year 2010 Funding Recommendation. It is requested that the Congressional Committee support an appropriation of $40 million for California Bay-Delta Restoration.

Statement of

Santa Clara Valley Water District
San Jose, California

April 2009

before the

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable Peter Visclosky, Chairman

U.S. Bureau of Reclamation Budget

for

San Luis Reservoir Low Point Improvement Project
Santa Clara County, California

Summary

This statement urges the Committee's support for a Fiscal Year 2010 appropriation of $1.5 million to complete the Feasibility Study. This request is included in the $40 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: 1) Avoid supply interruptions when water is needed by increasing the certainty of meeting the requested delivery schedule throughout the year to south of Delta contractors dependent on San Luis Reservoir; 2) Increase the reliability and quantity of yearly allocations to south of Delta contactors dependent on San Luis Reservoir; 3) Announce higher allocations earlier in the season to south of Delta contractors dependent on San Luis Reservoir without sacrificing accuracy of the allocation forecasts. In addition to the above objectives, identify opportunities to provide for ecosystem restoration.

Preliminary studies by the District have identified six potential alternatives to solve the problem. More funding is needed to fully explore these alternatives.

The passage of H.R. 2828 in 2004 reauthorized federal participation in the CALFED Bay-Delta Program. The San Luis Reservoir Low Point Improvement Project was one of six new projects, studies or water management actions authorized in the bill to receive a share of up to $184 million authorized under the conveyance section of the bill.

Fiscal Year 2009 Funding. Congress appropriated $1.4 million to the project in Fiscal Year 2009 under the CALFED $40 million appropriation.

Fiscal Year 2010 Funding Recommendation. It is requested that the Congressional Committee support an appropriation of $1.5 million for the San Luis Reservoir Low Point Improvement Project. The San Luis request is included in the $40 million CALFED Bay-Delta appropriation request.

Statement of

Santa Clara Valley Water District
San Jose, California

April 2009

before the

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable Peter Visclosky, Chairman

U.S. Bureau of Reclamation Budget

for

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 a Fiscal Year 2010 appropriation of $7 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 2006 deliveries averaged 14.1 million gallons per day of recycled water. The system now serves over 540 active customers and delivers approximately 10,000 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, PL 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 $31.67 million of the $35 million authorization.

Fiscal Year 2009 Funding. Congress appropriated $3.58 million for the project in Fiscal Year 2009.

Fiscal Year 2010 Funding Recommendation. It is requested that the Congressional Committee support an appropriation of $7 million to fund the Program's work.

Statement of

Santa Clara Valley Water District
San Jose, California

April 2009

before the

United States House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development
The Honorable Peter Visclosky, Chairman

U.S. Army Corps of Engineers Budget

for

South San Francisco Bay Emergency Port Access Project
Santa Clara County, California

Summary

This statement urges the Committee's support for a Fiscal Year 2010 appropriation of $100,000 to initiate a Reconnaissance Study.

Statement of Support
South San Francisco Bay Emergency Port Access Project

Background. In light of the devastation of New Orleans and the obvious failures of physical preparation and governmental response, it is no surprise that leaders in Silicon Valley are evaluating the emergency response tactics in California.

According to a report from the Bay Area Council's (a business-sponsored, public-policy advocacy organization for the nine-county San Francisco Bay Area) Blue Ribbon Task Force on Disaster Recovery Water Transit, the Bay Area faces an earthquake threat that is equal in magnitude to Hurricane Katrina. The Federal Emergency Management Agency says that a repeat of the 1906 San Andreas Fault earthquake could kill 5,000 people, hospitalize 18,000, make 165,000 families homeless and cause $70 to $90 billion in property damage. In an emergency, the Association of Bay Area Governments estimates that over 1,700 roads will be closed, transbay bridges will be closed, and the Bay Area Rapid Transit System would be closed. With bridges, roads, highways, tunnels and trains out of service, only the waters of the San Francisco Bay are certain to remain open to move first responders to affected areas, evacuate the stranded and wounded, and transport equipment and supplies to points of need.

The current water transportation system in the Bay Area ends in San Mateo County with no service access to the South Bay Silicon Valley area. Silicon Valley is known to many as the Golden Triangle because of the area's prime real estate appeal. Additionally, Silicon Valley is home to the largest concentration of technology expertise in the world with more than 6,600 technology companies employing more than 254,000 people. It is surprising that not only does water transportation not exist in this highly influential area, but there are no emergency capabilities via water in the event of a disaster.

Essentially, if a major earthquake were to occur today in Silicon Valley, one-third of California's economic activity and tax revenue would be significantly impacted.

Project Synopsis. To prepare the Silicon Valley for this type of disaster, a reconnaissance study by the U.S. Army Corps of Engineers (Corps) is needed to evaluate potential emergency water access through terminal(s) in the South San Francisco Bay. A Corps study could determine the practicality, environmental impact, and cost of a port(s) and the necessary steps for implementation.

Letters have been sent to the San Francisco District of the Corps from the District and the Bay Area Council requesting a Reconnaissance Study be initiated using existing authority from 30 August 1935, which authorized dredging a channel 500 feet wide and 27 feet deep from southeast of the Dumbarton Bridge to the mouth of the Guadalupe River.

Fiscal Year 2009 Funding. Congress did not appropriate any funding to the project in Fiscal Year 2009.

Fiscal Year 2010 Funding Request. It is requested that the Congressional Committee support an appropriation of $100,000 to initiate a Reconnaissance Study to evaluate the feasibility of the project.

TO: UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
THE HONORABLE PETER J. VISCLOSKY, CHAIRMAN

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

STATEMENT REGARDING FISCAL YEAR 2010 WATER RESOURCES DEVELOPMENT APPROPRIATIONS

PROJECT	REQUEST
MURRIETA CREEK FLOOD CONTROL PROJECT Construction General	$14,000,000
HEACOCK AND CACTUS CHANNELS - MARCH AIR RESERVE BASE FLOOD PROTECTION PROJECT Special Authorization and Appropriations	$1,000,000
SANTA ANA RIVER-MAINSTEM Construction General	$100,500,000
SAN JACINTO & UPPER SANTA MARGARITA RIVER WATERSHEDS SPECIAL AREA MANAGEMENT PLAN (SAMP) General Investigations	$260,000
FUNDING FOR CERTIFICATION OF CORPS LEVEES Inspection of Completed Works	$3,000,000

Respectfully submitted,

Marion Ashley

MARION ASHLEY, Chairman
Board of Supervisors
Riverside County Flood Control
and Water Conservation District

MURRIETA CREEK FLOOD CONTROL, ENVIRONMENTAL RESTORATION AND RECREATION PROJECT

Murrieta Creek continues to pose a severe flood threat to the cities of Murrieta and Temecula. Flooding from the undersized creek with a tributary watershed area of over 220 square miles continues to periodically wreak havoc on the communities. The winter storms in 1993 cost nearly $20 million in damages to the public and private sectors. On an almost yearly basis, small to moderate storms cause localized damages at numerous locations requiring ongoing repairs. As the area continues to develop, the potential for damage (direct and indirect) continues to increase.

In 1997 the U.S. Army Corps of Engineers initiated studies on the Creek. The final outcome of this endeavor was Congressional authorization in 2000 of the $90 million, multi-faceted project known as the Murrieta Creek Flood Control, Environmental Restoration and Recreation Project. This project is being designed and will be constructed in four distinct phases. Phases 1 and 2 include channel improvements through the city of Temecula. Phase 3 involves the construction of a 250-acre detention basin, including the establishment of about 160 acres of new environmental habitat and over 50 acres of recreational facilities. Phase 4 will include channel improvements through the city of Murrieta. Equestrian, bicycle and hiking trails, as well as a continuous vegetated habitat corridor for wildlife are components of the entire 7.5 mile long project.

The Omnibus Appropriations Bill for FY2003 provided $1 million for a new construction start for this critical public safety project and construction activities commenced in the Fall of 2003 on Phase 1. Appropriations for FY2004 and additional funds allocated allowed the Corps to continue construction on Phase 1, which was completed in December 2004. Phase 2 traverses Old Town Temecula, one of the hardest hit areas during the flooding of 1993. The Corps anticipates having a Phase 2 construction contract ready to award in the Winter of 2009. The District, therefore, respectfully requests the Committee's support of a $14 million appropriation in FY2010 to allow the Corps to complete the Design Documentation Report, and initiate construction on Phase 2 of the long awaited Murrieta Creek Flood Control, Environmental Restoration and Recreation Project.

HEACOCK & CACTUS CHANNELS - PROTECTION OF MARCH AIR RESERVE BASE

Heacock and Cactus Channels are undersized, earthen channels that border the eastern and northern boundary of the March Air Reserve Base (MARB) located adjacent to the city of Moreno Valley, Riverside County, California. Substantial vegetation becomes established within both channels and impedes the conveyance of tributary storm flows to the existing ultimate outlet located downstream. Storm flows overtop Cactus Channel and traverse MARB causing major disruption of the Base's operation, including the fueling of airplanes and the transport of troops and supplies. The record rainfall of 2004/2005 also caused extensive erosion along Heacock Avenue jeopardizing existing utilities within the road right of way and cutting off access to about 700 residences within the city of Moreno Valley.

Under Section 205 of the Continuing Authorities Program (CAP), the Corps received $100,000 in FY2005 and completed an Initial Appraisal Report which determined the feasibility of proceeding with a project to provide flood protection to this sensitive area. With the $546,000 received in FY2006 the Corps completed a Project Management Plan, executed a Feasibility Cost Sharing Agreement and is nearing completion of the Feasibility Study. However, this study found that MARB would receive approximately 75% of the benefits from constructing this project, making the use of Section 205 funds inappropriate. Therefore, the project will require Special Authorizing Language to approve and an appropriation of $1 million to design the project and provide flood protection to MARB.

The District requests support from the Committee for Special Authorization approving the project and authorizing appropriations of $1 million to complete the design of the project providing this critical military installation with flood protection.

SANTA ANA RIVER – MAINSTEM

The Water Resources Development Act of 1986 (Public Law 99-662) authorized the Santa Ana River-All River project that includes improvements and various mitigation features as set forth in the Chief of Engineers Report to the Secretary of the Army. The Boards of Supervisors of Orange and San Bernardino Counties as well as the Board for the Riverside County Flood Control and Water Conservation District continue to support this critical project as stated in past resolutions to Congress.

For FY2010, an appropriation of $100.5 million is necessary to provide funding for Reach 9 of the Santa Ana River immediately downstream of Prado Dam, continue the construction of Prado Dam features and provide mitigation for the construction of Seven Oaks Dam. The District respectfully requests that the Committee support an overall $100.5 million appropriation of Federal funding for FY2010 for the Santa Ana River Mainstem Project.

SAN JACINTO & UPPER SANTA MARGARITA RIVER WATERSHEDS SPECIAL AREA MANAGEMENT PLAN

In 2001 the Corps began development of a Special Area Management Plan (SAMP) for both the San Jacinto and Upper Santa Margarita Watersheds to address regional conservation and develop plans that protect the environment while allowing for compatible economic development. The final product of the SAMP will be the establishment of an abbreviated or expedited regulatory permitting process by the Corps under Section 404 of the Clean Water Act to assist Federal, State and local agencies with their decision making and permitting authority to protect, restore and enhance aquatic resources, while accommodating various types of development activities. This process will increase regulatory efficiency and promote predictability to the regulated public. The plan will also build on the protection of high value resource areas, as envisioned in the MSHCP. The District requests support from the Committee for a FY2010 appropriation of $260,000 to complete the work on the nation's largest SAMP for the San Jacinto and Upper Santa Margarita Watersheds.

CERTIFICATION OF CORPS CONSTRUCTED LEVEES

As part of the Federal Emergency Management Agency's (FEMA) Map Modernization Program, the District, as well as all other flood control agencies, Cities and Counties in the Nation are being required to provide certification of the reliability of all levee structures providing flood protection to our citizens. Many of these projects were constructed by the U.S. Army Corps of Engineers and in these cases, FEMA is requesting that the certification be provided by the Corps. Certification involves an extensive amount of geotechnical analysis, including field and lab material testing, slope stability and seepage checks, hydrologic and hydraulic verification, and other costly and time consuming activities, as well as the review of operation and maintenance records. These projects have an established Federal interest. Therefore, a National Policy needs to be established addressing the need for these Federally constructed projects to be certified by the Corps and authorizing the Corps to perform the required analysis. Furthermore, the Corps should also be authorized to provide Federal assistance for design and construction costs associated with any necessary rehabilitation, repair or reconstruction of projects that are found not to meet the CFR 65.10 FEMA and/or Risk and Uncertainty analysis criteria. Non-conforming levees put the public at risk and should be a Federal priority. Within our District, there are three Corps constructed levees requiring this Federal certification: Santa Ana River Levees constructed in 1958, Chino Canyon Levee constructed in 1972 and San Jacinto River Levee constructed in 1982.

The District requests support from the Committee for the establishment of a National Policy addressing this issue and the authorization and funding needed for the Corps to meet its obligations to the numerous local sponsors of Federally constructed levees throughout the Country. The Corps' Los Angeles District needs an appropriation of $3.0 million for FY2010 under the Inspection of Completed Works – CA Operations and Maintenance Appropriation 3123 to accomplish the needed certification work.

TO: UNITED STATES HOUSE OF REPRESENTATIVES
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER
DEVELOPMENT APPROPRIATIONS
THE HONORABLE PETER VISCLOSKY, CHAIRMAN

CALAVERAS COUNTY WATER DISTRICT

STATEMENT REGARDING FISCAL YEAR 2010
ARMY CORPS OF ENGINEERS APPROPRIATIONS REQUESTS BEFORE THE SUBCOMMITTEE

PROJECT REQUESTS

NEW HOGAN WATER DISTRIBUTION SYSTEM
$600,000 (Construction General- Section 219)

COSGROVE CREEK FLOOD CONTROL PROJECT
$200,000 (Construction General- Section 205)

CALAVERAS COUNTY REGIONAL WATER/WASTEWATER AND RECYCLED WATER FACILITIES PROGRAM- PHASE II
$600,000 (Construction General- Section 5039)

Respectfully Submitted,

Bob Dean
President
April 2009

Calaveras County Water District
423 East St. Charles Street
Post Office Box 846
San Andreas, California 95249

Overview

On behalf of the Calaveras County Water District, I want to thank the Subcommittee for this opportunity to present our priorities for Fiscal Year 2010 and, at the same time, express our appreciation for your support of the District's projects in recent years. The Calaveras County Water District is respectfully seeking the following requests before the House Energy and Water Development Appropriations Subcommittee from the U.S. Army Corps of Engineers during fiscal year 2010. We are seeking $600,000 from the Corps of Engineers Construction General Account Section 219 for our New Hogan Water Distribution System request; $200,000 from the Corps of Engineers Construction General Account Section 205 for the Cosgrove Creek Flood Control Project; and $600,000 from the Corps Construction General Account Section 5039 for the Calaveras County Regional Water/Wastewater and Recycled Water Facilities Program Phase II.

As background, our agency, the Calaveras County Water District (CCWD) was founded in the fall of 1946 and 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.

New Hogan Water Distribution Project

CCWD is seeking $600,000 in FY 2010 for the New Hogan Water Distribution Project, a multi-phased project that will improve the region's water supply, significantly increase and protect water quality and provide significant environmental restoration that will greatly increase habitat for local wildlife while increasing recreational opportunities for the local community. The project will construct infrastructure to convey surface water to existing and expanding agricultural acreage in western Calaveras County. The area currently relies on a diminishing groundwater supply, which is experiencing water quality problems and has been identified by the state as an overdrafted groundwater basin. The project will include monitoring facilities to continually evaluate the region's sensitive groundwater basin and its response to conjunctive use operation and will also include enhanced modeling tools that evaluate the effectiveness of planned or proposed facilities for expanding conjunctive use in the region.

The project will provide a sustainable water supply for the western Calaveras County region experiencing declining groundwater levels, water quality deterioration, expanding agriculture, significant population growth, and the continuing threat of drought. Infrastructure will be built to convey surface water from existing reservoirs and water rights and entitlements permitted or contracted by the Calaveras County Water District to areas at greatest risk for groundwater supply problems. Through introduction of surface water planned decades ago, the Calaveras County Water District will introduce conjunctive use to increase water supply reliability for all surface water and groundwater users within the western Calaveras County region. The project will benefit all of California as it will minimize the losses of naturally occurring springs and will improve stream-flow conditions for river tributaries of the Sacramento-San Joaquin River Delta, which provides two thirds of the State of California with water. Finally, water conservation and wastewater recycling are critical elements that can reduce demands or stretch existing water supplies. Assessment of public outreach and environmental documentation needs will also be performed, as identified in a project management plan.

Cost Breakdowns for this project in fiscal year 2010 are listed as follows: Negotiation Project Partnership Agreement (PPA) and initial planning, design, and construction contract $50,000; develop Calaveras-Mokelumne Master Plan Concept $50,000; water supply and demand analysis $75,000; alternatives formulation and analysis $175,000; environmental program development $75,000; development of institutional partnerships and public outreach, $100,000; development of Feasibility Report $75,000.

Cosgrove Creek Flood Control Project

CCWD, in conjunction with Calaveras County, is seeking $200,000 in the Construction General Section 205 account for the Cosgrove Creek Flood Control Project. The project will address flooding that occurs along the lower reaches of the creek, as well as flooding that occurs on Spring Creek. Flooding in these areas impacts over 400 people and 100 structures located in the 100-year floodplain. The project will attenuate peak flows, address the beneficial use of peak flows, stabilize creek banks, improve natural conditions favorable to wetlands and riparian habitat, and increase recreational opportunities in the area. In addition to providing critical flood control for the region, the project will provide a number of ancillary benefits including; the beneficial use of flood flows including sprayfields, conjunctive use of recycled water and wetlands restoration. Further, the project will provide additional riparian habitat and much-needed recreational opportunities through the creation of hiking/riding trails and numerous athletic fields for use by the local community.

Calaveras County Regional Water/Wastewater and Recycled Water Facilities Program- Phase II

CCWD third and final priority for FY 2010 is a request for $600,000 to support the Calaveras County Regional Water/Wastewater and Recycled Water Facilities Program Phase II, a multi-phase, collaborative project to investigate strategic opportunities to correct water and wastewater utility deficiencies along the Highway 4 corridor in the Stanislaus River Watershed of Calaveras County.

Utility regionalization and improved coordination are needed to support sustainable practices in the Sierra Nevada foothill communities. This project would create partnerships between local, state, and federal agencies so that infrastructure improvements, replacement needs, and growth decisions can be coordinated in a manner that respects connections between water, wastewater, land use, and development within the watershed thereby greatly enhancing the utilization and safeguarding of our region's water resources.

To accomplish these objectives CCWD will partner with Calaveras County, the City of Angels, Murphys Sanitary District, Union Public Utility District, and the Utica Power Authority. Through the identification of particular problem areas and collaboration with our local partners a 'living' model will be developed to examine strategies for regionalizing water and wastewater facilities. A technical team consisting of project partners will develop preliminary concept plans based on shared goals, objectives, and priorities. Information will be circulated among all stakeholders and strong community involvement plan will be put forth that will incorporate the suggestions of the public and interested non-governmental organizations. This original model will then be further refined to evaluate concepts achieving maximum beneficial use to ensure a sustainable, cost-effective concept plan emerges for regional watershed implementation.

Cost breakdowns for this critical project in fiscal year 2010 are listed as follows:
Negotiation of PPA and Initial planning, design, and construction contract $50,000; development of regional water/wastewater and recycled water master plan concept $50,000; summary of existing facilities and regulatory setting $50,000; evaluation of wastewater and water supply needs $75,000; formulation and evaluation of alternatives $200,000; development of institutional partnerships and public outreach $100,000; and reparation of Feasibility Study $75,000.

Statement of Christopher R. Bentley, Executive Vice President
FuelCell Energy, Inc.
To
The Subcommittee on Energy and Water Development
Committee on Appropriations
US House of Representatives
2362 Rayburn HOB
Washington, DC 20515

FuelCell Energy appreciates the opportunity to submit this statement in support of the Department of Energy's Fossil Energy, Fuels and Power Systems, Fuel Cell Program. We urge the Subcommittee to continue to support this breakthrough program by appropriating the budgeted amount of $54 million for development of this highly efficient, clean, and secure energy technology.

DOE's Fossil Energy Fuel Cell Program, through the Solid State Energy Conversion Alliance (SECA) fuel cell activity, is developing technology to allow the generation of highly efficient, cost-effective, nearly carbon-free electricity from domestic coal resources with near-zero atmospheric emissions in central station applications. The program will develop cost-effective, highly efficient, power blocks that facilitate sequestration in coal-based systems. The technology will also permit grid independent distributed generation applications.

SECA fuel cell systems operating on coal gas are building blocks for zero emissions power and are projected to be available at a cost of $400/kw, a tenfold reduction in cost from existing fuel cell technology as well as being able to produce electricity at up to 60% efficiency, produce near-zero emissions, and be compatible with carbon sequestration. In distributed generation applications even higher efficiencies may be reached, and cogeneration opportunities can further increase efficiency.

Along with these attributes fuel cells are one of the cleanest technologies available in terms of atmospheric emissions, which enhances their attractiveness for urban applications or applications in areas of non-attainment for Clean Air Act emissions. They also provide 24 hour, silent operation.

Finally, coal-based fuel cell systems will increase energy security by using domestic resources. In distributed generation applications fuel cells can eliminate transmission and distribution system infrastructure concerns and issues by providing generation near the point of use and by being able to operate in a grid-independent mode.

The SECA Program consists of integrated industrial manufacturing teams designing fuel cell systems, developing the necessary materials, and ultimately responsible for deploying the technology. These teams are complemented by two to three dozen core technology teams providing generic problem-solving research needed to overcome barriers to low-cost, high performance technology as identified by DOE and the manufacturing teams. The core technology teams are universities, national laboratories,

and other research oriented organizations. This unique structure assures that a variety of approaches to solving the problems associated with fuel cells will be undertaken in a manner that will increase the chances of success for this highly complex technology.

The manufacturing teams are developing systems for application to large coal-based central generation systems. The fuel cells being developed can be used in both these large systems as well as in distributed generation applications such as auxiliary power units, military power applications and remote or on-site power generation.

FuelCell Energy (FCE), in partnership with Versa Power Systems (Versa), has exceeded the goals of the SECA program for the first phase of the program. Two fuel cell stacks of about 10kw each achieved 5,000 hours of service in February, 2009. The stacks have not only exceeded the 5,000 hour goal, their overall degradation was only 1.7 and 2.6 percent per 1,000 hours respectively, well below the program goal of 4.0 percent per 1,000 hours. One of the stacks continues to operate to assist in refining the current design. Based on this performance FCE recently entered into a phase II contract with the Department of Energy to scale up the fuel cell stack to eventual 5 megawatt proof-of-concept size that will run on coal gas.

The DOE budget request for this program for FY 2009 is $54.0 million, approximately $4 million less than FY 2009 funding levels. However, this level of funding will adequately support the current program commitments. In future years larger-scale Phase II development work on the part of manufacturing teams in the program and continued effort by the core technology performers will require increased annual funding to assure that the program proceeds on schedule... These additional funds would be required in order to deliver full scale fuel cell system hardware for central station applications and to assist and accelerate the creation of manufacturing capability..

We believe that the SECA fuel cell program has achieved the progress to date as anticipated by the program managers, and will continue to display such progress given continued sufficient funding support by DOE and the Congress. Hybrid technology has been successfully integrated into the program and an emphasis on use with coal-based systems has been established. Industry partners in the program have continued and increased cost-sharing support. All major stack developers have met the initial goals of the program allowing continuance to more advanced stages of development. This technology is essential in enabling the generation of cost-effective, efficient electricity from domestic coal resources with near-zero emissions of carbon and air pollutants in large, central station applications and can also provide low-cost, low-emissions alternatives for distributed generation applications. Therefore, we urge you to support the budget request for $54 million to execute the DOE Fossil Energy, Fuels and Power Systems, Fuel Cell Program in FY 2010.

House Committee on Appropriations Subcommittee on Energy and Water Development - Written Testimony Submission April 2, 2009 Dr. Nathan Lewis George L. Argyros Professor of Chemistry at the California Institute of Technology On behalf of 21st Century NanoConsortium for Energy and the Environment (21NCEE)

I thank the Committee for the opportunity to submit this testimony on nanotechnology as it applies to energy and the environment. I am submitting this testimony on behalf of the 21st Century NanoConsortium for Energy and the Environment, a non-profit group of universities and private companies working together and dedicated to the promotion of nanotechonology as it applies to energy and the environment. Our group strives to ensure adequate government funding for research, development and job creation programs in nanotechnology that will ensure that the U.S. remains a global leader in this crucial field of exploration.

Nanotechnology is critically important to obtaining a safe, secure, energy future. Most of the key challenges in obtaining globally scalable, cheap clean energy technology involve, and thus will only be overcome through advances in, nanotechnology. Improvements in batteries that will enable truly mass marketable plug-in hybrids will involve control over the processes that occur, on the nanoscale, at the electrodes and in the materials of such battery systems. Catalysts that will enable truly affordable fuel cells will only be obtained, and developed, by control over the properties of the catalysts and other fuel cell components (membranes, electrolytes, etc.) on the nanoscale.

The absorption of sunlight generally takes place within a few hundred nanometers of the surface of most materials, so only through nanoscience and nanotechnology will we be able to produce next generation solar cells that have higher efficiency, better capture the sunlight at all times of day, are mass manufacturable, are massively deployable in form factors such as "solar paint" or "solar carpet", and that use earth-abundant materials to enable deployment of such systems wherever and whenever the energy should be needed.

New materials that offer improved strength and lower cost for wind turbines are being made by control at the nanoscale of metal alloys and by molecular catalysts that provide strong, single piece materials in the form of new plastics. Superconductivity is inherently a nanoscale phenomenon, and hence only through nanoscience and nanotechnology can we develop superconductors that would enable nearly lossless transmission over long distances across a smart electricity grid. Catalysts that are being developed on the nanoscale, as well as nanorods and nanowires from new light absorbing materials, are required to produce better artificial photosynthetic systems that can make fuel directly from the sun, thus solving the storage issues that accompany the intermittency involved with large-scale utilization of solar energy.

Biotechnology at the nanoscale is critical to the development of next generation biofuels that will not involve trading food for fuel and will produce much more energy than is consumed in growing and cultivating the plants or algae used in the process. Nanoscience is intimately involved with understanding the fate and transport of carbon

dioxide under the soil, to enable us to predict with confidence whether carbon capture and storage can be performed safely and at scale. New catalysts at the nanoscale will enable more energy efficient utilization of fossil energy, including lower temperature processes for converting methane into methanol and for conversion of coal into liquid transportation fuels. Nanoscience and nanotechnology is required to allow development of new materials that can withstand intense radiation and temperature conditions, thus enabling the next generation of nuclear fission reactors and possibly nuclear fusion systems to be demonstrated.

Nanoscience and nanotechnology also provide new tools that allow the investigation to the properties of materials on time and length scales that were previously inaccessible to the scientific community. Nanoscience allows scientists to probe the temporal and spatial distribution of proteins in a cell, to better engineer organisms that will convert cellulose into ethanol or other biofuels, such as biobutanol or biodiesel. Nanoscience has revealed the fundamental mechanisms by which natural photosynthesis captures and converts sunlight, offering scientists new insight into how to construct biological and man-made systems that mimic this function for other purposes.

In summary, leadership in clean energy technology development mandates leadership in nanoscience and nanotechnology, With continued development and support for these areas, we can continue to develop the new materials, processes, and systems that will underlie the growth of a high-tech, domestic, clean energy industry that will create thousands of home-grown jobs which can not be exported, and will form the basis for an industry that will provide both the developing and developed countries with the products, technologies, and services needed to provide their energy needs while supporting economic growth and prosperity. In addition to breaking through the barriers that now preclude deployment of a cost-effective, globally scalable clean energy system, nanoscience and nanotechnology offer the promise to achieving the ultimate goal involved with fundamentally changing the climate/energy debate. By making clean energy cheap, through nanoscience and nanotechnology, we will be able to provide economic security, environmental security, energy security, and national security for generations to come.

DOE UNIVERSITY RESEARCH PROGRAM IN ROBOTICS (URPR) --

Research, Education, and DOE Mission Support

FY'10 Testimony for the Energy and Water Development Subcommittee on Appropriations

Submitted on behalf of the URPR by:

Professor Mongi Abidi, University of Tennessee
Professor Sheldon Landsberger, University of Texas
Professor Carl Crane, University of Florida
Professor David K. Wehe, University of Michigan
Professor John Wood, University of New Mexico

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:

`` 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 provided mission-oriented university research for DOE, and, through close collaboration with the DOE sites, supplies creative solutions to problems of vital importance to DOE and our country.

The URPR would like to thank the Committee members for their historically strong support of this highly successful program. The URPR has again been included in the FY'10 President's budget under the Weapons Activities/Engineering Campaign. But projected funding cuts in the Engineering Campaigns in out-years may ultimately lead to decreased opportunities to inject URPR technologies into the Weapons Complex. As a result, the URPR recommends that it be transferred into the R&D arm of Directed Stockpile Work (DSW).

Request for the Committee

We request the Committee relocate the URPR into the Directed Stockpile R&D Program and augment its funding with the following language:

"The Committee provides funding for the University Research Program in Robotics (URPR) to support Directed Stockpile Work R&D at $6,200,000."

Developing Advanced Robotics and Automation for DOE and the Nation

Automation for work in potentially hazardous environments

The URPR represents a peer-reviewed and DOE-selected consortium of major public research universities (currently including Florida, Michigan, New Mexico, Tennessee, and Texas) 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 widely recognized as some of the best in the field (creation of spin-off companies, deployment requests from FEMA at Ground Zero, wins in national technology competitions, patents, archival journal articles, etc.). For example, URPR received the American Nuclear Society's Robotics and Remote Systems Conference two awards (Best of Show and Technology Innovation Award). Some of the focus technologies include innovative mobile platforms and their navigation, kinesthetic input to teleoperation systems, simulation-based design and control, manipulation of unwieldy objects, machine vision and scene assessment for automated security systems, long-lived nuclear-powered batteries, and radiation detection systems for international nonproliferation.

Established by DOE in FY'87 to support advanced nuclear reactor concepts, the URPR was moved to DOE's Environmental Management Program to support the higher priority needs in environmental restoration and where its technologies found application in a number of high visibility projects. Reflecting the change in national priorities post-9/11, the URPR began supporting NNSA applications during FY'04. The URPR team now supports many smaller individual projects at DOE sites that relevant to the weapons activities or nonproliferation. For example, the LANL Manufacturing Workforce Development Office identified over 20 projects seeking URPR support. While we still would prefer to contribute to more important, large-scale problems, such as streamlining and modernizing of the complex using advanced technologies, we recognize the need to also address more focused problems.

While the URPR appreciates that it is included in the President's FY'10 budget under the Engineering Campaigns, we are concerned about the long-term prognosis of these Campaigns. Funding for the Engineering Campaigns is decreasing due to its success in solving problems, and is projected to further decrease in the out-years. While NNSA prefers to retain URPR within the Engineering Campaigns, they have also noted their long-term needs within their R&D for Directed Stockpile Work, as well as opportunities within their RTBF program.

Interestingly, we have also found that the URPR's technical capabilities are well suited to support NA-22 where some of our inventions have already taken root. The nonproliferation community has significant issues that can only be addressed through advanced automation and sensing (e.g., radiography of cargo containers and nuclear forensics). With the consent of NA-11, the URPR is supporting activities within NA-22 through the development of unique sensors and mobile platforms for inspection and monitoring, emergency response, and forensics. For example, this month we will be supplying our URPR-invented personnel-tracking sensors to ORNL to support an NNSA project, and helping INL with special targets and detection techniques for their NA-22 active interrogation projects. Despite the pseudo "firewall" between the NA-10 and NA-20 communities, this dual service is quite unique and refreshing.

Robotics and Automation for NNSA

NNSA has long recognized the need to develop advanced automation and robotics capabilities, as expressed in the NNSA Technology Roadmap for the modernized nuclear weapon complex and instantiated in the Complex 2030 Vision plan. As DOE 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 has capabilities that can 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/DOE research programs priorities of promoting scientific and engineering leadership, 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. Although NNSA's Complex 2030 Plan has not been accepted, a modernized weapons complex remains a worthy goal and the URPR is poised to assist this effort.

Making the Nation Safer

In the aftermath of the 9/11 tragedy, our nation has engaged in a long-term war to counter terrorism. Indeed, mobile platforms that have evolved from our early prototypes are currently saving lives of American soldiers. The National Research Council published a thorough study of the role of science and technology in countering terrorism entitled Making the Nation Safer. 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. In summary, the University Research Program in Robotics is a key player in executing the recommendations for making our nation safer.

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 independent research institutions as a consortium are significant. 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 generates 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 that 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.

Request for the Committee

While the URPR is in the President's FY'10 Budget under NNSA's Engineering Campaigns at $2.1M, we request the Committee consider relocation of the URPR within the Directed Stockpile R&D Program and augment its funding consistent with the following language:

"The Committee provides funding for the University Research Program in Robotics (URPR) to support Directed Stockpile Work R&D at $6,200,000."

To: House Committee on Appropriations Subcommittee on Energy and Water Development

Email: EW.Approp@mail.house.gov

From: Jay Alexander, Founder of the grassroots citizens action group "We Can Take It!"

Address: 3301 58th Ave N#102,
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Re: Written Public testimony for the Reactivation of the Civilian Conservation Corps (CCC) on Native American Lands.

Request the amount of $500 million over a period of ten years to be appropriated for the reactivation of the CCC on Native American Lands. Monies to be distributed to the Bureau of Indian Affairs (BIA) for use to reactivate the template of FDR's CCC for Native American Adults of ages 18 to 35 to work from their homes on public works projects on their infrastructure and ecosystems on their sovereign tribal lands. This program worked for our first Americans in the past and can work for the entire nation again.

Seventy-six years ago, the 73rd Congress and President Roosevelt faced a similar situation banking crisis. FDR was, personally interested in preserving the environment and providing temporary employment for the nation's youth and veterans. Legislation to establish the U.S. Civilian Conservation Corps was also introduced March 21, 1933 in a message to Congress he wrote...

"It is essential to our recovery program . . . the first of these measures . . . can and should be immediately enacted. I propose to create a civilian conservation corps to be used in forestry, the prevention of soil erosion, flood control and similar projects . . . but also as a means of creating future national wealth. . . . More important, however, than the material gains from their labors will be the moral and spiritual value of such work."

The president himself shepherded the legislation through both houses. It was signed into law 10 days later. Over the next nine years, almost 4 million young men were put to work reclaiming the country's natural resources. The men lived in government camps, food and clothing were provided, the Army supervised the camps, and the men were required to send 80 percent of their pay of $30 back to their families. ($30 in 1933 is equivalent to $451.48 in 2007.) It became the largest mobilization of civilian workers and the most

popular government program in American History. In 1942, the 77th congress cut the CCC funding, but the program was never abolished by the 77th Congress and it only needs reactivated and the dust removed from the books.

The current rise in unemployment and poverty among unskilled young adults, war veterans (25% of the entire US homeless population today is our Veterans) and Native Americans (many reservations have as much as 50% unemployment). Global warming and our environmental need our stewardship. Our infrastructure is now rated at a D grade by the American Society of Engineers.

The time is right to reactivate the US Civilian Conservation Corps for our First Americans. It is by far the best "Shovel Ready" program to date to put thousands of work boots on the ground within a matter of weeks. This program is proven cost effective and would give the U.S. Taxpayer more 'Bang for the Buck!'

"We Can Take It!" urges the House Committee on Appropriations Subcommittee on Interior, Environment, and Related Agencies to give serious consideration to remobilize this 'Shovel Ready' workforce to salvage First American Lands and to salvage the lives of many young Native American citizens and Native American Veterans, now in jeopardy. They would be given jobs in the CCC if they qualify from the state of Maine to the US Territory of American Samoa.

Similar federal, state, and local government work programs for Native Lands should be re-absorbed into the Civilian Conservation Corps to avoid waste in overlap, fraud and abuse and insure government accountability to the people of the United States.

This program would now be open to women and also offer individuals an alternative to military service. Those who fulfill their obligation would have access to the GI Bill. The military would have fit men and women to enter if they choose to further serve their country.

Dr Neil M. Maher, author and associate professor of history at Rutgers University, said, "Brazil has recently begun looking back to Franklin Roosevelt's CCC to help solve that country's economic and environmental problems. Plagued by high unemployment rates approaching ten percent, local, state, and federal governments in cooperation with non-governmental organizations and corporations have begun putting jobless Brazilians to work planting trees. The goal of Brazil's CCC-like program, which the Nature Conservancy helped initiate, is to plant one billion trees over the next ten years across the country's Atlantic Forest. Rather than funding the program solely by increasing taxes and federal spending, Brazil will rely on novel market mechanisms including the sale of sequestration vouchers on the international carbon market, obtained through the program's reforestation efforts, as well as the collection of water use fees in the reforested regions. Similar tree-planting programs reminiscent of FDR's CCC are also now operating in China along the Yangtze River and through Wangari Maathai's Greenbelt Movement in Kenya. Even war-torn Afghanistan has created its own "Afghan Conservation Corps. The United States needs to follow suit, and Barrack Obama's first

100 days in office is one place to start. Like Roosevelt, Obama should ask Congress to create a Civilian Conservation Corps, but with a twist. Along with planting trees, this new and improved Corps should put young Americans, both men and women, to work planting windmills across the former Dust Bowl, solar energy panels throughout the Sunbelt, and energy-efficient biofuels on farms in every corner of the country, all in an effort to reduce both unemployment and the production of greenhouse gasses that lead to global warming. While Roosevelt funded the New Deal's CCC with federal dollars, public spending for Obama's new program could be greatly reduced through market mechanisms like those embraced by Brazil; by collecting carbon vouchers and water use fees from the new program's reforestation efforts, and by selling clean, green energy generated from new windmills, solar panels, and biofuels. The young men and women enrolling in this market-driven Corps would also benefit. Not only would they gain valuable training, skills, and experience in the expanding green economy, but they could also be encouraged to put their enrollment stipend towards a college education."

The US Civilian Conservation Corps over the years would enroll young men, women, and veterans. They will all gain strong civic, work and conservation ethics. They would also be trained and skilled in disaster relief and on call.. This program would be of the people, by the people, and for the people.

Contact us for additional information and we are available for any future hearings.

Thank you.

Jay Alexander
Founder of WE CAN TAKE IT

TESTIMONY OF
THE RED RIVER VALLEY ASSOCIATION
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
COMMITTEE ON APPROPRIATIONS
FY 2010 'CIVIL WORKS'
U.S. HOUSE OF REPRESENTATIVES

Mr. Chairman and members of the Committee, I am Wayne Dowd, President, and pleased to represent the Red River Valley Association, 629 Spring St., Shreveport, Louisiana. Our organization was founded in 1925 with the express purpose of uniting the citizens of Arkansas, Louisiana, Oklahoma and Texas to develop the land and water resources of the Red River Basin.

The Resolutions contained herein were adopted by the Association during its 84th Annual Meeting in Shreveport, Louisiana, on February 19, 2009, and represent the combined concerns of the citizens of the Red River Basin area as they pertain to the goals of the Association. A summary of the civil works projects and requested funding is included in this testimony.

The President's FY 2010 budget included $5.1 billion for the civil works programs. It is $350 million more than proposed in FY 2009 and $300 million less than what Congress enacted in the FY 2009 Omnibus Bill, $5.4 billion. The problem is also how the Administration distributes funds. A few projects received the full 'Corps Capability' to the detriment of many projects that receive no funding. Even though this is one of the largest Administrative budgets, the $5.1 billion level does not come close to the real needs of our nation. A more realistic funding level to meet the existing needs of the civil works program is $8 billion for FY 2010. The traditional civil works programs remain at the low, unacceptable level as in past years. These projects are the backbone to our nation's infrastructure for waterways, flood prevention, water supply and ecosystem restoration. We remind you that civil works projects are a true **'jobs program'** in that up to 85% of project funding is contracted to the private sector; 100% of the construction, as well as much of the architect and engineering work. Not only do these projects provide jobs, but provide economic development opportunities for our communities to grow and prosper, creating permanent jobs.

We want to point out that we appreciate the funding Congress enacted in the FY 2009 Omnibus Bill; however, it is $200 million less than appropriated in FY 2008. We encourage Congress to increase the 'water' share of the total Energy and Water Bill closer to 20% to reach the $8 billion capability.

Another proposal allocates O&M funding by watershed regions and eliminates funding by individual project. We do not accept this concept since you will loose ownership and identity of each project; therefore, lose grass root support. If this was done, due to reprogramming constraints, then reprogramming should be addressed. Major reprogramming issues are with CG projects, not with O&M projects. Fund O&M by project, not watershed basins.

We have great concerns over the issue of **'earmarks'**. Civil Works projects are not earmarks! Civil Works projects go through a process; reconnaissance study, feasibility study, benefit to cost ratio test, EIS, peer review, review by agencies, public review and comment, final Chief of Engineer approval, authorization by all of Congress in a WRDA bill and signed by the President. WRDA 2007 added an independent review of major projects. No other federal program goes

through such a rigorous approval process. Each justified project 'stands alone', are proven to be of national interest and should be funded by project. For most projects there is local sponsor cost sharing during the feasibility study, construction and for O&M. Those who have contributed, in most cases – millions of dollars – to the process, must have the ability to have a say for their projects to get funded. That voice is through their Congressional delegation. We believe that earmarks are not in the national interest, but it does not pertain to the civil works program. For civil works it is an issue of priority of projects to be funded and who will determine that, OMB or Congress! We hope Congress keeps their responsibility to set civil works priorities and to determine how its citizen's tax dollars are spent.

The president's budget proposes eliminating the current fuel tax to fund the Inland Waterways Trust Fund (IWTF) and replace it with a barge lock-use fee. This change creates an unfair tax to industries on waterways with locks versus waterways without locks. The needs of the IWTF should be analyzed and determine what increase to the existing fuel tax would maintain the necessary income flow to keep projects funded from the Inland Water Trust Fund. The lockage fee proposal is unfair to tributary waterways with locks and we request it not be implemented.

I would now like to comment on some of our specific requests for the future economic well being of the citizens residing in the four state Red River Basin regions. It is noted that at the time for testimony submission the details of the President's FY 2010 budget have yet to be released.

Navigation: The J. Bennett Johnston Waterway is living up to the expectations of the benefits projected. We are extremely proud of our public ports, municipalities and state agencies that have created this success. This upward 'trend' in usage will continue as new industries commence operations. A major power company, CLECO, is investing $1 billion in its Rodemacher Plant near Boyce, Louisiana, on the lower Red River and has started moving over 3 million tons of 'petroleum coke' and limestone, by barge, in the 4th quarter 2008. These projects are a reality and there are many more industries considering using our Waterway.

You are reminded that the Waterway is not complete, six percent (6%) remains to be constructed, $121 million. We appreciate Congress's appropriation level in FY 2009 of $7,656,000. There is a capability for $21 million of work, but we realistically request $12 million to keep the project moving toward completion, 'J. Bennett Johnston Waterway (CG)'.

Now that the J. Bennett Johnston Waterway is reliable year round we must address efficiency. Presently a 9-foot draft is authorized for the J. Bennett Johnston Waterway. All waterways below Cairo, Illinois are authorized at 12-foot, to include the Mississippi River, Atchafalaya River, Arkansas River and Gulf Intracoastal Waterway. A 12-foot channel would allow an additional one-third capacity, per barge, which will greatly increase the efficiency of our Waterway and further reduce transportation rates. This one action would have the greatest, positive impact to reduce rates and increase competition, bringing more industries to use waterborne transportation. We request a one-year reconnaissance study be funded to evaluate this proposal, at a cost of $100,000. Fact: Approximately 95% is already at 12-foot year round.

The feasibility study to continue navigation from Shreveport-Bossier City, Louisiana, into the State of Arkansas will be completed in CY 2010. 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. Due to the time lapsed in the study the 'freight rates' calculated a number of years ago they must be re-evaluated this year. We request funding of $100,000 to conduct the re-evaluation of freight rates, 'Navigation into SW Arkansas'.

Flood Prevention: What will happen when we ignore our levee systems? We know the Red River levees in Arkansas do not meet federal standards, which is why we have the authorized project, 'Red River Below Denison Dam, TX, AR & LA'. Now is the time to bring these levees up to standards, before a major flood event, which will occur.

We continue to consider flood control a major objective and request you continue funding the levee rehabilitation projects ongoing in Arkansas. Five of eleven levee sections have been completed and brought to federal standards.

The levees in Louisiana have been incorporated into the Federal system; however, they do not meet current safety standards. These levees do not have a gravel surface roadway, threatening their integrity during times of flooding. It is essential for personnel to traverse the levees during a flood to inspect them for problems. Without the gravel surface the vehicles will cause rutting, which can create conditions for the levees to fail. A gravel surface will insure inspection personnel can check the levees during the saturated conditions of a flood.

Appropriations of $15 million will construct one more levee section in Lafayette County, AR and continue the rock surfacing of levees in Louisiana, 'Red River Below Denison Dam, AR & LA'.

Bank Stabilization: One of the most important, continuing programs, on the Red River is bank stabilization in Arkansas and North Louisiana. We must stop the loss of valuable farmland that erodes down the river and interferes with the navigation channel. In addition to the loss of farmland is the threat to public utilities such as roads, electric power lines and bridges; as well as increased dredging cost in the navigable waterway in Louisiana. These bank stabilization projects are compatible with subsequent navigation into Arkansas and we urge that they be continued in those locations designated by the Corps of Engineers to be the areas of highest priority. We appreciated the Congressional funding in past fiscal years and request you fund this project at a level of $11 million in FY 2010, 'Red River Emergency Bank Protection'.

Water Quality: The Assistant Secretary of the Army (Civil Works), in October 1998, agreed to support a re-evaluation of the Wichita River Basin tributary of the project. The re-evaluation report was completed and the Director of Civil Works signed the Environmental Record of Decision. The plan was found to be economically justified. Then the ASA (CW) directed that construction would not proceed until a local sponsor was found to assume 100% of the O&M for the project. The 2007 WRDA Bill included language that clarified that all aspects of this project will be at full federal expense, to include O&M.

Over the past years there has been a renewed interest by the Lugart-Altus Irrigation District to evaluate construction of Area VI, of the Chloride Control Project, in Oklahoma. They have obtained the support of many State and Federal legislators, as well as a letter from the Oklahoma Governor in support of a re-evaluation report.

Total request for the 'Chloride Control Project': $9,000,000 for the Texas and Oklahoma areas.

Water Supply: Lake Kemp, just west of Wichita Falls, TX, is a major water supply for the needs of this region. Due to siltation the available storage of water has been impacted. A reallocation study is needed to determine water distribution needs and raising the conservation pool. Total O&M of $664,000 is requested for FY 2010 ($214,000 is required for the base annual O&M, $300,000 for the study and $150,000 for service bridge and gate repair).

A water re-allocation study has been completed for Lake Texoma. It will provide for an additional 600,000 acre-feet for municipal use. The release of the study has been delayed at the Corps HQ for over a year. Congress needs to request that this re-allocation study be approved and released.

Studies: We have a number of General Investigation (GI) studies that have been funded and have local sponsors prepared to cost share feasibility studies. Some of those important studies include: Bossier Parish Flood Control Study, LA - $350,000; Cross Lake Water Supply Study, LA - $100,000; SE Oklahoma Water Resource Study, OK – $500,000; SW Arkansas Study, AR - $100,000; Washita River Basin, OK - $500,000 and Wichita River Basin, TX - $100,000. These studies are important to have projects ready for future construction.

Operation & Maintenance: Full O&M capability levels are not only important for our Waterway project but for all our Corps projects and flood control lakes. The backlog of critical maintenance only becomes worse and more expensive with time. The '2007 Summer Flood of Record' was devastating to the recreation industry at Lake Texoma, on the main stem Red River, as well as a number of other Oklahoma lakes. We urge you to appropriate funding to address this serious issue, either through an emergency supplemental or the appropriation bill. We request that the Corps O&M projects be funded at the expressed, full Corps capability.

American Recovery and Reinvestment Act of 2009: The original Administrative submission did not include civil works funding. We want to thank Congress for including $4.6 billion in the 'stimulus' package for civil works projects, especially in the O&M account. These additional funds will be important to address our long list of backlog needs.

Thank you for the opportunity to present this testimony and project details of the Red River Valley Association on behalf of the industries, organizations, municipalities and citizens we represent throughout the four state Red River Valley region. The Civil Works program directly relates to national security by investing in economic infrastructure. If waterways are closed companies will not relocate to other parts of the country – they will move over seas. If we do not invest now there will be a negative impact on our ability to compete in the world market threatening our national security.

Please direct your comments and questions to our Executive Director, Richard Brontoli, (318) 221-5233, E-mail: redriverva@hotmail.com.

RED RIVER VALLEY ASSOCIATION
FY 2010 APPROPRIATIONS ($000)
CIVIL WORKS
NOTE: Depending on final Stimulus funding RRVA FY 2010 requests may change.
Details of the President's FY 2010 budget have NOT yet been released.

I. Studies (GI)	**FY 09 Approp Omnibus**	**RRVA FY 10 Request**	**President FY 10 Budget**	**Local Sponsor Requirements**
1. Navigation into SW Arkansas: Feasibility	-0-	100		(ARRC)
2. Red River Waterway, LA – 12' Channel, Recon	-0-	100		(RRWC)
3. Bossier Parish, LA	191	350		(Bossier Levee)
4. Cross Lake, LA Water Supply Supplement	229	100		(Shreveport)
5. SE Oklahoma Water Resource Study: Feasibility	311	500		(OWRB)
6. SW Arkansas Ecosystem Restoration: Recon Study	143	184		(?)
7. Cypress Valley Watershed, TX	-0-	100		(?)
8. Sulphur River Basin, TX	-0-	1,000		(Sulphur Auth)
9. Washita River Basin, OK	191	500		(L)
10. Wichita River Basin above Lake Kemp, TX: Recon	-0-	100		(L)
11. Red River Above Denison Dam, TX & OK: Recon	-0-	100		(L)
12. Red River Waterway, Index, AR to Denison Dam	-0-	44		(?)
13. Mountain Fork River Watershed, OK & AR, Recon	-0-	-0-		(?)
14. Walnut Bayou, Little River, AR	-0-	100		(ANRC)
15. Red River Waterway, Index to Denison, Bendway Weir	-0-	-0-		(?)
II. Construction General (CG)				
1. Red River Waterway: J. B. Johnston Waterway, LA	7,656	21,000		(RRWC)
2. Chloride Control Project, TX & OK	2,201	9,000		N/A
3. Red River Below Denison Dam; AR & LA a. Bowie County Levee, TX	2,105 -0-	11,000 -0-		(Levee Districts)
4. Red River Emergency Bank Protection	2,817	15,000		(Levee Dist.)
5. Big Cypress Valley Watershed, TX: Section 1135	-0-	1,450		(Jefferson)
6. Palo Duro Creek, Canyon, TX: Section 205	-0-	100		(Canyon, TX)
7. Millwood, Grassy Lake, AR: Section 1135	YES	350		(?)
8. Little River County/Ogden Levee, AR, PED	-0-	300		(ASWC)
9. McKinney Bayou, AR, PED	-0-	-0-		
10. Miller County Levee, AR, Sec 1135	-0-	-0-		(Miller Levee)
III. Operation and Maintenance (O&M)				
1. J. Bennett Johnston Waterway, LA	9,797	16,230		
2. Lake Kemp, TX - Total Need Basic Annual O&M Reallocation Study Service Bridge & Gate Repair	198	664 214 300 150		
3. Lake Texoma, TX & OK - Total Need Basic Annual O&M Suppl. EIS Backlog Maintenance	6,164	9,393 6,393 1,000 2,000		
4. Chloride Control Project, TX & OK	1,348	5,824		

NOTE: Local Sponsor Column – Sponsor indicated in ( ); (?) indicates No Sponsor identified and need one to continue
(L) indicates Sponsor not required now but need one for feasibility; N/A – No Sponsor required.

STATEMENT FOR THE RECORD
NATIONAL MINING ASSOCIATION (NMA)
HOUSE COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
APRIL 3, 2009
FISCAL YEAR (FY) 2010 BUDGET

NMA RECOMMENDATIONS (based on FY2009 enacted levels*)

DEPARTMENT OF ENERGY ("DOE") – Office of Fossil Energy

- NMA fully supports and urges maximum funding for carbon capture and storage ("CCS") projects that avoid, reduce or store air pollutants and greenhouse gases while contributing long-term economic growth and international competitiveness. Substantial federal funding for continued research, development and demonstration of CCS technologies will be required before CCS can be applied to large-scale commercial power plants. The construction and operation of near-zero emission and low carbon projects, such as the proposed FutureGen project in Mattoon, Ill., are indispensable to demonstrate that the technology necessary to meet domestic energy demands of the 21st century are available on a commercial scale. NMA strongly supports reinstating funding for the FutureGen project at Mattoon and opposes the previous administration's proposal to cancel the project and use the funding for smaller projects.

- New transmission technology and a significant investment in the modernization of the nation's electricity grid will expand electricity transmission capability is needed in order to take advantage of excess coal fire-fueled power generation capacity and fully deploy the base-load generation necessary to meet forecasted electricity demand for the remainder of the century. The efficient distribution of coal-sourced electricity is essential to maintain available, affordable and reliable electricity to support existing jobs and create new domestic jobs and protect America's residential consumers from escalating utility costs and potential outages. NMA also supports full funding for these efforts.

- Funding for basic research and development of new, innovative clean coal technologies is necessary to continue the progress made over the last 35 years. Regulated emissions for coal-based electricity generation have decreased overall by nearly 40 percent since the 1970's while the use of coal has tripled. Well funded basic coal research by DOE and clean coal technology demonstrations undertaken by DOE-private sector partnerships will continue this significant progress in energy production and environmental improvement.

- NMA supports the administration's request of $7.5 million to fund DOE's participation in the Asia-Pacific Partnership ("APP"). The APP will spur development of cutting edge technologies and practices that support economic growth while reducing emissions, including greenhouse gas emissions. It will result in an expansion of market opportunities for U.S. mining and equipment companies and other U.S. businesses.

U.S. ARMY CORPS OF ENGINEERS ("Corps") - Civil Works Programs:

- NMA opposes the Corps' proposed concept of a new inland waterways "lockage fee/tax" to fund improvements to the nation's inland waterways system. NMA understands that the Corps intends to provide Congress with a legislative proposal to replace the diesel fuel tax, which has been in place since 1986, with a "lockage fee/tax" that would more than double the taxes paid by the towing industry. The coal industry ships approximately 185 million short tons of coal annually on the inland waterways systems. Therefore, the increase in this tax will ultimately be borne by the consumers of coal-fueled electricity. NMA opposes such a tax increase and urges Congress to reject this proposal and maintain the current diesel fuel tax. In addition, once the FY2010 budget request is released, NMA would be happy to provide recommendations on priority navigation projects.

The National Mining Association (NMA) represents producers of over 80 percent of the coal mined in the United States. Coal continues to be the most reliable and affordable domestic fuel used to generate over 50 percent of the nation's electricity. NMA members also include producers of uranium – the basis for 20 percent of U.S. electricity supply. NMA represents producers of metals and minerals that are critical to a modern economy and our national security. Finally, NMA's membership includes manufacturers of processing equipment, mining machinery and supplies, transporters, and engineering, consulting, and financial institutions serving the mining industry.

** In the absence of a FY 2010 presidential budget request at this time, the National Mining Association based our testimony on FY 2009 enacted levels. We are happy to revise and resubmit our statement once the FY 2010 figures are released, and would appreciate the opportunity to do so.*

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS
Geoscience & Energy Office – Washington, D.C.

Written testimony submitted to:
House Appropriations Subcommittee on
Energy & Water Development and Related Agencies
in support of Department of Energy programs

by

Scott W. Tinker, Ph.D.,
President, American Association of Petroleum Geologists

To the Chair and Members of the Subcommittee:

Thank you for this opportunity to provide testimony on the importance and need for strong federal R&D efforts in the fields of oil and natural gas, coal, and geothermal technologies. These activities reside in the U.S. Department of Energy's fossil energy program (oil, natural gas, coal) and energy efficiency and renewable energy program (geothermal). They are an essential investment in this nation's energy security.

The American Association of Petroleum Geologists (AAPG) is the world's largest scientific and professional geological association. The purpose of AAPG is to advance the science of geology, foster scientific research, and promote technology. AAPG has nearly 34,000 members around the world, with roughly two-thirds living and working in the United States. These are the professional geoscientists in industry, government, and academia who practice, regulate, and teach the science and process of finding and producing energy resources from the Earth.

AAPG strives to increase public awareness of the crucial role that geosciences, and particularly petroleum geology play in energy security and our society.

Our members have a big job. Fossil fuels supply 87% of the world's total energy needs, down only 4% in the past quarter century. Transportation represents about 30% of end use demand and is dominated by liquid fuels derived from oil. Heating is another 30% and dominated by oil and natural gas. Electricity represents the remaining 40% with a broadening portfolio of fuel sources. Coal, nuclear, and natural gas currently dominate electricity production, but alternatives like wind are growing rapidly. However, because electricity demand is also growing, alternatives remain a small fraction of total production.

Today's energy debate is often framed as a choice between fossil fuels or alternative (non-fossil) fuels, or between fossil fuels and the environment, but these are red herrings. Sustaining a healthy U.S. and global economy, and thus enabling substantial investment in our environment, requires a stable and continuous supply of fossil fuels while simultaneously developing and expanding alternative and new fuels. This is the bridge to our energy future. We need both, and

the process of building this bridge will take 25 to 40 years, perhaps longer. Our nation's energy policies and investments must reflect this reality.

For example, President Obama's FY2010 budget includes the rollback of a series of tax provisions currently available to the oil and gas industry, which is dominated today by the U.S independent producer. It also proposes assessing new fees and taxes on oil and natural gas producers, and repealing the ultra-deepwater and unconventional research programs.

Compounded by a weak economy and limited access to capital, these proposed policies on top of an already heavily taxed industry would have a chilling effect on oil and natural gas drilling, production, and energy investment in this country, cost many jobs, and directly undermine U.S. energy security.

The U.S. tried this experiment from 1980-88 with the windfall profits tax which, compounded with the drop in price of oil in the 80's, had a disastrous effect on drilling, industry employment and U.S. energy production for nearly two decades to follow. We face a very similar price situation now and cannot afford to repeat an experiment that has already been tried and failed.

These either/or policy choices fail to recognize that as we bridge to an alternative energy future, we must preserve and even strengthen the fossil energy foundation underlying it. Research and development investments are critical to developing alternative and new fuel sources, but are also needed in fossil energy to develop the science and technology to ensure their future availability.

Oil and natural gas technologies programs
The oil and natural gas technology research programs at DOE have received grossly inadequate appropriations for many years. In fact, in FY09 federal oil and natural gas R&D represented a miniscule proportion of total energy R&D expenditures, while, ironically, oil and natural gas combined contribute 65% to our nation's energy portfolio.

Criticisms of these research programs are frequently couched in terms of "corporate welfare" or a notion that the private sector should support all oil and natural gas research on its own. But these charges reveal a fundamental misunderstanding of several important trends:

1. The transition to non-fossil fuel alternative energies will take much longer than a few decades. Alternatives are currently more expensive, less reliable and simply cannot meet the scale of energy demand. To try to force the U.S. on a different course than the rest of the world, at a cost of literally trillions of dollars, will disadvantage the U.S. at a minimum and worse further hurt the U.S. economy.
2. Increasingly, domestic oil and natural gas production is shifting to non-traditional (unconventional) resources, such as the Barnett Shale in Texas or the Bakken formation in the Williston basin. These resources are different from the conventional resources of the past and hold great promise, but realizing that potential requires significant R&D and technology development. Each resource has unique challenges and if the U.S. is to leverage their global potential it must invest accordingly and substantially.

3. Over the past decade the U.S. has added substantial natural gas reserves with a net increase on the order of 15 trillion cubic feet (TCF) in the past three years owing to drilling and expansion of shale gas. Proven reserves of dry natural gas, including Prudhoe Bay, are about 300 TCF. Natural gas resource estimates are 6-7 times the proven reserves. U. S. domestic production of dry natural gas in 2008 was 20.6 TCF. Natural gas is the largest source of domestically produced energy, slightly greater than coal, substantially greater than oil, nuclear, and all other sources. With the proper incentives, and combined with a commitment to LNG, natural gas could support all of the demand growth in power generation needed for several decades. Such a shift in the fossil fuel mix would have a very positive impact on reducing CO_2 emissions growth.
4. The U.S. oil and gas industry is in decline. Many of the top public companies that built the U.S. energy advantage no longer exist. Such names as Mobil, Amoco, Texaco, Phillips, Unocal, Arco, Kerr McGee and others are gone as the result of mergers and acquisitions. This decline has not stopped. All combined public companies control less than 10% of the world's oil and natural gas reserves; the remainder is controlled by national oil companies (NOCs), many of them OPEC nations. These NOCs are now leasing up resources globally and will become the international oil companies of the future.
5. Domestic oil and natural gas resources are increasingly developed by independent producers, ranging from individuals to large companies. They do not have the capacity or resources to conduct independent research. They have, however, been willing and able to quickly adopt and commercialize new technologies when appropriate technology transfer occurs.
6. Federal R&D has historically provided support for the nation's universities and colleges, which have proven to be a rich source of technological innovation. But as federal support for oil and natural gas technologies has waned, so has the ability to conduct this type of research and train the next generation of U.S. scientists and engineers. This trend is particularly worrisome, because developing nations are investing significantly in fossil energy research and development and U.S universities are now heavily enrolled by non U.S. students.

Given the important role that oil and particularly natural gas currently play in our energy portfolio, we must rebuild and expand the nation's federal R&D and training capacity for oil and natural gas through a partnership of government, academia, and industry. These and other trends demonstrate the need for a robust federal oil and natural gas program, one that is funded on the scale of coal, nuclear and alternatives.

We request the Subcommittee on Energy & Water Development and Related Agencies appropriate $500 million for oil and natural gas technology programs to be administered by the Department of Energy's Office of Fossil Energy to support research projects that target increased production of domestic oil and natural gas resources.

Coal program
The nation's coal resource is vitally important to U.S. energy security. AAPG supports significant research and development funding for coal, including clean coal technologies such as carbon capture and sequestration. We support the funding provided in the American Recovery and Reinvestment Act of 2009 for coal research, and encourage Congress to sustain this commitment in its FY2010 appropriations by funding at FY2009 levels or higher.

Again, these investments must be balanced. In evaluating the DOE coal program, I urge you to review the findings of the National Academy's report entitled Coal: Research and Development to Support National Energy Policy, released in June 2007. The study finds that while there are significant uncertainties in U.S. coal reserve and resource estimates, there is sufficient coal at current consumption to last for more than 100 years.

However, there is a real need for more "upstream" coal research to increase our understanding of the nation's resource base. They observe that currently, over 90% of federal R&D spending for coal is on the "downstream" side, focused on utilization, carbon capture and sequestration, and transport and transmission. Only 10% goes to resource and reserve assessment, mining and processing, environment/reclamation, and safety and health.

Geothermal energy technologies program
Geothermal energy is an important alternative energy resource that provides baseload power to the nation's electrical grid. Significant expansion of geothermal power production may be possible through the development of enhanced or engineered geothermal systems, but developing and proving these technologies will require R&D investment.

AAPG supports the $400 million for geothermal energy R&D and deployment in the American Reinvestment and Recovery Act of 2009. We encourage Congress to sustain this commitment in its FY2010 appropriations by appropriating at FY2009 levels.

Summary
Thank you for the opportunity to present this testimony to the Subcommittee. As you deliberate appropriate funding levels for these DOE programs, please consider the important public policy implications these choices entail. Building a bridge to our energy future requires significant investment in new and alternative energy and fuel sources, but it also requires significant R&D investment in fossil fuels, the foundation of our global energy system, to ensure that this process is stable and orderly.

AAPG's Geoscience and Energy Office – Washington, D.C. would be pleased to provide additional information. You can contact the office at 202-684-8225, fax 703-379-7563, or 4220 King Street, Alexandria, VA 22302.

Testimony from

Vaughn Clark, Director, Office of Community Development,
Oklahoma Department of Commerce and
Chair of the Board of Directors for the
National Association for State Community Services Programs
to the
United States House of Representatives, Committee on Appropriations,
Subcommittee on Energy and Water

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 deeply committed to the Administration's goal of weatherizing 1 million homes per year. In order to sustain Ramp Up activities as begun with the funding provided by the American Recovery and Reinvestment Act (ARRA) of 2009, we are seeking a FY2010 appropriations level of **$300 million for the WAP** and **$125 million for SEP**. NASCSP believes these funding levels are essential in continuing and improving these outstanding state grant programs for our citizens. With the addition of ARRA funds, normally appropriated funds are even more necessary to allow the WAP network to fulfill its administrative duties and ensure continued quality and success.

NASCSP is the member organization representing the states on issues related to the WAP and the Community Services Block Grant. Our organization would like to thank this Committee for its continued support of the WAP and SEP through the years. The $450 million in regular appropriations and $5 billion in ARRA funding provided by the Committee in 2009 is expected to result in:

- The creation and continued support of at least 14,000 full time, highly skilled jobs within the service delivery network and 7,000 in related manufacturing and supplier businesses;
- An additional 838,461 homes occupied by low-income families receiving energy efficiency services, thereby reducing energy use and associated energy bills;
- Support for communities through local purchasing and jobs created nationwide;
- A significant reduction in greenhouse gases and environmental pollutants due to the decrease in energy use by these newly weatherized homes; and
- A significant reduction in foreign oil imports by as much as 20 million barrels per year and this number continues rise.

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 carbon footprint, lower 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 service measures, which typically includes 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 2008, the first-year energy savings for households weatherized during this year are estimated to be more than $413. The services provided by Weatherization will continue to return savings for many years after installation. The estimated average energy benefit over the life of the measures is $5,274. For every dollar spent, the WAP returns $2.72 in energy and non-energy benefits over the life of the weatherized home, per the aforementioned EIA Outlook and studies conducted by the Oak Ridge National Laboratory. Since the program's inception, **more than 6.2 million homes have been weatherized** using federal, state, utility and other monies.

These are troubling times facing our nation with a recession, rising unemployment, and falling spending rates. These economic events 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 disproportionately large share of their income on energy needs than their middle-income counterparts. For example, a typical middle class family pays about 4 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 (16 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.

The Oak Ridge National Laboratory report entitled, "State Level Evaluations of the Weatherization Program Conducted From 1990-2001" and subsequent Meta-Evaluations conducted in 2003, 2005 and 2006 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% return on investment.

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 the cost effectiveness of service delivery. Oak Ridge is currently investigating the cost effectiveness of including certain base load measures (water heater replacement, lighting, small motor efficiency, refrigerator replacements) 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. Many of our states have implemented refrigerator replacement programs to decrease energy base-load for low-income families.

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:

- Increasing jobs in communities throughout the country. In this time of economic uncertainty, the addition of 21,000 jobs will provide security and boost local economies.
- Investing money in 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 $3 billion a year in the WAP could yield nearly $12 billion in economic benefits to local communities.
- Reducing harmful green house gas through reduced CO2 emissions by avoiding energy production. Each house weatherized 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.
- Reducing consumption of imported fuels by reducing residential energy consumption. Our country currently imports nearly 60% of its oil from foreign countries. This figure is higher than the import percentage in the 1970s, 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.

Earlier this year, the American Recovery and Reinvestment Act provided $5 billion in additional funding over three years for the Weatherization This has allowed state and local agencies to significantly increase their efforts in the goal to weatherize hundreds of thousands of homes per year. In order to sustain the program in the out years beyond the reach of American Recovery and Reinvestment Act dollars, it is important that the Weatherization Assistance Program maintain its elevated level of funding. In this manner, the network can continue to provide jobs and support local economies, as well as continue to promote energy efficiency nationwide.

The Department of Energy has continued to delay the WAP National Evaluation requested by the Office of Management and Budget and approved by Congress. The evaluation is essential to reestablish the metrics of the Program and identify areas where improvements can be made in operation and effectiveness. The states have supported the conducting of the Program review and are disheartened that the evaluation was summarily cancelled. A national evaluation would

prove once again the effectiveness of the WAP in meeting the energy efficiency needs of low-income housing.

NASCSP urges the Subcommittee to restore the Weatherization Assistance Program funding to the level of $300 million while providing $125 million for the State Energy Program. Weatherization is a clearly proven investment, which has helped over 6.2 million families live in safer, more comfortable living conditions. This is a program which has proved its worth and effectiveness for over thirty years. With the additional funding from the recent Recovery Act, it is necessary to provide grantees and sub-grantees with adequate funding to continue these important efforts for years to come and to ensure the funds are spent in a timely and effective manner, specifically without any decreases in the quality of WAP.

By the evidence provided herein, this Committee can be assured that the funding invested in WAP and SEP 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 and good jobs for millions of American families through these invaluable national programs.

Respectfully submitted,

Vaughn Clark
Chair, NASCSP Board of Directors

STATEMENT TO: U.S. House of Representatives Appropriations Committee, Subcommittee on Energy and Water Development
REGARDING: Department of Energy Turbine R&D Programs
SUBMITTED BY: Dr. William H. Day, Managing Director, Gas Turbine Association

April 3, 2009

The Gas Turbine Association appreciates the opportunity to provide the United States House of Representatives Committee on Appropriations Subcommittee on Energy and Water Development with our industry's statement recommending FY10 funding levels for the Department of Energy.

GTA recommends that the FY10 appropriation for Fossil Energy **include $45 million** for the Advanced Turbines Program to meet critical national goals of fuel conservation, fuel flexibility (including syngas and hydrogen), greenhouse gas reduction, and criteria pollutant reduction. **We also recommend** that Congress take appropriate action to ensure the Office of Energy Efficiency and Renewable Energy, Industrial Technologies Program FY10 appropriation **include $10 million,** directed towards small gas turbine research, as part of the Distributed Energy program to achieve goals similar to those referenced above for the Fossil Energy initiative. **In both cases a public-private partnership is needed to ensure success.**

It is clear that dramatic reductions in greenhouse gas emissions are in the national interest. It is also clear that our economy needs more electric generation capacity to resume and promote further growth. Without new technology, the power generation industry will be hard pressed to produce additional electric capacity, while at the same time meeting the strict greenhouse gas emissions standards being set by states and the federal government.

Federal investment in research and technology development for advanced gas turbines that are more versatile, cleaner, and have the ability to burn hydrogen-bearing reduced carbon synthetic fuels and carbon-neutral alternative fuels is needed to ensure the reliable supply of electricity in the next several decades. Domestic coal based Integrated Gasification Combined Cycle (IGCC) with carbon capture and sequestration is one such approach that would significantly supplement available supplies of domestic natural gas to guarantee an adequate supply of clean and affordable electric power. Alternative fuel choices range from imported LNG, coal bed methane, and coal-derived synthetic or process gas to biogas, waste-derived gases and hydrogen. Research is needed to improve the efficiency, reduce capital and operating costs, and reduce emissions.

Technologies for Advanced IGCC/H_2 Gas Turbine – Reducing the Penalty for CO_2 Capture

At current rates of research and development it is unlikely that the nation will have available the gas turbine technologies to meet the needs of FutureGen type power plants. The advancement of these technologies must be undertaken by the DOE since there is currently no pathway to the development, insertion, and maturation of these technologies into the nation's electric power infrastructure based on market forces. Thus, a combined effort by the public and private sectors is necessary.

The turbines and related technologies being developed under the DOE FE Advanced Turbines program will directly advance the performance and capabilities of future power generation with CO_2

capture and sequestration. Advances are needed to offset part of the power plant efficiency and output reductions associated with CO_2 capture. Program funding is required to cost-share in the technology development of advanced hydrogen/syngas combustors and other components to realize the DOE goals.

Several GTA member companies are working cost-share programs with the DOE to develop technologies for advanced gas turbine power plants with carbon capture. These technologies will: 1) increase plant efficiency; 2) increase plant capacities; and 3) allow further reductions in combustion emissions of hydrogen rich fuels associated with CO_2 capture and sequestration. This will help offset some of the efficiency and output penalties associated with CO_2 capture. These programs are funding technology advancement at a much more rapid rate than industry can do on their own.

The need for increased levels of Federal cost-share funding is immediate. The funding levels in past years for the Advanced Turbines program has been inadequate to meet DOE's Advanced Power System goal of an IGCC power system with high efficiency (45-50% HHV), near-zero emissions and competitive capital cost. To meet this goal, the researchers must demonstrate a 2 to 3 percentage point improvement in combined cycle efficiency above current state-of-the-art Combined Cycle turbines in IGCC applications.

The plan for the IGCC-based FutureGen-type application is to develop the flexibility in this same machine with modifications to operate on pure hydrogen as the primary energy source while maintaining the same levels of performance in terms efficiency and emissions. The goal is to develop the fundamental technologies needed for advanced hydrogen turbines and to integrate this technology with CO_2 separation, capture, and sequestration into a near-zero emission configuration that can provide electricity with less than a 10 percent increase in cost over conventional plants by 2012.

The Advanced Turbines program is also developing oxygen-fired (oxy-fuel) turbines and combustors that are expected to achieve efficiencies in the 44 – 46% range, with near-100 percent CO_2 capture and near-zero NOx emissions. The development and integrated testing of a new combustor, turbine components, advanced cooling technology, and materials in oxy-fuel combustors and turbines is needed to make these systems commercially viable.

The knowledge and confidence that generating equipment will operate reliably and efficiently on varying fuels is essential for the deployment of new technology. Years of continued under funding of the Advanced Turbines program has already delayed the completion dates for turbine R&D necessary for advanced IGCC, as well as timing for a FutureGen-type plant validation.

Mega-Watt Scale Turbine R&D

In the 2005 *Enabling Turbine Technologies for High-Hydrogen Fuels* solicitation, the Office of Fossil Energy included a topic area entitled "Development of Highly Efficient Zero Emission Hydrogen Combustion Technology for Mega-Watt Scale Turbines". Turbine manufacturers and combustion system developers responded favorably to this topic, but DOE funding constraints did not allow any contract awards. The turbine industry recommends a follow-up to this solicitation topic that would allow the developed combustion technology to be tested in machines at full scale conditions and allow for additional combustion technology and combustor development for high-hydrogen fuels.

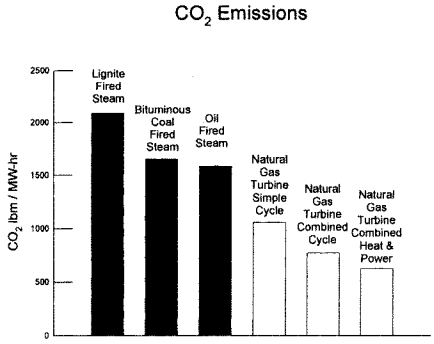
The turbine industry believes that this technology is highly relevant to industrial coal gasification applications including: 1) site-hardened black-start capability for integrated gasification combined cycle applications [the ability to restart an IGCC power plant when the electric grid has collapsed]; 2) supplying plant electric load fueled on syngas or hydrogen; 3) increasing plant steam cycle capacity on hot days when large amounts of additional power are needed; and 4) in gas turbines for compression of high-hydrogen fuels for pipeline transportation. The development of MW-scale turbines (1 - 100 MW) fueled with high-hydrogen fuels will promote the sustainable use of coal. In addition, highly efficient aeroderivative megawatt scale engines operate under different conditions than their larger counterparts and are installed for peaking or distributed generation applications. Funding is required to design efficient and low emissions combustors that accommodate the new fuels.

High-Efficiency, Low Carbon, Fuel Flexible Small Gas Turbines for Distributed Energy

The Distributed Energy Program of EERE's Industrial Technologies program should **include $10 million** to initiate small gas turbine research and development programs to dramatically increase their fuel efficiency (and thus reduce their carbon footprint) and to make them fuel flexible. Distributed energy is critical to building a efficient, diverse, and robust electric power infrastructure. Specifically, this program should set a goal of 42% efficiency (on a lower heating value basis) for advanced small gas turbines while enhancing their fuel flexibility to include dual fuel and alternative fuel utilization. These programs should build on the success of the Advanced Micro-turbine program of past years to overcome the barriers to insertion of Distributed Energy into our nation's electrical infrastructure and to build on potential synergies between advanced small gas turbines and the advances in waste heat capture such as combined heat and power (CHP) and organic Rankine cycle (ORC).

Gas Turbines Reduce Greenhouse Gas Emissions

The gas turbine industry's R&D partnership with the federal government has steadily increased power plant efficiency to the point where natural gas fired turbines can reach combined cycle efficiencies of 60%, and quick-start simple cycle peaking units can reach 46%. The gas turbine's clean exhaust can be used to create hot water, steam, or even chilled water. In such combined heat and power applications, overall system efficiency levels can reach 60 to 85% LHV. This compares to 40-45% for even the most advanced thermal steam cycles (most of which are coal fired).



Gas turbines already play a very significant role in minimizing greenhouse gas emissions worldwide. Gas turbines are both more efficient and typically burn lower carbon fuels compared to other types of combustion-based power generation and mechanical drive applications. The nation needs to reinvigorate the gas turbine / government partnership in order to develop new, low carbon power plant solutions without increasing our reliance on natural gas. This can be done by funding research to

make gas turbines more capable of utilizing hydrogen and synthetic fuels as well as increasing the efficiency, durability and emissions capability of natural gas fired turbines. If Congress provides adequate funding to DOE's turbine R&D efforts, technology development and deployment will be accelerated to a pace that will allow the U.S. to achieve its emissions and energy security goals.

The GTA respectfully requests $45 million in FY10 appropriations for the Fossil Energy Advanced Turbines Program, and $10 Million for the Energy Efficiency & Renewable Energy ITP/Distributed Energy Program directed towards small turbines research in FY10 to meet critical national goals of fuel conservation, fuel flexibility (including syngas and hydrogen), greenhouse gas reduction, and criteria pollutant reduction.

GTA MEMBER COMPANIES

Alstom Power, Capstone Turbine Corporation, GE Energy,
Florida Turbine Technologies, Rolls-Royce, Siemens Energy, Solar Turbines,
Pratt & Whitney Power Systems, Strategic Power Systems, VibroMeter

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Testimony to the House Appropriations Subcommittee on Energy and Water Development
Re: DOE Fossil Energy Advanced Turbines/Hydrogen Turbines program
From Kevin Burns, President, Precision Combustion, Inc.
April 2, 2009

The DOE Fossil Energy Advanced Turbines program (including the Hydrogen Turbines program) holds the potential for producing major advances in technology in support of truly clean coal with high energy efficiency and effectively complete CO2 sequestration. Developing technology to efficiently using America's coal while avoiding carbon dioxide emissions is a holy grail of our energy policy. Any real solution will require revolutionary changes in technology, likely taking paths that are disruptive to current gas turbine power generation technology. This budget should be increased substantially and more directed towards such high potential value disruptive technologies.

DOE's challenge is how best to encourage American ingenuity to develop a viable truly clean coal solution. For greatest impact, DOE money should be focused on R&D that would not occur without the DOE support. This has several implications:

1. **Incremental adaptations of already-commercial technologies from existing players** can look attractive, because they appear lower risk and already are well-positioned for implementation. Nevertheless, with looming carbon caps or taxes as incentives, such advances are also more likely to occur without government support, and they should be scrutinized to make sure they offer substantial improvements that are targeted by DOE.
2. **High potential value disruptive technologies**, often from companies outside the current primary industry producers, offer the opportunity for more completely accomplishing DOE objectives. By their disruptive and long term nature, these technologies face the highest barriers to entry and find the least support within the current industry structure and are unlikely to develop without government support. Without government support, these technologies will never develop, notwithstanding their potential for major long term benefit for the U.S. and DOE. DOE's programs should make special effort to support such technologies.
3. **A good DOE strategy is to make sure high potential value technologies, especially by outside innovators, are well-supported within its budgets**. This has both the direct benefit of supporting potentially major solutions that otherwise would disappear, while also keeping the overall U.S. industrial R&D effort maximally motivated towards accomplishing the DOE goals in the knowledge that competing efforts are underway that are also directed well beyond incremental advances.

This is not to argue against good collaborative relationships with the major industry players, as the government does want to influence those players. However, it is important to make sure the potentially-disruptive technologies are also supported.

With real global warming solutions potentially carrying very high costs, DOE support should be intensified for the innovative R&D approaches that offer to more efficiently provide those solutions. The dollars we spend now, especially if spent with greatest leverage on technologies offering fundamental change, offer a very high potential payoff both for direct export-type jobs but with even greater impact for our future standards of living with high coal reserves in a carbon-constrained world.

Let me provide our company as an example. My company, Precision Combustion, Inc., is a small business and a participant within projects supported by DOE gas turbine programs, within the Fossil Energy Advanced Turbines program and the Distributed Energy program within the DOE Office of Energy Delivery and Reliability. Our catalytic combustor technology for efficient, ultra-low NOx gas turbines was originally developed with DOE SBIR and other DOE support, and is a technology success story for DOE and governmental stimulation of new technology meeting public policy objectives.

Our technology breakthrough supports multiple DOE objectives:

- energy independence and coal utilization,
- near zero and zero emissions (depending on the system),
- maximized efficiency,
- fuel flexibility (with demonstration to date using natural gas, biogas, low BTu blast furnace gas, refinery gas, and now even ultra-low NOx with coal-derived syngas and hydrogen),
- reliability, and
- reduced Operations and Maintenance costs

The technology offers a clean combustion alternative to the need for post-combustion controls (such as SCR (Selective Catalytic Reduction)) and their capital, operating cost, ammonia emissions, and efficiency penalties.

So, if our technology offers clean and efficient gas turbine combustion at lowered capital and operating costs, why is there a need for government involvement? Why do not existing gas turbine companies simply invest the money to bring the technology to the market? We are in the category of a disruptive technology, one which offers much, but also changes the rules of the game and so is especially challenging with which to achieve market entry. There is also a structural barrier: in our case, while the costs of integration into gas turbines would be borne by the gas turbine manufacturers, by far most of the benefit will end up going to the public, in the form of cleaner air, reduced carbon emissions, reduced utility bills, and improved energy independence.

This provides a special challenge when a technology has not yet been field proven, where the risk and investment remain relatively high. Yet the potential gain to the public good is great, and once successful field trial is achieved market forces would drive the technology forward!

For now we, like other independent innovators, are finding that further support for our technology is being displaced by increasing fractions of budgets being directed to the prime industry players.

This is at one level a programmatic problem where a higher fraction of program effort should be directed to potentially-disruptive technologies offering to address DOE's objectives. However, it is also an overall DOE allocation challenge, where insufficient total resources are being directed the Advanced Turbines program, which receives relatively small total funding considering the very large impact power generation gas turbines will have upon overall DOE energy independence and global warming challenges. In resolution, I urge that added money be directed to this program and that the program office be encouraged to focus the added funding on potentially-disruptive technologies and players that are not already part of the mainstream production industry.

This will give you highest leverage on your funding support, an investment directed to actually accomplish ambitious DOE goals of overall energy independence and global warming reduction.

Thank you for your consideration.

Sincerely,

Kevin Burns
President, Precision Combustion, Inc.

TESTIMONY

House Energy and Water Development Appropriations Subcommittee
Honorable Chairman Pete Visclosky

Fort Peck Reservation Rural Water System (PL 106-382)
Assiniboine and Sioux Rural Water System
Dry Prairie Rural Water System

Bureau of Reclamation

1. **FY Budget Request**

The Fort Peck Assiniboine and Sioux Tribes and Dry Prairie Rural Water respectfully request FY 2009 appropriations of $44,649,000 for the Bureau of Reclamation rural water program. The project is 22% complete. It has progressed well subject to available funds.

FY 2009 Funds will be used to construct critical elements of the Fort Peck Reservation Rural Water System, Montana, (PL 106-382, October 27, 2000). The amount requested is based on need to build Phase II of the regional water treatment plant, pipelines to connect with the Town of Poplar and Dry Prairie systems on the east and west sides project. The request is within capability to spend funds in FY 2010 and is set out in Table 1. The Schedule of Activities and Cash Flow analysis to build the major features of the regional system (water treatment plant and common pipelines) is included as Attachment A and demonstrate capability to use funds.

TABLE 1

FY 2010 FUNDING REQUEST
FORT PECK RESERVATION RURAL WATER SYSTEM (PL 106-382)

Sponsor	Project Feature	Federal	Non-Federal	Total
Fort Peck Tribes				
	Water Treatment Plant			
	Phase I, Clear Well Wash Water Recovery	$0	$0	$0
	Phase II, Main Treatment	20,317,000	0	20,317,000
	Pipelines			
	Water Treatment Plant to Poplar	10,763,000	0	10,763,000
	Water Treatment Plant to Wolf Point	0	0	0
	FP OM Buildings	558,000	0	558,000
	Subtotal	$31,638,000	$0	$31,638,000
Dry Prairie				
	Big Muddy to Plentywood	4,739,000	1,496,000	6,235,000
	Fort Kipp	219,000	69,000	288,000
	Porcupine Creek to Opheim			
	St. Marie to Nashua	4,619,000	1,458,000	6,077,000
	St. Marie to Opheim	3,434,000	1,084,000	4,518,000
	Subtotal	$13,011,000	4,107,000	17,118,000
Total		$44,649,000	$4,107,000	$48,756,000

100330.1

2. Funding Status and Needs

As shown in Table 2 below, the project will be 22% complete at the end of FY 2009. Construction funds remaining to be spent after FY 2009 will total $225.061 million within the current authorization (in October 2008 dollars). Administrative costs of extending the project completion to FY 2015 and construction costs outside the authorized ceiling increase remaining costs to $245.969 million before considering inflation. Inflation at 7.5% over the next 6 years, the average rate over the last five years in Reclamation construction projects, is expected to increase remaining project costs to $314.001 million if the project is completed in FY 2015. An average $52.33 million annually is required to complete the project by 2015 considering all factors. The project is seeking an amendment of PL 106-382 in this session of Congress to extend the project completion to December 31, 2015.

TABLE 2

FUNDING STATUS AND NEEDS

Total Federal Funding Authority (October 2008 $)	$289,110,000
Federal Funds Expended Through FY 2009	$64,049,000
% Complete	22.15%
Amount Remaining After FY 2009	
Total Authorized (October 2008$)	$225,061,000
Overhead Adjustment for Extension to FY 2015 and Other	$245,969,000
Adjusted for Inflation to FY 2015 at 7.46% Annually	$314,001,000
Years to Complete	6
Average Annual Required to End in FY 2015 (Need Extension of PL 106-382)	$52,333,000
FY 2010 Amount Requested	$44,649,000

The request ($44.649 million) is less than the average annual appropriations needed to complete the project in FY 2015 ($52.333 million annually), and is within the capability of the project to use funds for construction. The request will create an estimated 350 full-time equivalent (FTE) construction jobs in an area of Montana with low per capita income and high unemployment.

Cost indexing from FY 1998 reflecting inflation increased the cost of the project from $176 million to $289 million, an increase of $113 million. (See Attachment D). Increases in the level of appropriations are needed to outpace inflation, which averaged 3.35% for pipelines in the first 5 years of the project, 7.46% over the last 5 years and 13.80% last year.

3. Funding Has Not Been Adequate to Serve Any Tribal Users

The sponsor Tribes and Dry Prairie greatly appreciate the previous appropriations from the subcommittee that have permitted building the Missouri River intake (the water source), stages of the water treatment plant in multiple contracts, the Culbertson to Medicine Lake

pipeline and branches serving rural users outside the Fort Peck Indian Reservation. However, funds have not been adequate to complete the water treatment plant, pipeline to Poplar and other features as proposed for FY 2010. Service to tribal users and communities within the Fort Peck Indian Reservation is dependent upon completion of those facilities and has not been possible. No water has been delivered on the Fort Peck Indian Reservation.

4. **Proposed Activities**

PL 106-382 (October 27, 2000) authorized the project, which includes all of the Fort Peck Indian Reservation in Montana and the Dry Prairie portion of the project outside the Reservation in Roosevelt, Sheridan, Daniels and part of Valley County.

Fort Peck Indian Reservation

On the Fort Peck Indian Reservation the Tribes have used appropriations from previous years to:

a. construct the Missouri River raw water intake, a critical feature of the regional water project. The raw water pump station has 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.
b. The sludge lagoons at the water treatment plant have been completed.
c. Phase I of the regional water treatment plant is under construction and will be completed in FY 2009 with funds appropriated previously.

The regional water treatment plant was divided into three construction phases over the past several years. This segregation of the project in smaller contracts increased the cost of the project significantly but was necessary due to inadequate funding to bid the project as a single unit, which would normally be the case. Rather than one contractor, there will ultimately be three contractors. Three sets of plans and specifications were required to coordinate new construction contracts with pieces already built. The Bureau of Reclamation approved the plans and specifications for the entire plant four years ago. Capability to use funds has not been an issue.

The remaining phase of the water treatment plant has been advertised for construction in contemplation of adequate funding in FY 2010 ($20.317 million) to complete this essential component of the project. The bid opening is scheduled for April 7, 2009. American Recovery and Reinvestment Act (ARRA) of 2009 funds would offset the requirement for FY 2010 appropriations. The project clearly meets the expectation of Congress for ARRA, but at the time of this writing, the availability of ARRA funds was not known.

The request for FY 2010 includes funds for construction of the essential pipelines from the water treatment plant to the community of Poplar (but not to Wolf Point). The pipeline to Poplar is a regional transmission pipeline *east* of the water treatment plant to serve the Fort Peck

Indian Reservation and to eventually connect to Dry Prairie facilities east of the Reservation. The Tribes will have capability to build the pipeline to Wolf Point in FY 2010, which is a regional transmission pipeline *west* of the water treatment and serves the west sides of the Fort Peck Indian Reservation and Dry Prairie.

The pipeline project from the water treatment plant to Poplar will provide a water supply from the Missouri River to replace groundwater contaminated by "brine" from oil drilling operations. The brine contamination is the subject of EPA orders against the responsible oil company. The replacement supplies will serve the community of Poplar and the surrounding rural area where wells have been contaminated. More wells are threatened. There is urgency in completing the regional project to Poplar before the advancing plume of contamination reaches existing community wells. Projections of the date that contamination will reach the Poplar community wells range from imminent danger to as much as a decade, but the anxiety of the Tribes' leadership and membership cannot be overcome without completing the water treatment plant and connecting the regional pipeline to Poplar in FY 2010. This is a critical time frame for the Tribes. The staff and members of the subcommittee are urged to review this matter with the Tribes and Bureau of Reclamation to clarify the urgency of completing necessary project facilities and alleviating the threat of contamination of the public water supply for the Tribes' headquarters community of Poplar. (See Attachment E).

The Bureau of Reclamation can confirm that the use of funds proposed for FY 2010 is within the project's capability to spend (see Attachment A).

Dry Prairie

Dry Prairie has used previous appropriations to construct over 200 miles of distribution pipelines from the community of Culbertson, an iterim water source to be replaced when the regional water treatment plant and transmission pipeline have been completed on the Fort Peck Indian Reservation. The distribution system serves the communities of Froid and Medicine Lake and over 200 rural homes, farms and ranches. 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, Attachment B) as funds are made available and water sources are expanded.

The request for FY 2010 funds of $13.011 million, supplemented by a non-federal cost share of $4.107 million, will be used to complete pipelines starting in FY 2009 to rural services on the west side of the Dry Prairie project between the communities of St. Marie and Nashua. An existing water treatment plant owned by the Boeing Co. at the former Glasgow Air Force Base will provide an interim water supply to serve the west side project until the regional water treatment plant of the Tribes is complete and pipelines from Wolf Point to Nashua are constructed. The facilities constructed on the west side of the project are the same facilities required after connection of the regional water treatment plant. Therefore, no duplication of facilities are associated with the interim project.

Dry Prairie will also assist the Assiniboine and Sioux Tribes in building pipelines from Culbertson on the east side of the project to the Reservation boundary to serve the tribal community of Fort Kipp with an interim water supply. The Tribes are building facilities within the Reservation with FY 2009 funding.

Dry Prairie proposes to extend interim water supply capability between Culbertson and Plentywood with FY 2010 funding. These facilities will be served from the Tribes' regional water treatment plant when the plant and interconnecting main transmission pipelines are completed to Culbertson.

5. Master Plan

The project master plan is provided for review as Attachment C. The request for FY FY 2010 is shown in relation to the project components that remain to be completed after FY 2009.

American Society of Agronomy | Crop Science Society of America | Soil Science Society of America
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Karl Glasener
Director of Science Policy
American Society of Agronomy
Crop Science Society of America
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April 3, 2009 —BY E-mail to EW.Approp@mail.house.gov

Subcommittee on Energy and Water Development, and Related Agencies
Committee on Appropriations
2362B Rayburn House Office Building
U.S. House of Representatives
Washington, DC 20515

RE: FY10 Appropriations—Support for DOE Office of Science and Office of Energy Efficiency and Renewable Energy and other program areas

Dear Chairman Visclosky, Ranking Member Frelinghuysen and Members of the Subcommittee:

The **American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America (ASA-CSSA-SSSA)** are pleased to submit the following funding recommendations for the ***Department of Energy*** for FY 2010. For the ***Office of Science***, ASA-CSSA-SSSA recommend a funding level of $5.0 billion, a 4.8% increase over FY 2009 ($4.722 billion). For the ***Office of Energy Efficiency and Renewable Energy***, we recommend a funding level of $2.061 billion, a 7% increase over FY 2009. Specifics for each of these and other budget areas follow below.

With more than 25,000 members and practicing professionals, ASA-CSSA-SSSA are the largest life science professional societies in the United States dedicated to the agronomic, crop and soil sciences. ASA-CSSA-SSSA play a major role in promoting progress in these sciences through the publication of quality journals and books, convening meetings and workshops, developing educational, training, and public information programs, providing scientific advice to inform public policy, and promoting ethical conduct among practitioners of agronomy and crop and soil sciences.

Department of Energy Office of Science
The **American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America (ASA-CSSA-SSSA)** thank the House Energy and Water Appropriations Subcommittee (Subcommittee) for providing $1.6 billion from Public Law 111-5, the "American Recovery and Reinvestment Act of 2009 (Act)" for research funding through DOE's ***Office of Science***, which oversees the nation's research programs in climate science, advanced computing, and biofuels areas crucial to our energy future. In short, this investment will help put the office's budget back on track to double over the

next seven years, as called for under the America COMPETES Act. The Act also provides $2.5 billion for Research, Development, and Demonstration at universities, companies, and national laboratories to foster energy independence, reduce carbon emissions, and cut utility bills for which we are very grateful.

ASA-CSSA-SSSA understand the challenges the House Energy and Water Appropriations Subcommittee faces with the tight budget for FY 2010. We also recognize that the Energy and Water Appropriations bill has many valuable and necessary components, and we applaud the Subcommittee for funding the ***DOE Office of Science*** in the FY 2009 Omnibus Appropriations bill at $4.772 billion. For FY 2010, ASA-CSSA-SSSA recommend a funding level of $5.0 billion, a 4.8% increase over FY 2009. Under the Energy Policy Act of 2005 (P.L. 109-58), the ***Office of Science*** was authorized to receive $5.2 billion in FY 2009. Congress approved the America COMPETES Act of 2007 (P.L. 110-69), recognizing that an investment in basic (discovery) scientific research is essential to providing America the brainpower necessary to maintain a competitive advantage in the global economy and keep U.S. jobs from being shipped overseas. Such an investment is needed to keep U.S. science and engineering at the forefront of global research and development in the biological sciences and geosciences, computing and many other critical scientific fields. The ***Office of Science*** supports graduate students and postdoctoral researchers early in their careers. Nearly one third of its research funding goes to support research at more than 300 colleges and universities nationwide. Moreover, approximately half the users at ***Office of Science*** user facilities are from colleges and universities, providing further support to their researchers. The ***Office of Science*** also reaches out to America's youth in grades K-12 and their teachers to help improve students' knowledge of science and mathematics and their understanding of global energy and environmental challenges. This recommended funding level of $5.0 billion is critical to ensuring our future energy self-sufficiency and as a means to address major environmental challenges including global climate change. Finally, a funding level of $5.0 billion will allow the ***Office of Science*** to: maintain and strengthen DOE's core research programs at both the DOE national laboratories and at universities; provide support for 1,000 PhDs, postdoctoral associates, and graduate students in FY10; ensure maximum utilization of DOE research facilities; allow the ***Office of Science*** to develop and construct the next-generation facilities necessary to maintain U.S. preeminence in scientific research; and enable DOE to continue to pursue the tremendous scientific opportunities outlined in the ***Office of Science*** Strategic Plan and in its 20 Year Scientific Facilities Plan.

Basic Energy Sciences

Within the ***Office of Science***, the **Basic Energy Sciences (BES) Program** is a multipurpose, scientific research effort that fosters and supports fundamental research to expand the scientific foundations for new and improved energy technologies and for understanding and mitigating the environmental impacts of energy use. ASA-CSSA-SSSA support an FY 2010 funding level of $ 1.682 billion, a 7% increase over FY 2009, for BES. The portfolio of programs at BES supports research in the natural sciences by focusing basic (discovery) research on, among other disciplines, biosciences, chemistry and geosciences. Practically every element of energy resources, production, conversion and waste mitigation is addressed in basic research supported by BES programs. Research in

chemistry has lead to the development of new solar photoconversion processes and new tools for environmental remediation and waste management. Research in geosciences leads to advanced monitoring and measurement techniques for reservoir definition. Research in the molecular and biochemical nature of photosynthesis aids the development of solar photo-energy conversion.

Within the **Basic Energy Sciences Program,** the Chemical Sciences, Geosciences, and Energy Biosciences subprogram supports fundamental research in geochemistry, geophysics and biosciences. ASA-CSSA-SSSA recommend $317,910,910 a 7% increase over the FY 2009 funding level. The Geosciences Research Program supports research focused at developing an understanding of fundamental Earth processes that can be used as a foundation for efficient, effective, and environmentally sound use of energy resources, and provide an improved scientific basis for advanced energy and environmental technologies. The Biosciences Research Program supports basic research in molecular-level studies on solar energy capture through natural photosynthesis; the mechanisms and regulation of carbon fixation and carbon energy storage; the synthesis, degradation, and molecular interconversions of complex hydrocarbons and carbohydrates; and the study of novel biosystems and their potential for materials synthesis, chemical catalysis, and materials synthesized at the nanoscale.

Biological and Environmental Research

Within the ***Office of Science***, the **Biological and Environmental Research (BER) Program**, for more than five decades, has advanced environmental and biological knowledge that supports national security through improved energy production, development, and use; international scientific leadership that underpins our Nation's technological advances; and research that improves the quality of life for all Americans. **BER** supports these vital national missions through competitive and peer-reviewed research at national laboratories, universities, and private institutions. In addition, **BER** develops and delivers the knowledge needed to support the President's plan to make America energy independent. ASA-CSSA-SSSA support a 7% increase for **BER** which would bring the funding level to $643,647,800 for FY 2010. ASA-CSSA-SSSA support a variety of programs within **BER** including the Life Sciences subprogram which supports Carbon Sequestration Research (we recommend $8,000,000 for FY 2010), and the Genomes to Life (GTL) program. Within Genomes to Life (GTL) are programs supportive of bioenergy development including GTL Foundation Research, GTL Sequencing, GTL Bioethanol Research, and GTL Bioenergy Research Centers, all playing an important role in achieving energy independence for America. Also within BER is the Environmental Remediation subprogram and its Environmental Remediation Sciences Research program, both critical programs to advancing tools needed to clean up contaminated sites. ASA-CSSA-SSSA recommend a funding level of $190,381,000, a 7% increase over FY 2010 for Climate Change Research subprogram. This subprogram supports important areas of climate change research including: Climate Forcing which supports the Terrestrial Carbon Processes program and the Ameriflux network of research sites (which should receive $17,000,000 in funding), as understanding the role that terrestrial ecosystems play in capturing and storing carbon is essential to developing strategies to mitigate global climate change. An additional program of high importance within the Climate Change Research

subprogram is the Climate Change Response and its associated programs—Ecosystem Function and Response, and Education. Finally, also under the Climate Change Research subprogram is the Climate Change Mitigation program, part of BER's support to the Climate Change Technology Program, which will continue to focus only on terrestrial carbon sequestration.

Department of Energy Office of Energy Efficiency and Renewable Energy
Biomass is currently the only clean, renewable energy source that can help to significantly diversify transportation fuels in the U.S. DOE's Energy Efficiency and Renewable Energy Biomass Program is helping transform the nation's renewable and abundant biomass resources into cost competitive, high performance biofuels, bioproducts, and biopower. The ***Office of Energy Efficiency and Renewable Energy (EERE)*** manages America's investment in the research and development (RD&D) of DOE's diverse energy efficiency and renewable energy applied science portfolio. For the ***Office of Energy Efficiency and Renewable Energy***, we recommend a funding level of $2.061 billion, a 7% increase over FY 2009. The FY 2010 ***EERE*** budget should continue to maintain focus on key components of the AEI and Twenty in Ten including the Biofuels Initiative to develop affordable, bio-based transportation fuels from a wider variety of feedstocks and agricultural waste products. Note: ASA-CSSA-SSSA strongly oppose the use by the Department of the term "agricultural wastes". Crop residues, e.g., corn stover, play a very important in nutrient cycling, erosion control and organic matter development. Recent studies have shown that excessive removal of crop residues from agricultural lands can lead to a decline in soil quality. By no means should they ever be referred to as "wastes".

Biomass and Biorefinery Systems
Within ***EERE***, the **Biomass and Biorefinery Systems R&D program** plays an important role providing support for Regional Biomass Feedstock Development Partnerships and Infastructure Core R&D programs, both within Feedstock Infrastructure. For the **Biomass and Biorefinery Systems R&D program**, we recommend a 7% increase for FY 2010 which would bring funding to $190,381,000. Activities included within this program are resource assessment, education, sustainable agronomic systems development, and biomass crop development. The mission of the Biomass Program is to develop and transform our domestic, renewable, and abundant biomass resources into cost-competitive, high performance biofuels, bioproducts and biopower through targeted RD&D leveraged by public and private partnerships. ASA-CSSA-SSSA support $18,000,000 in funding for the ***Feedstock Infrastructure program.***

Climate Change Research
ASA-CSSA-SSSA urge the Subcommittee to continue to provide strong support for Climate Change Research to the following programs as follows: Climate Change Science Program (CCSP), $150,000,000; Climate Change Research Initiative (CCRI), $25,672,000; and Climate Change Technology Program (CCTP), $850,301,000. These three programs together will increase our understanding of the impacts of global climate change and also develop tools and technologies to mitigate these impacts.

Basic and Applied R&D Coordination

The Office of Science continues to coordinate basic research efforts in many areas with the Department's applied technology offices. Within this area is Carbon Dioxide Capture and Storage R&D for which we recommend $20,055,000. The **BER** research includes understanding, modeling, and predicting the processes that control the fate of carbon dioxide injected into geologic formations, subsurface carbon storage, and the role of microbes and plants in carbon sequestration in both marine and terrestrial environments.

National Laboratories
The Office of Science manages 10 world-class laboratories, which often are called the "crown jewels" of our national research infrastructure. The national laboratory system, created over a half-century ago, is the most comprehensive research system of its kind in the world. Five are multi-program facilities including the Oak Ridge National Laboratory. In the 2007 fiscal year, these facilities were used by more than 21,000 researchers from universities, national laboratories, private industry, and other federal science agencies.

National Energy Technology Laboratory (NETL)
NETL's Carbon Sequestration Program is helping to develop technologies to capture, purify, and store carbon dioxide (CO_2) in order to reduce greenhouse gas emissions without adversely influencing energy use or hindering economic growth. Terrestrial sequestration requires the development of technologies to quantify with a high degree of precision and reliability the amount of carbon stored in a given ecosystem. Program efforts in this area are focused on increasing carbon uptake on mined lands and evaluation of no-till agriculture, reforestation, rangeland improvement, wetlands recovery, and riparian restoration. ASA-CSSA-SSSA urge the Subcommittee to direct the Department to increase funding for its terrestrial carbon sequestration program, specifically The Regional Carbon Sequestration Partnerships, which are collaborations between government, industry, universities, and international organizations funded by DOE to determine the most suitable technologies, regulations, and infrastructure needs for carbon capture and sequestration.

Oak Ridge National Laboratory (ORNL)
ORNL is one of the world's premier centers for R&D on energy production, distribution, and use and on the effects of energy technologies and decisions on society. Clean, efficient, safe production and use of energy have long been our goals in research and development. At ORNL, unique facilities for energy-related R&D are used both for technology development and for fundamental investigations in the basic energy sciences that underpin the technology work.

Thank you for your thoughtful consideration of our requests. For additional information or to learn more about the American Society of Agronomy, Crop Science Society of America and Soil Science Society of America (ASA-CSSA-SSSA), please visit www.agronomy.org, www.crops.org or www.soils.org or contact ASA-CSSA-SSSA Director of Science Policy Karl Glasener by email (kglasener@agronomy.org, kglasener@crops.org, or kglasener@soils.org) or by phone 202-408-5382.

Testimony by Dr. Thomas L. Sanders
President-elect, American Nuclear Society
House Appropriations Subcommittee on Energy and Water Development
On the FY 2010 Energy and Water Development Appropriations Bill
April 3, 2009

Chairman Visclosky, Ranking Member Frelinghuysen, members of the Subcommittee, on behalf of the more than 10,000 members of the American Nuclear Society, I am pleased to provide testimony on FY 2010 appropriations for the U.S. Department of Energy and other relevant agencies under the Subcommittee's jurisdiction. ANS supports Fiscal Year 2010 (FY10) funding for the following Department of Energy programs: Advanced Fuel Cycle Initiative ($160 million), Light Water Reactor Sustainability program ($25 million), Generation IV Nuclear Energy System Program ($240 million), Nuclear Hydrogen Initiative ($15 million), Office of Civilian Radioactive Waste Management ($340 million), Integrated University Program ($45 million), and Research Reactor Infrastructure ($8.1 million). ANS also supports full funding for the Nuclear Regulatory Commission, including $43 million from the Nuclear Waste Fund for Yucca Mountain licensing review activities.

As you know, ANS represents a diverse cadre of nuclear professionals, with over 11,000 members worldwide. As such, our members represent a wide range of opinions on domestic and international nuclear issues, and at times different from those of the Subcommittee. However, the ANS truly appreciates the thoughtful and deliberate manner in which the Subcommittee approaches issues related to nuclear energy, science, and technology. This year, we do not have the benefit of reviewing DOE's 2010 budget submission before making our recommendations.

Regardless, our testimony today is provided with the perspective that a strong nuclear industry can contribute significantly to the prosperity of the United States. A robust U.S. nuclear energy enterprise, across the entire nuclear fuel cycle, from enrichment and fuel fabrication, to power production and waste management, is critical to US economic competitiveness, environmental quality, energy security and our national security. The U.S. nuclear energy power producers have operated at unmatched levels of safety and productivity over the past few decades, but new challenges are before us. In particular, the U.S. will need to decide if it will compete in the global nuclear marketplace, or whether we are destined to become mere consumers, rather than producers of nuclear energy technology. The U.S. created the commercial nuclear industry just 50 years ago, and the decision as to whether we will lead, or follow, in the next 50 years will have great impact on our national energy security, our industrial competitiveness in a global economy, our ability to manage proliferation concerns, and the environment.

The global nuclear enterprise will rapidly change over the next quarter century. The U.S. and other existing nuclear states must focus on the future to be able to influence the coming challenges. The developed countries must enable the emerging world to access clean, reliable energy supplies to fuel their economies. A global nuclear services supply and return system must be created that provides the benefits of nuclear energy to all nations while eliminating any need for production of materials of nuclear proliferation concern by emerging users of nuclear technology. Partnerships among nuclear power states could establish a new paradigm for incorporating advanced manufacturing and information technologies to improve safety, reliability, security, and transparency of fuel cycle systems. Today's research will provide a longer term foundation for creating right-sized nuclear systems that are much more efficient, create 90% less waste, and enable the safe and secure export

of long-lived reactors to developing markets in the world. Such systems could also maximize the use of limited waste repository options by enabling multi-national enterprise concepts that provide significant safety, security, economic, and nonproliferation advantages.

Nuclear energy will also be one of the essential components of any reduced carbon energy strategy. The high reliability and low price volatility of the nuclear component provides an essential complement to fossil and renewable sources. The Programs defined in the FY2010 budget are essential to achieving this vision. With the administration's stated opposition to Yucca Mountain, the ANS believes that strong and stable funding for the Office of Nuclear Energy's research and development programs is more important than ever before. Clearly, if Congress and the administration are intent on conducting a serious inquiry to identify alternative pathways for managing the US nuclear fuel cycle, they must ensure that DOE has the financial resources to support the R&D activities necessary to support such an effort and ensure that a new and robust U.S. manufacturing and global nuclear services enterprise emerges from these taxpayer funded R&D initiatives. American industry and labor must achieve a leadership position in supplying the next nuclear century. As such, we recommend $160 million for the Advanced Fuel Cycle Initiative. We also strongly advocate the creation of a Light Water Reactor Sustainability program within DOE to support fundamental research into materials degradation and other age-related issues which is needed to make informed policy decisions about the useful lifespan of the current reactor fleet, as well as support the US Nuclear Regulatory Commission (NRC) reactor oversight process. We recommend $25 million in FY 2010 for this purpose.

Another issue in the U.S. and other countries is the impact of our domestic energy mix on growing trade deficits in U.S. manufactured products. For example, the U.S. trade imbalance in chemical products is driven by natural gas prices. Over the last fifteen years, this trade balance has gone from a significant trade surplus in 1992 to a very large trade deficit today. "Why did this happen"—hundreds of electric-power plants (~300 GWe) built in recent years are fired by natural gas and this increase in demand has made other goods that are dependent on gas non-competitive on the global marketplace. The bottom line is U.S producers are moving to sources of cheap natural gas, like in the Mid-East.

ANS supports a FY 2010 funding level of $240 million for the Gen IV Nuclear Energy Systems Program. This Program has the objective of developing next generation nuclear power plants that are more efficient and cost effective with improved safety and reliability. The focus of the Gen IV Program is the Next-Generation Nuclear Plant. The higher temperatures of the NGNP holds great promise to enabling a U.S. hydrogen production industry and to facilitating the transition of the process heat industry from carbon-based fuels to carbon-free energy, an issue which grows in importance under carbon cap and trade systems. The ANS believes that development of the NGNP should be accelerated beyond the milestones set forth in the Energy Policy Act of 2005. Finally, we also recommend $15 million for the Nuclear Hydrogen Initiative to provide an emission free path to producing the large quantities of hydrogen needed for refining and production of gasoline and synfuels from biomass or coal.

If the US is to be a producer and a leader in the global nuclear energy industry, and derive the economic benefit from the jobs required by a domestic manufacturing industry, then a comprehensive fuel cycle services capability is necessary and that includes responsible waste management and disposal. As such, the ANS supports in FY 2010 a funding level of $340 million for the DOE Office of Civilian Radioactive Waste Management. This funding will allow DOE to

provide the necessary technical support for its Yucca Mountain license application currently docketed and in review at NRC. Regardless of the policy decision regarding the future of the Yucca Mountain repository, completing the NRC review and obtaining a final safety evaluation of the repository is critical to the continued development of a globally competitive U.S. nuclear enterprise, and will derive at least some benefit from the billions already invested in Yucca Mountain. We also support full funding for the Nuclear Regulatory Commission, including $43 million from the Nuclear Waste Fund for activities related to NRC's review of the Yucca Mountain license application.

To maintain US leadership in nuclear technology, an educated workforce is paramount. The ANS is appreciative of the subcommittee's work in FY 2009 to create a diversified and stable funding source for the nation's University-based nuclear education and research programs. The Integrated University Program included in the FY 2009 Omnibus Appropriations Bill provides DOE, NNSA, and NRC with funding to support both mission-directed research and a jointly coordinated program that supports the discipline as a whole. Also in FY 2009, DOE Office of Nuclear Energy committed to allocate 20 percent of its total R&D funding, including the AFCI, Generation IV, and Nuclear Hydrogen Initiative programs, to support work performed at the nation's universities.

While both of these university initiatives are still in the midst of their first award cycle, it is clear that together they represent a diversified and stable funding source for the nation's University-based nuclear education and research programs. We strongly encourage the subcommittee to continue this approach in FY 2010. Specifically, we urge the subcommittee to provide a fully authorized level of $45 million for the Integrated University Program and include report language that directs DOE to continue the NE-UP initiative in 2010. We also encourage the subcommittee to provide $8.1 million for the Research Reactor Infrastructure account, an increase of $2 million over the FY 2009 enacted level. We believe this increase is necessary to meet the need for new university reactor fuel, replacement shipping casks, transport of expended cores, as well as targeted assistance for reactor instrumentation and equipment upgrades.

In closing, we hope the Subcommittee will closely consider our testimony as it assembles its FY 2010 Energy and Water Development Appropriations Bill, and we stand ready and willing to provide additional technical assistance as needed.

Thank you.

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Statement
of the
AMERICAN PUBLIC POWER ASSOCIATION
Submitted to the
HOUSE APPROPRIATIONS COMMITTEE'S
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT, AND RELATED AGENCIES
April 3, 2009

The American Public Power Association (APPA) is the national service organization representing the interests of over 2,000 municipal and other state and locally owned utilities throughout the United States (all but Hawaii). Collectively, public power utilities deliver electricity to one of every seven electric consumers (approximately 44 million people). We appreciate the opportunity to submit this statement outlining our FY 2010 funding priorities within the Energy and Water Development, and Related Agencies Subcommittee's jurisdiction.

Renewable Energy Production Incentive (REPI): APPA requests $25 million for the Renewable Energy Production Incentive (REPI). The Department of Energy's REPI program was created in 1992's Energy Policy Act (EPAct) as a counterpart to the renewable energy production tax credits made available to for-profit utilities, and was reauthorized through 2016 in the Energy Policy Act of 2005 (EPAct05). EPAct05 authorizes DOE to make direct payments to not-for-profit public power systems and rural electric cooperatives at the rate of 1.5 cents per kWh (1.9 cents when adjusted for inflation) from electricity generated from a variety of renewable projects. While constantly sighting budget constraints in the past, the Bush Administration had minimally requested $4-5 million of the $80 million demand cited for this important program annually. While APPA was pleased that Congress restored funding at $5 million for FY 2009 after the Bush Administration zeroed out funding for the program, a more robust program is needed. As Congress works toward adopting a federal renewable portfolio standard and a climate change mitigation program, REPI becomes increasingly more important to not-for-profit utilities. We greatly appreciate the Subcommittee's past interest in this small but important program as evidenced by its support of funding for the program either at or above the past Administrations' budget requests. While the program has been funded at $5 million in recent years, $25 million is needed to meet the demands of the program.

Power Marketing Administrations (PMA's)

Power Marketing Administration Interest Rate Proposal: In the past the Administration's budget has included a recommendation that would raise electricity rates by changing the interest rate charged by the Southeastern Power Administration (SEPA), the Southwestern Power Administration (SWPA), and the Western Area Power Administration (WAPA) on all new investments in projects whose interest rates are not set by law. Congress has opposed this effort in previous appropriations bills with direct language. While not included in the FY 2009 budget (and it is not yet clear for FY 2010), APPA and its members continue to urge the Subcommittee to oppose any implementation of this proposal should it arise.

Bonneville Power Administration "Net Secondary Revenue" Proposal: Also previously included in FY 2008 budget was a proposed administrative action that would direct the Bonneville Power Administration (BPA) to use any net "secondary market revenues" in excess of $500 million per year towards accelerated federal debt repayment. Because the change would be made through the rulemaking process, congressional approval is not needed for the policy to go into effect. This proposal was strongly opposed by the Appropriations Committees and Congress in FY 2007and FY 2008, and was ultimately blocked in both years. We appreciate all the work the committees have done on this matter and, while not included in the FY 2009 budget (and it is not yet clear for FY 2010), APPA and its members continue to urge the Subcommittee to oppose any implementation of this proposal should it arise.

Purchase Power and Wheeling: We urge the Subcommittee to authorize appropriate levels for use of receipts so that the Western Area Power Administration (WAPA), the Southeastern Power Administration (SEPA) and the Southwestern Power Administration (SWPA) can continue to purchase and wheel electric power to their municipal and rural electric cooperative customers. Although appropriations are no longer needed to initiate the purchase power and wheeling (PP&W) process, the Subcommittee continues to establish ceilings on the use of receipts for this important function. The PP&W arrangement is effective, has no impact on the federal budget, and is supported by the PMA customers who pay the costs. We support an increase over the funding levels the Committee provided for FY 2009, which are as follows: $600 million for Western Area Power Administration (WAPA); $63 million for Southeastern Power Administration (SEPA); and $46 million for Southwestern Power Administration (SWPA).

Western Area Power Administration's (WAPA) budget: Members of APPA strongly urge the Subcommittee to restore adequate funding to Western Area Power Administration's (Western) construction, rehabilitation and operations and maintenance program. In the FY 2009 budget, Congress restored Western's construction program, fully funding it at $75 million. The Bush Administration's budget had funded the program at less than $2 million and assumed that WAPA would fund the remaining $72 million through customer advances of revenues – in essence pre-payments of expenses. While WAPA customers have been advancing funds for some of the agency's operating expenses and for few capital projects for several years, they were small and limited. Mandating that most of Western's construction budget be financed through advanced customer funding is poor fiscal management. We applaud the Subcommittee for fully funding the program in FY 2009, and respectfully request the Subcommittee again fully fund WAPA's construction, rehabilitation and O&M program, limiting WAPA's need to customer advance of revenues.

Storage for High-level Nuclear Waste: APPA is disappointed in the Administration's lack of support for finalizing the location of a permanent storage site for high-level nuclear waste at Yucca Mountain, Nevada. However, we support efforts by the Administration to study alternatives to Yucca Mountain and request a funding level of $340 million for the Office of Radioactive Waste Management at the Department of Energy.

Department of Energy Waterpower Program: APPA requests a minimum of $91 million for FY 2010 for the DOE's Waterpower Program. At a time when utilities around our country must focus on finding carbon-free sources of energy, the importance of hydropower research and development is more important than ever before. Not only is hydropower a renewable resource, but it can be used as baseload generation to back up more intermittent renewables such as wind and solar power.

Energy Conservation: APPA appreciates the strong support in the stimulus bill of energy conservation and efficiency programs at DOE and we hope that the Subcommittee will continue to allocate similar funding levels for these programs.

Weatherization and Intergovernmental Activities: APPA is pleased that the Congress provided $5 billion in funding for the Weatherization Assistance program in the stimulus, to help increase the efficiency of commercial and residential buildings, specifically for low income residents, and to support state and community energy conservation programs. We would encourage the Subcommittee to continue providing funding for these essential programs and request that the Weatherization Assistance Program be funded at $300 million for FY2010.

Clean Coal Power Initiative and FutureGen: APPA was pleased with the Committee's increased amount of $692 million for FY 2009 for overall coal research, development, and deployment and with the increased amount of $288 million for the Clean Coal Power Initiative. However we were extremely disappointed at the previous Administration's abrupt restructuring of the FutureGen project. APPA strongly believes as concerns grow over climate change and the effects of man-made emissions from combustion of fossil fuels, the FutureGen project was nearing us to the goal of the world's first near-zero-emissions coal fired plant. By restructuring the funding and program we stall our progress toward these projects. This only furthers us from our goal of providing this type of technology in a timely fashion. We urge the Committee and the Congress to work with the new Administration on finding an appropriate role and funding level for the FutureGen project.

Distributed Generation Fuel Cells: APPA was disappointed with the funding level of $58 million for FY 2009 for distributed generation fuel cell related research and development. We urge the Subcommittee to allocate additional funding for this program for FY 2010.

Hydrogen Fuel Initiative and Vehicle Technologies: APPA supports efforts to improve the feasibility of making available low-cost hydrogen fuel cells, and requests at least $266 million for hydrogen research and development in FY 2010. APPA was very pleased with the FY 2009 funding level of $273 million for vehicle technologies that would apply hydrogen fuel cell technology to vehicles as well as provide for research for hybrid and electric vehicle

technologies to facilitate widespread deployment of these technologies. APPA requests at least the same level of funding for FY 2010.

Navajo Electrification Demonstration Program: APPA supports full funding for the Navajo Electrification Demonstration Program at its full authorized funding level of $15 million. The purpose of the program is to provide electric power to the estimated 18,000 occupied structures in the Navajo Nation that lack electric power. This program has been consistently underfunded.

Federal Energy Regulatory Commission (FERC): The FY 2009 Omnibus Appropriations bill provided FERC with $273.4 million, an increase of $13.4 million over the FY 2008 request. APPA supports a similar increase for FY 2010 given FERC's additional responsibilities under EPAct05.

TESTIMONY OF WILLIAM E. ("DUB") TAYLOR, DIRECTOR, TEXAS STATE ENERGY CONSERVATION OFFICE AND CHAIR, THE NATIONAL ASSOCIATION OF STATE ENERGY OFFICIALS, BEFORE THE HOUSE ENERGY AND WATER DEVELOPMENT APPROPRIATIONS SUBCOMMITTEE IN SUPPORT OF FY'10 DEPARTMENT OF ENERGY FUNDING
April 3, 2009

Mr. Chairman and members of the Subcommittee, I am Dub Taylor of Texas and Chair of the National Association of State Energy Officials (NASEO). NASEO is submitting this testimony in support of funding for a variety of U.S. Department of Energy programs. Specifically, we are testifying in support of no less than $125 million for the State Energy Program (SEP), which is equal to the authorization. SEP is the most successful program operated by DOE in this area. This should be base program funding, with no competitive portion. SEP is focused on direct energy project development, where most of the resources are expended. SEP has set a standard for state-federal cooperation and matching funds to achieve critical federal and state energy goals. We also support $300 million for the Weatherization Assistance Program (WAP). These programs are successful and have a strong record of delivering savings to low-income Americans, homeowners, businesses, and industry. We also support an increase in the budget for the Energy Information Administration (EIA) to $145 million, including an increase for EIA's State Heating Oil and Propane Program, in order to cover the added costs of increasing the frequency of information collection, the addition of natural gas, and increasing the number of state participants. EIA's new state-by-state data is very helpful. EIA funding is a critical piece of energy emergency preparedness and response, and there are significant new EIA responsibilities under the Energy Independence Security Act of 2007 ("EISA"). EIA conducted a study of their capabilities and resources under Section 805 of EISA, and this study supports increased funding. NASEO continues to support funding for a variety of critical buildings programs, including Building Codes Training and Assistance, Energy Star, the commercial buildings initiative, residential energy efficiency and Building America, at a level of $175 million in FY'10. NASEO also supports base funding (in addition to any Congressionally-directed projects) for the Office of Electricity Delivery and Energy Reliability ("OE"), at least at the FY'06 request of $161.9 million. Specific funding should be provided for the Division of Infrastructure Security and Energy Restoration of no less than $18 million, which funds critical energy assurance activities. We also strongly support the R&D function and Operations and Analysis function within OE. The industries program should be funded at a $150 million level to promote efficiency efforts and to maintain U.S. manufacturing jobs, especially in light of the loss of millions of these jobs in recent years. Proposed cuts in these programs are counter-productive and are detrimental to a balanced national energy policy. Additionally funding should be provided to support Sections 451 and 453 of EISA, relating to combined heat and power and other waste heat recovery programs.

In January 2003, Oak Ridge National Laboratory (ORNL) completed a study and concluded, "The impressive savings and emissions reductions numbers, ratios of savings to funding, and payback periods . . . indicate that the State Energy Program is operating effectively and is having a substantial positive impact on the nation's energy situation." ORNL updated that study and found that $1 in SEP funding yields: 1) $7.22 in annual energy cost savings; 2) $10.71 in leveraged funding from the states and private sector in 18 types of project areas; 3) annual

energy savings of 47,593,409 million source BTUs; and 4) annual cost savings of $333,623,619. The annual cost-effective emissions reductions associated with the energy savings are equally significant: (1) Carbon – 826,049 metric tons; (2) VOCs – 135.8 metric tons; (3) NOx –6,211 metric tons; (4) fine particulate matter (PM10) – 160 metric tons; (5) SO2 – 8,491 metric tons; and (6) CO – 1,000 metric tons. The energy cost savings is much higher today, in light of higher prices.

Stimulus Funding Implementation

We want to thank the Subcommittee for the tremendous support provided in the stimulus package for a variety of state and local funding initiatives, including $3.1 billion for the State Energy Program, $5 billion for the Weatherization Program, $3.2 billion for the Energy Efficiency and Conservation Block Grant and $300 million for the Energy Star appliance rebate program, etc. We want to personally thank the Chairman and the staff for such hard work in developing the energy portions of the package.

This is a major task. We are working closely with the Department of Energy's Office of Weatherization and Intergovernmental Programs (Gil Sperling), Matt Rogers in the DOE Secretary's office, NETL and Golden, to implement these programs as quickly as possible. We have had virtually weekly calls with all the state energy officials to address implementation questions. We have also had a series of regional conference calls among the states. NASEO is cooperating with the other state and local organizations to share best practices and provide information to officials at all levels of government in order to more effectively coordinate this effort. We are convinced these funds will help engineer major positive changes in the U.S. economy and as the economy rebounds this will help create "Green Jobs" and major energy improvements that will improve all sectors of the economy.

NASEO believes it is important to maintain base levels of appropriations for critical programs, such as SEP and Weatherization, in order to avoid a huge increase in the stimulus package and then for the programs to diminish rapidly after 2-3 years.

Industrial Energy Program: A funding increase to a level of $150 million for the Industrial Technologies Program (ITP) is warranted. This is a public-private partnership in which industry and the states work with DOE to jointly fund cutting-edge research in the energy area. The results have been reduced energy consumption, reduced environmental impacts and increased competitive advantage of manufacturers (which is more than one-third of U.S. energy use). The states play a major role working with industry and DOE in the program to ensure economic development in our states and to try to ensure that domestic jobs are preserved. State energy offices are working effectively with DOE on the "Save Energy Now" campaign. Funding for distributed generation and specific funding for Sections 451 (including the Clean Energy Applications Centers) and 453 of EISA is critical and should be included above the $150 million proposal.

Examples of Successful State Energy Program Activities: The states have implemented thousands of projects. Here are a few representative examples.

Arizona: The energy office is working closely with the Southwest Building Science Center on a variety of projects. Through the intervention of the state energy office and recent legislation, universities and other state facilities have reduced energy usage by 7 percent, with annual energy savings in the millions. A new multi-million schools energy efficiency program was instituted in 2007. The State also trains facility managers and municipal officials. Since 2000, the energy office has worked to have over 2000 affordable housing units built to energy efficiency standards each year, including six housing projects in 2007 in Phoenix alone.

Arkansas: This energy office has focused on industrial energy strategies, a new LED traffic signals program, promotion of alternative fuels, Energy Star promotions, upgrades in the energy code and renewable energy technology development. The energy office began implementing a new energy efficiency effort with utilities on January 1, 2008.

California: The California Energy Commission has operated energy programs in virtually every sector of the economy. The State has upgraded residential and non-residential building codes (including major 2008 upgrades), developed a school energy efficiency financing program (including over $100 million for high performance schools), and instituted a new replacement program for school buses utilizing the newest natural gas, advanced diesel and hybrid technologies. The buildings program has reduced consumption by enormous amounts over the past few years, through alternative financing programs and outreach. California's greenhouse gas mitigation plans and a new solar initiative are moving forward.

Colorado: The State has focused on implementing new energy legislation. They have dramatically increased the use of renewable energy, woody biomass, and alternative fuels. The Poudre School District recently received the first LEED for schools certification in the Country. The State has also been a leader in promoting Energy Star for new homes.

Idaho: A program focus is on high performance commercial and institutional buildings. An aggressive energy efficiency financing program has produced thousands of loans, totaling over $16 million, resulting in significant energy savings. The agricultural energy program has focused on reducing irrigation costs and usage to improve agricultural productivity and reduce operating costs. The State has initiated a new industrial program and conducted dozens of assessments thus far.

Indiana: In 2007 and 2008, $2.7 million in energy-related grants have been issued, leveraged into $21 million in programs. Indiana has been focusing on a grant program for alternative energy systems, including energy efficiency, biofuels and renewable energy. An extensive loan program for energy efficiency in public schools has been very successful. The state energy office has also been working on energy and economic development programs. A new tax credit for Energy Star appliances was also established.

Massachusetts: Thus far, the State has provided over $8 million in loans to produce energy efficiency residential retrofits. The energy office has also instituted energy efficiency upgrades in public housing. The state recently negotiated a doubling of the natural gas utility energy efficiency program to $25 million annually. The Governor and Legislature collaborated on

significant new energy legislation in 2008. The State has also instituted a new "Green Communities" program.

Montana: The State is now providing a $500 tax credit for Energy Star homes. A separate state energy conservation tax credit has been providing over $5 million annually. Expansion of state buildings energy efficiency programs have also been instituted.

New York: SEP has been utilized for a variety of purposes including: (1) the FlexTech program (helping businesses on reducing energy consumption and applying new technology), which has found that for $1 of federal funds, $17 in capital investment and $5 in annual energy savings has been achieved; (2) new agricultural energy program incentives ($1.7 million annually); and (3) $125 million in private financing for energy capital improvements that has achieved enormous savings. NYSERDA (the state energy agency) has implemented a multi-family building energy efficiency program, $8 million in industrial energy efficiency improvements, has increased appliance standards and is promoting high performance lighting. The New York Em-Power Program and Home Performance with Energy Star has been a big success, with significant market penetration.

Ohio: The Ohio Office of Energy Efficiency has operated innovative building retrofit programs in colleges, universities, public housing and governmental facilities. Measures have been completed in approximately 20 million square feet of building space, producing $15.5 million in annual energy savings and investments of over $60 million. New programs have been instituted for biomass, landfill gas, solar and wind projects. Through 2007, the $1.3 million in DOE funds matched $26 million in non-federal funds for projects. The State has also provided builder/operator training certification, initiated smart energy building practices, installed solar energy on schools, promoted bio-energy programs, initiated a Fuel Cell Awareness program, promoted wind power and actively promoted Energy Star partnerships in the consumer, commercial and industrial sectors, etc. 26 industrial energy efficiency projects were implemented in 2007.

Pennsylvania: The state energy office has been supporting wind power development, with significant wind capacity installed. Since 2003, SEP funds have supported energy projects in solar, wind, biomass, liquefied gas, etc., matching over $70 million in private funds and over $20 million in state funds. Since 2004, tens of millions of dollars in grants and loans for clean energy projects have been issued, leveraging approximately $400 million in private investment and helping to provide over 2000 temporary and permanent jobs.

Tennessee: A local government energy efficiency program provided $3.5 million for 36 schools and local governments in 2006-07. A small business energy efficiency loan program has provided $13.3 million, producing $26 million in energy savings with an economic impact of $113 million. A new alternative fuels strategy has been instituted with $37 million in direct state funding.

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 well over $200 million through energy efficiency

projects. In another example, the State promoted the use of "sleep" software for computers, which is now used on 136,000 school computers, saving 42 million kWh and reducing energy costs by $3 million annually. This is part of a broader energy efficiency program that has helped 3500 schools and local governments thus far. The State has initiated the Texas Emissions Reduction Plan/Texas Energy Partnership in 41 urban counties to reduce emissions through cost-effective energy efficiency projects.

Wisconsin: The State created a new Office of Energy Independence. Prior to the provisions of stimulus funds, the statewide energy efficiency program had provided $69 million each year. The energy office has also developed model wind energy ordinances to expand wind development. The State is focused on significant wind development. The State is expanding the use of alternative fuels, with a dramatic expansion in E85 and biodiesel infrastructure, and a new agreement with the other Midwestern Governors on an alternative fuels strategy.

PUBLIC WITNESS TESTIMONY FOR THE RECORD OF DAVID CULP, LEGISLATIVE REPRESENTATIVE FRIENDS COMMITTEE ON NATIONAL LEGISLATION (QUAKERS)

HOUSE APPROPRIATIONS SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

APRIL 3, 2009

The Friends Committee on National Legislation (Quakers) thanks the subcommittee for the opportunity to submit this testimony for the record. We appreciate the subcommittee's transparency and willingness to open its proceedings to the public. Additionally, we commend the subcommittee for holding a hearing on the Nuclear Weapons Complex on March 17. National Nuclear Security Administration (NNSA) Administrator Thomas D'Agostino and other experts shed light on the need for a smaller nuclear weapons complex to respond to a rapidly decreasing production demand. The *Washington Post* paraphrased D'Agostino on March 24 as saying, "the number of new plutonium triggers that will be needed to keep the U.S. nuclear weapons stockpile reliable and secure has steadily dropped from 450 a year to 20."

Decreased demand, paired with President Obama's call for drastic reductions in the U.S. nuclear arsenal, requires for changes at NNSA. Our testimony centers on the need to restructure the NNSA budget in order to meet today's security demands by adequately funding nuclear nonproliferation programs, supporting disablement and dismantlement programs in North Korea, reforming spending on the nuclear weapons complex, and discontinuing new nuclear weapons programs.

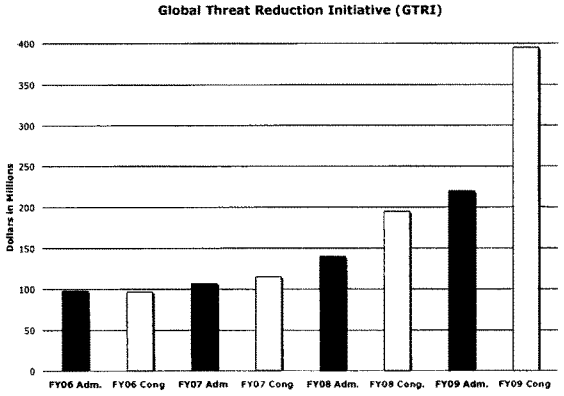
NUCLEAR NONPROLIFERATION PROGRAMS

The subcommittee's commitment to nuclear nonproliferation programs has increased international security. The best example of that commitment is the increased funding allocated to the Global Threat Reduction Initiative (GTRI) in the omnibus appropriations bill for FY2009. Testifying before the Senate Appropriations Subcommittee on Energy and Water Development last year (April 30, 2008), former NNSA Deputy Administrator for Defense Nuclear Nonproliferation William Tobey pointed out the successes of GTRI:

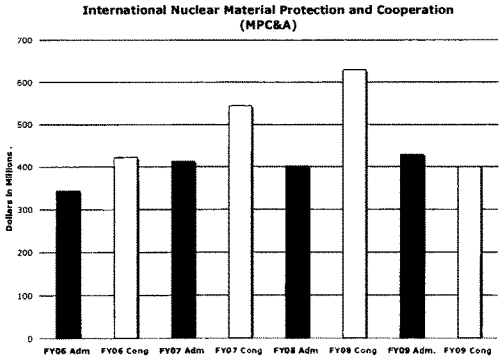
> The GTRI program, and its antecedents, have removed approximately 68 nuclear bombs' worth of highly enriched uranium and secured more than 600 radiological sites around the world, collectively containing over 9 million curies, enough radiation for approximately 8,500 dirty bombs. In the United States the GTRI program has removed over 16,000 at-risk radiological sources, totaling more than 175,000 curies—enough for more than 370 dirty bombs.

A graph of funding for GTRI over the past four years shows why the program has succeeded. **We thank the subcommittee for supporting GTRI and believe, as is evidenced by Deputy Administrator Tobey's testimony, that the marginal benefit to international security from**

every dollar spent on nuclear nonproliferation programs is greater than that of any other dollar spent on national defense.



Other nuclear nonproliferation programs, such as the International Nuclear Materials Protection and Cooperation Program (MPC&A), which secures weapons-usable nuclear material in other countries, are in need of similar funding increases to accelerate the speed of finding and securing nuclear material, and upgrading the infrastructure which keeps weapons-grade material out of the wrong hands. As you can see, the previous administration's requests for MPC&A funding has been just above stagnant over the past several years. This year, Congress cut funds for MPC&A by $230 million because the program is winding down in Russia. Nevertheless, we believe the program should be expanded beyond Russia. **Increasing and expanding MPC&A could be critical to achieving President Obama's goal to account for and secure all nuclear warheads and loose nuclear material around the world by the end of his first term.**



We call on the subcommittee to make sufficient investments in the next generation of nuclear nonproliferation scientists. President Obama has stated that a top priority of his administration will be negotiating a verifiable fissile material cutoff treaty. Without expanding the pool of safeguards and other nonproliferation experts and drawing new talent into the field, the President's goal will not be achieved.

Administrator D'Agostino testified that the federal government has been unable to lure top tier scientific talent at institutions of higher learning away from the private sector. The Administrator pointed to fields such as radioanalytic chemistry, in which graduates could seek research careers in nuclear forensics. Instead, these students are increasingly choosing lucrative offers from private industry over the opportunity to serve the country. The subcommittee must determine ways to reverse this trend.

NUCLEAR WEAPONS COMPLEX

Administrator D'Agostino was blunt in pointing out that, "We must stop pouring money into an old, Cold War complex that is too big and too expensive." We could not agree more strongly. The discourse over the size and scope of the nuclear weapons complex in recent years has mirrored moral, political, and global realities that nuclear weapons are being obsolete.

The numbers are striking. In 2005, in 2005, NNSA proposed a new plutonium production facility with a capacity of 450 pits per year. In 2006, this figure was reduced to a capacity of 125 pits per year. Again, in 2007, the estimated necessary capacity was reduced to 80 pits per year. D'Agostino's testimony indicated that due to the changes on nuclear policy set forth by President Obama, NNSA is operating at the minimum production capacity of 20 pits per year. **Simply put, with every passing year, the need for a large-scale capacity to produce plutonium pits bounds toward zero.**

We recommend abandoning expensive plans to build new plutonium production facilities and focusing on how to secure existing facilities while decreasing pit production capacities as the country reduces its nuclear stockpile and pushes nuclear weapons toward irrelevance.

NEW NUCLEAR WEAPONS

Proponents of new nuclear weapons have been unable in past years to justify to lawmakers a need for programs like the nuclear "bunker buster" and so-called Reliable Replacement Warhead. Congress has declined to fund these programs year after year, culminating with a line in the FY2009 omnibus appropriations bill, "Development work on the Reliable Replacement Warhead will cease."

Developing new nuclear weapons sends the wrong message to other nations. Rather than leading the way on the path to a nuclear weapons free world, the United States would be perceived as taking provocative actions and possibly spur reactions that increase global nuclear proliferation.

The subcommittee's scrutiny of nuclear weapons programs in a bipartisan basis has led to responsible decisions that avoid sending these mixed messages and demonstrate the leadership necessary to move forward on the bold changes necessary to achieve the elimination of nuclear weapons.

NORTH KOREAN DISABLEMENT AND DISMANTLEMENT

Last year, the Bush administration secured a waiver to the 1994 Glenn amendment to enable the National Nuclear Security Administration to provide assistance for the disablement and dismantlement of North Korea's nuclear facilities. However, the waiver, which passed in a supplemental appropriations bill for FY2008 (Public Law 110-252, Sec. 1405), has not been implemented. The Obama administration must implement this waiver to allow for these activities to occur. **Encouragement from the subcommittee would likely speed up implementation of the waiver.** Additionally, we urge the subcommittee to provide adequate funding for dismantlement and disablement activities in the FY2010 budget. According to the July 2008 Senate Armed Services Committee testimony of NNSA Deputy Administrator Tobey, substantial funding increases will be necessary to speed up these activities:

> If these activities begin soon and continue at a more rapid pace, we estimate that the total implementation costs could amount to an additional $34 million in 2008 and over $360 million in fiscal year 2009... The bulk of these costs relates to packaging and disposition of separated plutonium and spent fuel and Yongbyon...The costs to the U.S. government of this effort could well fall on the National Nuclear Security Administration, as the lion's share of verification work involves the time and expertise of technical specialists from the Department of Energy and the National Nuclear Security Administration.

The subcommittee can increase the security of the Korean peninsula and Northeast Asia in general by working to provide funding for the disablement and dismantlement of North Korea's nuclear facilities.

Thank you for your consideration.

The Friends Committee on National Legislation is a Quaker lobby in the public interest. FCNL works to educate Congress and the public on issues of concern to the Religious Society of Friends (Quakers). Founded in 1943, FCNL is the oldest registered religious lobby in the United States.

American Society of Plant Biologists

Official Written Testimony for Fiscal Year 2010 Budget
Submitted to the Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives
Washington, DC

Submitted by
Dr. Sarah M. Assmann, President, American Society of Plant Biologists
and
Dr. Gary Stacey, Chair, Public Affairs Committee, American Society of Plant Biologists

April 3, 2009

On behalf of the American Society of Plant Biologists (ASPB) we submit this statement for the official record to support increased funding for the Department of Energy's Office of Science for Fiscal Year (FY) 2010. The testimony highlights the importance of biology, particularly plant biology, as the nation seeks to address vital issues including climate change and energy security. We would also like to thank the Subcommittee for its consideration of this testimony and for its strong support for the basic research mission of the Department of Energy's Office of Science.

The American Society of Plant Biologists is an organization of more than 5,000 professional plant biologists, educators, graduate students, and postdoctoral scientists. A strong voice for the global plant science community, our mission – which is achieved through engagement in the research, education, and public policy realms – is to promote the growth and development of plant biology and plant biologists and to foster and communicate research in plant biology. The Society publishes the highly cited and respected journals *Plant Physiology* and *The Plant Cell*, and it has produced and supported a range of materials intended to demonstrate fundamental biological principles that can be easily and inexpensively taught in school and university classrooms by using plants.

Food, Fuel, Climate Change, and Health: Plant Biology Research and America's Future

Plants are vital to our very existence. They harvest sunlight, converting it to chemical energy for food and feed; they take up carbon dioxide and produce oxygen; and they are almost always the primary producers in the Earth's ecosystems. Indeed, basic plant biology research is making many fundamental contributions in the areas of fuel security and environmental stewardship; the continued and sustainable development of better foods, fabrics, and building materials; and in the understanding of basic biological principles that underpin improvements in the health and nutrition of all Americans. To go further, plant biology research can help the nation both predict and prepare for the impacts of climate change on American agriculture, and it can make major contributions to our nation's efforts to combat global warming.

In particular, plant biology is at the center of numerous scientific breakthroughs in the increasingly interdisciplinary world of alternative energy research. For example, interfaces among plant biology, engineering, chemistry, and physics represent critical frontiers in both basic biofuels research and bioenergy production. Similarly, with the increase in plant genome sequencing and functional genomics, the interface of plant biology and computer science is essential to our understanding of complex biological systems ranging from single cells to entire ecosystems.

Despite the fact that plant biology research – the kind of research funded by the DOE – underpins so many vital practical considerations for our country, the amount invested in understanding the basic function and mechanisms of plants is relatively small when compared with the impact it has on multibillion dollar sectors of the economy like energy and agriculture.

Recommendations

ASPB, as a spokesperson for the plant science community, is in an excellent position to articulate the nation's plant science priorities as they relate to bioenergy and, specifically, with regard to recommendations for bioenergy research funding through the Department of Energy's Office of Science. Our recommendations, in no particular order, are as follows:

1. We commend the DOE Office of Science, through their Divisions of Basic Energy Sciences (BES) and Biological and Environmental Research (BER) for funding the Bioenergy Research Centers (BER) and the soon-to-be-announced Energy Frontier Research Centers (BES). Although these efforts are well designed and a significant step forward, these large centers will not have a monopoly on good ideas. Therefore, *ASPB strongly encourages the appropriation of additional funds for the DOE Office of Science that would be specifically targeted to the funding of individual or small group grants for bioenergy research, like the Single-Investigator and Small-Group Research (SISGR) projects funded through BES in FY 2009.*

2. The DOE Office of Science is the primary funding agency for physical science research. Past experience teaches us that many major scientific and technical breakthroughs occur at the interface between traditional scientific disciplines. Therefore, *ASPB recommends*

appropriations that would specifically target the interface between plant biology and the physical sciences to encourage multidisciplinary and cross-disciplinary research that would address significant problems in bioenergy research.

3. Photosynthetic research is one clear example of an interface between the physical sciences and biology. The DOE BER has been the major source of funds for basic studies of photosynthesis, which is the primary source of chemical energy on the planet. After all, fossil fuels are just photosynthetic energy that was trapped eons ago and converted through natural processes into the forms in which we use it today. However, the current funding available for photosynthetic research is not commensurate with the central role that photosynthesis plays in energy capture and carbon sequestration. Hence, *ASPB calls for an increase in appropriations to BER to expand its research portfolio in the area of photosynthesis and carbon capture.*

4. Climate change is real and will have significant impacts on agriculture and our way of life for the foreseeable future. There are significant questions that must be answered as to how climate change will impact food production and the environment. There are also clear opportunities to use biological systems to ameliorate climate change, such as through carbon sequestration or modification of plants to resist environmental stress. *Therefore, ASPB calls for additional funding focused on studies of the effect of climate change on agricultural cropping systems, basic studies of effects on plant growth and development, and targeted research focused on modification of plants to resist climate change and for use in carbon sequestration.*

5. Current estimates predict a significant shortfall in the needed scientific and engineering workforce in the energy area. The DOE Office of Science has traditionally not been a major funding agency for education and training, other than that which occurs through the funding of individual investigator and center grants. *Given the expected need for additional scientists and engineers who are well-grounded in interdisciplinary research and development activities, ASPB calls for funding of specific programs (e.g., training grants) that are targeted to provide this needed workforce over the next 10 years and to adequately prepare them for careers in the interdisciplinary energy research of the future.*

6. The revolution in biological technology that has given rise to the various –omics subdisciplines has also generated enormous datasets that reveal the tremendous complexity of biological systems. Computational biology is a relatively new discipline that arose from the interface of computer science and biology. These new technologies and approaches provide the only means by which these large biological datasets can be integrated and mined for new, relevant biological knowledge. *Therefore, as discussed in item 2 above, ASPB calls for additional funding that would target this interface between biology and computer science. Specifically, we call for additional funding to develop computational platforms to develop a systems-level view of biology through the integration of data obtained from a variety of functional genomics approaches.* This is clearly a 'grand challenge' that is currently limiting the utility of this information. Additionally, *we call for the funding of robust education and professional development*

programs, including training grants, that target the interface between computer and biological science.

7. Considerable research interest is now being paid to the use of plant biomass for energy production. Progress in this area has been strongly affected by the 'fuel vs. food' debate, which arose from the current emphasis on the use of corn for ethanol production. A response to this debate has been to switch the focus to plants that can be grown exclusively for biomass (e.g., switchgrass, miscanthus, etc). However, if these crops are to be used to their full potential, considerable effort must be expended to improve our understanding of their basic biology and development, as well as their agronomic performance. Unlike our current, major crops (e.g., soybean, corn), these novel crops have not benefitted from the many years of improvements in crop management and breeding – improvements that, among other things, have vastly increased yield and agronomic efficiency. Although similar efforts to improve targeted bioenergy crops are just beginning, we have established very aggressive goals for the use of these crops to meet the nation's fuel needs. *Therefore, ASPB calls for additional funding that would be targeted to efforts to increase the utility and agronomic performance of bioenergy crops.*

Thank you for your consideration of our testimony on behalf of the American Society of Plant Biologists. Please do not hesitate to contact the American Society of Plant Biologists if we can be of any assistance in the future.

Dr. Sarah M. Assmann
President
American Society of Plant Biologists
The Pennsylvania State University

Dr. Gary Stacey
Chair, Public Affairs Committee
American Society of Plant Biologists
The University of Missouri, Columbia

ALSTOM

Statement of Robert Hilton
Vice President, Power Technologies for Government Affairs
Alstom Power Inc.

Before the House Appropriations Committee
Subcommittee on Energy and Water

3 April 2009

America needs Clean, Reliable and Economic Electricity

America's long-term energy and economic security strongly depends on the availability of a broad portfolio of advanced clean, reliable and economic technologies for power generation. The magnitude of our economy and the critical role of electricity in economic growth demands that we utilize all forms of available energy, including efficient use of fossil fuels, growth of renewables, and revitalization of nuclear energy.

Alstom recommends that the Subcommittee direct funding toward programs in three areas at DOE:

- Office of Fossil Energy
- Office of Energy Efficiency and Renewable Energy
- Office of Electricity Delivery and Energy Reliability

Specifics programs are discussed below.

Office of Fossil Energy

Advanced Clean Coal Technology – carbon management for power generation

As a technology innovator, we firmly believe that carbon reduction, capture and sequestration technologies at competitive costs are a critical and achievable goal for coal-based power. Due to the large investment and risk inherent in research and development (R&D) and commercial demonstration/deployment of new technologies, Alstom believes that successful deployment will require both Congressional and Administrative support to industry innovators. Our government must play a leadership role, through appropriation of funds to support research, development and deployment of the next generation of clean coal technologies and through enactment of enabling legislation to address issues related to transport and long term storage of carbon dioxide (CO_2).

Alstom Power strongly urges Congress to provide the funding to support development and commercial deployment of a strong portfolio of advanced coal generation technologies. There is no clear technology winner today and no definitive single technology path to the future. A very strong case for pursuing both advanced combustion and gasification technologies to achieve the

goals of environmental performance, reliability and a reasonable cost for low carbon coal based power. Previous Department of Energy (DOE) budgets have under funded research in combustion technology; we urge Congress to remedy this by providing DOE with funding for an expansive Advanced Combustion Program, funded at a level equivalent to overall funding for gasification technology. The overall DOE Program for Advanced Combustion technologies should include:

- Technologies to improve efficiency for both new advanced coal combustion units and the existing operating fleet. Power plant efficiency improvement is by far the most predictable and lowest cost method to reduce all emissions, including CO_2. It is prudent to first minimize CO_2 emissions by higher plant efficiency before incorporating more expensive carbon capture and sequestration (CCS). All coal generation technologies – whether combustion or gasification based - emit CO_2 in inverse proportion to efficiency.

    - Examples of advanced combustion technology innovations needing increased support are an advanced materials program for ultra-supercritical boilers and steam turbines. This program is a critical platform for higher efficiency cycles; the program has been under funded for the past five years. US research in materials for ultra-supercritical cycles lags foreign nations; research specific to American coals is necessary.
    - The Innovations for Existing Plants Program should receive increased funding to drive development of technologies to achieve incremental efficiency improvements on the operating fleet. Today, the US coal based operating fleet is primarily comprised of 1100 combustion plants. Wholesale replacement of these reliable assets in the near- to mid- term is not economically viable for the industry. Incremental efficiency improvements to the operating fleet will result in real and measurable CO_2 reductions in the next 3-10 years.

- Technologies to capture and sequester CO_2 for both new advanced combustion plants as well as the existing operating fleet. Capture technologies that warrant increased research and Clean Coal Power Initiative support include:
    - Post combustion capture
    - Oxycombustion
    - Longer term advanced technologies, such as chemical looping and solid adsorption

While it is recognized that that there is strong support for these technologies as proposed in both the "American Recovery and Reinvestment Act of 2009" and the "Omnibus Appropriations Act, 2009," there are still many areas of investigation and research required that are generic to these classes of control technology. These include:

- Materials of construction in corrosive environments
- Thermodynamic and physical data generation for chemical systems
- Relationships and impacts of primary pollutants on the CCS environment
- Optimized mass transfer devices (such as packings and distributors) for very low liquid to gas ration service
- Compression and expansion

Finally, a balanced portfolio of coal-based power technologies, using both Advanced Combustion and Gasification, will create a future healthy competitive market, drive innovation and reduce risk of reliance on any single technology.

Alstom supports the Coal Utilization Research Council (CURC)'s recommendations to increase the FY 2010 Department of Energy Fossil Energy budget and to focus the budget on programs to reduce the carbon intensity of fossil based power. In addition, we support CURC's recommendations of funding for a robust program of pioneer plants that will demonstrate a portfolio of new CCS technologies.

Renewable Energy Must Play a Major Role in US Energy Security

Office of Energy Efficiency and Renewable Energy

Biomass
With the prospect of a national Renewable Electricity Standard (RES) and given the regional differences in access to various forms of renewable energy (geothermal, hydro, solar, wind, biomass, etc.), it is important that electric utilities have as much flexibility as possible in their options for meeting the RES. As such, Alstom encourages the Subcommittee to direct DOE to expand the biomass program to include research into biomass co-firing and 100% firing. Important research is needed to mitigate the impact of higher amounts of biomass combustion on boiler and flue gas cleanup systems. (Currently the biomass program is focused exclusively on biomass as a transportation fuel.)

Hydropower
Alstom supports programs that would expand the applicability of hydropower as a key renewable. Among these concepts are the more complete development and deployment, including the economics of pumped storage concepts. Advanced turbine design program also needs expansion to further reduce impacts while increasing power output.

Wind Power
Alstom supports research to improve the capacity and availability of wind turbines.

Office of Electricity Delivery and Energy Reliability

Smart Grid
Alstom supports a robust program to develop a "smart" electricity delivery system to accommodate various forms of renewable electricity integrated with baseload nuclear and coal with CCS, that will be brought on line in the coming years. Renewable energy is often available intermittently. Therefore it is important that the existing grid be able to accommodate renewable power and have it dispatched smoothly, when available to the places where it is needed.

Summary

Alstom urges the Subcommittee to allocate funding to support additional R&D efforts in the areas of CCS, renewable power, and smart grids. While there is significant research being undertaken in each of these areas by companies such as Alstom, additional government funding is needed due to the large investment required and the risk inherent in R&D and commercial demonstration and deployment of new technologies. An appropriate balancing of public and private investments is necessary to ensure that these critical technologies are brought to market in a timely fashion. Such a partnership will allow these environmentally responsible technologies to contribute jobs, additional tax revenues, cleaner air, and a more reliable and sustainable supply of electricity.

About Alstom

Alstom is a global leader in power generation and rail transport. In the US, Alstom employees over 6,500 employees in 46 states and generates over $3 billion in annual revenues. Alstom's US businesses offer a full range of power generation technologies for hydro, nuclear, natural gas, coal, and wind applications--including leading edge carbon capture technologies designed to help address climate change. Alstom's products and services make power plants cleaner and more energy efficient, resulting in lower operating costs and less pollution. On the transportation side, Alstom operates the largest passenger rail manufacturing facility in the US. Alstom Transport provides equipment, signaling, and maintenance services for rail markets all across the country, including the Amtrak, the New York City subway system, and the Washington DC metro.

Alstom is also venturing into the area of renewable energy. In June 2007, Alstom took a significant step into wind power generation when it purchased a wind turbine company. In February 2009, Alstom Power's Energy Management Business announced it will collaborate with Microsoft to deliver the next generation of high-performance information technology solutions for the power industry. Alstom sees Microsoft technology as a strategic facilitator for future smart grid and smart power environments.

Alstom Power Inc (a subsidiary of Alstom) has a 100^{+} year history of providing power generation options in the US electric industry. Over the last decades, Alstom, as well as other technology suppliers, has worked closely with DOE and the electric industry to develop, demonstrate and implement innovative technologies to increase efficiency and reduce emissions from new and existing coal power plants. As a result, emissions from the US operating fleet of coal plants have continued to decline while power generated from coal increased. In addition, Clean Coal technologies developed in the US have been successfully exported to global power markets.

Testimony of the
American Wind Energy Association
for the
House Appropriations
Subcommittee on Energy & Water Development
on the U.S. Department of Energy Fiscal Year 2010 Budget Request

The Honorable Peter J. Visclosky, Chairman

April 3, 2009

Prepared by Aaron Severn
Energy Legislative Manager
American Wind Energy Association

Introduction

America's wind industry enjoyed a record year of growth last year, deploying over 8,300 megawatts (MW) nationwide, which amounted to more than 40 percent of the country's new electrical capacity. Although commercially deployable today, increased research, development, and deployment funding could significantly reduce the overall costs, improve reliability, and help keep America's domestic wind industry competitive with natural gas and other electric generation sources. Therefore, the American Wind Energy Association (AWEA) requests a funding level of $161 million for FY 2010 for the wind energy program within the Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy (EERE) to support wind energy development. AWEA also requests $40 million in additional funding for FY 2010 for the DOE Office of Electricity Delivery and Energy Reliability (OE) or EERE for power system integration and transmission development for "variable generation" (wind and solar).

DOE provides important technical support, guidance, information, and limited cost-shared funding for efforts to explore and develop wind energy resources. AWEA would like to commend the DOE Wind Program for its success in developing programs that are consistent with the wind industry's long term needs. Regardless of which office receives funding for grid integration and transmission development, it is crucial that OE and EERE work together to assist utilities in their efforts to produce grid integration solutions related to wind variability while incorporating expertise in place at DOE national laboratories, such as the National Renewable Energy Laboratory (NREL).

AWEA understands that this request represents a dramatic funding increase. But this funding level was derived after a months-long process involving over 80 wind industry stakeholders through the AWEA Research and Development Committee. Participants identified the constraints to meeting the goal of providing 20% of our nation's electricity from wind by 2030

and the funding levels required to eliminate those constraints. The $201 million would be matched by an industry/state cost share of $208.5 million.

Overview

The DOE Wind Program has provided essential help to the wind industry over the years by supporting technology development and assisting in market acceptance of wind. The job is not done, however. Wind power is still constrained by difficulties in market acceptance and needed improvements in cost, performance, and reliability. The DOE's *20% Wind Energy by 2030* report assumes that capital costs must be reduced by 10% and that turbine efficiency must increase by 15% to reach the goal of providing 20% of our nation's electricity from wind by 2030. The need for continued Federal investment in wind research, development, and deployment (RD&D) is made clear when DOE points out in the report, "In a functional sense, wind turbines now stand roughly where the U.S. automotive fleet stood in 1940[1]." As our nation turns to wind energy to meet more of its energy needs it is crucial for DOE to increase funding for wind turbine advancements to improve reliability and bring down costs.

RD&D is a critical element to reach the 20% goal by 2030, which would provide a host of benefits nationwide. 20% of U.S. electric power from wind would:

- Create 500,000 jobs, generating over $1 trillion in economic impact by 2030;
- Reduce natural gas demand by approximately 7 billion cubic feet/day, nearly half of the current consumption in the electric sector;
- Decrease natural gas prices by approximately 12%, saving consumers approximately $128 billion;
- Avoid 825 million tons of carbon dioxide emissions in the electric sector in 2030, equivalent to 25% of expected electric sector emissions, and;
- Reduce cumulative water consumption in the electric sector by 17% in 2030 (one third of which would come from the arid west).

The DOE Wind Program currently receives about $55 million annually, a level that is well below the record $63 million appropriated in FY 1980. In comparison, the research and development budgets for many other traditional and emerging energy sources are much higher. For FY 2009 non-defense nuclear energy programs will receive at least $792 million. Coal programs will receive at least $700 million, while $175 million is provided for solar energy RD&D and $217 million is provided for biomass RD&D. A higher Federal funding level for wind energy RD&D will help ensure that wind energy remains competitive with other forms of energy.

Importance of DOE's Wind Program

The DOE wind program has a strong history of success, and the cost-shared industry/government research and development activities at DOE and NREL have played an important role in keeping the cost of wind energy competitive with other energy sources. AWEA strongly believes that the funding provided by the Subcommittee should reflect the important work conducted by the wind

program and requests that funding be significantly increased to $161 million, with an additional $40 million for wind energy grid integration and related transmission development. The funding for grid integration and transmission could also be provided to OE, but OE and EERE should work closely with other national laboratories, such as NREL, and organizations like the Utility Wind Integration Group (UWIG) to resolve grid integration challenges associated with wind energy development.

Specific Wind Industry Priorities

As mentioned above, a team of over 80 AWEA members and advisors from industry, government, and academic institutions have identified $217 million in annual Federal funding, combined with a $224 million annual industry/state cost share, that will be necessary to support the research and development and related programs needed to meet the goal of providing 20% of America's electricity from wind by 2030. $201 million would be directed to DOE, but the Department of Labor could provide $15.5 million for workforce development as well.

We respectfully urge that Federal funding be provided for six specific areas as follows:

1. Wind Turbine Technology (components, reliability, and offshore applications): $108 million
2. Systems Integration and Transmission: $40 million
3. Education and Workforce Development: $23 million ($15.5 million from the Department of Labor (DOL) and $7.5 million from DOE)
4. Wind Resource Modeling and Wind Farm Efficiency Assessment: $19.3 million
5. Siting (resources, land use, environmental interface): $16.2 million
6. Small Wind: $10 million

Wind Turbine Technology and Reliability

Fostering improvements in technology and reliability of wind systems is a key component of the AWEA R&D Committee action plan. This area of the action plan focuses on the development of wind turbine components to reduce capital costs, improve performance and enhance reliability to achieve the 20% vision by 2030. The AWEA R&D Committee recommends the support of high-risk, high-return technology development programs that will not be funded by industry alone. Areas of special focus should include programs to promote drive train reliability, improve wind-related manufacturing, develop taller towers, and facilitate the development of advanced, large rotor blades. AWEA also recognizes the need to reduce the cost of offshore wind energy technology in order for offshore sources to provide the estimated 54 gigawatts (GW) of the 300 GW needed to meet the 20% goal by 2030.

Systems Integration

This program area focuses on the power system operations issues of integrating variable, non-dispatchable power sources into the power system. Wind generators trying to connect in some regions are already being told that operational limits for the integration of variable generation

have been reached, especially those with small control areas located outside of Regional Transmission Organizations (RTOs). Yet, numerous studies from the United States and Europe (with significant involvement from DOE-funded experts) have shown that minor changes to operations can accommodate much greater amounts of wind. Areas of special focus include developing and promoting advanced forecasting methods, developing and analyzing additional sources of system flexibility, expanding and implementing power system operation tools, and supporting interconnection-wide integration studies and plans.

Transmission Expansion

Transmission expansion has been identified as one of the key areas of focus for meeting the 20% by 2030 wind energy goal. This area of funding should focus on issues related to expanding the transmission grid to increase access to wind resource areas. An emphasis should also be placed on making the grid more robust to facilitate the inter-regional power flows that will be critical for integrating large amounts of wind energy, as well as on grid efficiency and reliability. Areas of special focus include developing transmission expansion planning methods for location-constrained resources and validating historic wind resource data sets and tall tower maps.

Education and Workforce Development

NREL has identified the lack of skilled workers as one of the biggest non-technical barriers to the growth of renewable energy industries. In addition to workforce development funding, the wind industry has identified the need to fund programs to educate policymakers at the state and local level, as well as the general public. Such programs are critically important to debunk myths about wind projects and increase public acceptance of wind power projects across the country. In addition to educating policymakers and stakeholders about wind power development, areas of special focus include making sure that DOL and DOE work together to increase the supply of professionals and technical specialists with wind-energy specific knowledge.

Wind Resource Modeling and Wind Farm Efficiency Assessment

Funding for the research of wind resource characterization, wake assessment, and wind modeling will provide important benefits to the large and small wind industries. Better understanding of wind resources and of turbine wake effects would provide an immediate benefit for projects to be sited and arranged to optimize energy yield and improve performance. Also, wind resource and wind farm efficiency funding would help decrease uncertainty in energy estimates. The greater confidence in energy estimates would translate into increased investor confidence and a lower cost of energy. Areas of special focus include funding for test centers to better understand wind flow models, research on the effect of wind turbines under unusual atmospheric conditions, and funding for wake loss models.

Siting (Resources, Land Use, Environmental Interface)

Greater funding for wind project siting issues would help the wind industry avoid unnecessary wind deployment delays, thus helping the industry to stay on track to meet the 20% vision by

2030. In general, increased funding in this area should be targeted toward better understanding the impact of wind turbines on wildlife and radar installations and mitigating these impacts. Other action items include creation of a national wind siting database, model verification, public education on siting issues, and sound emissions studies.

Small Wind (Turbines 100 kilowatts and Smaller)

Greater Federal funding for small wind systems, those with capacities of 100 kilowatts (kW) or less, would help the small wind industry serve end-users directly with domestic, on-site generation. Increased funding for the small wind industry should be used to develop a manufacturing technology program, help promote the development of equipment standards, establish market deployment programs, advance small wind technology component development, and develop modeling programs for small wind siting.

Conclusion

The President and Congress have called for a bolder commitment to the development of domestic renewable energy resources, particularly wind energy, to meet our nation's growing energy demand. Continued investments in wind energy RD&D are delivering value for taxpayers by fostering the development of a domestic energy source that strengthens our national security, provides rural economic development, spurs new high-tech jobs, and helps protect the environment.

While the wind industry continues adding new generation capacity, a number of challenges still exist. Continued support for DOE's wind program is vital to helping wind become a more prominent energy source that leads to a host of economic and environmental benefits. To ensure that DOE's wind program funding is commensurate with the President's call for more renewable energy, AWEA urges the Subcommittee to include $161 million for the wind program in FY 2010, with an additional $40 million for wind energy system integration and transmission development through OE or EERE. Combined with the continuation and adoption of favorable Federal policies, greater RD&D funding through DOE will help transform the 20% wind vision into reality.

AWEA appreciates this opportunity to provide testimony on DOE's FY 2010 wind energy program budget before the House Appropriations Subcommittee on Energy and Water Development. We thank the Subcommittee for its time and attention to our request.

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[1] U.S. Department of Energy, "20% Wind Energy by 2030" (July 2008), http://www.20percentwind.org/20p.aspx?page=Report.

Statement of the Coalition of Northeastern Governors
to the Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives
Regarding FY2010 Appropriations for
the U.S. Department of Energy's
State Energy Program, Weatherization Assistance Program,
Northeast Home Heating Oil Reserve, and Regional Biomass Energy Program
April 3, 2009

The Coalition of Northeastern Governors (CONEG) is pleased to provide this testimony to the House Committee on Appropriations Subcommittee on Energy and Water Development regarding FY2010 appropriations for the U.S. Department of Energy (DOE). The CONEG Governors request funding for the following Energy Efficiency and Renewable Energy Programs: $300 million for the Weatherization Assistance Program, $50 million for the State Energy Program, and $140 million for the Buildings Technologies Program. In addition, the Governors request $140 million for the Energy Information Administration, and sufficient funding for maintenance and operation of the Northeast Home Heating Oil Reserve. The Governors also urge the Committee to ensure that, through the U.S. Department of Energy, $7.5 million is provided to maintain the critical networks and market development work of the National Biomass Partnership (previously known as the Regional Biomass Energy Program).

The Governors recognize the daunting fiscal challenges facing the Subcommittee this year, and we appreciate the significant funding Congress provided for these energy programs in the American Recovery and Reinvestment Act. Even with these critical, one-time funds, continued base funding is needed to help sustain valuable green jobs and to realize and effectively assess the continuing energy and environmental benefits of these programs.

Weatherization Assistance and State Energy Programs

In the current economy, the Weatherization Assistance Program and the State Energy Program have taken on a new significance. These successful programs allow states to quickly and efficiently implement energy saving technologies and practices, creating green jobs and achieving real savings for families struggling with unaffordable home energy costs.

Weatherization Assistance Program (WAP): Weatherization is an immediate and effective tool to manage the energy use of low-income households. These households can spend as much as 20 percent of their annual income on home energy bills compared to just three percent by other households. Through a network of more than 900 local weatherization service providers, the WAP improves the energy efficiency of more than 100,000 low-income dwellings a year, thereby reducing the home energy bills of the nation's most vulnerable citizens.

Since its inception in 1976, the program has weatherized more than 6.2 million low-income residences across the country. Many of these weatherization upgrades are inexpensive measures

and may include installing insulation, sealing ducts, and tuning and repairing heating and cooling systems. In addition, the program uses a 'whole-house' approach, incorporating advanced technologies to address the comprehensive energy usage in low-income homes, as well as related health and safety improvements. This approach maximizes both energy and dollar savings.

On average, weatherization measures that address a home's heating and cooling systems, electrical system, and electricity consuming appliances reduce energy bills by almost 32 percent. According to the Energy Information Administration, this translates to an average household energy savings of $344 per year.

This successful program has a proven track record of creating numerous economic and non-energy benefits in communities, including increased home values, job creation, and improved health and safety of occupants.

State Energy Program (SEP): The State Energy Program, the cornerstone of the state-federal partnership, is vital to achieving energy efficiency and conservation in energy end-use sectors such as buildings, industrial, agriculture, transportation, and power generation. The program, which has proven its effectiveness, assists states' initiatives that help realize national goals of greater energy efficiency, reduced energy costs, development of alternative and renewable energy resources, and reduced reliance on imported sources of energy. The SEP also helps states in their critical emergency preparedness activities, improving the security and reliability of energy infrastructure, and preparing for natural disasters.

Through the SEP=s targeted programs, local governments, businesses, schools, as well as individuals become aware of opportunities and receive assistance for specific improvements that result in energy efficiency, reduced energy costs, diversified energy use, and job creation in multiple sectors. Working with DOE, states tailor their renewable energy and energy efficiency programs to maximize the effectiveness of the program's resources. The Northeast states have used SEP funds to support projects to update emergency plans to anticipate and respond to potential shortages of electric power, natural gas and deliverable fuels. SEP funds have also been used by state agencies to assist in reducing energy use in commercial and institutional buildings, fleets, and equipment; perform small business energy audits; and provide public information and education to local residents, small businesses, farmers, and others to make them aware of opportunities to reduce energy consumption and energy bills.

The modest federal funds provided to the SEP are an efficient federal investment, as they are leveraged by significant non-federal public and private sources. According to the most recent data from the Department of Energy (2006), each dollar of SEP funding is leveraged by $10.71 in state, local and private sources; and results in $7.22 in energy cost savings.

In its recent evaluation of the program, Oak Ridge National Laboratory found that the program has "a substantial positive impact on the nation's energy situation." The report estimated that the program results in annual cost savings of $256 million while providing environmental and public health benefits through reduced energy use and emissions reductions. For example, the program

results in an annual reduction of carbon emissions of 826 million metric tons – the same amount produced by 582,000 automobiles in a single year.

Buildings Technologies Program (BTP)

The Buildings Technologies Program has created unique and effective partnerships with states, industry, national laboratories, universities and manufacturers to improve the energy efficiency of new and existing buildings, and the equipment and systems within them. The Program supports research and development of innovative new technologies and better building practices, and development of building energy codes and equipment standards. It also provides tools, guidelines, training, and access to technical and financial resources.

Buildings consume more energy than any other sector of the U.S. economy, including transportation and industry. With roughly 15 million new buildings projected to be built by 2015, a tremendous opportunity exists for the development and deployment of energy efficient technologies and building practices. The potential energy and cost savings are significant.

The strategic goal of the Building Technologies Program is to create technologies and design approaches that lead to marketable net-zero energy homes by 2020 and net-zero energy commercial buildings by 2025. These net-zero energy buildings would use 60 percent to 70 percent less energy, with the balance of energy needs supplied by renewable technologies.

BTP is working to achieve this goal on several fronts. Research supported by BTP includes innovative integrated strategies that improve the efficiencies of all energy uses including heating and cooling, ventilation, lighting and appliances. The Building Energy Codes Program serves as an information resource on national model energy codes and works with other federal, state, and local government agencies; national code organizations; and industry to promote and enforce stronger building energy codes. BTP collaborates with partners of the highly successful ENERGY STAR program to increase awareness, availability and purchase of energy efficient appliances, lighting and windows. According to DOE, in 2006, ENERGY STAR saved 170 billion kilowatt hours – or almost 5 percent of the total 2006 electricity demand – and helped avoid greenhouse gas emissions equivalent to those from 25 million automobiles.

Energy Information Administration

EIA provides timely, reliable and credible information and analysis on the energy produced, imported and consumed in the United States. As Congress and the Administration continue to develop and debate a national energy strategy, EIA is increasingly called upon to provide unbiased, timely and reliable information, analyses and forecasts. In addition, states rely on EIA data as the core of their information for energy emergency planning.

New requirements included in the *Energy Independence and Security Act of 2007*, as well as the evaluation of an increasingly more complex and interdependent energy industry, has created a vastly increased workload for EIA and the need for more rigorous data collection and analysis. Increased funding in FY2010 will help ensure that EIA can begin to revise and update its energy

data collection and analysis programs so it can continue to provide the most accurate and reliable information on the energy markets and industry.

Northeast Home Heating Oil Reserve

The nation's heightened emphasis on energy reliability and security places renewed importance on the Northeast Home Heating Oil Reserve. Almost 70 percent of the 7.7 million households heating primarily with home heating oil are in the Northeast, making the region particularly vulnerable to the effects of supply disruptions and price volatility. The Northeast region is literally at the end of the energy product pipeline. Any disruption along the delivery infrastructure anywhere in the country negatively affects the Northeast. The Reserve provides an important buffer to ensure that the states will have prompt access to immediate supplies in the event of a supply emergency.

Renewable Energy and the National Biomass Partnership

Even as research in advanced bioenergy resources and their applications continues, the goal of reducing the nation=s dependence on imported energy can be accelerated by timely steps to deploy the nation's varied bioenergy resources and technologies into the market place. The National Biomass Partnership, a collaboration of five regional biomass energy programs created by Congress, is a critical link in the chain of research, resource production and technology commercialization that is essential to bringing bioenergy technologies successfully into the marketplace. The absence of a strong federal partner threatens this state-private sector effort to better coordinate the institutional and physical infrastructure for deployment of sustainable biomass fuels and bioenergy technologies.

States contribute significant resources to support the development of biomass fuels, technology, and infrastructure. These programs increase public understanding, provide technical assistance to state and local governments and to businesses, and bring about the state and local policies and institutions that are critical to the emergence of on-the-ground bioenergy markets. Through the National Biomass Partnership, states join with each other and with private sector and university partners to tailor bioenergy development efforts to the regionally distinct bioenergy resources and markets. The Partnership, with its established network for cooperation and coordination of biomass energy activities that links state, regional and national objectives, has demonstrated its ability to efficiently leverage resources; coordinate policies and activities among states; and expedite deployment of the biomass fuels, technology, and infrastructure that is necessary to reach common goals of states and the federal government. In the Northeast alone, the Northeast Regional Biomass Partnership (NRBP) directly influenced $24 million in biomass investments – 69 percent of the overall biomass investment made in the region in 2003. Working with state, federal and private sector officials, the NRBP has provided bioenergy education and training to nearly 3,000 people in the region and contributed to state-developed bioenergy policies and programs.

In conclusion, the Coalition of Northeastern Governors request that you provide $300 million for the Weatherization Assistance Program, $50 million for the State Energy Program, $140 million

for the Buildings Technologies Program, and $140 million for the Energy Information Administration. We also urge Congress to provide sufficient funding for maintenance and operation of the Northeast Home Heating Oil Reserve; and ensure that, through the U.S. Department of Energy, $7.5 million is provided for the work of the National Biomass Partnership. CONEG welcomes the opportunity to provide additional information on these essential programs as Congress continues the FY2010 appropriations process.

Testimony for the Record

Marvin S. Fertel
President and Chief Executive Officer
Nuclear Energy Institute
Appropriations Subcommittee on Energy and Water Development
U.S. House of Representatives
April 3, 2009

The Nuclear Energy Institute[1] (NEI) supports Fiscal Year 2010 (FY10) funding for the following Department of Energy programs: the Innovative Technology Loan Guarantee Program Office ($20 million), Nuclear Power 2010 Program ($121 million), Office of Radioactive Waste Management ($340 million), Advanced Fuel Cycle Initiative ($160 million), Generation IV Program ($245 million), Light Water Reactor Systems ($25 million), Nuclear Hydrogen Initiative ($15 million), Integrated University Program ($45 million), Research Reactor Infrastructure ($8.1 million), the Advanced Test Reactor User Facility ($15 million), Idaho Facilities Management ($198 million) and Space and Defense Infrastructure ($35 million). NEI also supports the FY10 funding levels for the Nuclear Regulatory Commission budget and environmental cleanup at DOE sites.

NEI appreciates the opportunity to provide the subcommittee with its perspective on the nuclear energy-related programs under the subcommittee's jurisdiction.

The nation's nuclear power plants in 2008 continued to operate at high levels of safety and efficiency, which has cemented their role as the nation's most reliable carbon-free electricity source. Performance indicators compiled both by the Nuclear Regulatory Commission and the World Association of Nuclear Operators (WANO) reflects the industry's exemplary performance in 2008. The nuclear industry's median unit capability factor in 2008 was 91.1 percent, according to WANO's analysis. That is the ninth consecutive year that unit capability factor— a measure of a plant's on-line production time—topped 91 percent. A related metric, capacity factor, a measure of total power generated as a percentage of design production, also stood at 91.1 percent in 2008, according to preliminary estimates.

This reliability—the highest among any sources of electricity—enabled the nation's 104 nuclear power plants to produce enough electricity (805.7 billion kilowatt-hours) for about 80 million homes last year. Overall, nuclear power plants operating in 31 states provide one-fifth of U.S. electricity supplies; they provide nearly 75 percent of the nation's electricity generation that comes from carbon-free sources.

NEI's statement for the record addresses the industry's highest policy priorities. In several cases, NEI believes America's energy security and environmental imperatives justify increases in FY10

1 The Nuclear Energy Institute is responsible for developing policy for the U S nuclear energy industry NEI's 308 corporate and other members represent a broad spectrum of interests, including every U S utility that operates a nuclear power plant NEI's membership also includes nuclear fuel cycle companies, suppliers of equipment and services, engineering and consulting firms, national research laboratories, manufacturers of radiopharmaceuticals, universities, labor unions and law firms

funding above the levels provided by Congress in the FY09 Omnibus legislation.

Innovative Technologies Loan Guarantee Program

The nuclear industry appreciates the support provided by the Subcommittee for the loan guarantee program. The FY09 omnibus bill made the authority for the authorized loan volume of $47 billion available indefinitely.

Last year, the industry submitted 13 license applications to the NRC for new nuclear projects, bringing the total to 17. Over the last several years, the industry has invested over $4 billion in new nuclear plant development and plans to invest another $8 billion in the next several years to be in position to have plants operating in the 2016-2017 timeframe. The clean energy loan guarantee program created by the 2005 Energy Policy Act is essential for companies planning investments in the electricity infrastructure. Given the capital investment required in the electric sector, and the cost of new electric generating facilities, additional loan volume will be required in the coming years to support the number of new plants currently projected.

DOE has issued solicitations inviting loan guarantee applications for eligible technologies and, in all cases, the available loan guarantee volume is significantly oversubscribed. For example, initial nuclear power solicitations resulted in requests from 14 projects seeking $122 billion in loan guarantees, with only $18.5 billion available. Ten nuclear power projects reportedly submitted Part II loan guarantee applications representing $93.2 billion in loan volume. Two uranium enrichment projects submitted applications seeking $4.8 billion, more than double the available amount. NEI also understands that the solicitation for innovative coal projects results in requests for $17.4 billion in loan volume, more than twice the $8 billion available.

The loan guarantee program is designed to be self-financing, with project sponsors responsible for underwriting the cost to the federal government of providing the credit support. Properly implemented, there will be no cost to the taxpayer. In fact, the program will generate revenues for the Treasury from credit subsidy cost payments made by project sponsors. In addition, by reducing the cost of capital, the program would reduce project costs and thus reduce electricity prices to all consumers – residential, commercial and industrial.

Since enactment of the Energy Policy Act in August 2005, achieving workable implementation of the Title XVII loan guarantee program has been a challenge. NEI is encouraged by Energy Secretary Steven Chu's intent, expressed during his confirmation hearing and at other times, to address the difficulties that have arisen during implementation of the Title XVII loan guarantee program. Many of these problems can be corrected through rulemaking, and NEI understands that DOE is developing revised rules to address defects in the current rule and to implement the new loan guarantee program authorized in the economic stimulus legislation. The Energy and Water Development Appropriations Subcommittee can play a key oversight role in ensuring that the necessary revisions to the existing rule are promulgated quickly and efficiently, and do not become entangled in internal Executive Branch procedural difficulties, as has happened so often in the past.

NEI also urges Congress to support DOE's request to fully cover the program's administrative costs in FY10, which will result in a net zero appropriation given offsetting collections from loan applicants.

Completion of the Nuclear Power 2010 Program

Successfully completing NRC's new combined construction and operating license (COL) process is one of the final determinants in decisions to proceed with new nuclear plant projects. The Energy Department's NP2010 program, entering the final year of the program, has provided a critical opportunity to organize industry efforts through NuStart Energy and Dominion to develop and implement a program to demonstrate the COL process. The program, coordinated with NRC and NEI, is resolving issues and establishing processes that will benefit all new nuclear plant projects – not just those being pursued by Dominion or NuStart's 10 electric utility members.

The NP2010 program has two fundamental objectives: 1) to demonstrate the regulatory process for licensing new plants and 2) to complete the final design for the Westinghouse AP1000 reactor and the GE-Hitachi ESBWR reactor.

NRC is requiring a dramatically higher level of detailed information on these advanced reactor designs than envisioned when this program was started. The designs must be essentially complete before the NRC issues the first construction and operating licenses. As a result, the industry is investing hundreds of millions of dollars more than expected in bringing advanced reactor designs to the marketplace even before the first order has been placed by a utility. Individual utility company decisions to begin preparation for specific projects were based on the expectation that industry could depend upon DOE's NP2010 program to establish a viable licensing process and reduce the impact of a first-time regulatory process on engineering and licensing costs of each standardized design. Given the successes achieved to date as a result of this cost-shared program and its critical importance to the deployment of the only major clean baseload energy technology, NEI urges Congress to ensure that the NP2010 program is fully funded next year to achieve the efficiencies promised when this program was initiated in appropriations and authorized in the 2005 Energy Policy Act.

The industry has matched the federal government commitment to NP2010 dollar for dollar and has, in addition, invested over $1 billion more in other site-specific licensing, design and construction activities. The program thus leverages significant additional private sector investment.

Industry seeks congressional support for DOE's NP2010 of $121 million and the program remains the industry's highest priority for deliverable reactor development.

Ensuring Adequate Funding for the Nuclear Regulatory Commission and the Integrated Used Fuel Management Program

The industry recommends FY10 funding at the NRC's requested level. However, the industry is concerned about the need for agency actions to appropriately but more expeditiously resolve

open issues. The industry applauds the continued oversight of the NRC by Congress to help identify ways to prioritize agency actions. There needs to be greater transparency in NRC budgeting to reveal planned staffing and resource needs in individual NRC divisions. This would demonstrate to Congress and to the industry which pays up to 90 percent of NRC's budget that the budget fairly reflects those activities that should be being allocated toward licensee-specific charges rather than general license fees.

The administration has thrown into the question the future course of DOE's used nuclear fuel management program with its recommendation that the program be scaled back to include only those costs necessary to answer questions from the NRC regarding the license application for the Yucca Mountain repository project. Further, the administration has announced its intent to create a "blue ribbon commission" to evaluate national used fuel policy and the national repository program at Yucca Mountain. NEI believes such a commission is necessary and urges the subcommittee to provide sufficient funding to enable the commission to discharge its responsibilities.

The nuclear energy industry supports funding for DOE's Office of Radioactive Waste Program at $340 million and NRC's program at $43 million from the Nuclear Waste Fund for Yucca Mountain licensing review activities.

The industry believes that a national repository program is a key component of a three-part integrated used fuel management strategy. This strategy includes:

1. Develop interim used fuel storage at volunteer locations;
2. Research, development and demonstration to recycle uranium fuel and reduce the volume, heat and toxicity of byproducts placed in the repository and to reclaim some 90 percent of the energy that remains in the fuel after one use in a reactor; and,
3. Develop a national repository.

The nuclear industry consistently has supported research and development of the advanced fuel cycle technologies incorporated in the Advanced Fuel Cycle Initiative (AFCI). Consistent with the industry's integrated used fuel strategy, NEI believes $160 million for the Advanced Fuel Cycle Initiative in FY10 will continue this important technology research and development program, and will support private sector partnerships to achieve better definition of the program.

Deployment of Advanced Reactor Technologies

NEI supports $245 million in government funding to be appropriated for the Generation IV (GEN IV) program in FY10. Within this program, $241 million would be allocated for the Next Generation Nuclear Plant (NGNP). The NGNP is a congressionally authorized program to develop, license and build an advanced high-temperature gas reactor (HGTR) at Idaho National Laboratory and other U.S. laboratories in partnership with industry. The HTGR technology can displace the use of premium hydrocarbon fuels such as natural gas for producing process heat, thus enhancing U.S. energy security, stabilizing energy prices and improved economics and improving the use of finite hydrocarbon resources. Such a transition would result in minimal greenhouse gas emissions throughout the nuclear energy life cycle. Industry and the INL are

working together to have this prototype nuclear energy system operational by the end of the next decade.

NEI also recommends funding of $25 million for a new initiative called the light-water reactor systems program, focusing on materials science and addressing issues of materials performance in reactor operations, and $15 million for the Nuclear Hydrogen Initiative (NHI) in FY10. The NGNP potential for hydrogen generation and the potential to couple hydrogen generation with advanced light water reactors is being coordinated and optimized under this program.

Work Force and Infrastructure

The FY09 Omnibus Appropriations Act included $45 million for an Integrated University Program at DOE Nuclear Energy, DOE NNSA and at the NRC. The industry appreciates the strong support this subcommittee has provided for this program. NEI asks the subcommittee to support $8.1 million for the Research Reactor Infrastructure program for new fuel and shipping containers, reactor instrumentation and upgrades, and used fuel services. The nuclear industry also urges the subcommittee to designate up to 20 percent of funds appropriated to its AFCI, NGNP and NHI programs for research work at universities.

Industry also supports providing $15 million for the Advanced Test Reactor (ATR) User Facility at Idaho National Lab and $198 million for facilities management at the lab in FY10. The ATR funding is intended to improve the capability of the facility for research on the behavior of nuclear fuels and materials by users from DOE, universities and the industry.

Legacy Management

Responsible management and clean-up of legacy sites and associated waste is a primary responsibility of DOE's Office of Environmental Management. The FY09 Omnibus Appropriations Act provided $6.5 billion in funding and The American Recovery and Reinvestment Act of 2009 provided an additional $6 billion to enable EM to protect human health and the environment. We recommend providing $6.5 billion for FY10.

In addition, industry recommends that efforts be focused both on footprint and risk reduction at legacy sites. Further, the industry recommends that that EM continue to accelerate clean- up thereby enabling nearby communities to redevelop sites and saving taxpayer money in the long-term.

Testimony of Joan L. Pellegrino, President
Biomass Energy Research Association
ON BIOMASS ENERGY RESEARCH, DEVELOPMENT & DEMONSTRATION

Department of Energy Fiscal Year 2010 Budget Appropriation

Submitted to the Senate Committee on Appropriations
Subcommittee on Energy and Water Development

April 3, 2009

SUMMARY

This testimony pertains to fiscal year 2010 (FY10) appropriations for biomass energy research, development, and demonstration (RD&D) conducted by the **Department of Energy (DOE) Office of Energy Efficiency and Renewable Energy (EERE), Biomass Program (OBP)**. This RD&D is funded by the Energy and Water Development Bill, under the heading of Energy Supply and Conservation, Energy Efficiency and Renewable Energy. BERA recommends a total appropriation of **$400 million in FY10 for Biomass and Biorefinery Systems R&D,** exclusive of earmarks.

This is an increase of about $100 million over the U.S. Department of Energy request for FY10 for this programmatic area. We feel this increase is necessary to meet Renewable Fuel Standard (RFS) goals for production of advanced biofuels, including those from cellulosic biomass, as stipulated under the Energy Independence and Security Act (EISA) of 2007. **Substantial investments in new technology and demonstrations will be needed to meet the RFS goals for advanced biofuels, and to more fully utilize our abundant, renewable biomass resources in a sustainable manner.** Specific lines items for the DOE biomass RD&D budget are:

- **$40,000,000** for **Feedstock Infrastructure** development (regional partnerships, harvesting and storage technology, exploration of new feedstocks)
- **$60,000,000** for **Biochemical Conversion Platform Technology** (emphasis on cost-effective pretreatment technologies and fermentation organisms – both are large contributors to high cost of biofuels production from cellulosic materials)
- **$60,000,000** for **Thermochemical Conversion Platform Technology** (conversion of plants, oil crops, energy crops, wood and forest resources to oils, long chain hydrocarbons, or other fuels/intermediates)
- **$200,000,000** for **Utilization of Platform Outputs: Integrated Biorefinery Technologies demonstrations.** Technology demonstrations reduce technical and economic risk and accelerate the potential for private investment. They are a critical for reaching goals for biofuels production for 2022 and beyond.
- **$40,000,000** for **Utilization of Platform Outputs: Bioproducts** (chemicals and materials as co-products)

BACKGROUND

On behalf of BERA's members, we would like to thank you, Mr. Chairman, for the opportunity to present the recommendations of BERA's Board of Directors for the high-priority programs that we strongly urge be continued or started. BERA is a non-profit association based in the Washington, DC area. It was founded in 1982 by researchers and private organizations conducting biomass research. Our objectives are to promote education and research on the economic production of energy and fuels from freshly harvested and waste biomass, and to serve as a source of information on biomass RD&D policies and programs. BERA does not solicit or accept Federal funding.

There is a growing urgency to diversify our energy supply, develop technologies to utilize indigenous and renewable resources, reduce U.S. reliance on imported oil, and mitigate the impacts of energy on climate and the environment. The benefits will be many – support for economic growth, new American jobs, enhanced environmental quality, and fewer energy-related contributions to climate change. Economic growth is fueled and sustained in large part by the availability of reliable, cost-effective energy supplies. The import of oil and other fuels into the United States is growing steadily, despite increased volatility in supply and prices, especially petroleum and natural gas. This creates an economic burden on industry and consumers alike, and adversely impacts our quality of life. A diversified, sustainable energy supply is critical to meeting our energy challenges and maintaining a healthy economy with a competitive edge in global markets. Biomass can diversify U.S. energy supply in several ways, and biofuels is only one avenue:

- Biomass is the single renewable resource with the ability to **directly replace liquid transportation fuels.**
- Biomass can be used as a feedstock to **supplement the production of chemicals, plastics, and materials now produced from crude oil**.
- Gasification of biomass produces a syngas that can be utilized to **supplement the natural gas supply, generate electricity, or produce fuels and chemicals.**

While biomass will not solve all our energy challenges, it can certainly contribute to the diversity of our supply, and do so in a sustainable way, while minimizing impacts to the environment or climate. The Energy Independence and Security Act (EISA) of 2007 mandates increased use of alternative fuels, with a substantial portion to come from cellulosic biomass. To meet the ambitious EISA goals will require aggressive support for RD&D to move technology forward and reduce technical and economic risk. We also support the energy provisions of the American Reinvestment and Recovery Act of 2009 (ARRA), particularly those that provide loan guarantees for new plants and research for renewable energy.

BERA RECOMMENDATIONS FOR US DOE/EERE BIOMASS RD&D

BERA's recommendations support a balanced program of RD&D, including projects to develop and demonstrate advanced biochemical and thermochemical biomass conversion processes, a diverse slate of liquid transportation fuels, and co-production of fuels, chemicals, and power in integrated biorefineries. Our overarching recommendations are to:

1. **MAKE INVESTMENTS TO ACCELERATE DEVELOPMENT OF NEXT GENERATION BIOFUELS AND PROCESSES. [Platforms Research and Development - Biochemical and Thermochemical Platform R&D]** Balance spending so that more funding is allocated toward **next generation biofuels and processes** that include both innovative biochemical and thermochemical routes, including but not limited to pyrolysis, gasification, and other thermochemical routes, hybrid routes, and other new ideas; emphasize processes that can use a whole range of biomass types. Include **advanced biological routes** that better integrate simplified combined biological methods with pretreatment to **reduce enzyme costs dramatically** as enzymes followed by pretreatment are the major cost items that are susceptible to change.
2. **MAKE INVESTMENTS TO BRING DOWN THE COST OF BIOMASS PRETREATMENT. [Platforms Research and Development - Biochemical and Thermochemical Platform R&D]** Invest substantial funds to bring down the capital and operating costs of **pretreatment** of cellulosic biomass. This is very important and deserves emphasis as **pretreatment is a major factor in the cost of production** and also influences the cost of the rest of process. It remains a major hurdle for commercialization of new processes and achieving economic viability of operating biofuels facilities. Developing pretreatment processes that integrate better with the entire process must be a critical aspect of this effort.
3. **UNDERWRITE AN UNPRECEDENTED NUMBER OF LOAN GUARANTEES AND DIRECTLY FUND A WIDE RANGE OF DEMONSTRATIONS. [Utilization of Platform Outputs: Integrated Biorefineries]** These actions will raise confidence in private investment during uncertain economic times – and these **facilities need to be put in the ground now to make a difference in the mid and long term.** This is very important and fits well with the intentions of the ARRA. Technology demonstrations reduce technical and economic risk and accelerate the potential for private investment. They are a critical for reaching goals for biofuels production for 2022 and beyond. A major concern is that DOE has not approved and disbursed a single loan guarantee under the innovative technology program established by EPAct 2005. However, DOE Secretary Steven Chu indicates he is committed to reform to speed up the loan guarantee process. **This is critical for stimulating private investment and investor confidence.** We suggest that DOE provide about 50% of the capital for first plants with the rest being private funds to compensate for the risk of first projects while assuring enough private capital is on the line for proper due diligence. **This level of guarantee is vital – introducing any new fuel in today's petroleum-heavy market is extremely challenging.** The capital costs for petroleum processing are already paid off, making it a cash producer, while any biofuels facility must cover not only its cash costs but make a high return on capital to compensate for first time risk. This is a heavy lift for first-of-a-kind technology and is made worse by the major swings in petroleum prices.
4. **SET ASIDE FUNDING FOR DEMONSTRATION OF REVOLUTIONARY, BUT UNPROVEN NEW CONCEPTS. [Platforms Research and Development - Biochemical and Thermochemical Platform R&D]** Seed funding is needed for revolutionary new ideas that show great promise. We must appeal to the great American sense of innovation and invention to bring ideas to the table that will help solve our energy crises. Small, entrepreneurial inventors and businesses should be part of this

equation. This is an important, but riskier proposition, and will take longer to allow for successive funding of ideas and demonstrations.

5. **INVEST MORE FUNDS IN DEVELOPMENT OF COST-EFFECTIVE NEW BIOPRODUCTS. [Utilization of Platform Outputs: Integrated Biorefineries]** Some chemicals could be produced from biomass, reducing our dependence on oil-derived chemicals and materials that go into a myriad of consumer goods from paint to food to drugs to plastics. Positive economic returns (and improved margins for integrated biorefineries) could be achieved by production of value-added co-products, whether the facility is based on thermochemical or biochemical technology. Current funding for this area is extremely limited, and only looks at sugar chemistry (there are other possible platforms). The challenge is that large plants are needed for economies of scale, thereby favoring biofuels. Chemicals can improve returns in a fuels biorefinery and provide these scale advantages, but it is more challenging to finance construction of projects involving more than one product due to the greater risk profile. Regardless, products research should be undertaken independently of biofuels, as well as from the perspective that it could be produced as a high value co-product with fuels in a biorefinery.
6. **INVEST IN STUDY OF NEW NON-FOOD, NON-COMMODITY BIOMASS SOURCES. [Feedstocks Infrastructure]** This includes feedstocks, such as algae, selected perennial grasses, wood, and waste products (of any kind, including industrial and construction, food processing, etc); include an understanding of the viability of these resources (yields, production issues, chemistry, etc) for producing a **wide range of fuels (analogs for gasoline, diesel, jet fuel, marine fuel, etc)**. This should include developing plants species that are more amenable to thermochemical (e.g., high lignin) and biochemical (e.g., low lignin, more easily processed lignin) processing.
7. **INVEST SIGNIFICANT RESOURCES ON OUTREACH TO INCREASE PUBLIC AWARENESS. [Utilization of Platform Outputs]** The importance of public opinion cannot be overstated. Increasing awareness and understanding of biofuels and their impacts on our energy situation is critical. This includes understanding the positive environmental impacts, and dispelling of misperceptions – we need to get the truth out there, good and bad – and enable consumers to make good choices. Funding should include incentives to States to get the word out and educate the public – and make this information available where people fuel up – at local filling stations and grocery stores, etc. Funding should include more careful studies to really understand the impacts and how to avoid them, and enable comparison to other technologies on level playing field.
8. **JOINTLY FUND (WITH USDA, DOT, EPA) A NATIONAL CENTER TO ADDRESS INFRASTRUCTURE ISSUES. [Utilization of Platform Outputs]** A national center for centralized information and technology exchange is needed, covering all areas of infrastructure from storage and transport of feedstocks to blending, storage and distribution of fuels to consumers. This center would incorporate a public-private partnership model to encourage investment in infrastructure. This is an area that has not received much attention, but could severely restrain the industry from reaching the EISA RFS goals for advanced fuels. Infrastructure expansion and development has many critical issues, and the more solid data that can be developed on biomass availability, the better the industry will be enabled to grow. This should include more solid data on biomass composition and changes with age, location, storage time, etc.

BERA's recommendations for funding for DOE biomass RD&D are shown in Table 1. Note that recommended budgets for demonstration projects do not include industry cost-share.

Table 1. FY 2010 Biomass/Biorefinery Systems R&D, Energy Supply & Conservation, DOE/EERE Biomass Program (Million Dollars)

Program Area	Description of RD&D	Total
Feedstock Infrastructure	- Regional feedstock partnerships - Joint development of storage and harvesting technology - Exploration of non-food, non-commodity feedstocks	$40.0
Biochemical Conversion Platform R&D	- Next generation biofuels and processes that can use a range of feedstocks - Technologies to reduce costs of pretreatment - Advanced biological routes that combine biological methods with pretreatment to reduce enzyme costs dramatically - Seed funding for revolution new concepts, including small businesses and inventors	$60.0
Thermochemical Conversion Platform R&D	- Next generation biofuels and processes that can use a range of feedstocks (pyrolysis, gasification, and other thermochemical routes) - Technologies to reduce costs of pretreatment - Seed funding for revolution new concepts, including small businesses and inventors	$60.0
Platform Outputs: Integrated Biorefineries	- Direct funding (cost-shared) of biochemical and thermochemical conversion technologies in integrated biorefineries and small scale biorefineries - Public awareness and outreach programs - National center for infrastructure issues - Underwriting of loan guarantees	$200.0
Platform Outputs: Bioproducts	- Co-production of chemicals and other products from biochemical and thermochemical output streams as alternatives to petroleum-derived chemicals	$40.0
TOTAL		$400.0

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Statement of the
AMERICAN SOCIETY OF CIVIL ENGINEERS
Before the Subcommittee on Energy and Water Development
Committee on Appropriations
U.S. House of Representatives
on the
Budget for the U.S. Army Corps of Engineers
and Bureau of Reclamation
For the Fiscal Year 2010
April 3, 2009

Mr. Chairman and Members of the Subcommittee:

The American Society of Civil Engineers (ASCE) welcomes the opportunity to provide our views on the budget estimates for the U.S. Army Corps of Engineers (USACE or the Corps) and the U.S. Bureau of Reclamation (Bureau) for Fiscal Year 2010.

In its recent report on the concurrent resolution for FY 2010, the House Budget Committee said that the United States faces two significant deficits: the first, a budget in deficit this year alone by $1.752 trillion, according to the Office of Management and Budget (OMB); the second, an economy running at 6.8 percent, or $1 trillion, below its potential.

These are daunting numbers, and Congress confronts a major challenge in funding the operations of the government in light of the depressed economy and the continuing federal deficits.

But ASCE believes the nation faces a third deficit—one that is as important as the first two. The United States must manage a continuing infrastructure investment deficit. Federal outlays for basic public works systems have declined relative to gross domestic product (GDP) over the past several decades.

In its *2009 Report Card for America's Infrastructure*, ASCE reported that the nation needs to invest approximately $2.2 trillion over the next five years to maintain the nation's total infrastructure in good condition.

Even with current and planned investments from federal, state, and local governments in the next five years, the "gap" between the overall need and actual spending will total more than $1 trillion by 2014.

Within the nation's general water resources alone, ASCE identified a five-year funding gap of more than $20 billion.

Nowhere is the infrastructure investment deficit more acute than in our waterways. Of the 257 locks still in use on the nation's inland waterways, 30 were built in the 19th century and another 92 are more than 60 years old. The average age of all federally owned or operated locks is nearly 60 years, well past their planned design life of 50 years. The cost to replace the present system of locks is estimated at more than $125 billion.

A. Congress Should Appropriate $7 Billion for the U.S. Corps of Engineers Civil Works Program in FY 2010

The U.S. Army Corps of Engineers has one of the federal government's largest environmental responsibilities. The Corps provides ecosystem restoration , constructs sustainable facilities, regulates waterways and manages natural resources, and cleans up contaminated military bases.

Forty-one states, 16 state capitals and all states east of the Mississippi River are served by commercially navigable waterways. The U.S. inland waterway system consists of 12,000 miles of navigable waterways in four systems that connect with most of the states in the U.S. The entire system contains 257 locks. The waterways include the Mississippi River, the Ohio River Basin, the Gulf Intercoastal Waterway, and the Pacific Coast systems.

Three-quarters of the nation's inland waterways (9,000 miles) are within the Mississippi River system. The next largest segment is the Ohio River system (2,800 miles). The Gulf Coast Intercoastal Waterway system is 1,109 miles, and the Columbia River system is only 596 miles long, the shortest of the four major systems.

The network includes nearly 11,000 miles of the "fuel-taxed inland waterway system." Commercial waterway operators on these designated waterways pay a fuel tax, deposited in the Inland Waterways Trust Fund, which funds half the cost of new construction and major rehabilitation of the inland waterway infrastructure.

Because of their ability to move large amounts of cargo, the inland waterways are a strategic economic and military resource. A recent analysis by the U.S. Army War College concluded that "the strategic contributions of these inland waterways are not well understood. The lack of adequate understanding impacts decisions contributing to efficient management, adequate funding, and effective integration with other modes of transportation at the national level. Recommendations demonstrate that leveraging the strategic value of U.S. inland waterways will contribute to building an effective and reliable national transportation network for the 21st century."

The current system of inland waterways lacks resilience in that waterway usage is increasing but facilities are aging and many are well past their design life of 50 years. Recovery from any event of significance would be harmed by the age and deteriorated condition of the system. Future investment must focus on life-cycle maintenance, system interdependencies, redundancy, security, and recovery from natural and man-made hazards.

In spite of inadequate budgets in recent years, the Corps continues to keep the waterways functioning. It will open new twin 1,200-foot locks on the Ohio River to replace a single, shorter lock built in 1921. The Corps is currently constructing new, larger locks in several states, including Illinois, Kentucky, Louisiana, Pennsylvania, and West Virginia.

The Corps also is embarking on major renovations of several older locks. These projects represent a $3.5 billion investment in modernizing the nation's inland waterways. They also include significant investments in environmental restoration and management.

The Corps is brining new technology online to make waterways navigation safer. The latest innovation is called "real-time current and velocities." This system alerts waterways users to the real-time speed of wind and currents on inland waterways. A total of six systems will be completed by the end of 2009.

In addition to the infrastructure mentioned above, the Corps has major responsibilities in other areas. It protects coastlines; develops flood-reduction and hydropower projects; oversees 4,300 recreation areas at 420 lakes in 43 states; and operates 134 multiple-purpose projects that contain storage for water supply in 26 states and Puerto Rico.

The USACE also shares responsibility among federal, state and local agencies, and private landowners for raising awareness and understanding of the risks associated with living and working behind levees.

The FY 2009 appropriation for the Corps of Engineers is $5.4 billion, but the construction backlog for the Corps tops $60 billion nationwide. Even with the addition of $4.6 billion for FY 2009 through the American Recovery and Reinvestment Act, the investment deficit on our waterways remains at an estimated $20.5 billion through 2014.

►The president's budget proposal for FY 2010 is $5.1 billion. Despite the difficult budget climate and the dismal economic picture, we urge an appropriation of $7 billion in FY 2010 to begin the long overdue process of rebuilding America's water resources infrastructure.

B. Congress Should Appropriate $1.3 Billion for the U.S. Bureau of Reclamation in FY 2010

The Bureau of Reclamation's mission is to "manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public." The Bureau is the nation's largest wholesale water supplier; it administers 348 reservoirs with a total storage capacity of 245 million acre-feet of water. It provides water to

more than 31 million customers and supplies 20 percent of western farmers with water to irrigate 10 million acres of farmland.

In addition, the Bureau is the nation's second largest producer of hydroelectric power, generating more than 40 billion kilowatt-hours of energy each year—an amount equivalent to the energy provided by 80 million barrels of crude oil. In the 100 years since Reclamation's creation, the federal government has invested almost $21 billion in original development costs for its infrastructure and other facilities.

The Bureau operates 348 dams and reservoirs, 58 hydropower generation facilities, more than 8,000 miles of canals, more than 24,000 miles of water distribution laterals, and more than 13,000 miles of drains. ASCE notes that most of Reclamation's major dams, reservoirs, hydroelectric plants, and irrigation systems are 50 or more years old. In December 2007, the Bureau calculated that nearly 80 of the 348 dams (approximately 23 percent) are 90 to 100 years old or older.

The Bureau has identified an estimated $3 billion in total infrastructure investment needs over the next 20 years.

We concur with former Commissioner Robert Johnson, who informed Congress in 2008 that, although the Bureau and its more than 350 operating partners have successfully operated and maintained the infrastructure to date, the aging process will inevitably lead to increased pressure on budgets and user rates to keep infrastructure service and reliability corresponding with past levels. The Bureau and its partners anticipate a steady increase in infrastructure repair needs that will continue to grow over time, the Bureau said last April.

►The FY 2009 appropriation was $1.1 billion, the same as FY 2008, for dams, canals, water treatment and conservation, and rural water projects. Congress should appropriate $1.3 billion for the U.S. Bureau of Reclamation in FY 2010, with the bulk of the increase set aside for infrastructure renewal under the Bureau's five-year capital improvement plan.

# # #

Testimony of

Dave Koland, General Manager
GARRISON DIVERSION CONSERVANCY DISTRICT
Carrington, North Dakota

Submitted to the

COMMITTEE ON APPROPRIATIONS
US HOUSE OF REPRESENTATIVES

SUBCOMMITTEE ON ENERGY & WATER DEVELOPMENT
Peter J. Visclosky, CHAIRMAN

April 3, 2009
(Submitted for the Record)

Mr. Chairman, Members of the Committee:

My name is Dave Koland; I serve as the general manager of the Garrison Diversion Conservancy District. This is a request for a $68.123 million appropriation for the Pick-Sloan Missouri Basin Program/Garrison Diversion Unit, Bureau of Reclamation, Water and Related Resources, Department of the Interior. The mission of Garrison Diversion is to provide a reliable, high quality and affordable water supply to the areas of need in North Dakota. Over 77% of our state residents live within the boundaries of the District.

The President's FY2010 budget request was inadequate in meeting the commitments the federal government has made to North Dakota. In return for accepting a permanent flood on 500,000 acres of prime North Dakota river valley, the federal government promised the state and tribes that they would be compensated as the dams were built. The dams were completed over 50 years ago and still we wait for the promised compensation.

The Municipal Rural & Industrial (MR&I) program was started in 1986 after the Garrison Diversion Unit (GDU) was reformulated from a million-acre irrigation project into a multipurpose project with emphasis on the development and delivery of municipal and rural water supplies. The statewide MR&I program has focused on providing grant funds for water systems that provide water service to previously unserved areas of the state. The state has followed a policy of developing a network of regional water systems throughout the state.

NORTH DAKOTA'S SUCCESS STORY

Rural water systems are being constructed using a unique blend of local expertise, state financing, rural development loans and MR&I grant funds to provide an affordable rate structure; and the expertise of the Bureau of Reclamation (BOR) to deal with design and environmental issues. The projects are successful because they are driven by a local need to solve a water quantity or quality problem. The solution to the local problem is devised by the community being affected by the problem. The early, local buy-in helps propel the project through the tortuous pre-construction stages.

The desperate need for clean, safe water is evidenced by the willingness of North Dakota's rural residents to pay water rates well above the rates EPA considers affordable. The EPA Economic Guidance Workbook states that rates greater than 1.5% of the median household income (MHI) are not only unaffordable, but also "may be unreasonable".

The average monthly bill on a rural water system for 6,000 gallons of water is currently $48.97. The water rates in rural North Dakota would soar to astronomical levels without the 75% grant dollars provided by the MR&I program. For instance, current rates would have to average a truly unaffordable $134.19/month or a whopping 3.8%

of the MHI. Rates would have ranged as high as $190.80/month or a prohibitive 5.3% of MHI without the assistance of the MR&I program.

BUDGET IMPACTS ON GARRISON DIVERSION UNIT

Let me begin by reviewing the various elements within the current budget request and then discuss the impacts that the current level of funding will have on the program.

This year, Garrison Diversion Conservancy District is asking Congress to appropriate a total of $68.123 million for the GDU. Attachment 1 is a breakdown of the elements in Garrison Diversion's request. To discuss this in more detail, I must first explain that the GDU budget consists of several different program items. For ease of discussion, I would like to simplify the breakdown into three major categories. The first I would call the base operations portion of the budget request. This amount is nominally $18 million annually. However, as more Indian MR&I projects are completed, the operation and maintenance costs for these projects will increase and create a need that should be addressed.

The second category of the budget is the MR&I program. This consists of both Indian and non-Indian funding. The Dakota Water Resources Act of 2000 authorized an additional $200 million for each of these MR&I programs. It is our intent that each program reaches the conclusion of the funding authorization at the same time. We believe this is only fair and have worked with the North Dakota Tribes toward this goal.

The MR&I program consists of a number of projects that are independent of one another. They are generally in the $20 million category. Some are, of course, smaller and others somewhat larger; one that is considerably larger is the Northwest Area Water Supply Project (NAWS). The first phase of that project is under construction. The optimum construction schedule for completion of the first phase has been determined to be five years. The total cost of the first phase is $133 million. At a 75% cost share, the federal funding needed to support that project is $99 million. On the average, the annual funding needed for that project alone would be over $19 million. Several other projects have been approved for future funding and numerous projects on the reservations are ready to begin construction. These requests will all compete with one another for funding. It will be a delicate challenge to balance these projects. Nevertheless, we believe that once a project is started, it needs to be pursued vigorously to completion. If it is not, we simply run the cost up and increase the risk of incompatibility among the working parts.

An example of the former would be the certain impact of the increased cost of construction over time through inflation but also by protracting the engineering and administration costs.

The third category of the budget is the Red River Valley Water Supply Project (RRVWSP) construction phase. The Dakota Water Resources Act of 2000 authorized

$200 million for the construction of facilities to meet the water quality and quantity needs of the Red River Valley communities. Over 42% of North Dakota's citizens rely on the drought-prone Red River of the North as their primary or sole source of water. It is my belief that the final plans and authorizations should be expected in approximately two years. This will create an immediate need for greater construction funding.

This major project, once started, should also be pursued vigorously to completion. The reasons are the same as for the NAWS project and relate to good engineering and construction management. Although difficult to predict at this time, it is reasonable to plan that the RRVWSP features, once started, should be completed in approximately three years.

Using these two projects as examples frames the argument for a steadily increasing budget. There is a need to accelerate the MR&I program now to assure the timely completion of the NAWS project and then to accommodate the need for additional construction funds when the RRVWSP construction is underway.

It is simply good management to blend these needs to avoid drastic hills and valleys in the budget requests. By accelerating the construction of NAWS and other projects which are ready for construction during the next few years, some of the pressure will be off when the RRVWSP construction funding is needed. A smoother, more efficient construction funding program over time will be the result.

Mr. Chairman, we support a budget resolution that recognizes that a robust increase in the budget allocation is needed for the Bureau of Reclamation, Water and Related Resources Account in FY2010.

The Bureau of Reclamation, Rural Development, Garrison Diversion Conservancy District, North Dakota State Water Commission and local rural water districts have formed a formidable alliance to deal with the lack of a high quality, reliable water source throughout much of North Dakota. This cost-effective partnership of local control, state-wide guidance and federal support has provided safe, clean, potable water to hundreds of communities and thousands of homes across North Dakota.

ATTACHMENT 1

Garrison Diversion Unit (GDU)
Justification for $68.123 million appropriation
FY 2010

North Dakota's Municipal, Rural and Industrial (MR&I) water supply program funds construction projects state-wide under the joint administration of the Garrison Diversion Conservancy District (GDCD) and the State Water Commission (SWC).

Northwest Area Water Supply Project (NAWS) is under construction after 18 years of study and diplomatic delay. Construction costs (federal) are estimated to be $133 million.

Indian MR&I programs on four reservations are also under construction. Tribal and state leaders have agreed to split the MR&I allocation on a 50/50 basis.

The SWC has advanced the MR&I program $25 million to allow construction to continue on several critical projects. One project is the $68 million South Central Regional Water District system currently under construction.

OPERATION AND MAINTENANCE OF INDIAN MR&I SYSTEMS AND JAMESTOWN DAM **$ 5.639 million**
(Provides for the O&M of the Tribal water systems and the Jamestown Dam.)

BREAKDOWN OF $62.484 MILLION CONSTRUCTION REQUEST:

Operation and Maintenance of existing GDU system (Provides for the O&M of the Snake Creek pumping plant, McClusky and New Rockford Canals.)	**$ 4.866 million**
Wildlife Mitigation & Natural Resources Trust (Provides for O&M of Arrowwood, Audubon, Kraft Slough, Lonetree and Canalside Lands.)	**$ 3.261 million**
Red River Valley Water Supply (Provides for the work on the RRVWSP.)	**$ 0.224 million**
Indian and non-Indian MR&I (Provides funding for the state and tribal MR&I programs. Funding is split 50/50 between the two programs.)	**$53.15 million**
Oakes Test Area and Miscellaneous (Provides for the O&M of the Oakes Test Area and Recreation Facilities.)	**$ .983 million**
Total for Construction	**$62.484 million**
Grand Total	**$68.123 million**

4

Statement of Peter Nimrod
Chief Engineer
Board of Mississippi Levee Commissioners
to the
House Committee on Appropriations
Subcommittee on Energy and Water Development
on Behalf of the
Appropriation for Flood Control
Mississippi River and Tributaries Project
Request for Fiscal Year 2010

April 3, 2009

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

This statement is prepared by Peter Nimrod, Chief Engineer for the Board of Mississippi Levee Commissioners, Greenville, Mississippi, and submitted on behalf of the Board and the citizens of the Mississippi Levee District. The Board of Mississippi Levee Commissioners is comprised of 7 elected commissioners representing the counties of Bolivar, Issaquena, Sharkey, Washington, and parts of Humphreys and Warren counties in the Lower Yazoo Basin in Mississippi. The Board of Mississippi Levee Commissioners is charged with the responsibility of providing protection to the Mississippi Delta from flooding of the Mississippi River and maintaining major drainage outlets for removing the flood waters from the area. These responsibilities are carried out by providing the local sponsor requirements for the Congressionally authorized projects in the Mississippi Levee District. **The Mississippi Levee Board and the Mississippi Valley Flood Control Association support an appropriation of $500 Million for FY 2010 for the Mississippi River & Tributaries Project.** This is the minimum amount that we consider necessary to allow for an orderly completion of the remaining work in the Valley and to provide for the operation and maintenance, as required, to prevent further deterioration of the completed flood control and navigation work.

It is apparent that the Administration loses sight of the fact that the Mississippi River & Tributaries Project provides protection to the Lower Mississippi Valley from waters generated across 41% of the Continental United States. These waters flow from 31 states and 2 provinces of Canada and must pass through the Lower Mississippi Valley on its way to the Gulf of Mexico. We will remind you that the Mississippi River & Tributaries Project is one of, if not the most cost effective project ever undertaken by the United States government. The foresight of the Congress in their authorization of the many features of this project is exemplary.

The many projects that are part of the Mississippi River & Tributaries Project not only provide protection from flooding in the area, but the award of construction contracts throughout the Valley provides assistance to the overall economy of this area. The employment of the local workforce and purchases from local vendors by the contractors help stabilize the economy in one of the most impoverished areas of our country.

Thanks to the additional funding provided by the Congress over the last several years over and above the Administration's budget, work on the Mainline Mississippi River Levee Enlargement Project is continuing. Of the original 69 miles of deficient levees in the Mississippi Levee District, 23.2 miles of work has been completed, 12.2 miles are currently under contract, and another 4.7 miles will be awarded in late Summer, 2009. We are requesting $69.972 Million for construction on the Mainline Mississippi River Levees in the Lower Mississippi Valley Division which will allow the Vicksburg and Memphis districts to keep existing contracts on schedule and award contracts to avoid any future unnecessary delays in completing this vital project. We are all well aware that the Valley some day will have to endure a Project Flood, we just don't know when. We must be prepared.

The President's FY 2010 Budget did not include funding for any construction projects within the Yazoo Basin. This action is especially difficult to understand during a time when our Nation needs an economic boost. These are all projects authorized and funded so wisely by the Congress. 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.

The Final Report for the Yazoo Backwater Project was released in late 2007. The Yazoo Backwater Project will provide economic and environmental benefits to parts of six counties in the south Mississippi Delta. This project will build a pump that will evacuate floodwater that is generated over 4,093 square miles in the Mississippi Delta. The pump will lower the 100-year flood event by 4.5 feet thereby reducing urban and rural structural damages, providing benefits to the remaining agricultural lands, and reducing the frequency and duration of floods. Reforestation easements will be purchased on up to 55,600 of existing agricultural land which will provide benefits in every environmental category - wetlands, terrestrial, aquatics, and waterfowl resources as well as vastly improving water quality. The recommended plan for the Yazoo Backwater Project will balance economics with the environment. This is a model project that should be the standard for future public works projects in the United States. On August 31, 2008, EPA wrongly used it's authority under Section 404(c) of the Clean Water Act (CWA) to veto the Yazoo Backwater Project even though it is exempt by Section 404(r) of the CWA. We are requesting this project be funded by the Congress in the amount of $5 Million. These funds will allow the Corps to begin acquisition of the reforestation easements and initiate the award of the pump supply contract.

The Draft Supplemental Environmental Impact Statement for the Big Sunflower River Maintenance Project will be released next year. This maintenance project will restore flood control capacities to 130 miles of channels by removing sediment that has built up over the past 40 years since the channels were originally improved. Our request for $5.591 Million will allow right-of-way acquisition to continue and for the award of the first dredging contract. The residents in the Mississippi Delta continue to suffer damages from flooding while they wait for this maintenance project to reach their area.

Work on the Delta Headwaters Project has proven effective in reducing sediments to downstream channels. To discontinue this project will only diminish water quality by increasing

sediment, reducing the level of protection to the citizens of the Delta and increasing required maintenance. We are requesting $25 Million to continue this project.

The Upper Yazoo Project is critical to the Delta. The Corps of Engineers operates 4 major flood control reservoirs on the bluff hills overlooking the Mississippi Delta. These reservoirs hold back heavy spring rains and must have adequate outlet channel capacity to pass this excess runoff during the summer and fall months. Without completion of the Upper Yazoo Project, the Corps is forced to hold flood water from the previous spring, thereby reducing the ability to provide protection from the current year's flood water. We urge the Congress to provide $24.5 Million allowing construction to continue and the award of additional channel enlargement items.

Maintenance of completed works can not be over looked. 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 $13.793 Million for Arkabutla Lake, $12.69 Million for Enid Lake, $13.231 Million for Grenada Lake, and $14.483 Million for Sardis Lake.

We are requesting $13.522 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.

The Environmental Protection Agency (EPA) has been given too much power under Section 404(c) of the Clean Water Act (CWA) which allows EPA to veto Congressionally authorized projects. During the early 1990's, due to abuse of the 404(c) power by EPA, Congress considered removing this authority from EPA. EPA has again invoked this veto power on the Yazoo Backwater Project. EPA is saying that you can't lower the water level with a flood control project! By killing this project with 404(c) veto authority, EPA is drawing a line in the sand over the future of flood control in our great nation. EPA has vetoed the Yazoo Backwater Project even though it was approved, authorized and funded by Congress and exempt from a 404(c) veto by 404(r). **It is now time to again take up this issue and remove the 404(c) veto power from EPA before they kill another flood control project that has been authorized by Congress.**

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 and thank you in advance for your kind consideration of our requests for fiscal year 2010.

Testimony prepared by
Richard A. Anthes, President of the
University Corporation for Atmospheric Research (UCAR)

Submitted April 3, 2009 to the
Subcommittee on Energy and Water Development
U.S. House of Representatives Committee on Appropriations

Regarding FY 2010 Appropriations for the Department of Energy (DOE) Office of Science

On behalf of the **University Corporation for Atmospheric Research (UCAR)** and the larger university community involved in weather and climate research and education, I submit this written testimony for the record of the House Committee on Appropriations, Subcommittee on Energy and Water Development.

I want to thank the Subcommittee for its leadership in promoting and supporting science in the FY 2009 appropriations bill. ***I urge you to fund the DOE Office of Science at $5.2 billion in FY 2010, an 8 percent increase over FY 2009 levels, to put the federal government on track to double its investment in climate change research, climate modeling, advanced scientific computing research, and other basic sciences, within the next decade. This accelerated pace of funding would meet the bipartisan goals of the America COMPETES Act of 2007. Further, I ask that you enable the agency to apply the entire appropriation toward mission-related agency research priorities.***

UCAR is a 73-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 educational capabilities. Our mission is to better understand the behavior of the atmosphere and related global systems and to help communities, states, and nations use this information to sustain and improve life on Earth.

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Through its programs in climate change research, climate modeling, and advanced scientific computing research, the DOE Office of Science plays a critical role in supporting and improving the facilities and research tools that the university community uses to predict the impacts of rising greenhouse gas levels and other climate change. The Community Climate System Model (CCSM), for example, which is funded in part by the DOE Office of Science, is a comprehensive model for analyzing Earth's past, present, and future climate. It is one of the primary tools that the Nobel Prize-winning U.N. Intergovernmental Panel on Climate Change used in its 2007 assessment report, and it is providing decision makers around the world with a clearer picture of what the impacts of sustained climate change will be on a broad global scale.

The CCSM is laying the scientific foundation for communities to begin to develop effective long-term strategies to minimize damages, by either adapting to or mitigating the impacts of climate change – but it is just one of the DOE supported programs addressing

critical climate change issues for this country. Recent federal appropriations for science research, in the Omnibus Appropriations Act of 2009 and the American Recovery of Reinvestment Act of 2009, will enable the DOE Office of Science to support the broad climate change research community to hire needed new researchers, upgrade facilities, and improve the accuracy and specificity of predictions.

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As climate change alters weather patterns and landscapes, it will increasingly arrive with significant societal, environmental, and economic costs. More accurate and locally-specific predictions could help decision makers reduce these costs by providing advance warning of dangerous trends and conditions for a particular community, state, or region.

According to the Pew Center on Global Climate Change, most states have completed or are working on action plans to address and adapt to global warming. However, decision makers have posed very specific questions to the research community. For example, power companies, city water utilities, and ski area operators want to know whether coming decades will bring thinner snowpack with earlier melting and negative economic consequences as well as serious water use problems. Insurance companies and state flood control agencies want to know if coming decades will produce more frequent or more severe storms. Farmers need to know if crops they are planting now will thrive in a changed climate.

Today's climate models simulate the climate at the *global* scale and produce *global* averages as their results. But to understand how global warming will affect drinking water storage at the local level, for example, reliable regional simulations and predictions are needed. Some aspects of regional climate change are already well established. Temperature increases and altered patterns of precipitation are already affecting U.S. water resources, agriculture, land resources and biodiversity and will continue to do so.

Researchers are developing new approaches to fine-scale computer modeling to allow greater focus on regional impacts of a changing climate. One very promising regional model that has been developed and tested is the Nested Regional Climate Model (NRCM). This state-of-the-art model "nests" the finer scale Weather Research and Forecasting Model (WRF) within the CCSM to provide useful regional detail where most needed. NRCM scientists can zero in on regions of particular interest, such as hurricane- or drought-prone areas, without the much higher cost of simulating the entire globe in fine detail.

With enhanced funding, the DOE Office of Science could support the development of cost-effective, operational tools, such as the NRCM, for local and regional decision makers. Communities in every district of the country need such guidance to protect lives and manage resources in the face of global climate change.

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The Department of Energy plays a vital role in sustaining U.S. scientific leadership and generating U.S. competitiveness in a time when other countries are investing heavily in scientific research and technology. On behalf of UCAR and the atmospheric sciences research community, I want to thank the Subcommittee in advance for your attention to the recommendations of our community concerning the FY 2010 appropriations for the Office of Science. We understand and appreciate that the nation is undergoing significant budget pressures at this time, but U.S. security and quality of life suffer when science is not supported. We urge you to follow the recommendations of the America COMPETES Act of 2007 and restore Office of Science and overall DOE funding to a level that benefits this nation and the world.

Testimony of
Richard B. Marchase, Ph.D., President
Federation of American Societies for Experimental Biology

On
FY 2010 Appropriations for the Department of Energy Office of Science

Submitted to the
House Committee on Appropriations
Subcommittee on Energy and Water Development
Congressman Peter J. Visclosky, Chair
Congressman Rodney P. Frelinghuysen, Ranking Member

April 3, 2009

On behalf of the **Federation of American Societies for Experimental Biology (FASEB), I respectfully request an FY 2010 appropriation for the Department of Energy Office of Science (DOE SC) of 8% over FY 2009**. This increase will provide the Office of Science with the ability to sustain support for critical research programs that spur scientific innovation, fuel the economy, move the nation towards energy independence and improve human health.

FASEB is composed of 22 societies with more than 80,000 members, making it the largest coalition of biomedical research associations in the United States. Our mission is to advance health and welfare by promoting progress and education in biological and biomedical sciences, including the science supported by DOE SC.

> **"[T]he Office of Science is commit[ed] to invest in some of the most exciting and daring research that humankind has ever conceived, from explorations into the origins of our universe and the constituents of life, to the scientific knowledge that will deliver new, clean, and abundant sources of energy to meet world needs for 10 billion people by the year 2050."**

This bold statement from the DOE SC *Strategic Plan*[1] highlights DOE SC's unique role in serving as a catalyst for discoveries in basic energy research and in environmental and life sciences as well as computational science. The research programs and facilities at DOE SC support further cutting-edge science and technological innovations that safeguard our nation, strengthen our economy, and improve the daily lives of the American people.

Each year, more than 25,000 researchers from universities, other government agencies and private industry use DOE SC's extraordinary system of national laboratories and research facilities. DOE's state-of-the-art facilities comprise the most advanced research system of its kind in the world and permit the agency to support unique and vital programs in climate change, geophysics, genomics, materials and chemical sciences, and life sciences. The Office of Science's emphasis on interdisciplinary scientific research supports and extends the basic

[1] United State Department of Energy. 2004. Office of Science Strategic Plan. http://www.er.doe.gov/about/Strategic_Plan/Feb-2004-Strat-Plan-screen-res.pdf

research that other federal agencies sponsor, and much of the research that non-DOE science agencies fund could not occur in the absence of DOE's highly specialized research infrastructure.

DOE's contribution to research and science extends beyond the benefits of its national laboratories. The Office of Science is also a principal supporter of graduate students and early career postdoctoral researchers at U.S. colleges and universities. Almost 50 percent of DOE SC's research funding supports research at over 300 colleges, universities and institutes nationwide.

Discoveries that Improve Health & Well-Being

Scientists whom DOE has supported have uncovered a wealth of basic biological knowledge and have produced astounding health technologies.

- ***Restoring Function to Patients with Disabilities:*** Office of Science funding led to the bion® microstimulator, a miniature rechargeable and implantable neurostimulator that may benefit 50 million Americans who suffer from debilitating conditions by stimulating viable nerves and muscles to prevent muscle deterioration and help restore nerve and muscle function. The device can address a wide variety of diseases and disorders, including incontinence, chronic headaches, peripheral pain, angina and epilepsy.
- ***Targeted Cancer Therapies:*** DOE scientists have developed the Cesium-131 Brachytherapy Seed, one of the most significant advancements in brachytherapy (short distance treatment involving the use of carefully placed, radioactive "seeds") for cancer treatment in nearly 20 years. In treating prostate and other cancers, it delivers a highly targeted therapeutic dose of radiation to the tumor quickly and with potentially fewer side effects.

Although research DOE SC has funded has already positively influenced our lives and health, opportunities on the horizon are even more exciting. For example, the DOE-SC Artificial Retina Project is developing an artificial retina that can restore sight in patients who are blind; the technology can also help persons who are deaf as well as those who have spinal cord injuries, Parkinson's disease and almost any other neurological disorder. Additionally, researchers at the Argonne National Laboratory and the University of Chicago are engineering an "ice slurry" to cool organs; the slurry may help save stroke or cardiac arrest patients from the destruction of their brain and heart cells.

Cleaner and More Secure Energy Future

Fundamental discoveries in basic energy sciences funded by DOE SC are already having an impact on the energy we use daily and are continuing to pave the way for the next generation of environmentally-conscious, sustainable energy sources. As a recent report[2] on future energy needs produced by DOE stated, "Major new discoveries are needed, and these will largely come from basic research programs."

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[2] United States Department of Energy, Basic Energy Sciences Advisory Committee. 2003. *Basic Research Needs to Assure a Secure Energy Future* http://www.sc.doe.gov/bes/reports/files/SEF_rpt.pdf

- ***Building Better Batteries:*** DOE SC discoveries resulted in lithium batteries that offer high-energy storage capacity in an environmentally benign package. Lithium batteries are widely used in both consumer and defense applications, such as cellular telephones and notebook computers. Moreover, DOE researchers have generated a solid-state, fluoride-based battery that is safer than traditional batteries in high-temperature applications such as oil, gas and geothermal drilling.

- ***Hydrogen Technologies:*** At the Argonne National Lab, scientists have constructed the world's fastest commercially producible hydrogen sensor that can be used in hydrogen-powered cars to detect unsafe levels of hydrogen. Scientists have also developed materials resistant to metal dusting degradation, which will be used to make more durable equipment in plants that manufacture hydrogen.

Researchers are also on the brink of developing new technologies to meet our most pressing energy needs. In an effort to increase the amount of c solar power in the nation's energy supply, DOE SC is investing in research aimed at improving conversion of solar energy to both electricity and chemical fuels. Moreover, fundamental research awards have been made to institutions nationwide as scientists work to overcome key hurdles in hydrogen production, storage and conversion in an effort to increase the feasibility of hydrogen fuel.

Recognizing the Importance of DOE Research

The passage of the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education and Science (COMPETES) Act of 2007 renewed our nation's commitment to science and technology and established a seven year doubling path for the budget of DOE SC. In 2009, generous funding provided in the Omnibus Appropriations Act and the American Recovery and Reinvestment Act began to fulfill the commitment Congress has made to scientific and technological innovation. In 2010, we ask that this support continue, both to protect the investments that have been made, and to realize the potential of the scientific enterprise. An FY 2010 funding level for DOE SC of 8% over FY 2009 will allow DOE to greatly enhance its groundbreaking research portfolio and permit it to confront current and future energy and health challenges. Scientists who have received DOE SC funding have made and continue to make extraordinary breakthroughs that contribute to the quality of our lives and facilitate advances that drive our nation's innovative technologies.

TESTIMONY OF JEFF TRANDAHL, EXECUTIVE DIRECTOR
NATIONAL FISH AND WILDLIFE FOUNDATION
BEFORE THE HOUSE APPROPRIATIONS SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT REGARDING
FY 2010 BUDGET FOR THE DEPARTMENT OF THE INTERIOR'S BUREAU OF RECLAMATION

Mr. Chairman and Members of the Subcommittee:

Thank you for the opportunity to submit testimony regarding FY 2010 Department of Interior Appropriations and funding for the National Fish and Wildlife Foundation (Foundation). **We respectfully request your approval of $5 million through the Bureau of Reclamation's Water and Related Resources FY 2010 appropriation.** This funding request for FY 2010 is within the authorized level for the Foundation and would allow us to expand our historical partnership with the Bureau of Reclamation.

In 2009, the Foundation is celebrating its 25th Anniversary and a remarkable history of bringing private partners together to leverage federal funds to conserve fish, wildlife, plants and their habitats. The Foundation is required by law to mach each federally-appropriated dollar with a minimum of one non-federal dollar. We consistently exceed this requirement by leveraging federal funds at a 3:1 ratio while providing thought leadership and emphasizing accountability, measurable results, and sustainable conservation outcomes. Funds appropriated by this Subcommittee are fully dedicated to project grants and do not cover any overhead expenses of the Foundation.

As of FY 2008, the Foundation had awarded over 10,000 grants to more than 3,500 national and community-based organizations through successful partnerships with the with the Department of Interior agencies, including the Bureau of Reclamation (BOR), U.S. Fish and Wildlife Service (FWS), Bureau of Land Management (BLM). In addition, our collaborative inter-agency model has grown to include partnerships with the Environmental Protection Agency, National Oceanic and Atmospheric Administration, USDA Forest Service, USDA Natural Resources Conservation Service, and several other federal agencies. This effective model brings together multiple federal agencies with local government and private organizations to implement conservation strategies that directly benefit diverse habitats and a wide range of fish and wildlife species.

History of BOR Partnership

BOR has been an important funding partner with the Foundation since 1996. This Subcommittee provided direct BOR appropriations to the Foundation during FY1996-FY2003 and we also have a long history of working with BOR through discretionary cooperative agreements. Some examples of our successful partnership include:

- **Pacific Grassroots Salmonid Initiative** – BOR was a partner with the Foundation and NOAA to restore native fish habitat in California, Oregon, and Alaska. Community-based grants support projects for in-stream habitat restoration, fish passage improvements, and barrier removals to benefit salmonids.

- **Bring Back the Natives Program** – BOR participated in a national grant program to restore aquatic species back to historic habitats with the Foundation, U.S. Fish and Wildlife Service, Forest Service and Bureau of Land Management. Bring Back the Natives has already benefited more than 120 species, including 29 listed species such as salmon, desert pupfish, modoc suckers, tui and borax chubs and toiyabe spotted frog.

- **Lower Colorado River Multi-Species Conservation Program** – The Foundation previously partnered with BOR as part of this program to administer funds and coordination of on-the-ground conservation activities. As part of the program, the Foundation successfully acquired 1,400 acres of Southwestern Willow Flycatcher riparian habitat in New Mexico and Arizona.

- **Williamson River Delta** – BOR is currently a partner in the Foundation's efforts in the Williamson River Delta of Upper Klamath Lake to protect, restore and maintain shoreline wetlands critically important for the ESA-listed short-nosed and Lost River suckers and to support monitoring efforts for fish passage in the basin.

FY 2010 Opportunities

FY 2010 appropriations through BOR would allow the Foundation to build more robust programs for our ongoing efforts and forge new and innovative partnerships with BOR that will be required to further develop water transaction programs to increase in-stream flows for fish, removing fish passage barriers, and improving water quality in reservoirs. These strategies are essential to the recovery of many important fish species and provide important recreational opportunities for the public.

It is widely known that climate change will endanger some fish and wildlife populations and ecosystems more than others. In FY 2008, the Foundation initiated grant-making through new keystone initiatives, which focus on conservation and measurable impact on select species of birds, fish and sensitive habitats. **With BOR and other agency funding in FY 2010, we will accelerate implementation of these strategic initiatives, many of which seek to address the affects of climate change through wildlife and natural resource adaptation.** To ensure success in these investments, we are incorporating monitoring and evaluation into the entire lifecycle of our strategic initiatives in order to identify the highest priority areas that will be resilient to climate change to assure long-term conservation effectiveness, measure progress, promote adaptive management, demonstrate results, and continuously learn from our grant-making.

With our partners, the Foundation has identified several species and ecosystems in need of immediate conservation action. **In partnership with BOR, FY 2010 funds will focus on restoration of in-stream flows, imperiled species recovery, and reservoir management.**

- **Restoration of In-Stream Flows** – We recognize that climate change will greatly exacerbate two existing water supply problems which impact wildlife and the public – too little water during critical fish migration periods and the seasonality of freshwater supplies. The Foundation has successfully implemented a water transactions program in the Columbia

Basin in partnership with the Bonneville Power Administration, local water trusts, agencies and willing landowners. Building on this success, the Foundation is working proactively with federal, state and local partners to expand voluntary water transaction programs to benefit a diversity of wildlife species while improving water flows year-round for human use. BOR funding in FY 2010 would support voluntary water transaction programs in the Klamath Basin of Oregon and California to add water storage capability in the watershed and increase available flows to meet both fish and irrigation needs. In central California, FY 2010 funds would also support in-stream flow restoration along the Upper Sacramento River and water storage and increased flows in the Sierra Nevada alpine wetlands, or wet meadows.

- **Imperiled Species Recovery** – FY 2010 funding would benefit the recovery of multiple fish species in the key watersheds. For example, wetland and stream habitat restoration on working landscapes in the Upper Klamath Basin, Oregon, will benefit two ESA-listed sucker species and native redband trout. In the Lower Klamath Basin of northern California, habitat restoration, fish passage improvement and a new water transactions program would restore flows for Coho salmon, Chinook salmon and steelhead trout. In the Upper Colorado River Basin, our efforts will focus on the warmwater-coldwater interface to improve habitat for Colorado Cutthroat trout, native suckers and chubs on both public and private lands.

- **Reservoir Management** – FY 2010 funding would support implementation of a Colorado native fishes habitat restoration program near BOR reservoirs. Working with BOR and the U.S. Fish and Wildlife Service, one or two high priority reservoirs will be targeted to serve as demonstration projects for how reservoir habitat restoration can lead to improved lake health, increased wildlife-related recreation opportunities and strengthened local economies. In many reservoirs across the west, fish habitat has significantly diminished since construction of the reservoirs. This is due to loss of habitat structure within the reservoir as well as reduced water quality upstream of the reservoir. The Foundation will work with BOR and other partners to improve upstream habitat and water quality for native fish while also improving habitat conditions within the reservoir.

With an FY 2010 BOR appropriation, the Foundation would engage non-federal donors to support these strategic conservation initiatives through corporate contributions, legal settlements, and direct gifts. As a neutral convener, the Foundation is in a unique position to work with the federal agencies, state and local government, corporations, foundations, conservation organizations and others to build strategic partnerships to address the most significant threats to fish and wildlife populations and their habitats. Currently, the Foundation has active partnerships with more than 30 corporations and foundations and 17 federal agencies.

Efficiency, Performance Measures and Accountability

In the last couple of years, the Foundation has taken important strides to strengthen our performance measures and accountability. For example, the Foundation is working with scientists and other experts to develop species-specific metrics for each of our keystone initiatives that we will use to measure our progress in achieving our conservation outcomes. Our grant review and contracting processes have been improved to ensure we maximize efficiency while maintaining strict financial and evaluation-based requirements. We have enhanced our website with interactive tools such as webinars and a grants library to enhance the transparency

of our grant-making, and instituted a new paperless application and grant administration system. In 2009, we will continue our efforts improve communication between and among our stakeholders and streamlining of our grant-making process.

The Foundation's grant-making involves a thorough internal and external review process. Peer reviews involve federal and state agencies, affected industry, non-profit organizations, and academics. Grants are also reviewed by the Foundation's issue experts, as well as evaluation staff, before being recommended to the Board of Directors for approval. In addition, according to our Congressional Charter, the Foundation provides a 30-day notification to the Members of Congress for the congressional district and state in which a grant will be funded, prior to making a funding decision.

Once again, Mr. Chairman, we greatly appreciate your continued support and hope the Subcommittee will approve funding for the Foundation in FY 2010.

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TREATY JUNE 9, 1855 • CAYUSE, UMATILLA AND WALLA WALLA TRIBES

Antone C. Minthorn, Chairman, Board of Trustees
Confederated Tribes of the Umatilla Indian Reservation

FY 2010 Budget Testimony

submitted to the

Appropriations Subcommittee on Energy and Water Development
U.S. House of Representatives

April 3, 2009

Honorable Chairman Visclosky, Ranking Member Freylinghuysen and Members of the Committee:

We respectfully request FY 2010 appropriation of funds for two priority watershed restoration and agricultural water supply protection projects in Oregon and Washington, the Umatilla Basin Water Supply Study Project (previously funded under the Umatilla Basin Project Phase III, OR) and the Walla Walla General Investigation Stream Flow Restoration Feasibility Study (previously funded under the Walla Walla River Watershed, OR & WA).

- For the Umatilla Basin Water Supply Project, Oregon, we request an appropriation of $150,000 in the Bureau of Reclamation, Pacific Northwest Region, Water and Related Resources budget. This request will enable the Bureau to finish the Study and brings to fruition the Project that was initiated by the $450,000 committed by the Bureau of Reclamation to the Project in FY 2007, the approximately $488,000 and $342,000 provided by the Committee for FY 2008 and FY 2009 respectively.

- For the Walla Walla River Watershed, Oregon and Washington, we request an appropriation of $500,000 in the U.S. Army Corps of Engineers, Portland Division, Walla Walla District, General Investigations budget, and an additional $270,000 identified for the Corps to provide to the Confederated Umatilla Tribes through inter-governmental agreement to complete work required as project sponsor. This request will allow the District and the Tribal Government as Project Sponsor to move directly into Pre-Construction Engineering and Design

after completion of Feasibility Report in 2010. This project is also known as Walla Walla River Basin Feasibility Report/Environmental Impact Statement.

Both the Umatilla Basin Water Supply Project and the Walla Walla General Investigation Stream Flow Restoration Feasibility Study are ongoing projects and have had Administration and/or Congressional line item funding in past fiscal years.

Umatilla River Basin, Oregon Water Supply Project

By letter dated March 19, 2007, the Office of the Secretary of Interior responded favorably to the formal requests of the Oregon Congressional delegation and of the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), Westland Irrigation District and Oregon Governor Theodore Kulongoski to initiate the study of the Umatilla Basin water development projects and concurrent settlement of the Tribe's reserved water rights. Counselor to the Secretary, L. Michael Bogert, wrote "I will ask the Secretary's Indian Water Rights Office to appoint an Assessment Team..." and "I will also ask the Bureau of Reclamation to move forward with a concurrent appraisal level study of water supply options, including a full Phase III exchange...to help resolve the Tribe's water rights claims."

The Bureau of Reclamation provided $450,000 in FY 2007 for work on the Umatilla Basin water supply appraisal study. The Committee subsequently provided approximately $488,000 and $342,000 for this account in the FY 2008 and FY 2009 Energy and Water Appropriations bills. The Bureau is actively developing its Umatilla Basin Water Supply Study with these funds and will complete the project in 2010 with the requested funding.

The Umatilla Basin Water Supply Project is authorized by the Reclamation Feasibility Studies Act of 1966, 80 Stat. 707, P.L. 89-561, (Sept. 7, 1966).

The FY 2010 request of $150,000 will enable the Bureau of Reclamation to complete the estimated two and a half year appraisal level study in mid 2010. The detailed appraisal study project will inform the concurrent Interior Department Indian Water Rights Assessment Team's work product. In 2010, Interior should have identified and estimated costs and feasibility of a clear project or suite of projects necessary to satisfy water rights of the CTUIR and in the Umatilla River.

This FY 2010 request follows on the work of the Bureau of Reclamation, authorized by the Umatilla Basin Project Act of 1988 (100 P.L. 557; 102 Stat. 2782 Title II), to construct and operate the Phase I Exchange with West Extension Irrigation District and the Phase II Exchange with Hermiston and Stanfield Irrigation Districts. Heralded as one of the most successful stream flow restoration and salmon recovery projects in the Columbia River Basin, the Umatilla Basin Project resulted in partially restored stream flows in the Umatilla River and successful reintroduction of spring Chinook, fall Chinook and Coho salmon. After nearly a century of dry river bed in summer months and extinction of all salmon stocks, there has been an Indian and non-Indian salmon fishery

nearly every year in the Umatilla River since the project was completed in the mid-1990's.

Completion of the Water Supply Study and the concurrent Tribal Water Rights Assessment is supported and endorsed by the Honorable Governor Ted Kulongoski and by local irrigation districts including specifically Westland Irrigation District, the Umatilla County Commission, and local municipalities including specifically the City of Irrigon.

Walla Walla Basin, Oregon and Washington, GI Feasibility Study

In its eighth and final full year of work leading to Study completion, the U.S. Army Corps of Engineers' feasibility study will complete a detailed analysis of the preferred alternative selected to restore stream flows in the Walla Walla River. Drained nearly dry during summer months by irrigation in Oregon and Washington, the Walla Walla River is within the aboriginal lands of the CTUIR and the complete loss of salmon violates the agreement by the United States in the Treaty of 1855 to protect these fish.

Since the study's inception, approximately $4 million of federal funds have either been budgeted or appropriated for completion of the Study through FY 2009. The Walla Walla District will complete the Feasibility Study Report in FY 2010 and this request for $500,000 for the Corps and $270,000 for the Tribe will allow the District and CTUIR to move directly into initiation of Pre-Construction Feasibility and Design phase.

The Feasibility Study Project is authorized by the Senate Committee on Public Works July 27, 1962 (Columbia River and Tributaries), 87th Congress, House Document #403 and initiated as a result of a positive Reconnaissance Report for the Walla Walla River Watershed (1997) under a General Investigation study.

The CTUIR is the formal sponsor of the Corps of Engineers Feasibility Study and has provided over $4.0 million in in-kind contributions. Additionally, the State of Washington Department of Ecology has provided $400,000 to the Feasibility Study. This is the first year the CTUIR will request federal funding, over and above that requested for Corps of Engineers work, to enable the Tribe's continuation as Project Sponsor. Because of the unique status as a federal-recognized Indian Tribe with Treaty Rights to the Walla Walla Basin, and owing to the fact the CTUIR is the formal sponsor of the Project, the Confederated Umatilla Tribes request an additional appropriation of $270,000 to support their sponsor-required work of real estate transactions and water right permitting from Oregon and Washington. This will allow the Tribe to initiate this work and will necessitate additional and continued 2011 support to fund acquisition of real property and other related activities. Prior to addressing this unique situation in an upcoming Water Resources Development Act bill, CTUIR requests the Subcommittee consider this request as a clear exception to the standard requirement that non-federal sponsors provide non-federal funding.

Support for the completion of the Feasibility Study and moving to construction of the project is strong and diverse and includes the Honorable Governor of Washington

Christine Gregoire, the Honorable Governor of Oregon Ted Kulongoski, the Walla Walla Watershed Alliance, the Walla Walla Basin Watershed Council, basin irrigation districts, local state legislators, local governments and many local and regional advocacy groups.

Conclusion

In closing, the CTUIR appreciates the opportunity to provide this testimony in support of adding funds for the ongoing Umatilla River Basin Water Supply Project, Bureau of Reclamation, and the Walla Walla River Basin Watershed Restoration Feasibility Study, Army Corps of Engineers. Both projects are critically important to protecting existing agricultural economies, completing future water supply development and concurrently restoring stream flows and recovering threatened salmon and other Columbia River Basin fish stocks.

If Committee Members or staff require more information, please feel free to contact:

- Mark Phillips, Edwards Associates, Inc. at (202) 546-1516;
- Rick George, CTUIR Environmental Planning/Rights Protection Program Manager at (541) 966-2351; or
- Lisa Ganuelas, CTUIR Legislative Coordinator at (541) 966-2028.

Thank you.

Public Testimony for the Record
By
John Christenson
Chair, Nuclear Engineering Department Heads Organization [NEDHO]
Professor of Nuclear Engineering, University of Cincinnati
On the
FY2010 Energy and Water Development Appropriations Bill
U.S. House of Representatives
April 3, 2009

Synopsis

NEDHO advocates FY2010 funding to at least the following levels for the following programs: NRC Integrated University Program, $15 million; DOE Integrated University Program, $15 million; NNSA Integrated University Program, $15 million; DOE Research Reactor Infrastructure, $8.1 million; DOE Nuclear Power 2010, $177.5 million; Generation IV Nuclear Energy Systems, $180 million; DOE Advanced Integrated Fuel Cycle Initiative, $145 million.

The Nuclear Engineering Department Heads Organization appreciates the opportunity to provide input to the subcommittee. At a time when at least one-third of the nuclear industry's workforce is nearing retirement, it is imperative that our colleges and universities prepare adequate numbers of qualified nuclear professionals to replace the retirees. Faculty members at our NEDHO member institutions are dedicated to educating these professionals, and funds appropriated through the programs described in this testimony make it possible for us to train and graduate enough students to meet the nation's needs for nuclear scientists and engineers.

Principles

Maintaining U.S. expertise in nuclear science and engineering is a vital national interest and is critical for the future of nuclear energy, nonproliferation programs, national security and the many current and developing nuclear science and radiation applications in research, medicine, and industry. We believe that a stably-funded long-term research and infrastructure support program in nuclear science and engineering should be a national priority.

The nuclear university community is extremely pleased that Congress, in enacting the FY 2009 Omnibus Appropriations Bill, has reinvigorated federal funding for the nation's nuclear science and engineering academic disciplines. We recommend that in the FY2010 appropriations cycle, Congress continue the approach taken by the FY 09 Omnibus Bill.

We strongly support the "Integrated University Program" established in FY09 and run jointly by the DOE Office of Nuclear Energy (DOE-NE), the National Nuclear Security Administration (NNSA), and the Nuclear Regulatory Commission (NRC). This program will help to strengthen university nuclear education, attract talented students to the field and provide young faculty with competitive opportunities to develop and establish innovative research programs. The program will give sorely-needed impetus to the rebuilding of US nuclear engineering expertise and research excellence.

We also strongly support the current DOE policy that approximately 20% of the programmatic research conducted by DOE-NE be funded and performed at US universities. This policy will help foster strong partnerships between the nation's universities and national laboratories in pursuit of national nuclear research and development objectives.

Nuclear energy is currently an economically-competitive, emissions-free, sustainable, domestic energy source that warrants deliberate policy encouragement to at least the same extent as other sustainable energy technologies. We therefore advocate legislation to implement a representative cost of carbon dioxide emission, loan guarantees and other federal financial incentives to encourage the development of sustainable energy.

Specific Recommendations

We advocate support for the "Integrated University Program" at the full level of $15M each at DOE-NE, NNSA, and NRC. This program provides each agency $10 million for research and related academic activities in support of their mission objectives and $5 million to fund a cooperative program to support activities that do not align with programmatic missions, but are critical to maintaining the discipline of nuclear science and engineering. The mission-related research can help address the nation's current needs, while the work that is not necessarily aligned with the current programs is essential to future developments. It is in the universities where faculty and students in nuclear science and engineering can explore new ideas that will lead to tomorrow's breakthroughs in energy, medicine, security, and other areas that may not have yet even been considered. Furthermore, the Integrated University Program provides stable funding which is important since students require several years to complete a degree and interruption of funding for research programs at critical times often forces a student to leave the field.

We recommend increasing the "Research Reactor Infrastructure" account to at least $8.1 million to fund US research on reactor fuel, equipment, and upgrades. This program ensures that the university research reactors are appropriately maintained and upgraded so they can meet the needs of education and research. We urge that sufficient effort in the national laboratories be devoted to low-enrichment fuel development to permit the timely conversion of all university reactors to this type of fuel.

We welcome the move in FY09 to a policy that seeks to conduct approximately 20% of the DOE-NE research through universities. We believe this will strengthen both the universities and the national laboratories in nuclear energy research, as comparable practices have done in other fields. This NE approach is in the process of development, and the structures to implement and oversee the collaborative involvement of universities are being developed. We advocate endorsement of the policy by the Committee as a integral principle of federal nuclear energy research.

We recommend that DOE-NE programs be funded at least at the FY09 levels:

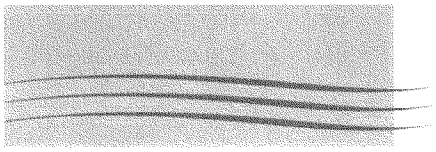
1. $177.5 million for Nuclear Power 2010
2. $180 million for Generation IV Nuclear Energy Systems Initiatives
3. $145 million for the Advanced Fuel Cycle Initiative

These three programs will help the U.S. to take the steps necessary to assure an adequate, secure, long-term energy supply with minimum impact on the environment. NP 2010 allows the nation to increase the production of emission free electricity as quickly as possible. Research on GEN IV nuclear energy systems brings us closer to the day when more efficient plants not only use plutonium and other nuclides to generate electricity and can also provide heat for various industrial processes including hydrogen generation. Programs under the Advanced Fuel Cycle Initiative are developing proliferation resistant methods to reprocess and recycle used nuclear fuel and minimizing the amount of required residual waste disposal.

We advocate that nuclear power be encouraged in the US with incentives comparable to other non-emitting, sustainable energy technologies. The incentives should include sufficient loan guarantees to take advantage of nuclear energy's potential to the mix of US electric energy production technologies.

As nuclear experts our members are intimately familiar with the advantages and challenges of nuclear energy. We believe nuclear energy is truly "green" in the sense that its impact on the environment is minimal; it has no harmful or climate-changing emissions (indeed all its byproducts are contained); and its fuel supply is sustainable for thousands of years. The safety record of US nuclear power is unrivaled by any other industry. Used-fuel from power plants is readily manageable using a variety of technological approaches However, we advocate that centralized used-fuel storage policies be promoted and funded because they will lower overall security costs and further reduce the [already low] risk to the environment and public health.

Finally, we support continued research to identify the most effective way to stabilize, package, and ultimately dispose of wastes remaining after the useful constituents of used nuclear fuel have been removed.



WATER RESOURCES COALITION

STATEMENT OF

THE WATER RESOURCES COALITION

BEFORE THE

ENERGY AND WATER DEVELOPMENT SUBCOMMITTEE

HOUSE APPROPRIATIONS COMMITTEE

ON THE FISCAL YEAR 2010 BUDGETS

FOR THE U.S. ARMY CORPS OF ENGINEERS

AND U.S. BUREAU OF RECLAMATION

APRIL 3, 2009

Mr. Chairman and Members of the Subcommittee:

The Water Resources Coalition (Coalition) appreciates the opportunity to provide its views on the budget proposals for the U.S. Army Corps of Engineers (Corps) and the U.S. Bureau of Reclamation (Bureau) for Fiscal Year 2010.

The president has proposed a budget of $5.1 billion for the Corps in FY 2010. A detailed budget proposal for the Bureau is not yet available. In light of the nation's continuing infrastructure investment needs, the Coalition recommends an **appropriation of $7 billion for the Corps of Engineers** and an **appropriation of $1.3 billion for the Bureau** for FY 2010. The Coalition reserves the right to submit further testimony modifying our request following the release of the administration's detailed budget request for both agencies in FY 2010 later this year.

improve, prevent, save

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I. U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers has one of the federal government's largest environmental responsibilities. The Corps provides ecosystem restoration, constructs sustainable facilities, regulates waterways and manages natural resources, and cleans up contaminated military bases.

Forty-one states, 16 state capitals and all states east of the Mississippi River are served by commercially navigable waterways. The U.S. inland waterway system consists of 12,000 miles of navigable waterways in four systems that connect with most of the states in the U.S. The entire system contains 257 locks. The waterways include the Mississippi River, the Ohio River Basin, the Gulf Intercoastal Waterway, and the Pacific Coast systems.

Three-quarters of the nation's inland waterways (9,000 miles) are within the Mississippi River system. The next largest segment is the Ohio River system (2,800 miles). The Gulf Coast Intercoastal Waterway system is 1,109 miles, and the Columbia River system is only 596 miles long, the shortest of the four major systems.

Acting in response to the present economic emergency, the Obama administration and Congress completed work on a $787 billion emergency economic recovery package in mid-February. The American Recovery and Reinvestment Act (ARRA) provided an estimated $100 billion in infrastructure investments designed to create jobs quickly.

The ARRA recovery package invests a total of $4.6 billion for Corps of Engineers water resources projects that may be obligated quickly; that will result in high, immediate employment; and that will provide a useful service without additional funding. The bill authorizes the Corps of Engineers to carry out unlimited reprogramming of all funds appropriated under the Act. Together with the $5.4 billion appropriated under the Fiscal Year 2009 continuing appropriations act, the Corps budget for FY 2009 totals approximately $10 billion.

Because of its concern over many years of under investment in water resources programs, the Coalition supported efforts to increase the total stimulus spending package for the Corps to almost $10 billion over two years for vital new navigation, flood control, and lock and dam projects nationwide.

In any event, ARRA directs the Corps to spend $2 billion for construction; $375 million for projects on the Mississippi River and tributaries; $2.075 billion for operation and maintenance; $25 million for investigations to carry out studies for future projects; and $100 million for the cleanup of closed military bases under the Formerly Utilized Sites Remedial Action Program (FUSRAP).

To ensure the funds are being invested in accordance with the legislation's intent, the Corps must report to Congress quarterly on the progress of projects funded under the recovery package. The first report is due April 3, 2009.

II. U.S. Bureau of Reclamation

The Bureau operates 348 dams and reservoirs, 58 hydropower generation facilities, more than 8,000 miles of canals, more than 24,000 miles of water distribution laterals, and more than 13,000 miles of drains. ASCE notes that most of Reclamation's major dams, reservoirs, hydroelectric plants, and irrigation systems are 50 or more years old. In December 2007, the Bureau calculated that nearly 80 of the 348 dams (approximately 23 percent) are 90 to 100 years old or older.

Most of Reclamation's major dams, reservoirs, hydroelectric plants, and irrigation systems are 50 or more years old. The Bureau has identified an estimated $3 billion in total infrastructure investment needs over the next 20 years.

The Bureau received $1.1 billion in the FY 2009 appropriations act. ARRA provided a further $1 billion to the Bureau for water and related resources infrastructure. There is no statutory deadline for expenditures provided under ARRA, but no project funded by the Act will be eligible for future appropriations.

The stimulus legislation appropriated $50 million for the Central Utah Project; $50 million for the California Bay-Delta Restoration Project; and not less than $10 million for a bureau-wide inspection of canals program in urbanized areas.

In a like manner, the Interior Department must report to Congress quarterly on the progress of projects funded under ARRA. The first report also is due April 3, 2009.

III. Coastal Infrastructure Investment

With more than 20,000 miles of coastline, America needs a rational, comprehensive coastal policy that will protect lives, reduce property damage, enhance the environment and produce economic benefits for America.

Beaches are our levees. In too many locations, however, our beaches are being unintentionally starved of sand by ports, navigation channels, upstream dams and other man-made structures as well as by natural processes. The resulting battered beaches and withered wetlands cannot provide the effective defense we need from wave surges that accompany strong storms. Coastal restoration projects (including beach nourishment projects) must be federally funded in order to reduce the risk to lives and property – and reduce the American taxpayers' cost of storm recovery.

Beaches are also the primary economic engines that drive coastal America. Every year, there are over 2 billion visitors to the America's beaches. At a time of economic recession, the beach is an even more desirable destination than other domestic and foreign alternatives. In 2007, beaches contributed $322 billion to the American economy and employed nearly 1 of every 10 Americans. More importantly, for every dollar the federal government spends on beach nourishment, it gets $320 back in tax revenues. These are jobs and revenues that are unlikely to

move offshore, unless we drive them away by our inattention to the increasing threats posed by erosion.

America has already paid a steep price as a result of a national failure to adequately address our coastal needs, risks and resources. The cost of continued neglect will only grow in the coming years

Respectfully submitted,

The Water Resources Coalition

American Society of Civil Engineers, Associated General Contractors of America, Association of California Water Agencies, Coast Builders Association, American Council of Engineering Companies, Dredging Contractors of America, National Stone Sand and Gravel Association, Missouri Department of Agriculture, Texas Water Conservation Association, Upper MS, IL and MO Rivers Association, Florida Inland Navigation District, Orange County (CA) Department of Public Works, Marlowe & Company, Atlantic Intracoastal Waterway Association, Oregon Water Resources Congress, American Public Works Association, American Shore and Beach Preservation Association, Harris County (TX) Flood Control District, Everglades Trust

* * *

The WRC was established in 2007 to promote the development, implementation and funding of a comprehensive national water resources policy. Our organizations represent state and local governments, conservation, engineering and construction, ports, waterways, and transportation services. The Coalition works to ensure that a comprehensive national water-resources policy is developed, implemented, and funded to provide a sustainable, productive economy; a healthy aquatic ecology; and public health and safety.

# # #

Testimony on the Fossil Energy R&D Program for Fiscal Year 2010

Submitted to

Subcommittee on Energy and Water Development Appropriations
The U.S. House of Representatives
Room 2362B Rayburn House Office Building
Washington, DC 20515

by

Roe-Hoan Yoon, Director
Center for Advanced Separation Technologies
Virginia Polytechnic Institute and State University

April 3, 2009

Chairman Visclosky, Ranking Member Frelinghuysen, and Members of the Subcommittee, I represent the Center for Advanced Separation Technologies (CAST), which is a consortium of five universities with strong programs in coal mining and processing. I appreciate the opportunity to submit this testimony requesting that your committee add $3 million to the 2008 Fuels Program budget, Fossil Energy Research and Development, U.S. Department of Energy, for advanced separations research. Research in advanced separations technology development is authorized by the Energy Policy Act of 2005, Title IX, Subtitle F, Sec. 962. I am joined in this statement by my colleagues from four other universities:

Richard A. Bajura,	West Virginia University
Rick Q. Honaker,	University of Kentucky
Peter H. Knudsen,	Montana Tech of the University of Montana
Jan D. Miller,	University of Utah

FUNDING REQUEST FOR CENTER FOR ADVANCED SEPARATION TECHNOLOGIES

CAST was formed in 2001 initially as a partnership between Virginia Tech and West Virginia University to develop advanced separation technologies that can be used to remove a variety of impurities (*e.g.*, sulfur, ash, mercury and other trace elements) from coal prior to combustion. In 2002, five other universities joined to form a consortium with objectives to develop cross-cutting technologies that can be used for processing both coal and minerals. In 2007, the U.S. Department of Energy requested that CAST focus on fossil energy research, and, consequently, membership has now been limited to the five universities with research and teaching programs in fossil energy, which include Virginia Tech (lead institute), West Virginia University, the University of Kentucky, Montana Tech of the University of Montana, and the University of Utah. The consortium is capable of addressing the technological need for fossil energy resources in areas of energy production and pre- and post-combustion clean-up.

PROPOSED WORK

Fossil energy accounts for 86% of the energy used in the U.S. and the world. Due to concerns for global warming, the U.S. Government is making major investments in developing renewable energy resources and carbon capture and sequestration (CCS) technologies. However, it will take a while to displace fossil fuels substantially. Therefore, CAST will continue to develop advanced technologies that can be used to produce fossil fuels with minimal environmental impacts and to capture the harmful effluents generated from combustors.

Between 1990 and 2008, U.S. emissions of CO_2 from fossil fuel combustion grew by 27% - but the emissions in China rose 150%, from 2.3 to 5.9 billion tons. China's CO_2 emissions are now estimated to be about 24% of the global total, surpassing the U.S. contribution of 21% (State of the World 2009). It is projected that by 2030 developing countries will account for more than 75% of the increase in global CO_2 emissions. Thus, the U.S. must engage developing countries in its effort to curb CO_2 emissions. A unilateral action on the part of the U.S. would harm the competitiveness of its domestic manufacturing industries and result in the loss of American jobs. On the other hand, developing countries view that the U.S. must "go first," as their paramount focus will be on economic growth in the near term. On January 31, 2008, the House Energy and Commerce Committee issued a whitepaper, which stressed the need to make affordable clean coal technologies (CCT) available for developing nations. It suggested also that a U.S. program that can spur activities in developing affordable CCTs will have the double benefit of aiding the environment and creating new industries for manufacturing and servicing the new technologies.

A serious problem in China and India is that much of the coal is burned as mined without cleaning, causing low thermal efficiencies. In these two countries, the thermal efficiencies for power generation are 29% as compared to 38% in the U.S. By increasing the efficiency to 33% by way of improving coal quality, the CO_2 emissions in China can be reduced by 20%. Currently, approximately 12% of the coal used for electricity generation in China is cleaned before combustion. Thus, advanced coal cleaning technologies should be regarded as the most affordable CCTs in China and India. According to a recent IEA report, India could reduce CO_2 emissions by 55% using state-of-the-art technologies relating to coal quality, boiler/generator design, instrumentation and control, and high voltage distribution systems (Couch, 2002). Unfortunately, much of the coal burned in India is of low quality, assaying 35-42% ash. In the U.S., ash contents are mostly less than 8%. Increasing the availability of clean coal would be the first step toward deploying more advanced CCTs (*e.g.*, IGCC and supercritical boilers) to increase combustion efficiencies further and reduce CO_2 emissions substantially.

It is, therefore, the objective of CAST research to develop advanced technologies that can be used to remove various impurities from coal, so that it can be burned more cleanly and efficiently. These technologies can help reduce CO_2 emissions in developing countries and minimize the problems associated with waste disposal in Appalachia and power plants across the U.S. It is also the objective to study methods of extracting methane from hydrates, particularly from marine hydrate resources. The proven reserve of natural gas in the U.S. is only 238 trillion cubic feet (Tcf) while the amount of methane stored as hydrate amounts to 200,000 Tcf.

SUMMARY OF ACCOMPLISHMENT

Cleaning coal becomes more difficult and costly as the size of coal particles becomes smaller. When the size is less than 0.15 mm, the cleaning cost can be prohibitive, in which case many companies discard the coal fines to impoundments along with the water that is used for their washing operations, or inject the coal-water slurries into abandoned, underground mines. The latter practice has been drawing criticism, as the water containing toxic elements (and sometimes the slurry itself) contaminates drinking water (Smith, V., AP News, March 21, 2009). State legislatures and EPA are seriously considering banning this practice. The fine coal impoundments also pose environmental threats as they occasionally fail, releasing billions of gallons of slurry into the neighborhoods and rivers. Recognizing the seriousness of these problems, CAST has been developing a series of advanced fine coal cleaning technologies over the years. During the last few years, we have been focusing on developing methods of removing water (dewatering) from fine coal slurry, which is regarded one of the most technologically challenging problems for the coal industry. During 2008-09, CAST has completed testing the hyperbaric centrifugal dewatering technology in operating plants. The results of the successful test program have been highlighted in Techline, DOE's web newsletter, in February 2009. Industry leaders consider this new development as the most significant technological breakthrough in 20 years. The success story has received significant media attentions worldwide. The new centrifuge developed at CAST is marketed by Decanter Machine Company, Johnson City, Tennessee, under a license agreement. The technology will also be useful for the treatment of a variety of industrial waste water, including the water in ash ponds near coal power plants, the waste water from oil sand operations in Canada, and municipal sludges in big cities.

CAST is also well known for its expertise in separating fine coal from ash-forming minerals. One success story was the development of the Microcel™ flotation technology, which is widely used around the world. During the last two years, FLSmidth Minerals, Salt Lake City, Utah, which is one of the world's largest mining equipment companies, has provided $900,000 of research funding to develop a mathematical model for the separation process. This industrial funding was provided as a matching fund against the $250,000 of CAST fund allocated for this project. The results of the project will be used to help the company improve the designs of the currently marketed flotation machines. The cooperative project serves as an excellent vehicle to train both graduate students and practicing engineers.

Indian coal is notoriously difficult to clean, because ash-forming minerals are finely disseminated in the coal matrix. Using conventional methods, it is difficult to reduce the ash content to below 12-14% by weight. It has been shown, however, that the ash content can be reduced to less than 8% by using some of the advanced separation technologies developed at CAST. Wi th the help of the U.S. Department of Energy, CAST is now in the process of finalizing a $1.2 million research contract with Coal India Limited (CIL). CIL produces 86% of the coal in India, and is the world's largest coal company. In this project, CAST will design a 75 tonnes per hour demonstration plant, and CIL will build the plant.

As we reported to you in last year's testimony, the Department of State (DoS) awarded a $1.1 million contract to CAST in which a dry coal cleaning technology will be demonstrated in India. Last month, a pilot-scale test unit was shipped to India for on-site testing. The objective of

this project and the one described in the forgoing paragraph is to help India clean coal before burning, which will help reduce CO_2 emissions in the country.

To design a coal cleaning plant, it is necessary to characterize the coal to be processed. The characterization is commonly done using organic solvents, which are toxic. CAST has developed an alternativ e method of characterizing coal using a micro-x-ray CT scanner. A company in Utah has taken the first step to purchase this system for commercial use. This "green" facility would be the first of its kind that can obviate the need to use toxic organic liquids for routine coal characterization work. The company investment in this new technology would be in excess of $1 million.

In the areas of post-combustion clean-up, CAST has developed metallic filters that can remove mercury present in the flue gas generated from coal-fired power plants. Based on the successful laboratory test results, the mercury filters were tested at the PPL's Colstrip power plant in Montana. The removal efficiency was greater than 90%, verifying laboratory experiments. The mercury absorbed on the metallic filters were stripped off by an *in situ* thermal treatment, so that the filter can be reused and the mercury be collected for commercial use.

All of the fossil fuels, including coal, oil, natural gas, methane in hydrate, kerogen in oil shale, and bitumen in oil sands, are naturally hydrophobic. During 2008-09, CAST has made significant advancements in the basic understanding of the nature of hydrophobicity and hydrophobic interactions. The results will be useful not only for improving the process of producing fossil fuels but also for better understanding biology and water chemistry in general. Practically all of the biological structures, *e.g.*, membranes, vesicles, proteins, *etc.*, are formed by hydrophobic interactions. As a means of sharing and discussing these new discoveries, CAST has organized an international symposium on hydrophobic interactions as part of the 13th IACIS/83rd Colloid and Surface Science Symposium, June 14-19, 2009, in New York.

It is also well known that water molecules reorganize themselves around small hydrophobic solutes such as methane and gas molecules to form "iceberg" structures. Under conditions of low temperatures and high pressures, hydrophobic species form solid hydrate, as is the case with methane hydrate formed in permafrost and the continental margins of the ocean floor. CAST is currently studying the fundamental mechanisms associated with the formation of hydrate as well as developing a method of separating CO_2 from coal combustion gases by converting the CO_2 into solid hydrate.

PROPOSED WORK

Although coal is regarded as 'dirty' fuel, it will be decades before clean, renewable fuels become available. According to the 2008 International Energy Outlook (EIA, September, 2008), coal consumption will increase faster than any other energy resource, particularly in China. Therefore, it is important to continue to develop methods of recovering and utilizing coal with minimal environmental impacts. To meet this objective, CAST will develop technologies that can be used to minimize the environmental problems both at mine sites and coal-burning power plants.

In addition to the hyperbaric centrifuge described above, CAST has been developing a novel technology that can remove water, ash, and other impurities simultaneously. Laboratory tests showed that this new technology can produce clean coal with lower moisture and lower ash content at higher coal recoveries than can be achieved by using a combination of the Microcel and the centrifuge technologies. The new technology can, therefore, be implemented at lower capital cost and will be particularly useful for recovering coal from fine coal impoundments. During 2009-2010, the new process will be tested on a bench-scale continuous mode. Several companies have already shown interest in commercializing the new technology.

An important part of developing coal cleaning technologies is technology transfer. Therefore, CAST will devote considerable resources for on-site testing, problem solving, and offering short-courses and seminars for plant operators. Keeping industry operators abreast of CAST research will expedite the technology transfer and help the U.S. companies maintain a clean environment near mine sites.

Using the improved understanding of the basic sciences involved in gas hydrate formation, CAST will also develop methods of separating gases from each other. The methods will be based on solidifying one-type of gas as hydrate while keeping the others in gaseous form. At present, cryogenic distillation is the only commercially available method of separating oxygen and nitrogen, and this new method could potentially reduce the cost of producing oxygen substantially. The same method can also be used to separate other gases. For example, CO_2 and nitrogen present in combustion gases can be readily separated from each other. One problem associated with the approach is the slow kinetics of hydrate formation. It is, therefore, proposed to find ways to increase the kinetics by using additives. The gas-gas separation process based on selective hydrate formation can have higher capacity and lower cost than the methods of using membranes. The new gas-gas separation method can also be used for producing ultra-pure hydrogen for fuel cell applications, which is a major objective of the Fuels Program.

The proposed research can also lead to the development of efficient methods for extracting methane from hydrate resources. The National Energy Technology Laboratory is spearheading a program to extract methane from the Alaskan North Slope with the objective of producing methane by 2015. CAST will explore the possibility of extracting methane from marine hydrate resources. It is estimated that the U.S. has 200,000 Tcf of methane as hydrate, while the proven reserve for dry natural gas is only 238 Tcf. The Blake Ridge deposit alone, off the shores of the Carolinas, has 1,300 Tcf of methane. Thus, the research on gas hydrate will lead to the development of unconventional gas resources, development of efficient gas-gas separation methods, sequestration of CO_2 as hydrate, and transport and storage of methane and hydrogen.

FUNDING REQUEST

It is requested that $3 million of research funding for CAST be added to the FY 2010 Fuels Program budget, Fossil Energy R&D, the U.S. Department of Energy. Continued funding will allow CAST to develop advanced technologies that can be used to exploit domestic energy resources and help developing countries reduce their CO_2 emissions. In addition, the new gas-gas separations technologies to be developed at CAST will have crosscutting applications for a wide spectrum of the Fossil Energy R&D programs.

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House Energy & Water Testimony

GTI recommends funding for the U.S. Department of Energy (USDOE) for the following programs and areas of focus.

- **EERE** - Industrial Technology Program – **$250 million annually**
- **EERE** - Smart Energy Grid Implementation – Office of Electricity and Energy Reliability – Expand objective and goals to include the natural gas grid as well as the electricity grid (new focus area) – **$10 million (incremental)**
- **Fossil Energy** - Fuel & Power Systems, Gasification R&D – **$100 million (incremental)**
- **EERE** - Biomass and Bio-refinery R&D Program **$100 million (incremental)** /also include eligibility for technologies/projects that produce Pipeline-Quality Biogas
- **EERE** - Building Technology Program - Reduced Energy Consumption Building Systems and Technologies (new focus Area) – $20 million **(incremental)**

GTI would like to thank the Chairman and the Committee for this opportunity to discuss existing programs delivered by the USDOE. GTI is a non-profit research and development (R&D) organization focused on increasing energy supply, enhancing the reliability and safety of energy delivery; and ensuring energy is used in the most efficient and environmentally responsible manner.

We have been developing energy-related technologies for over 60 years. Some notable GTI innovations you may be familiar with are the phosphoric acid fuel cell and the high efficiency natural gas furnace. GTI is also a leader in the development of unconventional natural gas resources, including shale, tight sands, and coal bed methane, which now account for over 40 percent of all domestic natural gas supply.

In addition to research related to natural gas, one third of the organization's R&D portfolio is focused on renewable energy, in technologies such as biomass gasification and pyrolysis for liquid fuels; anaerobic digestion for biogas and renewable power; and hybrid solar thermal/natural gas equipment for residential and commercial markets.

The areas of focus and programs outlined in this document are designed to dramatically lower carbon emissions, increase efficiency, enhance the role of renewables and improve energy delivery and reliability. This document will discuss specific program areas needs and recommended funding levels.

Industrial Technology Program
We recommend that the USDOE's Industrial Technology Program (ITP) be funded at a level of $250 million annually. USDOE's ITP works with U.S. industry to improve industrial energy

efficiency and environmental performance. The program invests in near- to mid-term, high-value RD&D and longer term technology development focused on reducing industrial energy use and creating the future industrial processes that will greatly improve the economic vitality of the U.S. industrial sector now and in the future.

The ITP does an excellent job of leveraging industry funding and partnering with sectors including steel, glass, aluminum, chemical, food processing, vehicle manufacturing and other vital industries. These manufacturing industries operate in highly competitive international markets, and energy and environmental costs are important variables for their survival. For the past eight years the program was underfunded which has resulted in fewer new technologies moving forward into the pipeline for commercialization.

The USDOE ITP is well positioned to provide vital R&D efforts that help traditional and new manufacturing and industrial activities – as evidenced by initiatives focused on nano-manufacturing, data center energy efficiency, and combined heat and power (CHP) systems that can substantially improve energy efficiency and reduce carbon emissions. If America is going to be competitive with other nations' industrial sectors and ensure high-paying manufacturing jobs, we need to invest in a robust program at ITP to stimulatetechnological advances to increase productivity, reduce energy consumption and lower emissions.

ITP technology development has historically resulted in new technologies that have saved industry millions of dollars. ITP also administers programs like Save Energy Now which assists facilities in deploying the most energy efficient technologies available. The Save Energy Now program as of 2007 had achieved yearly savings of 60.6 TBtu in natural gas, reduced energy costs by $574 million and CO_2 emissions by 3.75 million tons annually.

The following annual funding is recommended for specific areas within ITP:

Steam Generation $35M, Process Heating Systems $35M, CHP $60M,
Renewable Fuel Utilization $25M, Industrial Energy Efficiency $25M,
Controls and Sensors $10M, Industry Specific R&D $60M,
Total Program $250M

Smart Energy Grid Implementation
There are numerous funding initiatives at the Federal level to accelerate implementation of a Smart Grid. However, the definition of the Smart Grid includes only electricity. **We recommend that the USDOE change its definition from a Smart Electric Grid to a Smart Energy Grid so that the country can achieve its ultimate objective of reliable, lowest-cost, cleanest energy and commit at least $10 million to the programs described in this section.** Primary objectives for a Smart Energy Grid include improved reliability via system-wide monitoring and distributed generation; improved environmental footprint by integrating renewables such as wind and solar power, as well as more efficient combined heat and power (CHP) or micro-grid equipment; and lower total energy costs for customers facilitated by real-time energy consumption information. The current electric-only focus misses opportunities to achieve these goals.

For example, including real-time monitoring of the gas grid within a Smart Energy Grid program will enhance reliability and help reduce operating and maintenance costs. Reliability of the electric grid, due to equipment failures or unpredictable renewable power generation, is primarily assured through gas-fired central power plants or gas-fired distributed generation equipment. The implicit assumption is that the gas grid will have the absolute capability to immediately respond to any changes in electric load, even as these loads grow to 20% of total power consumption and higher. While the gas grid has traditionally demonstrated extremely high reliability and capacity, new gas demand to back up renewable power, provide peak-shaving distributed generation, and respond to large-scale emergency back-up power requirements may stress the system.

GTI strongly recommends that real-time monitoring of the gas grid be incorporated as part of overall energy grid monitoring to ensure that disruptions in the power grid do not cascade into disruptions in the gas grid, further exacerbating energy supply problems.

Including gas data in the Smart Energy Grid can also support the goals of reducing the overall environmental footprint and costs for energy consumption in the US. For example, customers could access real-time information on the carbon footprint and cost of energy options as they vary during the day and season. This enhanced information would help consumers manage their total energy consumption, and provide the options to choose appliances that provide the lowest carbon footprint and cost for their use pattern.

Gasification RD&D

Gasification is a process that holds the promise of unlocking domestic resources to provide affordable and abundant energy while permitting the reduction of greenhouse gas emissions. Gasification is a proven process producing power, fuels, and chemicals around the world. Many of the technologies in use today, including two gasifiers GTI developed and commercialized, are the result of substantial U.S. government support in the aftermath of the 1970's oil embargoes. However, technologies available today are decades old in origin, and more importantly were not developed to achieve the twin goals of producing energy products and managing carbon emissions. The US will spend an estimated $2 Trillion for new power plants by 2030. Gasification, which provides the cleanest and most efficient option for power production from coal, the most abundant US energy source, requires further investments to achieve the goal of reduced carbon power generation. There are promising new concepts for compact high-efficiency gasifiers, for techniques to co-gasify fossil and renewable fuels to eliminate carbon emissions, and for improved processes to extract carbon for use or storage while producing fungible gas, liquid, and electric power products. Improvements in key support systems from fuel preparation to water conservation have been designed and some development progress is being made.

The pace of development for these promising concepts needs to be accelerated to achieve the complex, coupled goals of affordably increasing domestic energy supply to support a growing economy while also reducing carbon emissions. Government support is needed to bring innovative technology solutions from academia, industry, and research institutions through the

development cycle to commercial readiness. We believe such a cornerstone technology for our energy future as gasification merits significant funding emphasis.

Coal presents special challenges with respect to carbon management, water conservation, and acceptable performance for lower-quality and blended fuels. The Fuels and Power Systems Program in the Department of Energy's Office of Fossil Energy Research and Development has an inadequate budget for Gasification R&D to foster the sort of technology development and assessment required in the face of the current challenges and opportunities. **We recommend a $100MM budget increase for the Gasification R&D efforts in Fuels and Power Systems.**

Biomass is both domestic and renewable – stored solar energy – and a resource that can be put to use transforming the energy sector while revitalizing rural economies. Though biomass is renewable, it is a limited resource with logistical challenges, requiring that it be used with the maximum efficiency for the highest value, highest impact purposes. Gasification of biomass will permit the highly-efficient conversion of lignocellulosic materials and non-food-supply-based wastes into pipeline quality gas, liquid transportation fuels, and baseload, dispatchable electric power with a zero or even negative carbon footprint. Biomass gasification will be an important facet of the carbon management solution, but has specific technical issues in fuel handling, gas cleaning, and scale of operations that need to be systematically addressed to achieve this promise. The Biomass and Biorefinery R&D Program in the Office of Energy Efficiency and Renewable Energy needs specific budget increases and direction to focus on the technical developments needed in this thermochemical conversion pathway. This focus requires be an applied R&D effort sustained over several years. **We recommend a $100MM increase in the annual budget in the Biomass and Biorefinery R&D Program, designated for gasification technology development.**

Among the promising routes for biomass to contribute to the U.S. renewable energy future is conversion to renewable natural gas. Biomass can be gasified and the gases processed to produce pipeline quality natural gas suitable for residential, commercial or industrial uses. This conversion process is among the most efficient ways to convert biomass to a fungible energy product (over two times the efficiency of burning the biomass for conventional combustion-based electric power). The renewable gas route for biomass provides intrinsic carbon capture and a greater potential for reductions in greenhouse gas emissions than almost all other renewable energy products. Applications of renewable gas potentially include generating electric power in existing natural gas-fired turbines, fueling compressed natural gas buses, firing industrial furnaces for glass and steel manufacturing, and providing fuel for home heating and cooking. Renewable gas is unique because it requires no further investment in transmission and distribution systems (except some gathering lines); it can immediately use the 300,000 miles of existing pipelines and over 1.6 million miles of gas mains that reach over 60 million homes and most commercial and industrial customers. Natural gas infrastructure allows multiple sectors of the economy the opportunity to participate in achieving a lower national carbon footprint – stretching the biomass resource to its fullest potential. **We encourage the Committee to advise the Department of Energy to include renewable gas as a priority biofuel product.**

Buildings Program at USDOE

The Buildings Program at USDOE has focused recent activities around future zero carbon homes and technologies like solid state lighting. These initiatives are important and can lay the groundwork for the very efficient homes of the future.

An area of additional technology development and focus that is needed to bolster the Buildings Program is one that addresses existing buildings platforms particularly in northern and temperate climates that mostly depend on natural gas for space heating and hot water. GTI suggests a new area of technology development , demonstration , deployment and commercialization within the Buildings Program called **"Reduced Energy Consumption Building Systems and Technologies". We recommend that this new area of research within the Buildings Programs is funded at the $20 million dollar level.**

The diverse nature of energy use by consumers and commercial businesses necessitates an expanded program approach by the USDOE to provide: efficiency improvements to the current building stock, improved ultra-high-efficiency appliances (including in niche but significant areas such as commercial food service), and greater emphasis on hybrid solar thermal/natural gas or solar thermal/electric technologies.

Developing building technologies that utilize the least amount of total energy; provide similar performance as existing technologies and take advantage of renewable opportunities can dramatically reduce the carbon emissions of the residential and commercial sectors, while ensuring the most efficient use of important domestic energy resources such as natural gas.

Nearly all of U.S. demand for natural gas comes from North America and 52% of all U.S. homes utilize natural gas for space and/or water heating or cooking. While an expanding supply from new sources such as gas shales has resulted in a flattening of prices – a trend that is expected to continue, this domestic source of energy should be used in the most efficient and cleanest manner ensuring the maximum benefit of existing and future supply. There are many new state-based natural gas energy efficiency programs that could be leveraged to support new initiatives by USDOE. Specific program initiatives include:

- Hybrid solar thermal-natural gas technology and products that cost-effectively generate heat, hot water, steam, and thermally driven cooling – reducing carbon emissions and the use of fossil fuels
- Advanced energy efficient technologies and systems for space and water heating in existing single and multifamily residential buildings and the light-commercial sector
- Residential and cooling and heat pump technologies using natural gas and alternative energy sources to lower peak electricity demand
- Improving energy efficient technologies and systems for existing and new building stock in cooler climates
- Fuel cell development for residential combined heat and power (CHP).
- Advanced Energy Efficiency Data - perform advanced energy efficiency analysis, develop new scientific data and tools to support lowering overall energy use and carbon emissions in homes and buildings

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Statement of Robert Bendick
Director of U.S. Government Relations
Before the Subcommittee on Energy and Water Development
Committee on Appropriations
April 3, 2009

Mr. Chairman and the members of the Subcommittee,

Thank you for the opportunity to present The Nature Conservancy's recommendations for FY 2010 appropriations for the US Army Corps of Engineers (Corps) and Bureau of Reclamation.

The Nature Conservancy's recommendations represent a priority set of efforts that are both individually important and collectively designed to demonstrate innovations in restoration to help guide future resource allocation. Further, done well, ecosystem restoration projects pay dividends through many services such as provision of more reliable and higher quality water, natural flood attenuation, sustaining commercial fisheries, and supporting economically-important recreation such as fishing, hunting, boating, birding and camping. Moreover, the nation's resiliency to climate change will be substantially dictated by the health of our ecosystems. In short, we believe the public investments we are requesting now will pay far larger dividends for decades to come.

Corps Construction Priorities

Continuing Authorities Program: We thank the Subcommittee for continuing its strong support of the ***Section 1135: Project Modifications for Improvement of the Environment*** and ***Section 206: Aquatic Ecosystem Restoration*** programs. However, demand for these programs continues to outstrip the funding. The Conservancy requests that the programs be fully funded by appropriating $40 million for Section 1135 and $50 million for Section 206.

The Conservancy seeks funding for two Section 1135 projects. The Spunky Bottoms project (IL) is a model floodplain restoration and-reconnection effort on the Illinois River that needs $500,000 to complete feasibility, sign a project partnership agreement and begin design; the Conservancy is the nonfederal cost share partner. The Chain Bridge Flats (DC) project needs $100,000 to complete a reconnaissance report to restore a globally rare habitat along the Potomac River.

The Conservancy also seeks funding for three Section 206 projects: Emiquon Preserve (IL), a floodplain restoration and reconnection project that needs $600,000 to complete feasibility, sign a project partnership agreement, and begin design; Camp Creek (OR), a headwaters stream restoration project that needs $575,000 to sign a PCA and complete construction; and Navajo Reservation Implementation (NM), which needs $510,000 for large-scale restoration on the San Juan River. The Conservancy is the cost share partner for Emiquon and Camp Creek.

We continue to be concerned about the Committee's guidance for these programs. The prioritization requirements and "no new starts" rule in the FY 2009 report block the implementation of projects that are important conservation priorities and enjoy strong support from their local communities; many are Congressional priorities as well. We urge the Subcommittee to consider adopting a more flexible

approach. Appropriating the requested amounts will help address the backlog in these programs, as will funds from the American Recovery and Reinvestment Act.

Estuary Restoration Program: The Estuary Restoration Program is a national, multi-level, multi-agency strategy to restore our nation's estuaries that benefits fish, shellfish and wildlife; improves surface and groundwater resources; provides flood control; and enhances recreational opportunities. The Conservancy supports $10 million for the Estuary Restoration Program in FY 2010.

Upper Mississippi River Navigation and Ecosystem Sustainability Program: In WRDA 2007 Congress gave the Corps of Engineers a new, dual purpose authority to integrate management of the Upper Mississippi River (UMR) system's habitat and navigation facilities in an unprecedented way through the Navigation and Ecosystem Sustainability Program (NESP). While all activities implemented under the existing Environmental Management Program (EMP) can be transitioned into NESP, it is critical to fund both programs until the transition is complete. Maintaining the successful EMP, complete with planning, design, and construction, until a new start can be implemented for NESP is crucial to continuing positive progress that has been made for ecosystem restoration on the UMR.

While the Corps has the capability to execute a $50 million budget for NESP in FY 2010 for ecosystem restoration and navigation projects, and we support this funding level, we also recognize the current budgetary constraints and acknowledge that a more realistic NESP FY 2010 new start request should be $35 million. The Conservancy also supports $20 million for EMP in FY 2010.

Missouri River Fish and Wildlife Recovery Program (MRRP): Under this program, the Corps has completed 30 projects in the lower four basin states (IA, KS, MO & NE) to assist in the recovery of three listed species, resulting in more than 40,000 acres of restored aquatic and floodplain habitat. New authority was provided in WRDA 2007 for the expenditure of funds in the upper basin states and for the Intake Dam project on the Yellowstone River in Montana. Construction of fish passage and screens at Intake Dam on the Yellowstone River is a priority for the recovery of the endangered pallid sturgeon and other warm water fish. The Yellowstone is the largest naturally functioning river in the Missouri basin, and provides the best opportunity in the upper basin to restore a naturally sustainable population of pallid sturgeon. The Conservancy supports $85 million for the MRRP in FY 2010, including dedicating sufficient funding to continue progress on the design and construction of fish passage and screens at Intake Dam.

South Florida Everglades Ecosystem Restoration Program: Corps flood control projects, coupled with agricultural and urban development, have degraded one of the most diverse and ecologically rich wetlands ecosystems in the world. After years of planning, WRDA 2007 authorized construction of the first projects under the Comprehensive Everglades Restoration Plan (CERP). We place a priority on funding the restoration of the Kissimmee River, a project that is almost 75% complete and already a restoration success story. The Conservancy requests $300 million for the South Florida Ecosystem Restoration Program in FY 2010.

Puget Sound and Adjacent Waters: The Puget Sound and Adjacent Waters Program provides funding for early action projects to restore Puget Sound and its watershed. The Conservancy requests $2.5 million for Puget Sound and Adjacent Waters in FY 2010. Identification of these early action projects is informed by the **Puget Sound Nearshore Ecosystem Restoration project** (in the Investigations account), for which the Conservancy requests $1.5 million in FY 2010.

Hamilton City Flood Damage Reduction and Ecosystem Restoration: This project will increase flood protection for Hamilton City, CA and surrounding agricultural lands and restore approximately 1,500 acres of riparian habitat. The PED phase for this project will be complete in FY09, the nonfederal sponsor is in place and the project received construction authorization in WRDA 2007. The Conservancy supports $15 million in FY 2010 to complete the first phase of construction.

Chesapeake Bay Oyster Recovery: Eastern oyster populations in the Chesapeake Bay have been decimated from historical levels by a century of overfishing, disease and pollution. This project will help move the oyster population towards sustainable levels. The requested appropriation will create more than 60 acres of additional oyster habitat. The Conservancy supports $4 million in FY 2010 for this program.

Sustainable Rivers Project

The Sustainable Rivers Project (SRP) is an initiative launched by the Corps that recognizes the urgent need to update decades-old water management practices across the nation to meet society's needs today and in the coming decades. The SRP is developing and demonstrating innovative approaches to reservoir operations that restore critical ecosystems and valuable ecosystem services, while continuing to provide for (and often even improving) water supply and flood risk management. These innovative approaches also offer substantial promise for social and ecological adaptation to climate change. The SRP currently involves work in eight river basins containing 36 federal reservoirs, in addition to training and development of next-generation decision support tools for water management, making it the largest initiative of its kind in the world. The Conservancy requests $3 million for the Corps' Institute for Water Resources to support engineering and scientific needs of current and new SRP sites.

Savannah Basin Comprehensive Water Resources Study: The Savannah River basin is experiencing tremendous growth and increasing demands on a limited resource, and recent droughts have highlighted the need to comprehensively address water use issues in the basin. The reconnaissance phase of the study evaluated water management in the reservoirs and indicated that future needs may not be met under current management practices. The feasibility phase will evaluate implementation of a new set of rules that could meet future demands while protecting more than 200 miles of river and tens of thousands of acres of floodplain and estuary wetlands. The Conservancy supports $250,000 in FY 2010.

Willamette River Floodplain Restoration Study: The Corps and the Conservancy are working together to identify ecological flow requirements downstream of Corps dams, and to incorporate those flows into ongoing dam operations. Initial efforts have focused on the Middle and Coast Forks of the Willamette in conjunction with a study to identify floodplain habitat restoration opportunities, and implementation and monitoring of flow releases are ongoing. Flow analysis has been initiated in additional tributaries with the ultimate goal of system-wide changes in dam operation and floodplain management to meet ecological goals. The Conservancy supports $150,000 in FY 2010 to continue this study.

Connecticut River Watershed Study: This project will restore 410 miles of river flow and thousands of acres of associated riparian, aquatic and floodplain natural communities in the Connecticut River Basin. The basin is a priority landscape for the Conservancy due to the high quality tributary systems, unique natural communities and multitude of ESA-listed species. The study identifies dam management modifications for environmental benefits while maintaining beneficial human uses. This year's work will begin building a hydrologic model for the basin. We support $450,000 in FY 2010 for this study.

Bill Williams River – Alamo Dam: Numerous federal, state and private partners have already invested significant funding in determining the flow needs of downstream ecosystems and working with the Corps to change operations at Alamo Dam to provide these flows. This Operations and Maintenance request will provide additional baseline information about the River and continue long-term monitoring to guide future management actions on the Bill Williams River and similar rivers across the southwestern U.S. The Conservancy supports an Operations and Maintenance appropriation for Alamo Dam in FY 2010 that includes $250,000 for these purposes.

Other Corps Investigation Priorities

Thames River Basin Watershed Study: The Thames River Basin ecosystem, including its tributaries to Long Island Sound, depends on naturally variable water flow, good water quality and suitable habitat. This study will determine what research and measures are necessary to improve the management of water control structures in the basin. We support $100,000 in FY 2010 to complete the reconnaissance phase.

Middle Potomac River Watershed Comprehensive Study: This study will develop a comprehensive, multi-jurisdictional sustainable watershed management approach for the Middle Potomac River watershed, balancing the ecological functions and services provided by the river with the human demands upon it. To support the completion of the watershed assessment, we support $844,000 in FY 2010.

Yellowstone River Corridor Comprehensive Study: Funding this ongoing study of economics, fisheries, and wetlands studies will help ensure that the longest free-flowing river in the lower 48 states maintains its natural functions while supporting irrigation and other economic uses of its waters. The Conservancy supports $750,000 for FY 2010.

Lake Champlain Canal Feasibility Study: Invasive species are the most significant threat to native biodiversity of Lake Champlain, in New York and Vermont. Several new invaders are poised to enter Lake Champlain through the Champlain Canal in coming years, and the need to install an invasive species dispersal barrier is urgent. The Corps is authorized to study the feasibility of an invasive species dispersal barrier and to construct and operate it. The Conservancy supports $500,000 for the feasibility study in FY 2010.

Susquehanna River Basin Low Flow Management and Environmental Restoration: Drought conditions, combined with current and projected demands for water use, have the potential to impact natural ecosystems in the Susquehanna River basin and the upper Chesapeake Bay. This appropriation will fund a basin-wide study to investigate low flow conditions and establish ecologically based goals and standards for low flow management. The Conservancy supports $285,000 in FY2010 for this project.

Navajo Reservation Watershed Management, Restoration and Development: The San Juan River watershed is severely impacted by flow regulation at Navajo Dam, water withdrawals and runoff from petroleum extraction and agriculture. This project will formulate a conservation strategy for the watershed within the Navajo Reservation. The Conservancy supports $315,000 in FY 2010 for this project.

Pecos River Environmental Management Planning: The Pecos River below Santa Rosa Dam is severely affected by flow regulation, irrigation, water withdrawals and runoff, preventing native vegetation from regenerating and causing frequent drying. This project will help develop a

comprehensive strategy that identifies key conservation targets, critical threats and practical actions to address them. The Conservancy supports $840,000 in FY2010 for this project.

Corps Expenses

Mid-Atlantic River Basin Commissions: We applaud the Committee for restoring federal funding to the Delaware, Potomac, and Susquehanna River Basin Commissions in FY 2009. They are essential to advancing and coordinating the water management and conservation interests of the federal government, the affected states, and the Conservancy. We support $2,365,000 for the Commissions in FY 2010.

Bureau of Reclamation

Upper Colorado River Endangered Fish Recovery and San Juan River Basin Recovery Programs: These programs take a balanced approach to restore four endangered fish species in the Colorado River system while allowing water use to continue in the arid West. A full appropriation will fund work on remaining major capital projects, including the completion of fish screens at the Hogback Diversion Dam and Tusher Wash Dam. The Conservancy supports $3.2 million in FY2010 for these Programs.

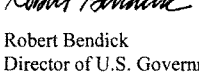
Platte River Recovery Implementation Program: An agreement between the Governors of Wyoming, Nebraska and Colorado and the Secretary of Interior sets forth a plan to recover five endangered or threatened species in the Platte River basin. The Conservancy supports $14,038,500 for this recovery effort in FY2010.

Over the course of the past 10 years, restoration funding through the Corps has frequently focused on a select set of large-scale programs. These programs have been essential to restoring and maintaining some of America's most precious and imperiled ecosystems. At the same time, the role of smaller-scale projects should not be under-estimated for their cumulative benefit and power as demonstrations to guide broader scale efforts. We encourage the Subcommittee to address the needs of these critical projects while continuing to support large-scale programs.

All of the restoration projects supported in this testimony will create the same kinds of on-the-ground jobs created through the American Recovery and Reinvestment Act. The restored wetland and water resources resulting from these projects will also contribute ongoing value to local and regional economies through the important ecosystem services provided by healthy waterways and wetlands.

Thank you for the opportunity to present our comments on the Energy and Water Appropriations bill. If you have any further questions, please do not hesitate to contact me (rbendick@tnc.org).

Sincerely,



Robert Bendick
Director of U.S. Government Relations
The Nature Conservancy

Oregon Water Resources Congress

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ANITA WINKLER, EXECUTIVE DIRECTOR

OREGON WATER RESOURCES CONGRESS

APRIL 4, 2009

I am Anita Winkler, Executive Director, Oregon Water Resources Congress. This testimony is submitted to the United States House of Representatives Appropriations Committee, Energy and Water Development Subcommittee, regarding the FY10 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, pipelines, 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 FY10 Budget request for the Bureau's programs west-wide. However, without knowing the details of that budget and looking at what was provided ultimately in the FY10 budget for the Bureau of Reclamation of approximately $920 million, OWRC would recommend that an addition several hundred millions dollars be provided for the program to address the needs in the 17 western states. We would like to supplement this testimony once we see the FY10 budget details for the Bureau.

Water for America Initiative

In the absence of a detailed FY10 budget, OWRC continues to be a strong advocate for the Bureau's challenge grant Water 2025 Program, the Water for America Program and the Water Conservation Field Services Program and encourage a level of funding that will meet the needs of the western states' ability to meet water demand through improved management of water supply systems, conservation, and innovation.

State Investigations

We request the funding for the State Investigations program in Oregon realistically reflect the needs of the State as it works to address water supply needs to meet the impact of climate change and changing demographics in the state.

The mission of the Oregon Water Resources Congress is to promote the protection and use of water rights and the wise stewardship of water resources.

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. Districts are often the largest water supplier in a basin. When they are able to conserve water, that conserved water can be used by other irrigators, to restore in-stream flows to help protect endangered species, or for other uses in the basin.

Oregon districts hope to continue this work through enhanced water conservation and improved water management, 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 FY10 budget, others are going through a reauthorization process or new authorizations for projects in their districts that will continue this conservation ethic.

Previously for Oregon needs we had identified the conservation implementation needs in the Rogue River Basin, Deschutes Basin, Deschutes Basin, Umatilla Basin, Hood River Basin and Klamath Basin. Those needs have not been met and continue to be critical to our member districts in those basins.

In addition to those needs previously identified, the Greenberry ID Phase 3 Pipeline Project in the *Willamette River Basin* will add capacity to the district's infrastructure to provide water for irrigation while supporting other water needs in the basin including augmenting stream flows and supporting wetlands.

Bonneville Power Administration (BPA)

OWRC supports the BPA's ongoing efforts in protecting, mitigating and enhancing Columbia River Basin fish and wildlife affected by any hydroelectric project. The BPA, through the Northwest Power and Conservation Council, has recognized the importance of funding fish protection efforts on the tributaries of the Columbia River as well as on the river's mainstem. Representatives of several OWRC members have served on the sub-basin planning committees and our member district have been active participants in the Council's efforts as part of cooperative efforts in watersheds in the Columbia Basin.

We encourage the Council to help fund irrigation district projects that conserve water that can be left instream to support the survival of endangered and threatened fish species in the Basin.

Thank you for the opportunity to provide testimony regarding the FY10 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.

AMERICAN
SOCIETY FOR
MICROBIOLOGY

Public and Scientific Affairs Board

Statement of the American Society for Microbiology
Submitted to the
House Appropriations Subcommittee
On Energy and Water Development
On the Fiscal Year 2010 Appropriation for the Department of Energy

The American Society for Microbiology (ASM) is pleased to submit the following testimony on the Fiscal Year (FY) 2010 appropriation for the Department of Energy (DOE) science programs. The ASM is the largest single life science organization in the world with more than 43,000 members. The ASM mission is to enhance the science of microbiology, to gain a better understanding of life processes, and to promote the application of this knowledge for improved health and environmental well-being.

The DOE Office of Science funds basic research in support of the DOE's mission of energy security, national security, and environmental restoration. Research supported by the Office of Science encompasses such diverse fields as materials sciences, chemistry, high energy and nuclear physics, plasma science, biology, advanced computation, and environmental studies.

The ASM supports the Administration's pledge to substantially increase funding for basic science research and scientific user facilities and urges Congress to fund the DOE office of science at $5.2 billion for FY2010, an 8 percent increase.

We commend Congress for the substantial and much needed funding for the DOE in the American Recovery and Reinvestment Act of 2009 and the Omnibus Appropriations Act of 2009. The need remains, however, for a steady and reliable increase of fiscal year appropriations to provide real growth for DOE science budgets in future years.

Biological and Environmental Research (BER)

Operating within the DOE Office of Science, the BER division facilities the growth of a strong science based platform to continue to work with national laboratories, universities and private intuitions to harness the capabilities of microbial and plant systems. A fundamental task of the BER is supporting and providing research for the President's National Energy Plan. Research from BER contributes to developing cost-effective, renewable energy, increasing the Nation's energy security, and works to slow or stop increases in atmospheric carbon dioxide among other crucial priorities.

The ASM urges Congress to support an increase for the BER on par with the overall increase in FY2010 funding for the Office of Science.

Research on microbes contributes advances to critical technologies and processes necessary for addressing the Nation's great energy and environmental challenges in a number of ways:

- Carbon Sequestration: Microbes offer multiple possibilities for enhancing carbon sequestration, a process that can reduce CO_2 accumulation in the atmosphere. These options include enhancing plant growth, some of which may be used for biofuels, and promoting carbon storage belowground. The latter process involves manipulation of microbial communities and activities to help stabilize organic carbon in soils.

- Environmental Remediation: Microbes play major roles in modifying sub-surface environments, where many major pollutants accumulate and are subsequently dispersed. Microbial activities affect the chemical form and movement of many contaminants. The work of various research groups has shown that microbes can be manipulated to directly or indirectly provide potential cost-effective bioremediation strategies for immobilizing contaminants. For instance, two different microbes, *Shewanella* and *Geobacter*, transform toxic metals such as uranium from a soluble form that moves in groundwater, to an insoluble form that can then be recovered for decontamination. These and other microbes also decontaminate many other metals, radionuclides and toxic chemicals.

- Renewable Energy: A greater understanding of the process by which crude oil is transformed into methane, or natural gas, opens the door to recovering clean-burning methane directly from deeply buried or in situ oil sands deposits. A recent study demonstrated methane production from anaerobic hydrocarbon degradation; these findings offer the possibility of 'feeding' specific hydrocarbons to microbes and rapidly accelerating their conversion into methane. Additional research has shown that hydrogen can be produced from partly degraded oil, and used with CO_2 to form methane. This paves the way for using the microbes to capture this CO_2 as methane, which could then be recycled as fuel in a closed-loop energy system.

Microbial enzymes are also important sources of catalysts for conversion of plant biomass, including cellulose and lignins to biofuels (e.g., ethanol and butanol).
Continued support of basic microbiological research is essential for ensuring that the potential for biomass as a source of renewable, alternative fuels can be realized.

Genomics: GTL

The Genomics: GTL program supports basic research in plant and microbial systems biology and explores microbes and plants at the molecular cellular and community levels. The ASM supports an increase in funding for GTL in FY2010 to allow it to continue to advance DOE wide missions in environment, climate and energy.

The GTL goal remains to expand insights about fundamental biological processes and a predictive understanding of how living systems operate. This understanding, linked with DNA sequences and widely available, will catalyze the translation of science to new technologies for application in energy and environmental issues.

Public and Scientific Affairs Board

The GTL works with the DOE Joint Genome Institute (JGI), one of the world's largest and most productive public genome sequencing centers, to map genomes of microbes and fungi that degrade biomass or impact plant productivity. This relationship has created a vital knowledge base within the DOE from which scientists are able to purposefully redesign proteins, biochemical pathways, and even entire plants or microbes to help solve bioenergy challenges.

Three GTL Bioenergy Research Centers were established in 2007, the Bioenergy Science Center, the Great Lakes Bioenergy Research Center, and the JGI. These centers, which are actively working toward making the production of biofuels more efficient, less costly, and commercially viable; results of ongoing studies are changing the way we think about biotechnology, and transforming how we power our nation. The centers are creating knowledge underlying three grand challenges faced by biology within the DOE mission: 1) development of the next-generation bioenergy crops; 2) discovery and design of enzymes, and microbes with novel biomass degrading capabilities; and 3) discovery and design of microbes that transform fuel production from biomass. Meeting these challenges will benefit all biological research efforts.

Areas of emphasis in Genomics: GTL include:

Bioenergy production: A broad range of research has been undertaken to optimize bioenergy production from a variety of renewable sources. Past and ongoing research has made significant progress in a number of areas: understanding the details of plant biomass structures and how they might be manipulated to improve conversion to biofuels; discovery of novel enzymes for improving conversion of biomass to biofuels; understanding the details of plant and microbial metabolism at a level that promotes controlled synthesis of desired end-products.

Environmental remediation: Research sponsored by Genomics:GTL has made major progress in understanding the functions and behavior of specific microbes (e.g., *Geobacter* and *Shewanella*) and microbial communities that play important roles in strategies for remediating a wide range of environmental problems, including clean-up of toxic wastes and radioactive materials. This work integrates from microbial genomes through the functions of microbes in the environment, and provides a foundation for altering microbial activities for to solve specific problems.

Carbon cycling: Microbes play major roles in the transformation of carbon in natural systems. Some of these transformations can promote carbon sequestration, while others produce greenhouse gases. Genomics: GTL research helps understand how complex microbial communities function in nature, and how these communities respond to changes and stresses. This information is not only critical for developing predictions of microbial responses to climate and other environmental changes, but is essential for developing approaches for managing those responses to minimize adverse impacts of change.

The ASM urges Congress to fully support the GTL program with increased funding to JGI. In FY2009, the President's budget request included $162.7 million in funding for GTL, but

significantly cut funding for JGI by $5million. It is imperative to ensure that funding increases are seen for both of these vital programs in FY2010.

Environmental Remediation Sciences Division

The Environmental Remediation Sciences Division (ERSD) within BER sponsors and supports fundamental scientific research to understand the complex physical, chemical, and biological properties of contaminated sites in order to develop new solutions for environmental remediation. DOE is responsible for the largest, most complex, and diverse collection of environmental remediation challenges in the nation. ERSD supports two major activities: 1) the Environmental Remediation Sciences Program (ERSP), which seeks to provide the fundamental scientific knowledge needed to address challenging environmental problems that impede the remediation of contaminated environmental sites; and 2) the Environmental Molecular Sciences Laboratory (EMSL), which is a national scientific user facility that provides integrated experimental and computational resources for discovery and technological innovation in the environmental molecular sciences to support the needs of DOE and the Nation.

DOE's remediation challenges occur in the field where highly interactive natural processes acting over a broad range of scales control the fate and transport of contaminants. The ERSD goal is to help provide the basis for development of innovative remediation measures to support decision making critical to long-term stewardship. Of the 144 sites where DOE has remediation, waste management, or nuclear materials and facility stabilization responsibilities, nearly 100 have soils, sediments, or groundwater contaminated with radionuclides, metals, or organic materials.

The ASM urges Congress to fully support ERSD, which will help support DOE's goal to "provide sufficient scientific understanding such that DOE sites would be able to incorporate physical, chemical and biological processes into decision making for environmental remediation and long-term stewardship."

Energy Biosciences

The ASM supports increased funding for the Eenergy Biosciences program within the Basic Energy Sciences Division of Chemical Sciences, Geosciences, and Biosciences. The Energy Biosciences (EB) program within the Basic Energy Sciences (BES) division supports fundamental research to promote the development of future energy-related technologies. There is a specific emphasis in research on plant and non-medical microbial energy transduction systems. The EB program provides a fundamental understanding of the complex processes that convert and store energy in living systems and impacts numerous DOE interests, enhanced biofuel production strategies, next generation energy conversion/storage devices, and efficient and environmentally-friendly catalyst development in particular.

In FY 2009, EB was divided into two separate programs:

Photosynthetic systems: This program is focused on fundamental research to elucidate the specific mechanisms by which plants and microbes convert solar energy into chemically-stored forms of energy. Results from this new program will create a foundation for the development of enhanced biological and engineered systems to harvest solar energy, thus contributing to the Nation's goal of energy independence.

Physical biosciences: This program combines tools and approaches from the physical sciences with the disciplines of molecular biology and biochemistry to create new understandings of the detailed mechanisms for energy storage and use in plants and microbes. Results for this new program will promote the development of improved systems for harvesting energy in multiple forms and enhancing their use for human needs.

Workforce Development

Scientific research and subsequent discovery is vital for the nation to remain competitive in the global economy and ensuring support for a well trained workforce of teachers and scientists at all levels, is imperative. The ASM supports increased funding for Workforce Development for Teachers and Scientists within the DOE Office of Science which funds undergraduate research internships, graduate and faculty fellowships, pre-college activities, laboratory equipment programs, and teacher programs.

Conclusion

The ASM supports increased funding for the DOE Office of Science in FY 2010, and urges Congress to provide adequate funding for the BER, ERSD, and Genomics: GTL, and the JGI, which are essential to DOE's mission. The DOE Office of Science programs enhance United States competitiveness through fundamental research and advanced scientific breakthroughs that revolutionize the Nation's approach to challenging energy and environment challenges.

The ASM appreciates the opportunity to provide written testimony and would be pleased to assist the Subcommittee as it considers the FY 2010 appropriation for the DOE.

Written Statement submitted to the House Subcommittee on Energy and Water Appropriations for the fiscal year 2010 budget request for DOE/FE program elements. Statement submitted by Ben Yamagata, Executive Director of the Coal Utilization Research Council (CURC) April 3, 2009

Introduction

This statement is submitted on behalf of the membership of the Coal Utilization Research Council (CURC), an organization of coal-using utilities, coal producers, equipment suppliers, universities and institutions of higher learning and several state government entities interested and involved in the use of coal resources and the development of coal-based technologies. The CURC welcomes the opportunity to submit this written statement addressing elements of the fiscal year 2010 budget request for the Department of Energy's fossil energy (DOE/FE) program. Because specific funding levels for the fossil energy program have yet to be released, CURC is not able to make specific comments about the level of funding requested for any given fossil energy program. We would welcome the opportunity to provide the Committee with more detailed comments when such a detailed budget is available is the Committee so directs.

The importance of the DOE/FE RD&D program

The Department of Energy's coal-based fossil energy program conducts research, development, and demonstration (RD&D) to develop advanced technologies which further the Nation's energy security, economic, and environmental goals. These technologies are at the heart of the solutions needed to solve major challenges to our economic well-being -- global climate change, over-reliance on imported fuels, and the need for an adequate supply of energy at affordable prices.

Given the importance of coal to the U.S. energy mix and the challenge of global climate change it is imperative that the Department's Fossil Energy RD&D activities be singularly focused upon the goal of rapidly commercializing carbon capture and storage (CCS) technologies as well as technologies to improve the efficiency by which coal is converted to useful energy (increasing the efficiency of coal power plants will reduce the CO_2 emission for each megawatt-hour of electricity generated). Our ability to achieve these goals can be furthered in DOE/FE programs that support power generation as well as industrial uses of coal. Successful deployment of CCS technologies is viewed by most responsible authorities as essential for addressing global climate change. For example, the Pew Center on Global Climate Change has stated that, *"Carbon Capture and Storage (CCS) is the key enabling technology for a future in which we can continue to use our vast coal resources and protect the climate."*[1] And former British Prime Minister Tony Blair stated in November, 2008: *"The vast majority of new power stations in*

China and India will be coal fired not "may be coal fired" will be. So developing carbon capture and storage technology is not optional, it is literally the essence."

Finally, various analyses have considered the impact of developing and implementing CCS as part of a climate mitigation strategy and concluded that global mitigation costs could be reduced by more than 30% if CCS is widely deployed. This implies savings of trillions of dollars as the world confronts the challenge of cost-effectively controlling CO_2 emissions.

In short, CCS is crucial to meeting our climate mitigation goals, and it also enables coal to continue to provide energy security and economic benefits to the nation.

Budget principles

Because the Obama Administration has not yet released a detailed FY 2010 DOE/FE budget we are not able to comment with specificity as to the importance or adequacy of those levels. However, within this statement, CURC has made several generalized budget recommendations based upon previous administration budget requests. Importantly, these recommendations strongly reflect CURC's basic principle that the DOE/FE FY-2010 budget must reflect the need to focus upon the commercialization of carbon management technologies. We believe that with adequate focus and resources, reliable commercial-scale CCS projects can be operational by no later than 2020.

The fossil energy program should be focused almost exclusively upon CO_2 control and reduction activities and should be funded at a level of $500 million annually. The fossil energy program should include –

- Emphasis upon cost-reducing near-term (within the next decade) carbon management technology improvements, such as those that affect the cost of major components of the CCS system, or cause a significant reduction in the demand for parasitic power by CCS technology, or increase a power plant's efficiency that would both reduce total CO_2 emissions and add power to operate CCS systems;
- augmented funding for demonstration projects in order to "put steel on the ground" now in order to demonstrate currently available CCS technologies and to gain knowledge from their operation; and
- reconstitute the FE advanced research program as the primary means through which work is conducted on longer-term "breakthrough" technologies that might be high risk, but if successful, could reduce mitigation costs by a large amount and also upon those current technologies in the FE portfolio that fall outside of the 2020 commercialization window.

In addition, CURC believes that there are certain enabling measures, such as finding acceptable ways to address long-term liabilities, resolving underground property rights issues, and perhaps creation of interstate CO2 pipelines, which require resources for development of data as well as policy analysis.

Specific suggestions

Appropriations that historically have been designated for longer-term programs, in our judgment, must be re-directed and focused on those technologies crucial to meeting the principles outlined above. This recommendation by no means should be interpreted as a judgment that promising technologies that could provide very significant benefits towards the cost-effective, efficient use of our Nation's coal resources should not be continued. Simply stated, there are not adequate public resources to do everything that should be done. To this extent, the existing FE fuel cell program as well as the coal fuels and liquids program that received nearly twenty percent of the FE appropriated budget for FY 2009 should be very substantially deferred. There is no question, in our judgment that fuel cells could provide a cleaner and lower cost pathway for power production from coal and other fossil fuels in the future, but if this technology is not likely to be commercially available in a timeframe consistent with our 2020 objective then its funding level should be decreased. Secondly, and particularly in light of the current price of oil and projections that it will rise dramatically once the global recession is over, we believe that there is no longer a Federal role in improving O&G exploration and production technologies. The market provides more than an adequate incentive to develop those technologies. And finally, other programs of equal or greater potential are supported within the FE program but they too may fall outside of the 2020 timeline for commercialization. These technology development areas that might include such endeavors as membrane work or advanced post combustion processes should be supported at minimal levels unless it is determined that they will be commercialized within the 2020 time horizon.

By reducing spending on these programs and redirecting funding into key carbon management technology programs we believe the prospect of achieving immediate (by 2020) CCS goals will be greatly enhanced. Programs that should be candidates for enhanced funding include the following:

- Continuation of and increased focus upon existing gasification programs that support efficiency in the conversion of coal to useful energy and in this way not only is less coal utilized but the power consumed to operate CO_2 capture systems can be generated through greater power plant efficiency. Also funding increases should be made to programs aimed at lowering the costs of oxygen production and increasing the durability of gasifier components.

- Enhancement of funding for FE programs and projects that specifically support technologies that increase the efficiency of coal conversion to energy and that contribute to reducing the costs of CO_2 capture from combustion-based power generation. This emphasis upon advanced combustion would also include increased funding for oxy combustion, advanced solvents for post combustion capture, and increased support for the high temperature materials program for ultrasupercritical cycles.

- Because the majority of CO_2 emissions within the foreseeable future will continue to be generated from the existing coal power generation fleet (in both the United States and abroad) it is vitally important that there also be a major focus upon efficiency improvements and developing capture systems designed to cost effectively retrofit the existing fleet. This means that the existing IEP (innovations for existing plants) program first must be focused almost exclusively upon enhancing carbon management of the existing fleet which includes both carbon capture as well as carbon management through enhanced power plant efficiency. In addition, a modest level of work that is currently underway within the IEP program with respect to water usage should be maintained in that water availability could become a major impediment to efficient and effective use of our coal resources.

- Greater emphasis on carbon management "breakthrough" technologies is warranted. Continuing fuel cell activities and other technology development activity that is very promising but not likely to make significant contributions toward addressing CCS technology commercialization prior to 2020 should be placed into this program account. In this same enhanced program area, the DOE also should focus upon truly innovative approaches to the management of carbon in the utilization of coal. This work could be accomplished in tandem with the Nation's universities and other national centers of excellence.

- Funding through the DOE's Regional Carbon Sequestration Partnerships should be increased to accelerate major CO_2 storage demonstration projects. Also, in conjunction with funds made available through the recently enacted economic stimulus package additional funding should be provided to assist industry in characterizing a variety of geologic formations where deep saline storage projects are being identified or undertaken. A principal purpose of these programs should be to acquire greater understanding of underground geology and chemistry with CCS injection.

- And, finally as utilities begin embracing various carbon management technologies we will need programs to train more personnel in these important new areas, both for the

private sector and for public sector employees who regulate the siting and operation of these new carbon storage facilities.

Conclusions:

The stakes have never been higher regarding energy and environmental policy, or the consequences of failing to provide technologies for the future. Our challenge is significant. Success will require commitment, vigilance, and significant resources over an extended period of time. CURC respectfully asks that the Committee provide the Department of Energy the resources it needs to accomplish the important goal of timely development and widespread deployment of carbon management technologies.

Thank you for providing the opportunity for CURC to provide its views to the Committee.

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[1] Pew Center website, http://www.pewclimate.org/global-warming-basics/coalfacts cfm .

Testimony of the Izaak Walton League of America
Subcommittee on Energy and Water

April 3, 2009

Submitted by Scott Kovarovics, Conservation Director

The Izaak Walton League of America appreciates the opportunity to submit testimony concerning appropriations for fiscal year 2010 for programs under the jurisdiction of the Subcommittee. The League is a national, nonprofit organization founded in 1922. We have nearly 37,000 members and 270 community-based chapters nationwide. Our members are committed to advancing common sense policies that safeguard wildlife and habitat, support community-based conservation, and address pressing environmental issues. The following pertains to programs administered by the U.S. Army Corps of Engineers.

Corps of Engineers, Operations and Maintenance, Upper Mississippi River

The League supports strong financial efforts for ecosystem restoration for the Upper Mississippi River (UMR). We have supported the Environmental Management Program (EMP) since its inception and continue to support this vital restoration program. EMP should be fully funded at its authorized level of $33.2 million and the current restriction for starting new EMP projects should be lifted. It is important to note that even this level of investment can serve only to slow the pace of UMR degradation, not achieve net restoration.

The League has also strongly expressed its opinion that the large-scale navigation modifications included in the Recommended Plan for the for the Upper Mississippi Navigation and Ecosystem Sustainability Program (NESP), as authorized by the Water Resources Development Act of 2007, have not been justified by the Corps and should not be pursued. Previous reviews from the National Academy of Sciences and the Assistant Secretary of the Army, Civil Works found that the navigation construction component of NESP was not economically justifiable.

The League has strong roots in the Upper Mississippi River region. Protecting the basin has been a key issue for our members since we led the fight to create the Upper Mississippi River Fish and Wildlife Refuge in 1924. The League has spearheaded efforts to reform the lock and dam navigation system to ensure that flows and habitat remain as natural as possible. We also work to promote sustainable agriculture practices and implement farm conservation programs to reduce polluted runoff. Our testimony reflects many decades of experience on the Upper Mississippi River and our direct 15-year involvement with the Upper Mississippi River – Illinois Waterway (UMR-IWW) navigation study.

The Upper Mississippi River is one of the most complex ecosystems on earth. It provides habitat for 50 species of mammals, 45 species of reptiles and amphibians, 37 species of

mussels, and 241 species of fish. The need for ecosystem restoration is unquestionable. As the Corps correctly stated in its study of navigation expansion, this ecosystem is "significantly altered, is currently degraded, and is expected to get worse." Researchers from the National Academy of Sciences have determined that river habitat is disappearing faster than it can be replaced through existing programs such as the Corps' Environmental Management Program, which was authorized at $33.2 million annually by Congress in 1999, but has never received full appropriations. As habitat vanishes, scientists warn that many species will decline and some will disappear.

Our nation relies on a healthy Mississippi River for commerce, recreation, drinking water, food supply and power. More than 12 million people annually recreate on and along the Upper Mississippi River spending $1.2 billion and supporting 18,000 jobs. More people recreate on the Upper Mississippi than visit Yellowstone National Park. Notably, barge traffic has remained static on the river for more than two decades with real declines in recent years.

The Water Resources Development Act of 2007 authorizes the Navigation and Ecosystem Sustainability Program (NESP) for the Upper Mississippi River. NESP allocates $2.2 billion for new navigation-related construction and $1.7 billion for ecosystem restoration over an initial 15-year project phase. Included in the $2.2 billion is over $256 million for small-scale and non-structural navigation projects that we fully support. However, we have consistently opposed the unnecessary spending of tax dollars on the economically unsound new locks, a position further bolstered by the continuing annual declines in barge traffic on the UMR.

In assembling the UMR-IWW navigation study, the Corps recognized the critical need for UMR ecosystem restoration work and encouraged Congress to invest approximately $130 million annually in Upper Mississippi River habitat restoration efforts. With this demonstrated need in mind, the League strongly encourages the Subcommittee to prioritize investment in ecosystem restoration. Appropriating significant funding for restoration will provide near-term economic stimulus in communities along the UMR and long-term conservation and economic benefits for the region and the nation.

Corps of Engineers, Operations and Maintenance, Missouri River

For FY 2010, we urge the Subcommittee to provide at least $85 million specifically for ecosystem restoration along the Missouri River. We believe it is essential to provide this minimum amount because the final FY 2009 appropriation is significantly below the request and the Corps identified approximately $26 million in restoration projects that could commence quickly to stimulate local economies, but these were not funded by the American Recovery and Reinvestment Act. With at least $85 million, the Corps and U.S. Fish and Wildlife Service could begin important ecosystem restoration efforts that will produce long-term ecological and economic benefits, as well as provide economic stimulus throughout FY 2010 by allowing the agency to move forward with shovel-ready projects.

The Missouri River basin encompasses land in 10 states and covers one-sixth of the continental United States. The Missouri, America's longest river, is one of the most altered ecosystems on earth. While recovery and restoration efforts have begun, much more needs to be done. League members, especially those in Iowa, Nebraska and South Dakota, want to see the recovery efforts continue and expand.

The Corps, Fish and Wildlife Service and many state agencies have been working on restoring habitat for fish and wildlife species along the river. This work is critical for the Interior Least Tern and Pallid Sturgeon, which are listed as endangered under the Endangered Species Act, and the Piping Plover, which is listed as threatened. Moreover, the positive impacts of restoration extend to virtually all fish and wildlife throughout the region.

A recent study conducted by the Fish and Wildlife Service near Lisbon Bottoms in Missouri showed that over twice as many fish species were utilizing the created shallow water habitat (SWH) areas as the main channelized section of the river. A Corps' study has shown that the emergent sandbar habitat (ESH) projects have had tremendous response from nesting terns and plovers. These habitat restoration projects are working with the river -- not against it.

These projects have also been a boon for recreation along portions of the river. Anglers, hunters, boaters and others have been using some of these areas proving the old adage "if you build it, they will come." Although the majority of the population lives in the lower basin, most recreational spending is currently occurring in the upper basin because facilities and opportunities are more abundant. These developed habitat projects are bringing people back to the river in the lower Missouri basin.

In addition to boosting the economy through tourism, restoration projects can provide near-term economic stimulus in small communities throughout the region. As Congress and the Administration considered the stimulus package earlier this year, the Corps identified $26 million in restoration projects that could commence this spring and summer in Nebraska, Iowa, South Dakota and other basin states. In general, these projects involved removing barriers to fish passage on the Yellowstone River in Montana as well as restoring and creating habitat for terns, plovers and pallid sturgeon in the middle and lower basin. To perform this work, the Corps would contract with local construction companies, which would create or maintain jobs and inject dollars into the local economy through purchases of materials, fuel, food and lodging. Although these projects were not funded by the Recovery Act, with an appropriation at least equal to $85 million, the Corps could implement some of them next year. Doing so could help propel economic recovery at the community level at a time when we hope the national economy will also be improving.

The League encourages the Subcommittee to provide at least $85 million for recovery and restoration efforts along the Missouri River. Benchmarks have been set by the Biological Opinion establishing goals for habitat restoration. With adequate funding and

a lot of hard work on the ground, we can meet these goals and restore critical segments of America's longest river.

We appreciate the opportunity to submit testimony and look forward to working with the Subcommittee to strengthen the investment in ecosystem restoration and recovery along the Upper Mississippi and Missouri rivers.

FY 2010 FOSSIL ENERGY RESEARCH AND DEVELOPMENT PROGRAMS

Testimony submitted by
Richard Bajura
on behalf of the
National Research Center for Coal and Energy
West Virginia University

To the
Committee on Appropriations, Subcommittee on Energy and Water Development
U. S. House of Representatives
April 3, 2009

The National Research Center for Coal and Energy submits this testimony in support of the Fossil Energy program of the United States Department of Energy. Our testimony addresses the need for both fundamental research programs for developing new, advanced technologies and also larger scale projects which prove out and hasten the deployment of emerging technologies. We request your continued and strong support for fossil energy research. Specific recommendations regarding programs are described in our testimony below.

Introduction

While longer term scenarios offer the promise of alternative technologies to provide our energy needs, all near-term and mid-term projections for both our national and global sources of energy include a strong reliance on fossil fuels. History has shown that concept-to-commercial deployment of paradigm-shifting technologies can be as great as 40 years. Therefore, it is both prudent and necessary that continued, substantive investments be made to develop advanced technologies for coal and other fossil fuels to reduce environmental impacts while alternative technologies are being developed. It is necessary for the United States to show leadership in addressing carbon dioxide emissions if we wish to achieve global cooperation in solving an energy crisis that affects all nations.

Coal fuels offer our nation a long term supply of energy that is inexpensive and lessens our dependence on foreign energy sources. Significant new resources are also emerging through producing deeper horizons containing natural gas and developing alternative supplies such as oil shale, tar sands, and biomass sources that can be combined with coal to reduce CO2 emissions.

Given the cost of operating energy plants that comply with environmental regulations for emissions of criteria pollutants and the projected costs for deploying plants that capture and store carbon dioxide, modern coal-fired electricity generation plants are built in size ranges of 600 Mw – 1,500 Mw to take advantages of the economies of scale to ensure a plant's economic viability in the long term. Plants of this

size range require a substantial capital investment; a 1,000 Mw Integrated Gasification Combined Cycle (IGCC) electric power plant, for example, could cost $2.5 billion. Uncertainties regarding future legislation controlling CO2 emissions drive the cost of plants even higher. When requesting financing for a new power plant, Wall Street has shown a reluctance to invest in unproven technologies. As a result, new plant designs remain on the drawing board rather than being constructed in the field. Federal support for demonstrating commercial scale integrated plant designs is required to hasten the deployment of advanced technologies into the marketplace.

Similar needs apply to converting coal and biomass to liquid fuels for our transportation sector. Conversion technologies can be commercially viable when oil is priced in the range of $70 per barrel. Economies of scale will require plants at least in the range of 50,000 barrels per day in capacity, driving their cost to $4 billion for a plant based on technology available today. Federal support for demonstrating coal-to-liquids plants is required to overcome the financial concerns associated with investing in such large scale facilities. We should be mindful that today's low price for oil is the result of a global economic downturn; prices are presently rebounding and our nation may soon find itself faced with shortages of oil, even at the cost of $150 per barrel.

Fuels Research ($40 million)

The Administration has only requested $10 million in support for fuels research for the past several years, with the attention of that request directed toward a hydrogen fuels program. We recommend support of the fuels program at a level of $40 million for FY 2010, an increase of $15 million over the FY 2009 appropriation in the Omnibus budget bill passed this year by Congress.

Congress should mandate a coal-to-liquids (CTL) program to prepare our nation to be self sufficient in the area of transportation fuels, which comprise 48% of our energy costs [EIA June 2008]. Investments should be made in perfecting modeling technologies to reduce the cost of experiments through greater reliance on simulation versus expensive test facilities. Investments also need to be made in developing integration and control systems for plants which may operate in swing modes from electric power generation to fuels production in applications such as IGCC systems. New, successfully developed ideas need to be moved from the laboratory scale to pilot scale facilities to advance along the pathway to commercialization. With the maturing of the hydrogen and fuel cells technologies, increased funding is necessary to support proof testing in pilot and demonstration scale systems. We request continued support for advanced CTL research such as conducted by the Consortium for Fossil Fuel Science and for the collaborative program of the US-China Energy Center. This collaborative program provides information on the operation of commercial scale CTL facilities being tested in China at a small fraction of the cost the United States would have to pay to obtain the same results from our own facilities.

Recent studies have shown that coal plus biomass to liquids (CBTL) technologies can not only be viable but can have carbon footprints such that no net

carbon dioxide is emitted to the atmosphere, even considering that liquid fuels produced from the process will be combusted in transportation vehicles. In addition to continuing the CBTL program that Congress mandated several years ago, we recommend that funding be provided to undertake research in using algae to produce oils that can be used as liquid fuels or for other value-added products such as pharmaceuticals or nutraceuticals or animal fodder. An algae research program falls within the Fossil Energy R&D portfolio of developing carbon reuse technologies. The algae program should continue to be managed by the National Energy Technology Laboratory (NETL).

Work on hydrogen fuels from coal should be continued in FY 2010. In addition to supporting the development of pathways to produce high purity hydrogen, we recommend support for the hydrogen Research, Demonstration, Training & Evaluation (RDT&E) program being conducted in West Virginia by NETL to promote the acceptance and use of hydrogen as a transportation fuel and for other applications such as power systems for small scale electronic uses.

Recent news events in Kentucky (an outburst from a coal mine discharged a coal fines slurry into a river) and Tennessee (an ash pond dam failure caused flooding in downstream communities) have highlighted the need for continued research in coal preparation technologies to make more efficient use of the coal mined, thereby reducing environmental impacts. The work of the Center for Advanced Separations Technologies (CAST) in developing new technologies to reduce the amount of coal fines discharged to ponds is an important program addressing the upstream component of using coal as a fuel. We recommend continued support for the CAST program.

We believe the increased emphasis on coal as an alternative fuel warrants the appropriation of additional funding to fuels programs and request your support for a $40 million allocation to the Fuels Program for FY 2010. Your support for demonstrating coal to liquid technologies under the Fossil Energy Clean Coal Power Initiative is also requested.

Carbon Management

We recommend strong support for carbon management research, including developing advanced capture technologies and for geologic storage of CO_2. Given the variety of potential sinks, multiple projects are needed to prove out technologies such as injection into saline aquifers, depleted oil and natural gas reservoirs, and coal seams. States like West Virginia offer possibilities for demonstrating and deploying capture and storage technologies while offering opportunities for our State's coal resources to help meet electrical demands of the East Coast. We recommend congressional support for a diverse portfolio of investments in the National Energy Technology Laboratory as the national center for carbon management research. NETL should also be charged to expand its programs in developing pre-and post-combustion CO_2 capture technology. Continued support for the collaborative research program between NETL and the Zero Emissions Technology Center is also recommended. Another promising area of research is to explore ways to utilize CO_2 in processes which do not require storage but

result in useful products. Algae research, as noted under the fuels program above, is one example of such an application.

Fuel Cells and Turbines Research Programs

Advanced research programs in fuel cells and turbines are directed toward coal-based systems that support carbon capture as part of the system design. These programs support clean coal initiatives and result in reduced carbon footprints for our power generation sector. Continued work in these technology areas is needed to develop integrated power systems that are highly efficient to counteract the performance penalty that is incurred when carbon capture requirements are included in the system design. Congressional appropriations for FY 2009 included allocations of $58 million and $28 million, respectively. We recommend increased support for these areas in FY 2010 to cover existing mortgages for current programs and to start new initiatives.

Advanced Research ($45 million)

Advanced technology systems now being developed for increased efficiency and carbon capture require high performance materials for operation in harsh environments. For FY 2009, Congress appropriated only $28 million for this program and the Administration requested only $27 million. The funding for this area is markedly reduced from levels appropriated only several years ago and is inadequate for the challenges we face in developing our next generation power systems. We recommend that the funding provided for Advanced Research be increased to a level of $45 million for FY 2010. Consideration should also be given to establishing an advanced combustion research program.

Advanced materials are needed in a variety of applications such as ultra-supercritical power plants, high temperature gas-fired and hydrogen-fired turbines, sensor technology, catalysts for fuel conversion, high temperature materials for fuel cells, and new processes for carbon capture. We recommend that new funding of $10 million be provided for advanced research to develop advanced materials for energy applications.

Advanced computing capability has been enabled by newer, high speed computers and developments in computing science that permits modeling of energy systems in scale ranges from molecular interactions to the integrated operation of complex power plants. Given the high cost of testing and building large scale energy systems, computational modeling offers inexpensive advantages to design energy systems which will / must be deployed in the future. NETL's Computational Energy Sciences (CES) program received congressional support previously. We recommend that new funding of $5 million be allocated to continue this program in FY 2010.

Innovations for Existing Plants Program (+10 million)

Funding of $50 million was appropriated by Congress for the Innovations for Existing Plants (IEP) program for FY 2009 with a focus on carbon capture and storage (CCS) technologies. We are concerned however, that funding is also needed in areas such as particulate control, air toxics, combustion byproduct utilization, and research in technologies which minimize the use of water in energy systems. Continued research is needed in these areas in view of recent rulings calling for more stringent studies on mercury emissions. National concerns have arisen about the scarcity of water in many regions where electric power demands are increasing. We recommend an additional $10 million for the IEP program for water-based research applications.

Oil and Natural Gas Programs ($40 million)

The core oil and natural gas programs under Fossil Energy are specifically authorized in P. L. 109-58 (EPAct 2005). This authorization includes programs such as the Stripper Well Consortium, the Petroleum Technology Transfer Council, and the Enhanced Oil Recovery in Marginal Fields programs. All three of these programs are of major interest to areas such as Appalachia where small producers do not have sufficient funding or expertise to conduct research to recover the valuable resources remaining in the ground. These programs also support research which educates our geologists and petroleum engineers needed in the future to produce our existing resources and to manage our carbon storage programs for CO_2 We recommend restoration of the Oil and Natural Gas program at NETL to a level of $40 million, which is considerably less than Congress provided in earlier times when we were not facing national economic challenges such as $140 per barrel oil and $4 dollar per gallon gasoline.

Thank you for considering our testimony.

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NATIONAL CONGRESS OF AMERICAN INDIANS

NCAI TESTIMONY TO THE HOUSE ENERGY AND WATER APPROPRIATIONS SUBCOMMITTEE

April 3, 2009

On behalf of the tribal nations of the National Congress of American Indians (NCAI), the oldest and largest national organization representing tribal nations, we are pleased to present testimony to House Appropriations Committee's Subcommittee on Energy & Water for the following agencies, programs and appropriations.

DEPARTMENT OF ENERGY

- OFFICE OF INDIAN ENERGY POLICY AND PROGRAMS - $10 million
- INDIAN ENERGY EDUCATION PLANNING AND MANAGEMENT ASSISTANCE PROGRAM - $20 million
- INDIAN ENERGY PROJECT LOAN GUARANTY PROGRAM - $200 million

DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION

- TRIBAL RURAL WATER PROJECTS - 10% or $100 million for USBR Authorized Tribal Water System Projects
- TRIBAL IRRIGATION PROJECTS - $7.7 million tribal irrigation projects

DEPARTMENT OF DEFENSE: ARMY CORPS OF ENGINEERS

- WATER RESOURCE DEVELOPMENT ACT – TRIBAL WATER ACCESS PROJECTS
  - $5 million – WRDA Tribal Water Projects
  - $5 million – Tribal water planning grants
- TRIBAL COASTAL EROSION
  - $5 million: study analyzing the costs of coastal erosion and flooding on tribal communities
  - $50 million: Technical Assistance to address coastal erosion/flooding of tribal communities

ENERGY

Energy development on tribal lands is one of the few significant economic development opportunities available to tribes during these difficult economic times. American Indian Tribes possess abundant quantities of renewable and non-renewable energy resources, which can only provide needed tribal revenue, energy independence for the nation, energy availability to tribal peoples, and mitigation of greenhouse gas emissions.

Wind and solar energy especially have great potential on Indian Country. DOE estimates that the wind energy capacity on tribal lands alone can provide over 20% of the US installed electric power, and tribal solar energy potential, 4.5 times annual U.S. electric generation. Some estimate that the potential revenue that can be generated from renewable energy production on tribal lands can exceed revenue currently generated by tribal gaming. Tribes in the Great Plains experiencing endemic poverty have fortuitous opportunities in wind, solar, biomass, and geothermal energy development. Today, residents of many Alaska Native Villages must decide whether to buy food or heating oil, the latter costing as much as $9 per gallon. Wind and wave energy projects could rid them of this dependence on unreliable and expensive energy sources. However today, Indian wind and solar power generation is less than 100 megawatts. Indian Tribes can also boast nearly a quarter of American on-shore oil and gas reserves and developable resources and 1/3 of the West's low-sulfur coal. Yet, production from Indian lands represents less than 5% of current on-shore oil, gas, and coal production.

DOE must now commit meaningful funding to tap tribal energy potential for the first time in agency history. DOE's effort must be comparable to that provided to states for decades. The gulf between DOE support for state and tribal energy interests is massive. DOE's State Energy Program (SEP) have provided grants to state energy offices for energy plans, renewable and energy efficiency since 1975. SEP is funded through non-competitive formula grants, SEP Special Projects, and Petroleum Violation Escrow Funds.[1] Currently, the first two funds have provided $40-50 mil per year to states per year, and the latter fund, $3.87 bil to states. In contrast, DOE's Tribal Energy Program (TEP) -- the nearest equivalent to the SEP -- has provided $16.5 mil to tribes between 2002 and 2008, or $2.35 mil/year, which the 562 tribes must compete for amongst themselves. Only 33% of tribal applications have received funding. Furthermore, under the Recovery Act, SEP received $3.1 billion, and the TEP, $0. Using the abovementioned figures, (i.e., not including not SEP formula and special project grants between 1975-2001), **states** have received approximately $7.2 billion in SEP funding, and tribes, $16.5 million in TEP funding.

The *Indian Tribal Energy Development and Self Determination Act of 2005* (Pub.L. 109-58) contains the statutory foundations to support tribal capacity building and start up efforts. The statutes have not been meaningfully funded, and some not at all. Thus NCAI makes the following appropriations requests, which are modest relative to the historical and present day disparities in funding between states and tribes.

Department of Energy

Office Of Indian Energy Policy And Programs (OIEPP)

- **$10 million**

To date, this office, statutorily established by Pub.L. 109-58 to coordinate all Indian tribal-related energy programs, has consisted of one Director, no staff, and no operating budget. The programs OIEPP could manage would authorize Indian tribes to set their own priorities for development of a full range of energy opportunities and to build their human resources and their institutional capacity for successful energy development. It will allow for up to 75 tribal capacity-building projects to start-up. The continuing development of the program will require additional incremental budget increases estimated at $5 million a year for the following 4 years to reach the mature program level of $30 million a year. This request excludes OIEPP personnel and operational costs.

Indian Energy Education Planning and Management Assistance Program

- **$20 million**

The $20 million funding authorized for DOE's Indian Energy Education Planning and Management Assistance Program under 25 USC 3502(b)(6) should be fully appropriated. This program provides critical funding for feasibility studies, business planning, financial requirements, and environmental impacts analyses necessary to bring private capital and finance to implement the project. NCAI believes that the statutory authorization should be raised to $100 million, and annually appropriated to address tribal needs, historically inequitable funding, and ensure sustainable support for tribal energy development.

- **Cost Share Reductions**

As Title V of EPAct 2005 did not specifically address cost share, the activities under that Title are subject to the "standard" cost share, which is - 20% for feasibility studies and 50% for demonstration and commercial project. This is significantly deterring tribal energy development. The previous cost share requirements in the Energy Policy Act of 1992 -- 0% for feasibility studies and 20% for demonstration and commercial projects – should be reinstated.

INDIAN ENERGY PROJECT LOAN GUARANTY PROGRAM

- **$200 million - Indian Energy Project Loan Guaranty Program**

An appropriation of $200 million will support $2 billion in private financing for tribally-owned energy resource development projects sponsored by Indian tribes. DOE estimates that there are .5 billion in shovel ready tribal renewable energy projects alone, with non-renewable projects many times this figure. Energy development is highly capital intensive and the investment in projects that leverage private financing will have a large monetary benefit as well as energy security, independence payoff and a clean energy benefit as well. This will allow tribal energy projects to move to private financing in an orderly well managed process that will also provide pace to the economic growth for tribal economies.

WATER

Today over 13% of tribal homes, compared to 0.6% of non-tribal homes in the United States lack access to clean water and basic sanitation.[ii] 44,199 tribal homes lack fundamental access (i.e. are rated with Deficiency Level 4 or 5), and 341,909 tribal homes experience some degree of deficiency in their drinking water and/or sanitation systems.[iii]

For example, residents of many Alaska Native Villages must use "honey-buckets" and have their waste transported by all-terrain vehicles to untreated sewage lagoons located nearby. Many of these lagoons overflow, as GAO reports that 184 of these villages are subject to flooding, melting permafrost, and erosion because of by climate change.[iv] In one area of South Dakota, over 14,000 tribal and non tribal communities across 4 counties, are so badly underserved by aging, sub-standard infrastructure that they can only treat and distribute 10 percent of the actual water needed on a year-round basis. Funding for engineering feasibility studies and the construction of intake facilities would make significant strides in addressing the disproportionate lack of access that tribes and neighboring communities have to adequate and safe drinking water infrastructure.

A health study concluded that residents lacking in home water service have higher incidences of respiratory, gastrointestinal, and skin infections.[v] The water infrastructure needs in Indian Country are more comparable to third world conditions, and not a bright spot of pride for the United States.

DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION—TRIBAL RURAL WATER PROJECTS

- **10% or $100 Million for USBR Authorized Tribal Water System Projects**

Almost $1 billion was appropriated to this BOR account in the FY 2009 appropriations bill. In Indian Country alone the authorized tribal rural water projects alone amount is $1 billion by itself. And this is the authorized need, not the actual need. Indian Country continues to have the least access to water in the U.S., as over 13% of our population does not have basic clean water and sanitation, compared to 0.6% for the general population. This disproportionate need should be taken into consideration in appropriating under this account.

The economic stimulus recognized this disproportionate need, and set aside $60 million of the $300 million appropriated for water projects, or approximately 20%. In keeping with the recognition of this disproportionate need, at least 10% of the FY 2010 USBR appropriation should be set-aside for tribal rural water projects, or approximately $100 million.

There are at least five congressionally authorized Bureau of Reclamation tribal rural water infrastructure projects which collectively serve at least ten federally recognized Indian Tribes, 126,000 tribal members, and 9.4 million acres of Indian reservation and trust land in four states. Together these projects alone total over $1 billion. NCAI is asking for at least $100 million for the USBR tribal water projects.

BUREAU OF RECLAMATION—TRIBAL IRRIGATION PROJECTS

- **$7.7Million tribal irrigation projects**

The federal government provides funding for the construction of Indian irrigation projects as part of the government's responsibility to foster agricultural opportunities and economic development in Indian country and surrounding areas. Both the Bureau of Indian Affairs (BIA) and the USBR oversee construction of Indian irrigation projects.

The President's FY 2009 budget reports that BIA Indian irrigation projects produce over $300 million in crop revenues annually. Agriculture is the second largest industry in Indian Country. According to information received from USBR and tribal water officials, at least $7.7 Million in funding is required to complete construction-ready components of BIA/USBR Indian irrigation projects. USBR oversees Indian irrigation projects that are the result of certain water settlements or other special authorizing legislation. No funds were provided for this account in the economic stimulus.

DEPARTMENT OF DEFENSE: ARMY CORPS OF ENGINEERS

WATER RESOURCE DEVELOPMENT ACT – TRIBAL WATER ACCESS PROJECTS

- **$5 million – WRDA Tribal Water Projects**
- **$5 million – Tribal water planning grants**

Historically Tribes have turned more to the USBR for large water access and infrastructure projects. However, more and more Tribes have been working with the Army Corps of Engineers. The Army has built up some substantial expertise in these projects and Indian Country hopes to build on this growing relationship. For FY 2010 there is at least one major Tribal water infrastructure project, and more Tribes are anticipated to begin to build on this account and this expertise. The water infrastructure need in Indian Country is in the billions of dollars. At least $5 million needs to be set aside within the Army Corps WRDA accounts for tribal water projects.

TRIBAL COASTAL EROSION

- **$5 million - study analyzing the costs of coastal erosion and flooding upon tribal communities**
- **$50 million - Technical Assistance to address coastal erosion and flooding of tribal communities**

Many tribes reside along the shorelines of rivers, lakes and oceans, including tribes located in Alaska, the Pacific Northwest, Great Lakes, and Louisiana. Tribal communities, homes, ecosystems, and natural resources along these shorelines are being detrimentally impacted by developments attributable to climate change, including rising sea levels, extreme weather events, flooding and erosion. The General Accounting Office reports that flooding and erosion affects 184 out of 213, or 86%, of Alaska Native villages, and that several must be relocated within 10 years because of rapidly eroding shorelines.

As more Alaska Native Villages become so directly threatened by climate change that they must consider relocating, NCAI requests $5 million to enable the Corps, in collaboration with the affected tribal communities and other governmental entities, to perform analyses of the costs associated with continued erosion of these communities, potential costs associated with relocation, and to identify the expected time line for a complete failure of the useable land associated with each community.

In light of the severity of impacts of coastal erosion and flooding in tribal communities in Alaska and other coastal areas due to climate change and other factors, actions must also be taken. NCAI requests that $50 million under the Army Corps Continuing Authorities Program be appropriated to provide technical assistance at full federal expense, to Alaskan Native Villages and other federally recognized tribes impacted by coastal erosion and flooding. This funding can be allocated across the following authorities depending on the needs identified, with the cost/benefit analyses and cost share requirements associated for their disbursement waived. Those authorities include under the following acts include: Section 14 of the Flood Control Act of 1946; Section 205 of the Flood Control Act of 1948; Section 208 of the Flood Control Act of 1954; Section 22 of the Water Resources Development Act of 1974; and Section 206 of the Flood Control Act of 1960.

[i] See generally, DOE's State Energy Program at http://apps1.eere.energy.gov/state_energy_program/about.cfm

[ii] Indian Health Service, Sanitation Deficiency System (SDS) Summary Report (2007).
[iii] *See* attached IHS document "End of Year 2008 SDS Data."
[iv] United States General Accounting Office, "Alaska Native Villages, Most Are Affected by Flooding and Erosion but Few Qualify for Federal Assistance," GAO-04-142 (December 2003), also at http://www.gao.gov/new.items/d04142.pdf (Last accessed March 15, 2009).
[v] Thomas W. Hennessy, et. al., "*The Relationship Between In-Home Water Service and the Risk of Respiratory Tract, Skin, and Gastrointestinal Tract Infections Among Rural Alaska Natives,*"
American Journal of Public Health, Vol. 98, No. 11, pp. 2072-2078 (November 2008).

Statement of

Mayor Del Britton

Chairman of the Board

Napa County Flood Control and Water Conservation District

On behalf of the Napa County Flood Control and Water Conservation District (District), I want to thank the Subcommittee for this opportunity to present our priorities for Fiscal Year 2010 and, at the same time, express our appreciation for your support of the District's projects in the years past. The District is the local sponsor for the Corps of Engineers award-winning Napa River/Napa Creek Flood Protection project and we are requesting the Subcommittee's full support of this project to ensure that it stays on schedule. Specifically, we request the Subcommittee to support our request of $92,000,000 from the Army Corps of Engineers Construction, General account for the Napa River/Napa Creek Flood Control Project. The following text outlines this project and the need for the requested funding.

NAPA RIVER/NAPA CREEK FLOOD CONTROL PROJECT

BACKGROUND

The project is located in the city and county of Napa, California. The population in the city of Napa, approximately, 67,000 in 1994, is expected to exceed 77,000 this year. Excluding public facilities, the present value of damageable property within the project flood plain is well over $500 million. The Napa River Basin, comprising 426 square miles, ranging from tidal marshes to mountainous terrain, is subject to severe winter storms and frequent flooding. In the lower reaches of the river, flood conditions are aggravated by high tides and local runoff. Floods in the Napa area have occurred in 1955, 1958, 1963, 1965, 1986 (flood of record), 1995, 1997 and 2006. 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, twenty-seven 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 countywide. Almost all of the damages from the 1986, 1995, and 1997 floods were within the project area. On New Years Day 2006 the city again experienced a devastating flood with over $70 million damages 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 intense debate over every aspect of Napa's flooding problems, the Citizens for Napa River Flood Management crafted a flood management plan offering a range of benefits for the entire Napa region. The Corps of Engineers served as a partner and a resource for the group, helping to evaluate their approach to flood management. The final plan produced by the Citizens for Napa River Flood Management was successfully evaluated through the research, experience and state-of-the-art simulation tools developed by the Corps and numerous international experts in the field of hydrology and other related disciplines. The success of this collaboration serves as a model for the nation.

Acknowledging the river's natural state, the project utilizes a set of living river strategies that minimize the disruption and alteration of the river habitat, and maximizes the opportunities for environmental restoration and enhancement throughout the watershed.

The Corps has developed the revised plan, which provides 100-year protection, with the assistance of the community and its consultants into the Supplemental General Design Memorandum (SGDM) and its accompanying draft Environmental Impact Statement/Environmental Impact Report (SEIS/EIR). Construction of the project began in 2000. The coalition plan now memorialized in the Corps final documents includes the following engineered components: lowering of old dikes, marsh plain and flood plain terraces, oxbow dry bypass, Napa Creek flood plain terrace, upstream and downstream dry culverts along Napa Creek, new dikes, levees and flood walls, bank stabilization, pump stations and detention facilities, and bridge replacements. The benefits of the plan include reducing or elimination of loss of life, property damage, cleanup costs, community disruption due to unemployment and lost business revenue, and the need for flood insurance. In fact, the project has created an economic renaissance in Napa with new investment, schools and housing coming into a livable community on a living river. As a key feature, the plan will improve water quality, create urban wetlands and enhance wildlife habitats.

The plan will protect over 7,000 people and over 3,000 residential/commercial units from the 100-year flood event on the Napa River and its main tributary, the Napa Creek, and the project has a positive benefit-to-cost ratio under the Corps calculation. One billion dollars in damages will be saved over the useful life of the project. The Napa County Flood Control District is meeting its local cost-sharing responsibilities for the project. A countywide sales tax, along with a number of other funding options, was approved by a two-thirds majority of the county's voters for the local share. Napa is California's highest repetitive loss community. This plan is demonstrative of the disaster resistant community initiative, as well, as the sustainable development initiatives of FEMA and EPA.

FY 2010 FUNDING REQUEST

In FY 2010, the Napa County Flood Control and Water Conservation District requests **$92 million for the Napa River/Napa Creek Flood Protection Project**. Work to be accomplished with FY 2010 funding includes the following: $59 million for railroad bridge and relocation construction, construction support, and AE services during construction; $32 million for Napa Creek construction, construction support, and AE services during construction; and $1 million for work on flood protection facility repairs/Oxbow Bypass design/pump stations-preliminary engineering and design/mitigation plantings/in house labor.

GOVERNOR ARNOLD SCHWARZENEGGER

April 2, 2009

The Honorable Peter J. Visclosky
Chairman
Subcommittee on Energy and Water Development
Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

The Honorable Rodney Frelinghuysen
Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman and Mr. Frelinghuysen,

Let me take this opportunity to thank Congress for its leadership in providing vital economic stimulus funding through the American Recovery and Reinvestment Act of 2009 (ARRA). When Congress and the Obama administration made infrastructure projects a priority, California immediately took action to inject this money into our economy to create jobs as quickly, efficiently and transparently as possible.

As the subcommittee considers Fiscal Year 2010 appropriations for energy and water development, I urge members to provide funding for several programs that are of critical importance to California and to the nation as whole.

State Energy Program

States will be critical to planning, implementing and overseeing many, if not most, of the energy priorities of this Congress. The State Energy Program is the primary mechanism for federal support for states' energy efficiency and renewable energy planning and training, as well as technical assistance for local energy efficiency code enforcement. ARRA has allowed a significant ramp-up of State Energy Program activities, and this down payment should be followed up with continued support at or near ARRA levels to allow states to continue delivering cost-effective energy efficiency and renewable energy directly to our residents.

STATE CAPITOL • SACRAMENTO, CALIFORNIA 95814 • (916) 445-2841

Department of Energy (DOE) Hydrogen Fuel Cell Vehicle Programs

I am concerned that federal support for alternative fuels may be moving too far toward supporting the undeniable promise of advanced biofuels and battery electric vehicles at the expense of sacrificing the substantial progress and equally tremendous potential of hydrogen fuel cell technologies. I am a strong supporter of reducing our dependence on oil and reducing greenhouse gas emissions, and to accomplish these goals we need to continue developing a balanced portfolio of new vehicle technologies. I request that you maintain full funding for hydrogen fuel cell vehicle research, development and deployment programs at DOE. In particular, Congress should fully fund the second phase of DOE's Technology Validation Program at authorized levels.

U.S. Army Corps of Engineers

Levee and Flood Protection

Throughout my tenure as Governor, California has focused on the long process of improving flood management systems. We have done this by investing heavily to complete emergency repairs quickly near several high-risk urban areas, informing the public about flood risks, enacting significant new laws and providing funds through voter-approved bond measures to lead a sustained effort to improve flood management statewide and to meet our cost-share obligations on federal flood control projects. Despite these multi-faceted efforts, California still faces critical flood control needs today that require more federal funding, not less.

I respectfully ask that the subcommittee support funding these authorized flood control projects in the amounts shown in the following table. I will note, however, that as the U.S. Army Corps of Engineers continues to refine its work schedule resulting from ARRA, these figures may need to be modified. The California Department of Water Resources will work with the Subcommittee regarding any needed adjustments.

Project Name	FY 2010 Appropriation Request
Folsom Dam Modifications Project	$66,000,000
American River Common Features (incl. GRR)	$20,600,000
Sacramento River Bank Protection Project	$20,400,000
South Sacramento County Streams Project	$20,000,000

The Honorable Peter J. Visclosky
The Honorable Rodney Frelinghuysen
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West Sacramento Levee Reconstruction Project (incl. GRR)	$6,725,000
Yuba River Basin Project (Marysville Ring Levee) (incl. GRR)	$12,000,000
Central Valley Integrated Flood Management Study (fka Comp Study)	$1,000,000
Mid-Valley Area Levee Reconstruction Project	$6,000,000
CALFED Levee Stability Projects	$20,000,000
Delta Islands and Levees Feasibility	$3,649,000
Sutter Basin Feasibility	$1,972,000
Lower San Joaquin River Feasibility	$2,000,000
Folsom Dam Raise	$600,000
Hamilton City Flood Damage Reduction & Ecosystem Restoration (incl. PED)	$15,000,000
Middle Creek Flood Damage Reduction & Ecosystem Restoration Study	$1,200,000
Pajaro River GRR	$5,000,000
Napa River Project	$92,000,000
Lower Cache Creek Feasibility	$300,000
West Stanislaus County / Orestimba Creek Feasibility	$560,000
Merced Project	$1,500,000
White River/Deer Creek Feasibility	$300,000
Frazier Creek / Strathmore Creek Feasibility	$300,000
Sacramento River Flood Control Systems Evaluation	$500,000

As we know from prior catastrophic flooding disasters, the cost of the work that needs to be done today pales when compared to the cost of a post-disaster recovery. I urge Congress to fund these projects to a level that meets the full capabilities of the U.S. Army Corps of Engineers.

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Battle Creek Salmon and Steelhead Restoration Project

Resolving long-standing environmental and water supply issues in California's Delta continues to be a priority for me. My administration is currently working with federal agencies to develop a Habitat Conservation Plan for the Sacramento-San Joaquin Delta, as well as to improve water storage and conveyance for both the state and federal water systems. In particular, a project upstream from the Delta is important to restore winter- and spring-run Chinook and Central Valley steelhead, all of which are critically imperiled. The State of California has already committed more than $40 million toward the Battle Creek Salmon and Steelhead Restoration Project. I strongly urge the subcommittee to include $73 million in funding for the final two phases of this project, which could be bid together to save costs.

Salton Sea

The Salton Sea provides valuable wetland habitat for more than 400 species of migratory and resident birds from throughout the Pacific Flyway. While the path forward for the restoration of the Salton Sea ecosystem remains to be agreed upon, California and the federal government will spend billions of dollars over the next 75 years to address the needs of this unique environmental asset. While we must still work out the details of this approach, valuable work can be done now to begin restoration of the Salton Sea ecosystem. I strongly urge the subcommittee to include $30 million in funding for work authorized in the 2007 Water Resources Development Act.

Abandoned Mine Restoration

There are about 47,000 abandoned mines in California, many of which present physical and/or chemical hazards to the public and water supplies. However, states like California that do not produce coal do not qualify for funds under the Surface Mining Control and Reclamation Act.

California appreciates that the American Recovery and Reinvestment Act of 2009 and the Omnibus Appropriations Act of 2009 provide federal agencies with funding to address this critical concern on their lands. I urge Congress to encourage these federal agencies to further collaborate and partner with California to address the state's priority sites that include federal responsibility. Additionally, I urge you to provide $15 million to help fund priority Abandoned Mine Lands environmental hazard remediation projects that are not on federal land.

Ports

As you know from your consistent support, California's ports remain a critical component of the national economy. The imports and exports moving through these ports support thousands of jobs within California and many more across the country. I urge you to continue your support of this critical economic infrastructure in FY 2010. In particular, I encourage you to provide enough funding to ensure that the -50 foot dredging project at the Port of Oakland can be completed as soon as possible.

The Honorable Peter J. Visclosky
The Honorable Rodney Frelinghuysen
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Thank you for your consideration of California's appropriations requests for the FY 2010 Energy and Water Development appropriations bill. I look forward to working with you.

Sincerely,

Arnold Schwarzenegger

/la

cc: The Honorable David R. Obey
The Honorable Jerry Lewis
California Congressional Delegation

TOTAL P.06

TESTIMONY

House Energy and Water Development Appropriations Subcommittee
Honorable Chairman Pete Visclosky

Fort Peck Reservation Rural Water System (PL 106-382)
Assiniboine and Sioux Rural Water System
Dry Prairie Rural Water System

Bureau of Reclamation

1. **FY Budget Request**

The Fort Peck Assiniboine and Sioux Tribes and Dry Prairie Rural Water respectfully request FY 2009 appropriations of $44,649,000 for the Bureau of Reclamation rural water program. The project is 22% complete. It has progressed well subject to available funds.

FY 2009 Funds will be used to construct critical elements of the Fort Peck Reservation Rural Water System, Montana, (PL 106-382, October 27, 2000). The amount requested is based on need to build Phase II of the regional water treatment plant, pipelines to connect with the Town of Poplar and Dry Prairie systems on the east and west sides project. The request is within capability to spend funds in FY 2010 and is set out in Table 1. The Schedule of Activities and Cash Flow analysis to build the major features of the regional system (water treatment plant and common pipelines) is included as Attachment A and demonstrate capability to use funds.

TABLE 1

FY 2010 FUNDING REQUEST
FORT PECK RESERVATION RURAL WATER SYSTEM (PL 106-382)

Sponsor	Project Feature	Federal	Non-Federal	Total
Fort Peck Tribes				
	Water Treatment Plant			
	Phase I, Clear Well Wash Water Recovery	$0	$0	$0
	Phase II, Main Treatment	20,317,000	0	20,317,000
	Pipelines			
	Water Treatment Plant to Poplar	10,763,000	0	10,763,000
	Water Treatment Plant to Wolf Point	0	0	0
	FP OM Buildings	558,000	0	558,000
	Subtotal	$31,638,000	$0	$31,638,000
Dry Prairie				
	Big Muddy to Plentywood	4,739,000	1,496,000	6,235,000
	Fort Kipp	219,000	69,000	288,000
	Porcupine Creek to Opheim			
	St. Marie to Nashua	4,619,000	1,458,000	6,077,000
	St. Marie to Opheim	3,434,000	1,084,000	4,518,000
	Subtotal	$13,011,000	4,107,000	17,118,000
Total		$44,649,000	$4,107,000	$48,756,000

2. Funding Status and Needs

As shown in Table 2 below, the project will be 22% complete at the end of FY 2009. Construction funds remaining to be spent after FY 2009 will total $225.061 million within the current authorization (in October 2008 dollars). Administrative costs of extending the project completion to FY 2015 and construction costs outside the authorized ceiling increase remaining costs to $245.969 million before considering inflation. Inflation at 7.5% over the next 6 years, the average rate over the last five years in Reclamation construction projects, is expected to increase remaining project costs to $314.001 million if the project is completed in FY 2015. An average $52.33 million annually is required to complete the project by 2015 considering all factors. The project is seeking an amendment of PL 106-382 in this session of Congress to extend the project completion to December 31, 2015.

TABLE 2

FUNDING STATUS AND NEEDS

Total Federal Funding Authority (October 2008 $)	$289,110,000
Federal Funds Expended Through FY 2009	$64,049,000
% Complete	22.15%
Amount Remaining After FY 2009	
Total Authorized (October 2008$)	$225,061,000
Overhead Adjustment for Extension to FY 2015 and Other	$245,969,000
Adjusted for Inflation to FY 2015 at 7.46% Annually	$314,001,000
Years to Complete	6
Average Annual Required to End in FY 2015 (Need Extension of PL 106-382)	$52,333,000
FY 2010 Amount Requested	$44,649,000

The request ($44.649 million) is less than the average annual appropriations needed to complete the project in FY 2015 ($52.333 million annually), and is within the capability of the project to use funds for construction. The request will create an estimated 350 full-time equivalent (FTE) construction jobs in an area of Montana with low per capita income and high unemployment.

Cost indexing from FY 1998 reflecting inflation increased the cost of the project from $176 million to $289 million, an increase of $113 million. (See Attachment D). Increases in the level of appropriations are needed to outpace inflation, which averaged 3.35% for pipelines in the first 5 years of the project, 7.46% over the last 5 years and 13.80% last year.

3. Funding Has Not Been Adequate to Serve Any Tribal Users

The sponsor Tribes and Dry Prairie greatly appreciate the previous appropriations from the subcommittee that have permitted building the Missouri River intake (the water source), stages of the water treatment plant in multiple contracts, the Culbertson to Medicine Lake pipeline and branches serving rural users outside the Fort Peck Indian Reservation. However, funds have not been adequate to complete the water treatment plant, pipeline to Poplar and other

features as proposed for FY 2010. Service to tribal users and communities within the Fort Peck Indian Reservation is dependent upon completion of those facilities and has not been possible. No water has been delivered on the Fort Peck Indian Reservation.

4. **Proposed Activities**

PL 106-382 (October 27, 2000) authorized the project, which includes all of the Fort Peck Indian Reservation in Montana and the Dry Prairie portion of the project outside the Reservation in Roosevelt, Sheridan, Daniels and part of Valley County.

Fort Peck Indian Reservation

On the Fort Peck Indian Reservation the Tribes have used appropriations from previous years to:

a. construct the Missouri River raw water intake, a critical feature of the regional water project. The raw water pump station has 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.
b. The sludge lagoons at the water treatment plant have been completed.
c. Phase I of the regional water treatment plant is under construction and will be completed in FY 2009 with funds appropriated previously.

The regional water treatment plant was divided into three construction phases over the past several years. This segregation of the project in smaller contracts increased the cost of the project significantly but was necessary due to inadequate funding to bid the project as a single unit, which would normally be the case. Rather than one contractor, there will ultimately be three contractors. Three sets of plans and specifications were required to coordinate new construction contracts with pieces already built. The Bureau of Reclamation approved the plans and specifications for the entire plant four years ago. Capability to use funds has not been an issue.

The remaining phase of the water treatment plant has been advertised for construction in contemplation of adequate funding in FY 2010 ($20.317 million) to complete this essential component of the project. The bid opening is scheduled for April 7, 2009. American Recovery and Reinvestment Act (ARRA) of 2009 funds would offset the requirement for FY 2010 appropriations. The project clearly meets the expectation of Congress for ARRA, but at the time of this writing, the availability of ARRA funds was not known.

The request for FY 2010 includes funds for construction of the essential pipelines from the water treatment plant to the community of Poplar (but not to Wolf Point). The pipeline to Poplar is a regional transmission pipeline *east* of the water treatment plant to serve the Fort Peck Indian Reservation and to eventually connect to Dry Prairie facilities east of the Reservation. The Tribes will have capability to build the pipeline to Wolf Point in FY 2010, which is a regional transmission pipeline *west* of the water treatment and serves the west sides of the Fort

Peck Indian Reservation and Dry Prairie.

The pipeline project from the water treatment plant to Poplar will provide a water supply from the Missouri River to replace groundwater contaminated by "brine" from oil drilling operations. The brine contamination is the subject of EPA orders against the responsible oil company. The replacement supplies will serve the community of Poplar and the surrounding rural area where wells have been contaminated. More wells are threatened. There is urgency in completing the regional project to Poplar before the advancing plume of contamination reaches existing community wells. Projections of the date that contamination will reach the Poplar community wells range from imminent danger to as much as a decade, but the anxiety of the Tribes' leadership and membership cannot be overcome without completing the water treatment plant and connecting the regional pipeline to Poplar in FY 2010. This is a critical time frame for the Tribes. The staff and members of the subcommittee are urged to review this matter with the Tribes and Bureau of Reclamation to clarify the urgency of completing necessary project facilities and alleviating the threat of contamination of the public water supply for the Tribes' headquarters community of Poplar. (See Attachment E).

The Bureau of Reclamation can confirm that the use of funds proposed for FY 2010 is within the project's capability to spend (see Attachment A).

Dry Prairie

Dry Prairie has used previous appropriations to construct over 200 miles of distribution pipelines from the community of Culbertson, an iterim water source to be replaced when the regional water treatment plant and transmission pipeline have been completed on the Fort Peck Indian Reservation. The distribution system serves the communities of Froid and Medicine Lake and over 200 rural homes, farms and ranches. 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, Attachment B) as funds are made available and water sources are expanded.

The request for FY 2010 funds of $13.011 million, supplemented by a non-federal cost share of $4.107 million, will be used to complete pipelines starting in FY 2009 to rural services on the west side of the Dry Prairie project between the communities of St. Marie and Nashua. An existing water treatment plant owned by the Boeing Co. at the former Glasgow Air Force Base will provide an interim water supply to serve the west side project until the regional water treatment plant of the Tribes is complete and pipelines from Wolf Point to Nashua are constructed. The facilities constructed on the west side of the project are the same facilities required after connection of the regional water treatment plant. Therefore, no duplication of facilities are associated with the interim project.

Dry Prairie will also assist the Assiniboine and Sioux Tribes in building pipelines from Culbertson on the east side of the project to the Reservation boundary to serve the tribal community of Fort Kipp with an interim water supply. The Tribes are building facilities within the Reservation with FY 2009 funding.

Dry Prairie proposes to extend interim water supply capability between Culbertson and

Plentywood with FY 2010 funding. These facilities will be served from the Tribes' regional water treatment plant when the plant and interconnecting main transmission pipelines are completed to Culbertson.

5. Master Plan

The project master plan is provided for review as Attachment C. The request for FY FY 2010 is shown in relation to the project components that remain to be completed after FY 2009.

6. Aministration's Support

The project has reached 22% completion over a period of 9 years and needs greater funding support to complete the project in 2015. The Administration's budget included the project in FY 2007 at the $5.0 million level but has not supported funds for the project since that time. The previous Administration's support for the rural water program has diminished to include the Mni Wiconi and Garrison projects only. Congressional support is need for the broader program of projects under construction.

The Tribes and Dry Prairie have worked extremely well and closely with the Bureau of Reclamation since the authorization of the project in FY 2000. The Bureau of Reclamation has participated, reviewed and commented on the Final Engineering Report, and all comments were incorporated into the report. 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 or implementation 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 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 proceed. Agreement with Reclamation has been reached in all value engineering sessions on steps 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 is under construction, and the Bureau of Reclamation is providing sound oversight.

Cooperative agreements have been developed and executed 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 collaborate to undertake activities that assure proper oversight and approval by the Bureau of Reclamation. Each year the Tribes and Dry Prairie, in accordance with the cooperative agreements, develop a work plan setting out the planning, design and construction activities and the allocation of funding to be utilized on each project feature.

Clearly, the Fort Peck Reservation Rural Water System is well supported by the Bureau of Reclamation. Congress authorized the project with a plan formulated in full cooperation and collaboration with the Bureau of Reclamation, and major project features are under construction with oversight by the Agency.

END TESTIMONY
***

SUPPLEMENTAL BACKGROUND

7. 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 sought development of meaningful water projects as now authorized.

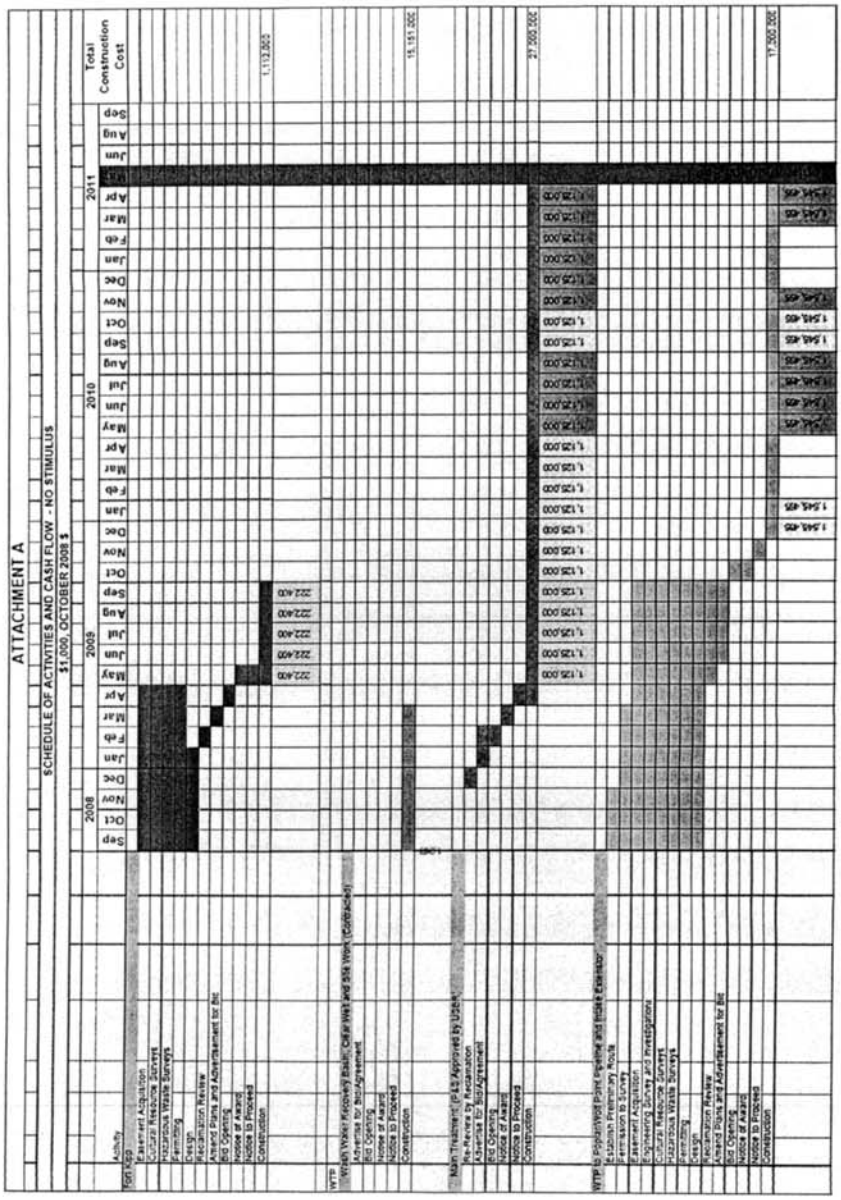
The 1999 Montana Legislature approved a funding mechanism from its Treasure State Endowment Program to finance the non-federal share of project planning and construction. Demonstrating support of Montana for the project, there were only three votes against the statutory funding mechanism in both the full House and Senate. The 2001 through 2007 Montana Legislatures have provided all authorizations and appropriations necessary for the non-federal cost share. (The 2009 legislature is in session and is expected to continue strong project support).

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% of area farms and ranches intending to participate as evidenced by their intent fees of $100 per household.

8. 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 persistent 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 two to three 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 Reclamation's Great Plains Region.


ATTACHMENT A
SCHEDULE OF ACTIVITIES AND CASH FLOW - NO STIMULUS
$1,000, OCTOBER 2008 $
Total Construction Cost
2008
2009
2010
2011
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
Mar
Jun
Aug
Sep
Activity
Tom Kipp
Easement Acquisition
Cultural Resource Surveys
Hazardous Waste Surveys
Permitting
Design
Reclamation Review
Amend Plans and Advertisement for Bid
Bid Opening
Notice of Award
Notice to Proceed
Construction
WTP
Wrath Water Recovery Basin, Clear Well and Site Work (Contracted)
Advertise for Bid/Agreement
Bid Opening
Notice of Award
Notice to Proceed
Construction
Main Treatment (P&S Approved by USBR)
Re-Review by Reclamation
Advertise for Bid/Agreement
Bid Opening
Notice of Award
Notice to Proceed
Construction
WTP to Popular Wolf Point Pipeline and Intake Extension
Establish Preliminary Route
Permission to Survey
Easement Acquisition
Engineering Survey and Investigations
Cultural Resource Surveys
Hazardous Waste Surveys
Permitting
Design
Reclamation Review
Amend Plans and Advertisement for Bid
Bid Opening
Notice of Award
Notice to Proceed
Construction
1,112,000
15,151,000
27,000,000
17,000,000
222,400
1,125,000
1,545,455

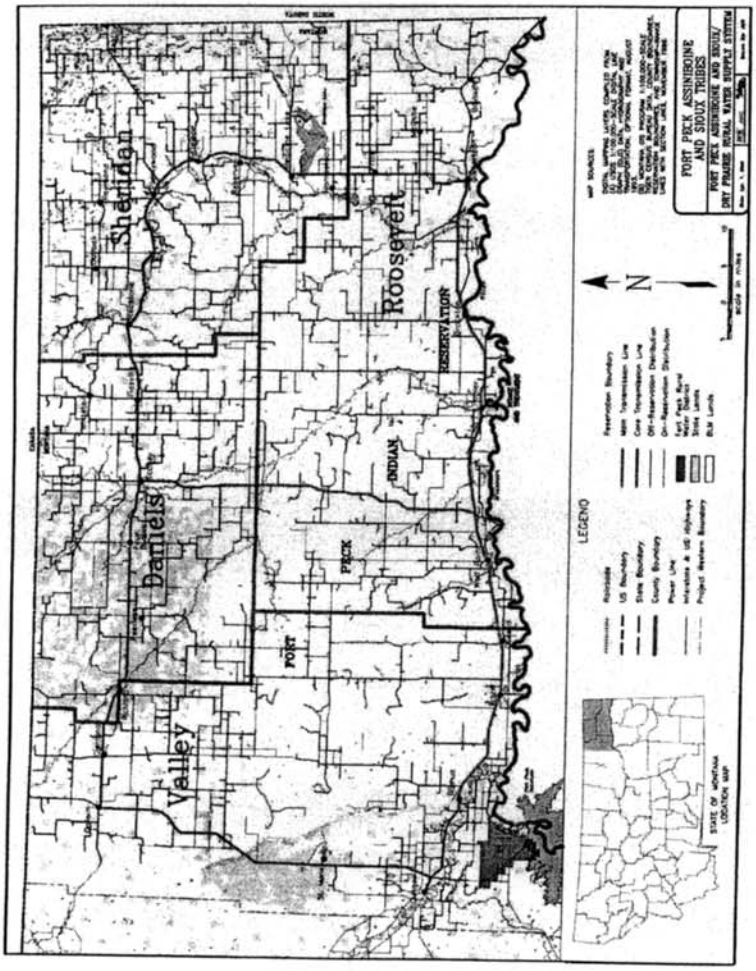
ATTACHMENT A

SCHEDULE OF ACTIVITIES AND CASH FLOW - NO STIMULUS

$1,000, OCTOBER 2008 $

Activity	2008 Sep	Oct	Nov	Dec	2009 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2010 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2011 Jan	Feb	Mar	Apr	May	Jun	Aug	Sep	Total Construction Cost
Valley County																																					
Establish Preliminary Route																																					
Easement Acquisition																																					
Engineering Survey and investigations																																					
Cultural Resource Surveys																																					
Hazardous Waste Surveys																																					
Permitting																																					
Design																																					
Reclamation Review																																					
Amend Plans and Advertisement for Bid																																					
Bid Opening																																					
Notice of Award																																					
Notice to Proceed																																					
Construction																																					4,751,000
																593,875	593,875				593,875	593,875	593,875	593,875	593,875	593,875											
Poplar to Bid Muddy/Wolf Point to Poplar/Medicine Lake to Plentywood																																					
Establish Preliminary Route																																					
Easement Acquisition																																					
Engineering Survey and investigations																																					
Cultural Resource Surveys																																					
Hazardous Waste Surveys																																					
Permitting																																					
Design																																					
Reclamation Review																																					
Amend Plans and Advertisement for Bid																																					
Bid Opening																																					
Notice of Award																																					
Notice to Proceed																																					
Construction																																					15,687,375

ATTACHMENT B
LOCATION MAP



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ATTACHMENT C

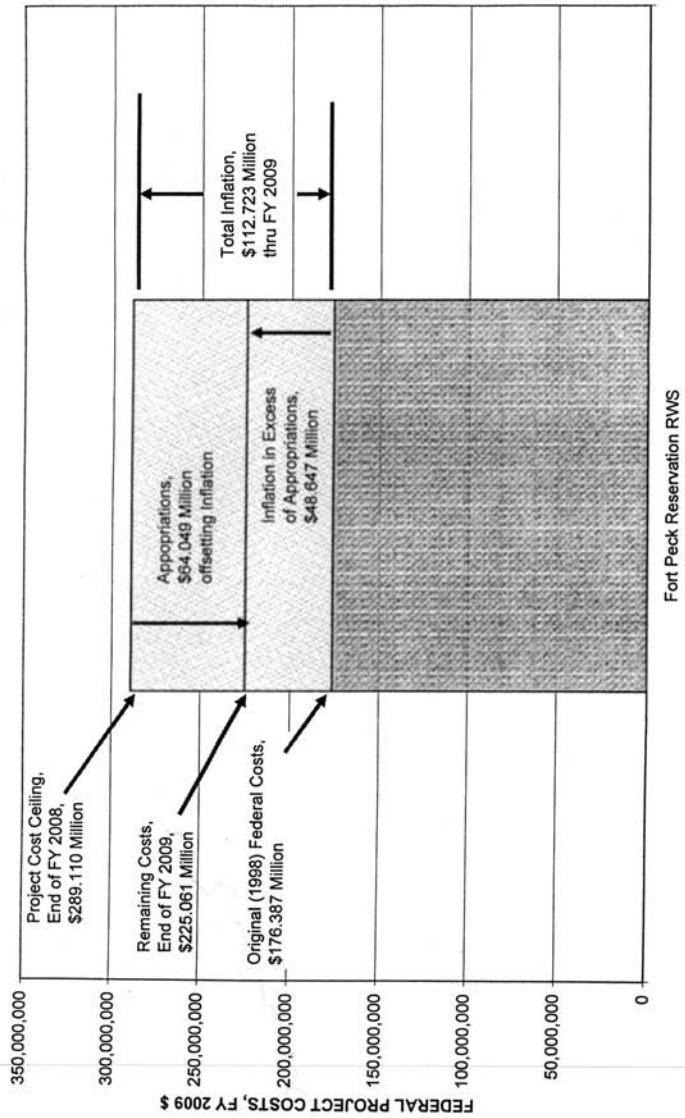
ASSINIBOINE SIOUX AND DRY PRAIRIE RWS

MASTER PLAN, OCTOBER 2008 $

Segment	Authorized Funds: Original Cost (Oct 1998 $)	Authorized Funds: Indexed Cost (Oct 2008 $)	Authorized Funds: Fort Peck Contract Cost	Authorized Funds: Dry Prairie Contract Cost	FY 2008 Work Plan: Spent thru 9/30/2008	FY 2008 Work Plan: FY 2008 Carryover	FY 2008 Work Plan: Use of FY2009 Funds	FY 2008 Work Plan: Balance To Complete	Future Use of Funds by Construction Year: 6 / 2010	7 / 2011	8 / 2012	9 / 2013	10 / 2014	Total
Missouri River Raw Water Intake	2,880,000	3,164,000	4,047,000		4,047,000	0	0	0						4,047,000
Intake Extension			2,000,000					2,000,000		2,000,000				2,000,000
Treatment Plant														
Sludge Lagoons	2,600,000	3,275,000	2,600,000		2,600,000	0	0	0						2,600,000
Water Treatment Plant														
Phase I	8,000,000	10,456,000	15,151,000		8,358,000	8,793,000	0	0	0					15,151,000
Phase II	6,134,000	8,610,000	27,500,000		0	6,513,000	3,996,000	16,989,000	16,989,000					27,500,000
Poplar to Big Muddy	22,681,000	41,651,000												
Poplar to Big Muddy			45,603,000		0	0	0	45,603,000		8,000,000	10,000,000	16,000,000	11,603,000	45,603,000
Fort Kipp			873,000		0	0	873,000	0						873,000
Highway 13 to FP Boundary	9,247,000	16,981,000	0		0	0		0					0	0
Poplar to Porcupine Creek	40,190,000	73,803,000												
WTP to Poplar			11,000,000		0	0	0	11,000,000	9,000,000	2,000,000				11,000,000
WTP to Wolf Point			4,000,000		0	0	0	4,000,000		4,000,000				4,000,000
Wolf Point to Porcupine Creek			66,074,000		0	0	0	66,074,000		8,000,000	20,000,000	16,000,000	22,074,000	66,074,000
FP OM Buildings	1,000,000	1,173,000	1,173,000		0	706,000	0	467,000	467,000				0	1,173,000
FP Electrical, Meters, Easements	4,164,000	5,730,000	5,730,000		0	0		5,730,000				819,000	4,911,000	5,730,000
Subtotal	96,896,000	164,843,000	185,751,000		13,005,000	16,012,000	4,871,000	151,863,000	26,456,000	24,000,000	30,000,000	32,819,000	38,588,000	185,751,000
Planning, Design, Admin														
Reclamation Oversight	3,913,000	5,576,000	5,576,000		1,032,000	0	213,000	4,331,000	866,000	866,000	866,000	866,000	867,000	5,576,000
Environmental Mitigation	489,000	712,000	712,000		0	0	0	712,000	142,000	142,000	142,000	142,000	144,000	712,000
Administration	6,744,000	9,336,000	9,336,000		4,536,000	0	902,000	3,898,000	780,000	780,000	780,000	780,000	778,000	9,336,000
Easement Acquisition	2,621,000	3,817,000	3,817,000		0	0	0	3,817,000	763,000	763,000	763,000	763,000	765,000	3,817,000
Design	7,582,000	10,767,000	10,767,000		2,004,000	736,000	0	8,027,000	1,605,000	1,605,000	1,605,000	1,605,000	1,607,000	10,767,000
Inspection	6,947,000	9,711,000	9,711,000		3,476,000	0	1,100,000	5,133,000	1,027,000	1,027,000	1,027,000	1,027,000	1,025,000	9,711,000
Subtotal	28,196,000	39,919,000	39,919,000		11,050,000	736,000	2,215,000	25,918,000	5,183,000	5,183,000	5,183,000	5,183,000	5,186,000	39,919,000
Total	125,092,000	204,762,000	225,670,000		24,055,000	16,748,000	7,086,000	177,781,000	31,639,000	29,183,000	35,183,000	38,002,000	43,774,000	225,670,000
Big Muddy to Plentywood														
Culbertson to Medicine Lake	4,360,000	5,301,000		4,360,000	4,360,000	0	0	0						4,360,000
A-Branches and Meters	6,534,000	10,371,000		6,534,000	6,534,000	0	0	0						6,534,000
Remaining	8,539,000	15,681,000		20,857,000	0	0	158,000	20,699,000	5,174,750	5,174,750	5,174,750	5,174,750		20,857,000
Fort Kipp				239,000	0	0	0	239,000	239,000					239,000
FP Boundary to Scobey	4,025,000	7,391,000		14,540,000	0	0	0	14,540,000			7,000,000	5,550,000	1,990,000	14,540,000
Scobey to Plentywood	9,638,000	18,066,000		11,098,000	0	0	0	11,098,000				3,000,000	8,098,000	11,098,000
Scobey to Opheim	7,945,000	14,590,000		0	0	0	0	0						0
Porcupine Creek to Opheim	7,380,000	12,940,000			0	0	0	0						
St. Marie to Nashua		0		14,839,000	0	3,674,000	1,077,000	10,088,000	5,044,000	5,044,000	0			14,839,000
St. Marie to Opheim		0		16,680,000	0	0	0	16,680,000	3,750,000	2,650,000	3,950,000	3,950,000	2,380,000	16,680,000
DP OM Buildings	1,000,000	1,375,000		1,375,000	0	0	0	1,375,000					1,375,000	1,375,000
DP Electrical, Meters, Easements	3,021,000	4,146,000		4,146,000	0	0	239,000	3,907,000					3,907,000	4,146,000
	52,642,000	89,861,000	0	94,668,000	10,894,000	3,674,000	1,474,000	78,626,000	14,207,750	12,868,750	16,124,750	17,674,750	17,750,000	94,668,000
Planning, Design, Admin														
Reclamation Oversight	2,108,000	3,011,000		3,011,000	656,000	0	67,000	2,288,000	474,000	474,000	474,000	474,000	473,000	3,011,000
Environmental Mitigation	264,000	372,000		372,000	145,000	0	25,000	202,000	40,000	40,000	40,000	40,000	42,000	372,000
Administration	3,947,000	5,524,000		5,524,000	2,049,000	0	671,000	2,804,000	561,000	561,000	561,000	561,000	560,000	5,524,000
Easement Acquisition	759,000	1,095,000		1,095,000	88,000	0	0	1,007,000	201,000	201,000	201,000	201,000	203,000	1,095,000
Design	4,085,000	5,806,000		5,806,000	1,610,000	0	386,000	3,810,000	762,000	762,000	762,000	762,000	762,000	5,806,000
Inspection	3,689,000	5,315,000		5,315,000	745,000	0	205,000	4,365,000	873,000	873,000	873,000	873,000	873,000	5,315,000
Subtotal	14,852,000	21,123,000	0	21,123,000	5,192,000	0	1,374,000	14,557,000	2,911,000	2,911,000	2,911,000	2,911,000	2,913,000	21,123,000
Total	67,494,000	110,984,000	0	115,791,000	16,086,000	3,674,000	2,848,000	93,183,000	17,118,750	15,779,750	19,035,750	20,585,750	20,663,000	115,791,000
Tribes (All Federal)	125,092,000	204,762,000	225,670,000		24,055,000	16,748,000	7,086,000	177,781,000	31,639,000	29,183,000	35,183,000	38,002,000	43,774,000	225,670,000
Dry Prairie	67,494,000	110,984,000		115,791,000	16,086,000	3,674,000	2,848,000	88,376,000	17,118,750	15,779,750	19,035,750	20,585,750	15,856,000	110,984,000
Federal	51,295,000	84,348,000		84,348,000	12,225,000	3,674,000	2,914,000	65,535,000	13,010,000	11,993,000	14,467,000	15,645,000	10,420,000	84,348,000
Non-Federal	16,199,000	26,636,000		26,636,000	3,861,000	0	(66,000)	22,841,000	4,108,750	3,786,750	4,568,750	4,940,750	5,436,000	26,636,000
Total Project	192,586,000	315,746,000	225,670,000	115,791,000	40,141,000	20,422,000	9,934,000	266,157,000	48,757,750	44,962,750	54,218,750	58,587,750	59,630,000	336,654,000
Federal	176,387,000	289,110,000	225,670,000	84,348,000	36,280,000	20,422,000	10,000,000	243,316,000	44,649,000	41,176,000	49,650,000	53,647,000	54,194,000	310,018,000
Non-Federal	16,199,000	26,636,000	0	26,636,000	3,861,000	0	(66,000)	22,841,000	4,108,750	3,786,750	4,568,750	4,940,750	5,436,000	26,636,000

ATTACHMENT D

INFLATION OUTPACES APPROPRIATIONS
THRU FY 2009



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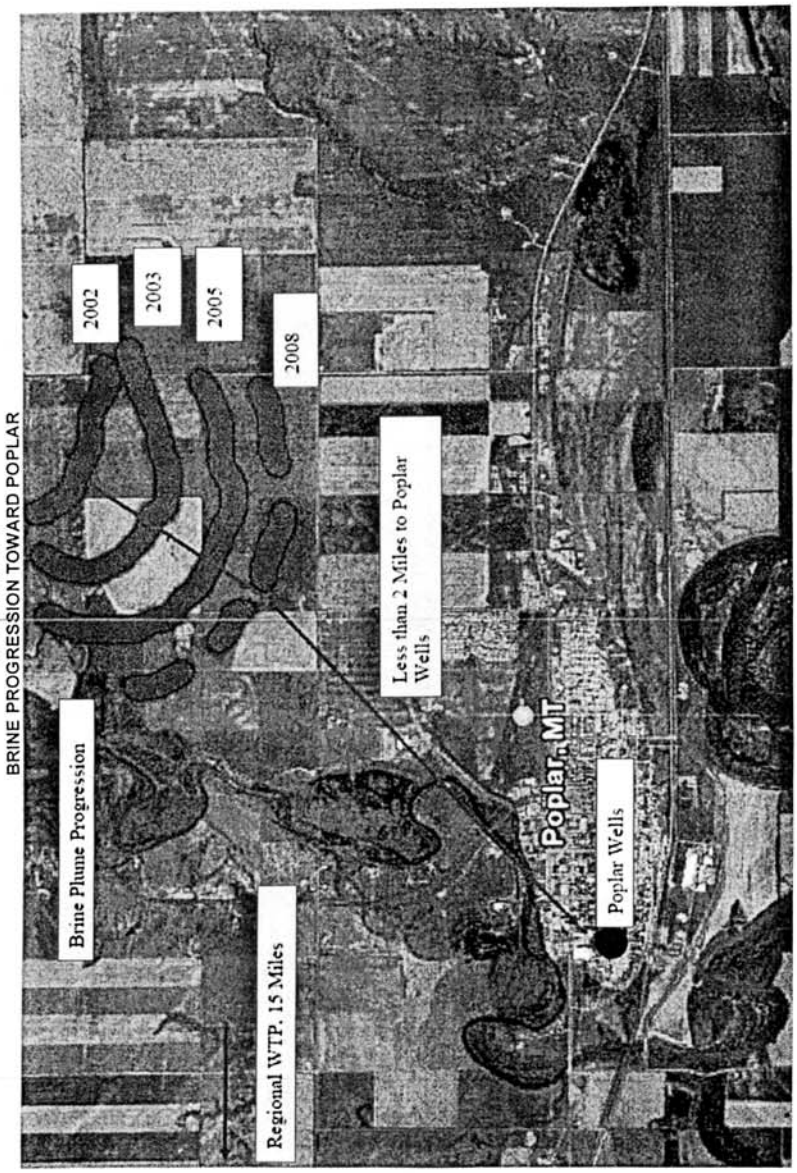
ATTACHMENT E
BRINE PROGRESSION TOWARD POPLAR



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