

ENERGY AND WATER DEVELOPMENT
APPROPRIATIONS FOR 2012

HEARINGS
BEFORE A
SUBCOMMITTEE OF THE
COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES
ONE HUNDRED TWELFTH CONGRESS
FIRST SESSION

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

RODNEY P. FRELINGHUYSEN, New Jersey, *Chairman*

JERRY LEWIS, California

MICHAEL K. SIMPSON, Idaho

DENNY REHBERG, Montana

RODNEY ALEXANDER, Louisiana

STEVE WOMACK, Arkansas

ALAN NUNNELÉE, Mississippi

PETER J. VISCLOSKY, Indiana

ED PASTOR, Arizona

CHAKA FATTAH, Pennsylvania

JOHN W. OLVER, Massachusetts

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

ROB BLAIR, JOSEPH LEVIN, ANGIE GIANCARLO,

LORAIN HECKENBERG, and PERRY YATES,

Staff Assistants

PART 9
WITNESSES



Printed for the use of the Committee on Appropriations

PART 9—ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 2012

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U.S. GOVERNMENT PRINTING OFFICE

WASHINGTON : 2011

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¹ Chairman Emeritus

WILLIAM B. INGLEE, *Clerk and Staff Director*

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 2012

HEARINGS BEFORE A SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS HOUSE OF REPRESENTATIVES ONE HUNDRED TWELFTH CONGRESS FIRST SESSION

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

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PART 9 WITNESSES



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KEVIN YODER, Kansas	
STEVE WOMACK, Arkansas	
ALAN NUNNELEE, Mississippi	

¹ Chairman Emeritus

WILLIAM B. INGLEE, *Clerk and Staff Director*

MATTHEW H. MEAD
GOVERNOR



STATE CAPITOL
CHEYENNE, WY 82002

Office of the Governor

March 10, 2011

The Honorable Rodney P. Frelinghuysen, Chairman
The Honorable Peter J. Visclosky, Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives
2362-B Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Frelinghuysen and Representative Visclosky:

I am writing to request your support and assistance in insuring continued funding for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah and Wyoming, Indian tribes, federal agencies and water, power and environmental interests. Wyoming joins the other participating states and non-federal partners in requesting your support for an appropriation for FY 2012 of \$6,248,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. Recognizing the need for fiscal responsibility, I must also point out, with respect to the fish recovery programs, that it will cost the program participants, including Wyoming, much more in terms of ESA costs if these programs do not continue.

The Upper Colorado and San Juan recovery programs are national models of collaborative conservation partnerships working to recover endangered species while meeting water use and water development demands in compliance with the federal Endangered Species Act (ESA), state law, and interstate compacts in the Intermountain West.

Since 1988, the two programs, collectively, have provided ESA Section 7 compliance (without litigation) for over 2,160 federal, tribal, state and privately managed water projects depleting more than 3.7 million acre-feet of water per year. The Department of the Interior recognized these programs with its nation-wide Cooperative Conservation Award in April 2008 as outstanding collaborative partnerships accomplishing significant on-the-ground conservation results. Substantial non-federal cost-sharing funding exceeding 50% is occurring pursuant to their authorization in Public Law 106-392, as amended.

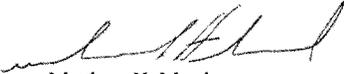
PHONE: (307) 777-7434

FAX: (307) 632-3909

Matthew H. Mead
Governor of Wyoming
Cheyenne, Wyoming
307-733-3000

The requested federal appropriations are critically important to these efforts moving forward. The past support of your Subcommittee has greatly facilitated the success of these multi-state, multi-agency programs. On behalf of the citizens of Wyoming, I thank you for that support and request the Subcommittee's assistance for fiscal year 2012 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Best regards,



Matthew H. Mead
Governor

MHM:jws

cc: Representative Cynthia Lummis
Governor John Hickenlooper
Governor Gary R. Herbert
Governor Susana Martinez



Name: Mike Berry
Title: General Manager
Organization: Tri-County Water Conservancy District

March 12, 2011

The Honorable Rodney P. Frelinghuysen, Chairman
The Honorable Peter J. Visclosky, Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives
2362-B Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Frelinghuysen and Representative Visclosky:

The Board of the Tri-County Water Conservancy District is writing to request your support and assistance in insuring continued funding for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program in FY2012 as authorized by P.L. 106-392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah and Wyoming, Indian tribes, federal agencies and water, power and environmental interests. We are requesting your support for an appropriation for FY2012, consistent with the President's recommended budget, of \$6,248,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. Substantial non-federal cost-sharing funding is occurring pursuant to Public Law 106-392, as amended.

We thank you for the Subcommittee's past support and request the Subcommittee's assistance for fiscal year 2012 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Sincerely,



970-249-3369
970-249-8277 Fax
tcw@montrose.net



Central Utah Water Conservancy District

355 WEST UNIVERSITY PARKWAY, OREM, UTAH 84058-7303
 TELEPHONE (801) 226-7100, FAX (801) 226-7107
 TOLL FREE 1-800-261-7103
 WEBSITE www.cuwcd.com

OFFICERS
 Michael H. Jensen, President
 Randy Crozier, Vice President

Don A. Christiansen, General Manager
 Secretary/Treasurer

Name: Gene Shawcroft
 Title: Assistant General Manager
 Organization: Central Utah Water Conservancy District

March 14, 2011

The Honorable Rodney P. Frelinghuysen, Chairman
 The Honorable Peter J. Visclosky, Ranking Member
 Subcommittee on Energy and Water Development
 Committee on Appropriations
 United States House of Representatives
 2362-B Rayburn House Office Building
 Washington, D.C. 20515

Dear Chairman Frelinghuysen and Representative Visclosky:

I am writing to request your support and assistance in insuring continued funding for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program in FY2012 as authorized by P.L. 106-392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah and Wyoming, Indian tribes, federal agencies and water, power and environmental interests. I am requesting your support for an appropriation for FY2012, consistent with the President's recommended budget, of \$6,248,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. Substantial non-federal cost-sharing funding is occurring pursuant to Public Law 106-392, as amended.

I thank you for the Subcommittee's past support and request the Subcommittee's assistance for fiscal year 2012 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Sincerely,

Gene Shawcroft, P.E.
 Phone (801) 226-7120
 Fax (801) 226-7150
gene@cuwcd.com

BOARD OF TRUSTEES

Gary J. Anderson
 Randy A. Brailstorf
 Brent Brotherson

David R. Cox
 Randy Crozier
 Michael K. Davis

Tom Dolan
 Claude R. Hicken
 Jani Iwamoto

George R. Jackson
 Dallin W. Jensen
 Michael H. Jensen

Ronald R. McKee
 Kent R. Peatross
 Stanley R. Smith

Gawain Snow
 Mark Wilson
 Boyd Workman

Max Schmidt
District Manager
Orchard Mesa Irrigation District

March 14, 2011

The Honorable Rodney P. Frelinghuysen, Chairman
The Honorable Peter J. Visclosky, Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives
2362-B Rayburn House Office Building
Washington, D.C. 20515

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I thank you for the Subcommittee's past support and request the Subcommittee's assistance for fiscal year 2012 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Sincerely,

Max Schmidt
District Manager
max@acsol.net



DENVER WATER

1500 West 14th Avenue • Denver, Colorado 80202-3412
Phone: 303.628.6500 • Fax: 303.628.6199

James S. Lochhead
CEO/Manager
Denver Water

March 14, 2011

The Honorable Rodney P. Frelinghuysen, Chairman
The Honorable Peter J. Visclosky, Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives
2362-B Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Frelinghuysen and Representative Visclosky:

I am writing on behalf of Denver Water to request your support and assistance in insuring continued funding for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program in FY2012 as authorized by P.L. 106-392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah and Wyoming, Indian tribes, federal agencies and water, power and environmental interests. I am requesting your support for an appropriation for FY2012, consistent with the President's recommended budget, of \$6,248,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. Substantial non-federal cost-sharing funding is occurring pursuant to Public Law 106-392, as amended.

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Sincerely,

/s/Jim S. Lochhead
CEO/Manager
303-628-6500/303-628-6199 fax
Jim.Lochhead@denverwater.org

CONSERVE



A subsidiary of Pinnacle West Capital Corporation

Frank E Perkins
Units 4&5 Plant Manager
Four Corners Power Plant

Tel. 505-598-8668
Fax 505-598-8742
e-mail Frank.Perkins@aps.com

Mail Station 4947
PO Box 355
Fruitland, NM 87416-0355

March 15, 2011

The Honorable Rodney P. Frelinghuysen, Chairman
The Honorable Peter J. Visclosky, Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives
2362-B Rayburn House Office Building
Washington, D.C. 20515

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I thank you for the Subcommittee's past support and request the Subcommittee's assistance for fiscal year 2012 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Sincerely,

/s/Frank N. Perkins, Units 4&5 Plant Manager

Contact: (phone 505-598-8668, fax 505-598-8742, and email: Frank.Perkins@aps.com)

BHP Navajo Coal Company



BHP Billiton Limited
New Mexico Coal
300 West Armington Street
Farmington, New Mexico 87401 USA
Tel +1 505 598 4356 Fax +1 505 598 4300
marian.l.wimsatt@bhpbilliton.com

17 March 2011

The Honorable Rodney P. Frelinghuysen, Chairman
The Honorable Peter J. Visclosky, Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives
2362-B Rayburn House Office Building
Washington, D.C. 20515

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I thank you for the Subcommittee's past support and request the Subcommittee's assistance for fiscal year 2012 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Sincerely,

Marian L. Wimsatt

Marian L. Wimsatt, CPLTA, CPL
Landman, Land and Water
505-598-4356, fax 505-598-4300,
marian.l.wimsatt@bhpbilliton.com



STATE OF NEW MEXICO
 OFFICE OF THE STATE ENGINEER
 SANTA FE

John R. D'Antonio, Jr., P.E.
 State Engineer

CONCHA ORTIZ Y PINO BLDG.
 POST OFFICE BOX 25102
 130 SOUTH CAPITOL
 SANTA FE, NEW MEXICO 87504-5102
 (505) 827-6091
 FAX: (505) 827-3806

March 4, 2011

The Honorable Rodney P. Frelinghuysen, Chairman
 The Honorable Peter J. Visclosky, Ranking Member
 Subcommittee on Energy and Water Development
 Committee on Appropriations
 United States House of Representatives
 2362-B Rayburn House Office Building
 Washington, D.C. 20515

Dear Chairman Frelinghuysen and Representative Visclosky:

I am writing to request your support and assistance in insuring continued funding for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah and Wyoming, Indian tribes, federal agencies and water, power and environmental interests. The State of New Mexico requests your support for an appropriation in the President's recommended budget for FY 2012 of \$6,248,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region.

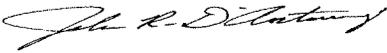
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Since 1988, the two programs, collectively, have provided ESA Section 7 compliance (without litigation) for over 2,160 federal, tribal, state and privately managed water projects depleting more than 3.7 million acre-feet of water per year. The Department of the Interior recognized these programs with its nation-wide Cooperative Conservation Award in April 2008 as outstanding collaborative partnerships accomplishing significant on-the-ground conservation results. Substantial non-federal cost-sharing funding exceeding 50% is occurring pursuant to their authorization in Public Law 106-392, as amended.

The Honorable Rodney P. Frelinghuysen, Chairman
The Honorable Peter J. Visclosky, Ranking Member
March 4, 2011
Page 2

The requested federal appropriations are critically important to these efforts moving forward. The past support of your Subcommittee has greatly facilitated the success of these multi-state, multi-agency programs. On behalf of the citizens of New Mexico, I thank you for that support and request the Subcommittee's assistance for fiscal year 2012 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Sincerely,



John R. D'Antonio Jr., P.E.
Upper Colorado River Commissioner
State of New Mexico

JRD/ke

cc: Representative Ben Ray Luján
Representative Martin Heinrich
Representative Steve Pearce
Governor John Hickenlooper
Governor Gary R. Herbert
Governor Mathew H. Mead

GRAND VALLEY WATER USERS ASSOCIATION

GRAND VALLEY PROJECT, COLORADO

1147 24 Road (970) 242-5065 FAX (970) 243-4871
GRAND JUNCTION, COLORADO 81505

Name: Richard L. Proctor
Title: Manager
Organization: Grand Valley Water Users' Association

March 17, 2011

The Honorable Rodney P. Frelinghuysen, Chairman
The Honorable Peter J. Visclosky, Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives
2362-B Rayburn House Office Building
Washington, D.C. 20515

EW.Approp@mail.house.gov

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I thank you for the Subcommittee's past support and request the Subcommittee's assistance for fiscal year 2012 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Sincerely,

Richard L. Proctor, Manager
Phone: (970) 242-5065
Fax: (970) 243-4871
E-mail: Gvwua1147@aol.com

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

U.S. Army Corps of Engineers
Mississippi River & Tributaries Project
FY 2012 Request—\$335 Million

Is this nation's heartland worth preserving? Will the richest and most fertile farmland in the world be allowed to simply wash away? Are the lives and livelihoods of America's bread basket somehow now less important?

These are the questions we must ask ourselves even in this time of great economic uncertainty, with opinions and counter-opinions churning and Americans seemingly divided as surely as this continent's greatest river bisects it.

And after asking them, then we must remember that some truths really are self-evident.

As we move forward with what we realize necessarily must be a new approach to flood control and its funding in the years ahead, we urge you not to lose sight of what has been the enormous success of the Mississippi River and Tributaries Project, a project which has made life as we know it in middle America possible. The land in and around the Mississippi River Valley has proved to be the most bountiful on earth. Not only is it home the salt-of-the-earth men and women who populate it, but it is also the producer of an increasingly important slice of the U.S. export pie—the food and fiber that clothe this country and the rest of the world.

We understand the political and economic reality which dictates that now, more than perhaps ever before, every federal dollar is critical and every expenditure must be prioritized. But then what priority of government is more critical than the protection of its people and the wealth that they produce?

The administration proposes 2012 funding for the MR&T, one of our great continuing successes, with an almost unprecedented benefit-to-cost ratio, at \$210 million, once again less than Congress appropriated last year and substantially less than the Corps of Engineers' capability. But in such matters the founding fathers saw fit to give Congress the last word, and so we urge you to fund the MR&T umbrella of needed public works at the Corps' capability level of \$335 million.

Honorable Members of Congress, there is a simple truth in our region of this country: The Mainline Mississippi River Levee makes life and development possible within the Mississippi Delta. Therefore it is nothing less than our duty to ask you to fund Mississippi River levees construction at \$77.730 million and their maintenance at \$15.781. A paramount priority to our levee board is the Upper Yazoo Projects which we sponsor, not only a much needed endeavor, but a rare one, as well, in that it faces no environmental opposition. We urge you to advance its completion in the amount of \$14.2.

Mississippi's four flood control reservoirs have marked another MR&T success, but it concerns us that they are aging, and we request the appropriation of \$34.759 million for their continued maintenance.

Also critical to us is the Delta Headwater Project, which helps to prevent our Delta streams from filling with eroded soils from the hills. We ask that it be funded at \$23.2 million.

We would also request that these other pieces of the flood control puzzle in our area be funded as follows:

Channel Improvements – \$73,270 million
Big Sunflower River – \$2.5 million
Main Stem – \$25,000
Yazoo Basin Reformulation – \$1.2 million
Channel Maintenance – \$89.936 million
Channel Improvement Dredging – \$18.029 million
Channel Improvement Dredging – Memphis – \$12.430 million
Channel Improvement Dredging – Vicksburg – \$5.023 million
Revetments and Dikes – \$71.907 million
Big Sunflower Maintenance – \$985,000
Main Stem Maintenance – \$6,248 million
Tributaries – \$1.286 million
Whittington Auxiliary Channel – \$494,000

And finally, Members of Congress, we have all been shocked and sickened by the death and devastation resultant from the recent earthquake in Japan. And so we would remind that the strongest recorded earthquake on the North American continent, occurred exactly 200 years ago—not in California, but along the New Madrid Fault in Missouri. Any such event today would make the amount of this needed funding request look like child's play, so we urge you to also allocate necessary attention and funding to earthquake research and preparedness.

Respectfully submitted,

B. Sykes Sturdivant, President

Kelly Greenwood, CEO, Chief Engineer

City of Aurora



Water Department
Administration
Phone: 303-739-7370
Fax: 303-739-7491



Mark Pifher
Director, Aurora Water
15151 E. Alameda Parkway, #3600
Aurora, CO 80012

March 15, 2011

The Honorable Rodney P. Frelinghuysen, Chairman
The Honorable Peter J. Visclosky, Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives
2362-B Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Frelinghuysen and Representative Visclosky:

I am writing to request your support and assistance in insuring continued funding for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program in FY2012 as authorized by P.L. 106-392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah and Wyoming, Indian tribes, federal agencies and water, power and environmental interests. I am requesting your support for an appropriation for FY2012, consistent with the President's recommended budget, of \$6,248,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. Substantial non-federal cost-sharing funding is occurring pursuant to Public Law 106-392, as amended.

I thank you for the Subcommittee's past support and request the Subcommittee's assistance for fiscal year 2012 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark Pifher".

Mark T. Pifher
Director, Aurora Water
303-739-7378
mpifher@auroragov.org



Name: Eric Kuhn
Title: General Manager
Organization: Colorado River District

March 16, 2011

The Honorable Rodney P. Frelinghuysen, Chairman
The Honorable Peter J. Visclosky, Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives
2362-B Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Frelinghuysen and Representative Visclosky:

I am writing to request your support and assistance in insuring continued funding for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program in FY2012 as authorized by P.L. 106-392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah and Wyoming, Indian tribes, federal agencies and water, power and environmental interests. I am requesting your support for an appropriation for FY2012, consistent with the President's recommended budget, of \$6,248,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. Substantial non-federal cost-sharing funding is occurring pursuant to Public Law 106-392, as amended.

I thank you for the Subcommittee's past support and request the Subcommittee's assistance for fiscal year 2012 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Sincerely,

A handwritten signature in black ink, appearing to read "R. Eric Kuhn".

R. Eric Kuhn
Colorado River District
Phone: (970)945-8522
Fax: (970)945-8799
Email: ekuhn@crwcd.org



THE JICARILLA APACHE NATION

P.O. BOX 507 • DULCE, NEW MEXICO • 87528-0507

Name Levi Pesata
 Title: President
 Organization: Jicarilla Apache Nation

24 March 2011

The Honorable Rodney P. Frelinghuysen, Chairman
 The Honorable Peter J. Visclosky, Ranking Member
 Subcommittee on Energy and Water Development
 Committee on Appropriations
 United States House of Representatives
 2362-B Rayburn House Office Building
 Washington, D.C. 20515

Dear Chairman Frelinghuysen and Representative Visclosky:

On behalf of the Jicarilla Apache Nation, I am writing to request your support and assistance in insuring continued funding for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program in FY2012 as authorized by P.L. 106-392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah and Wyoming, Indian tribes, federal agencies and water, power and environmental interests. Jicarilla Apache Nation has been involved with the San Juan River Basin Recovery Implementation Program since its inception in 1992 and I want to stress that the continuation of the Program is of the utmost importance to the Nation and the economic viability of the region. Because of that, I am requesting your support for an appropriation for FY2012, consistent with the President's recommended budget, of \$6,248,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. Substantial

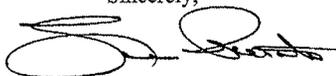


The Honorable Rodney P. Frelinghuysen,
Chairman The Honorable Peter J. Visclosky,
Ranking Member Page 2

non-federal cost-sharing funding is occurring pursuant to Public Law 106-392, as amended.

I thank you for the Subcommittee's past support and request the Subcommittee's assistance for fiscal year 2012 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Sincerely,

A handwritten signature in black ink, appearing to read 'Levi Pesata', with a large, stylized initial 'L'.

Levi Pesata
President
Jicarilla Apache Nation
Phone-575-759-4206
Fax-575-759-4487
Email: dannvicneti@yahoo.com

San Juan Water Commission

7450 East Main Street, Suite B • Farmington • New Mexico • 87402
Ph: 505-564-8969 • Fax: 505-564-3322 • Email: sjwcoffice@sjwc.org

MEMBERS:
City of Aztec
City of Bloomfield
City of Farmington
San Juan County
S.J. County Rural Water Users Association

L. Randy Kirkpatrick
Executive Director
San Juan Water Commission

March 21, 2011

The Honorable Rodney P. Frelinghuysen, Chairman
The Honorable Peter J. Visclosky, Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives
2362-B Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Frelinghuysen and Representative Visclosky:

I am writing to request your support and assistance in insuring continued funding for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program in FY2012 as authorized by P.L. 106-392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah and Wyoming, Indian tribes, federal agencies and water, power and environmental interests. I am requesting your support for an appropriation for FY2012, consistent with the President's recommended budget, of \$6,248,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. Substantial non-federal cost-sharing funding is occurring pursuant to Public Law 106-392, as amended.

I thank you for the Subcommittee's past support and request the Subcommittee's assistance for fiscal year 2012 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Sincerely,

L. Randy Kirkpatrick

San Juan Water Commission
7450 E. Main Street
Farmington, NM 87402
Phone: 505-564-8969 Fax: 505-564-3322 sjwcoffice@sjwc.org



Main Office: 33 Central Ave, 3rd Floor, Albany, New York 12210
 Phone: (518) 462-5527 • Fax: (518) 465-8349 • E-mail: cectoxic@igc.org

Websites: www.cectoxic.org • www.ecothreatny.org •
www.toxicfreefuture.org

Testimony for the Appropriations Subcommittee
 on Energy and Water Development
 Re: Department of Energy Environmental Management, specifically
 the West Valley, NY Cleanup from Nuclear Waste Reprocessing
 from 1966-1972

March 25, 2011

by Barbara J. Warren, Executive Director

Chairman Frelinghuysen, Ranking Minority Leader Visclosky and Members of the House Appropriations Subcommittee on Energy and Water Development, we are writing to you related to appropriations for the Department of Energy activities required under the West Valley Demonstration Project Act to clean up the former site of commercial nuclear waste reprocessing. It has been almost 40 years since the private operator walked away from the site and the public has been waiting for a very long time to see a light at the end of the tunnel in this cleanup process. The West Valley site threatens Lake Erie and drinking water for millions of people.

Last year the Department promised that Phase I of our cleanup would take just 10 years. Phase I will address only 1-2% of remaining buried radioactive waste. That ten year commitment was short lived as we learned it was dependent on adequate funding. The current Phase I contract is for \$1.1 Billion and in order to complete Phase I within 10 years, the annual allocation must be \$110 million. However, we understand that we are slated to receive only \$60 million in the budget you are reviewing.

Delay has been very costly at West Valley. Let me describe to you what delay means at West Valley. DOE delayed in dealing with a strontium plume resulting in widespread contamination that will be very costly even though it will receive only a partial cleanup. It costs \$20 million per year just to maintain the West Valley site. This means that just \$40 million will be available for the cleanup work. The first step in the process -- moving the vitrified (glass-like) high level radioactive logs-- to another location could take 3-4 times that amount of money. Moving the logs is essential to taking down the process building and below the building lies the origin of the strontium plume. A delay of four years just to move the glass logs will mean spreading of a plume of contamination and increased remediation costs for contaminated soils over the long term.

Our message to you is that DELAY is COSTLY at West Valley. We urge you not to be penny wise and pound foolish when it comes to these expenditures. We also believe that government needs the public to be watchdogs. We urge this committee to appropriate a portion of these funds to enable citizens to hire independent experts to provide some measure of accountability. The Environmental Protection Agency (EPA) has what are called TAG grants (Technical assistance grants) for this purpose, but DOE has no such program. Thank you for your attention.

Name: Carly B. Burton
Title: Executive Director
Organization: Utah Water Users Association

March 25, 2011

The Honorable Rodney P. Frelinghuysen, Chairman
The Honorable Peter J. Visclosky, Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives
2362-B Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Frelinghuysen and Representative Visclosky:

I am writing to request your support and assistance in insuring continued funding for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program in FY2012 as authorized by P.L. 106-392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah and Wyoming, Indian tribes, federal agencies and water, power and environmental interests. I am requesting your support for an appropriation for FY2012, consistent with the President's recommended budget, of \$6,248,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. Substantial non-federal cost-sharing funding is occurring pursuant to Public Law 106-392, as amended.

I thank you for the Subcommittee's past support and request the Subcommittee's assistance for fiscal year 2012 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Sincerely,

/s/ Carly B. Burton

Executive Director
Phone: (801) 268-3065
Fax: (801) 261-4069
E-mail: utahwaterusers@aol.com

VENTURA HARBOR, VENTURA PORT DISTRICT - CALIFORNIA

SUBCOMMITTEE ON ENERGY & WATER DEVELOPMENT

U.S. ARMY CORPS OF ENGINEERS

The President's FY2012 budget request for Ventura Harbor reflects a request of \$2,805,000 for operation and maintenance for annual dredging activities within and around the federal channel area of Ventura Harbor. Unfortunately, funding at that level does not accomplish the task.

In FY2011, the Corps of Engineers was only able to complete the dredging of 300,000 cubic yards of material, leaving 500,000 cubic yards of material not dredged, and remaining in place to be addressed next year. It is anticipated that over 1 million cubic yards will need to be dredged in FY2012. Informal communications with the U.S. Army Corps of Engineers suggest that FY2012 funding of \$4,500,000 is required to meet the Ventura Port District's dredging requirements for the next fiscal year.

The authorizing legislation for this request is P.L. 90-483, Section 101. The appropriations history is:

FY04 - \$2.9 million (P.L. 108-137)

FY05 - \$2.9 million (P.L. 108-447)

FY06 - \$2.6 million (P.L. 109-103)

FY07 - \$2.6 million (P.L. 110-05)

FY08 - \$3.4 million (P.L. 110-161)

FY08 – Emergency funding \$5.0 million (P.L. 110-252) breakwater repairs

FY09 - \$2.8 million (P.L. 111-8)

FY10 - \$6.1 million (P.L. 111-85) included additional funds to complete breakwater repairs

FY11 - \$2.8 million

It is noted that employment associated with the commercial fishing industry in the Port of Ventura area is directly related to the dredging activities of the Corps. In 2010, it is estimated that 71 million pounds of seafood product were unloaded at facilities associated with the Port of Ventura, accounting for significant employment in the area.

CALIFORNIA CONTACT:

Richard W. Parsons
 Dredging Program Manager
 Ventura Port District
 1603 Anchors Way Drive
 Ventura, CA 93001-4229
 (805) 649-9759 office / (805) 649-9759 fax
 (905) 890-8505 cell
rwpdredging@hotmail.com

WASHINGTON CONTACT:

John C. Tuck
Baker Donelson Bearman Caldwell & Berkowitz
920 Massachusetts Avenue, N.W., 9th Floor
Washington, D.C. 20001
(202) 508-3433 office / (202) 220-2233 fax
(202) 365-4743 cell
jtuck@bakerdonelson.com



SOUTHERN UTE INDIAN TRIBE

OFFICE OF THE CHAIRMAN

March 24, 2011

The Honorable Rodney P. Frelinghuysen, Chairman
 The Honorable Peter J. Visclosky, Ranking Member
 Subcommittee on Energy and Water Development
 Committee on Appropriations
 United States House of Representatives
 2362-B Rayburn House Office Building
 Washington, D.C. 20515

Re: Outside Written Testimony for the Record: Bureau of Reclamation 2012 Appropriations

Dear Chairman Frelinghuysen and Representative Visclosky:

On behalf of the Southern Ute Indian Tribe, I am writing to request your support and assistance in insuring continued funding for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program in FY2012 as authorized by P.L. 106-392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah and Wyoming, the Southern Ute Indian Tribe, the Ute Mountain Ute Indian Tribe, the Navajo Nation, the Jicarilla Apache Nation, federal agencies and water, power and environmental interests. The Tribe is requesting your support for an appropriation for FY2012, consistent with the President's recommended budget, of \$6,248,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. Substantial non-federal cost-sharing funding is occurring pursuant to Public Law 106-392, as amended.

The Tribe appreciates the Subcommittee's past support and requests the Subcommittee's assistance for fiscal year 2012 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Sincerely,

/s/ Jim R. Newton
 Acting Chairman



Name: *Eric W. Wilkinson*
Title: *General Manager*
Organization: *Northern Colorado Water Conservancy District, and Municipal Subdistrict,
Northern Colorado Water Conservancy District*

March 28, 2011

The Honorable Rodney P. Frelinghuysen, Chairman
The Honorable Peter J. Visclosky, Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives
2362-B Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Frelinghuysen and Representative Visclosky:

On behalf of the Boards of Directors of the Northern Colorado Water Conservancy District and the Municipal Subdistrict, Northern Colorado Water Conservancy District, I am writing to request your support and assistance in ensuring continued funding for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program in fiscal year 2012 as authorized by P.L. 106-392.

These two successful, ongoing cooperative partnership programs involve the states of Colorado, New Mexico, Utah and Wyoming, Indian tribes, federal agencies, and water, power and environmental interests. I am requesting your support for an appropriation for fiscal year 2012 consistent with the President's recommended budget of \$6,248,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. Substantial non-federal cost-sharing funding is occurring pursuant to P.L. 106-392, as amended.

I thank you for the Subcommittee's past support and request the Subcommittee's assistance for fiscal year 2012 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Sincerely,

/s/ Eric W. Wilkinson
Phone: (970) 532-7700
Fax: (970) 532-0942
ewilkinson@ncwcd.org

STATEMENT
OF
THE MISSISSIPPI VALLEY FLOOD CONTROL ASSOCIATION
TO
HOUSE APPROPRIATIONS SUBCOMMITTEE
ON ENERGY AND WATER DEVELOPMENT
MISSISSIPPI RIVER AND TRIBUTARIES PROJECT
FISCAL YEAR 2012

The Mississippi Valley Flood Control Association respectfully requests that the sum of \$335,000,000 be appropriated in Fiscal Year 2012 for the Mississippi River and Tributaries Project.

The Flood Control Association was first organized in 1922 by a group of interested citizens from the states of Arkansas, Mississippi and Louisiana. From that first meeting, held in Memphis, Tennessee, a delegation was selected to come to Washington in an attempt to convince both the Congress and the Executive Branch that the prevention of catastrophic floods in the lower Mississippi River valley was beyond the capabilities of the local people and was in fact too large for any group other than the federal government. This group of dedicated citizens was without success until the record flooding of 1927 swept through the Mississippi River valley with a fury of devastation not seen before. An unknown number of people perished, along with thousands of head of livestock and large numbers of many species of wildlife. Some seven (7) percent of all the productive land on this planet was under water for a period of almost half a year. The Congress, after extensive hearings, passed the Flood Control Act of May 15, 1928, which was then signed into law by President Calvin Coolidge.

The Flood Control Association then disbanded, acting under the erroneous assumption that the United States government would provide whatever was needed to prevent flooding in the valley. In 1935 it became apparent that additional legislation was required and the Association, under the leadership of Senator John Overton from Louisiana, was reorganized. It has been in continuous and active existence since, some 76 years.

We have been fortunate since 1935 to have as our President and two Vice Presidents members of the United States Congress with Congressman Mike Ross from the State of Arkansas serving as our President and Senator Roger Wicker from Mississippi and Congressman Blaine Luetkemeyer from Missouri serving as our Vice Presidents.

We are a non-profit agency made up of levee boards, drainage districts, harbor and port commissions, states, cities and towns, including many other agencies and individuals that have an interest in the protection and betterment of the people and property in the Mississippi River Watershed, the third largest in the world. But we feel it is the greatest, because of its size coupled with its essential usefulness to the well-being of our nation. In a few words we are an agency through which the local people may speak and act jointly on all flood control, bank stabilization, navigation and major drainage problems.

Never before have we seen our nation faced with such huge public debts and budget deficits and we do today. In our daily life we are made aware of the gut-wrenching sadness of seeing homes foreclosed and jobs disappear. We know all those things but we also know that the country that is and has been for generations the bright light of freedom and prosperity, must not and cannot let its infrastructure deteriorate and fall into ruin; neither can we allow one of our

vital forms of transportation to become underutilized or useless due to the lack of proper and necessary maintenance.

Unfortunately today, as usual, you are considering a budget request from the Executive Department that has insufficient funding to prevent either of the cases just outlined. The only recourse we have is to request the Congress do as you have always done, add the necessary supplemental funds to protect the lives, property and livelihoods of the citizens of this great river basin.

Earlier in this statement it was said that the Mississippi River Watershed that provides drainage for 41% of the nation, moves almost one billion tons of commodities--60% of our grain, 25% of our petroleum products, 20% of the coal to fire our power plants, was the greatest watershed on the planet because of its size coupled with its usefulness. Useful because the river has been controlled and improved beginning with the first levee for flood protection built in New Orleans, Louisiana, in 1717. Levees came early because "without flood control, nothing else matters." Over the years the Congress, the Corps of Engineers and the local people have worked together to make the Mississippi River Watershed, stretching from New York on the east to Montana on the west and from the Canadian border to the Gulf of Mexico, the greatest and the envy of the developed world.

Our great country has always been a maritime nation, almost totally dependent during the earliest years on the oceans and unimproved waterways to move our commerce including, at that time in history, our people. Westward expansion used the rivers whenever possible, and many of the earliest construction projects in the new country were the building of canals connecting commercial waterways. Our national security and economic well-being has always, now more than ever, depended on the seas, lakes and inland waterways that give us accessibility to every corner of our great Nation.

All improvements, great or small, sooner or later require maintenance. We have been too lax in this great country with maintaining and improving our basic forms of transportation. We have not built new airports to keep up with the demand of our growing population nor have we improved and properly maintained those that we have. Our system of railroads is in such bad shape that we no longer even attempt to move human cargo by train except for a very few small, densely populated areas of the country. The interstate highway system that we constructed over 50 years ago was a great source of pride, but we failed again to properly maintain it, and now we are paying a tremendous price to keep it functioning. A great majority of our waterway improvements, including our locks and dams and flood control facilities, are well past their design life. Soon we will find ourselves in emergency mode, repairing and replacing failures. This will be very expensive, an economic disaster. Farmers will be especially hard hit, with no efficient and economical way to transport their crops to international markets.

Our principal, but certainly not our only concern, is with the funding of the Mississippi River and Tributaries Project. This is a very unique project that was conceived and developed with consideration for the functional relation between all its parts and the whole. It is a project that covers all aspects of development in the Mississippi River valley below the vicinity of Cape Girardeau, Missouri, from flood control to navigation to environmental protection and enhancement. The Mississippi River and Tributaries Project was well-planned, well-organized, well-engineered, well-constructed and, until recently, well-maintained. Unfortunately it is not yet completed, and adequate funding from the Congress is imperative if it is to be completed and properly maintained. If, because of inadequate funding and uncalled for delays due to countless and repetitive studies and misguided lawsuits by the misnamed and misled environmentalists, the

lower reaches of the Mississippi River are not usable by commercial boats and barges and sea-going ships, then no amount of improvement on the upper reaches of the Mississippi River can have any favorable effect. "Without flood control nothing else matters."

One of the major opportunities that we have to increase the wealth of our nation is to continue the improvement and development of our major river systems. As noted, the major system is the Mississippi River Watershed. For that reason we are here today to request that the Congress do what it has done since 1928. That is, to appropriate sufficient supplemental funds, allowing the Corps of Engineers to continue what the Congress has directed them to do. We are not talking about "earmarks" or pork barrel politics. We are talking about funds to keep our navigation channels open and to provide necessary dredging in order that our smaller but no less critical ports may continue to function; funds to continue the ongoing work to bring miles of levee sections that are deficient in either grade or section up to the design required to protect our citizens against the "greatest possible flood"; funds to bring our bank stabilization program to completion in the most efficient manner, both economically and environmentally.

The Executive Committee of the Mississippi Valley Flood Control Association has carefully studied the President's Budget request for Fiscal Year 2012. We have arrived at the unanimous conclusion that the required appropriation for the Mississippi River and Tributaries Project is \$335,000,000, just to be reasonably assured that the goals of navigation, flood control, levee improvement and bank stabilization are met; nothing more, nothing less.

In a special message to Congress on flood control in the Mississippi Basin, dated July 16, 1947, President Harry S. Truman began with the following in his opening sentence. I quote: "the major opportunity of our generation to increase the wealth of the nation lies in the development of our great river systems." End of quote. Later on in his message President Truman used these words, quote: "we must never forget that the conservation of our natural resources and their wise use are essential to our very existence as a Nation. The choice is ours. We can sit idly by - or almost as bad, resort to the false economy of feeble and inadequate measures - while these precious assets waste away. On the other hand, we can, if we act in time, put into effect a realistic and practical plan which will preserve these basic essentials of our national economy and make this a better and a richer land." End of quote. Mr. Truman was speaking about the Mississippi River and Tributaries Project in this last quote. And these words are still true today. On July 31, 1947, President Truman approved appropriations bills, including supplemental provisions for flood control on the Mississippi River and Tributaries Project in Fiscal Year 1948 of \$250,000,000. And that was in 1948 dollars!

We have attached a detailed breakdown of the requested funds of \$355,000,000 for the Mississippi River and Tributaries Project for Fiscal Year 2012.

MISSISSIPPI VALLEY FLOOD CONTROL ASSOCIATION	
FISCAL YEAR 2012 CIVIL WORKS REQUESTED BUDGET	
MISSISSIPPI RIVER AND TRIBUTARIES APPROPRIATIONS	
Project/Study	FY 2012 REQUEST \$335M
MR&T INVESTIGATIONS	
Collection & Study of Basic Data	500
Memphis Metro Storm Water Management, TN (FEAS)	100
TOTAL INVESTIGATIONS	600
MR&T CONSTRUCTION	
Atchafalaya Basin, LA	6,300
Atchafalaya Basin Floodway System, LA	1,900
Channel Improvement, AR, IL, KY, LA, MS, MO & TN	111,570
Mississippi River Levees, AR, IL, KY, LA, MS, MO & TN	58,980
Yazoo Basin, Upper Yazoo Projects	5,000
TOTAL CONSTRUCTION	183,750
MR&T MAINTENANCE	
Atchafalaya Basin, LA	1,468
Atchafalaya Basin Floodway System, LA	42
Baton Rouge Harbor, Devils Swamp, LA	48
Bayou Cocodrie & Tributaries, LA	2,145
Bonnet Carre, LA	61,230
Channel Improvement, AR, IL, KY, LA, MS, MO & TN - TOT	32,032
Channel Improvement - Dredging	21,141
Channel Improvement - Revetments & Dikes	48,398
Greenville Harbor, MS	18
Helena Harbor, AR	122
Inspection of Completed Works	1,350
Lower Arkansas River, North Bank, AR	223
Lower Arkansas River, South Bank, AR	150
Lower Red River - South Bank Levees	377
Mapping	1,202
Memphis Harbor McKellar Lake, TN	1,394
Mississippi Delta Region - Caernarvon, LA	438
Mississippi River Levees, AR, IL, KY, LA, MS, MO & TN	7,951
Old River Control Structure, LA	6,954
Red-Ouachita Basin Levees, AR & LA	0
St. Francis River & Tributaries, AR & O	4,174
Tensas Basin, Boeuf & Tensas Rivers, AR & LA	1,884
Tensas Basin, Red River Backwater, LA	2,473
Vicksburg Harbor, MS	32
Wappapello Lake, MO	4,167
White River Backwater, AR	896
Yazoo Basin, Arkabutla Lake, MS	4,606
Yazoo Basin, Big Sunflower (Bogue Phalia.), MS	185
Yazoo Basin, Enid Lake, MS	4,386
Yazoo Basin, Greenwood, MS	807
Yazoo Basin, Grenada Lake, MOS	4,511
Yazoo Basin, Main Stem, MO	1,019
Yazoo Basin, Sardis Lake, MS	5,687
Yazoo Basin, Tributaries, MS	967
Yazoo Basin, Will M. Whittington Auxiliary Channel, MS	378
Yazoo Basin, Yazoo Backwater, MS	517
Yazoo Basin, Yazoo City, MS	731
TOTAL MAINTENANCE	150,650
TOTAL MR&T	335,000

Colorado River Basin

Salinity Control Forum



March 30, 2011

GOVERNORS

Janice K. Brewer, AZ
 Jerry Brown, CA
 John Hickenlooper, CO
 Brian Sandoval, NV
 Susana Martinez, NM
 Gary R. Herbert, UT
 Matt Mead, WY

FORUM MEMBERS

Arizona

Perri Benemelis
 Larry R. Dozier
 Linda Taunt

California

Dorothy Rice
 Pete Silva
 Gerald R. Zimmerman

Colorado

Jennifer L. Gimbel
 Steven H. Gunderson
 David W. Robbins

Nevada

Kay Brothers
 Leo M. Drozdoff
 McClain Peterson

New Mexico

John R. D'Antonio

Utah

Randy Crozier
 Dennis J. Strong
 John Whitehead

Wyoming

Dan S. Budd
 Patrick T. Tyrrell
 John F. Wagner

EXECUTIVE DIRECTOR

Don A. Barnett

106 W. 500 S., Suite 101
 Bountiful, Utah 84010
 (801) 292-4663
 (801) 524-6320 (fax)
 dbarnett@barnettwater.com

The Honorable Rodney P. Frelinghuysen
 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 Frelinghuysen:

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 2012 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,

Don A. Barnett
 Executive Director
 dbarnett@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
DON A. BARNETT, EXECUTIVE DIRECTOR
April 15, 2011**

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

For the Department of the Interior

Bureau of Reclamation – FY 2012 Appropriation

Colorado River Basin Salinity Control Forum’s Recommendation:

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

This testimony is in support of funding for the Title II Colorado River Basin Salinity Control Program. The Congress has designated the Department of the Interior, Bureau of Reclamation (Reclamation), to be the lead agency for salinity control in the Colorado River Basin. This role and the authorized program were refined and confirmed by the Congress when PL 104-20 was enacted. A total of \$17,500,000 is requested for FY 2012 to implement the needed and authorized program. Failure to appropriate these funds will result in significant economic damage in the United States and Mexico.

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

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

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

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

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

OVERVIEW

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

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

After a decade of investigative and implementation efforts, the Basin states concluded that the Salinity Control Act needed to be amended. The Congress revised the Act in 1984. That revision, while leaving implementation of the salinity control policy with the Secretary of the Interior, also gave new salinity control responsibilities to the USDA and to the Bureau of Land Management (BLM). The Congress has charged the Administration with implementing the most cost-effective program practicable (measured in dollars per ton of salt removed). The Basin states are strongly supportive of that concept as the Basin states cost share 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. However, the only means of disposing of the brine collected is this injection well. This well has a limited life expectancy. Funds are needed now to allow for planning of alternatives as the end of the life expectancy of this injection well is approached. 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.

Don A. Barnett
Executive Director
Colorado River Basin Salinity Control Forum
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Upper Gunnison River Water Conservancy District

210 West Spencer Avenue, Suite B • Gunnison, Colorado 81230
Telephone (970) 641-6065 • Facsimile (970) 641-1162 • ugrwcd@ugrwcd.org

Name: Brett Redden

Title: President, Board of Directors

Organization: Upper Gunnison River Water Conservancy District

March 28, 2011

The Honorable Rodney P. Frelinghuysen, Chairman
The Honorable Peter J. Visclosky, Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives
2362-B Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Frelinghuysen and Representative Visclosky:

I am writing to request your support and assistance in insuring continued funding for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program in FY2012 as authorized by P.L. 106-392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah and Wyoming, Indian tribes, federal agencies and water, power and environmental interests. I am requesting your support for an appropriation for FY2012, consistent with the President's recommended budget, of \$6,248,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. Substantial non-federal cost-sharing funding is occurring pursuant to Public Law 106-392, as amended.

I thank you for the Subcommittee's past support and request the Subcommittee's assistance for fiscal year 2012 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Sincerely,

A handwritten signature in black ink that reads "Brett Redden".

Brett Redden
970-641-6065
970-641-1162 (fax)
ugrwcd@ugrwcd.org

Moss Landing Harbor District, California
Subcommittee on Energy and Water Appropriations
US Army Corps of Engineers
FY 12 Operations and Maintenance Account General

Linda G. McIntyre, Esq. General Manager and Harbormaster
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PREPARED REMARKS

BY

LINDA G. MCINTYRE, HARBORMASTER AND GENERAL MANAGER

MOSS LANDING HARBOR DISTRICT

MONTEREY BAY, CALIFORNIA

SUBMITTED FOR THE RECORD ON

FISCAL YEAR 1999 ENERGY AND WATER APPROPRIATIONS

FOR THE US ARMY CORPS OF ENGINEERS

OPERATIONS AND MAINTENANCE GENERAL ACCOUNT

BEFORE

THE SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

COMMITTEE ON APPROPRIATIONS

HOUSE OF REPRESENTATIVES

WASHINGTON, D.C.

APRIL 15, 2011

MR CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE,

THANK YOU FOR THE OPPORTUNITY FOR ME, LINDA MCINTYRE, AS HARBORMASTER AND GENERAL MANAGER OF THE MOSS LANDING HARBOR DISTRICT IN CALIFORNIA TO SUBMIT PREPARED REMARKS TO YOU FOR THE RECORD IN SUPPORT OF THE FISCAL YEAR 2012 ENERGY AND WATER REGULAR APPROPRIATIONS MEASURE. I APPEAR ON BEHALF OF THE ELECTED BOARD OF HARBOR COMMISSIONERS, THE FISHERMEN, OCEANOGRAPHERS AND SCIENTISTS, AND THE CITIZENS AND MARINE DEPENDENT BUSINESSES OF THE MONTEREY COMMUNITY WHICH WE REPRESENT.

WE RESPECTIVELY REQUEST AN ADDITIONAL \$3.2M IN US ARMY CORPS OF ENGINEERS OPERATIONS AND MAINTENANCE GENERAL ACCOUNT FOR SCHEDULED AUTHORIZED FEDERAL CHANNEL MAINTENANCE AS UNANIMOUSLY RECOMMENDED BY THE CALIFORNIA MARINE AFFAIRS AND NAVIGATION CONFERENCE (CMANC).

THE BOARD OF HARBOR COMMISSIONERS RECOGNIZES AND EXPRESSES ITS GRATITUDE TO THE HONORABLE SAM FARR, A MEMBER OF THIS COMMITTEE, AND THE OTHER MEMBERS OF THIS SUBCOMMITTEE AND STAFF, FOR THEIR PAST EFFORTS IN FUNDING OPERATIONS AND MAINTENANCE OF THE MOSS LANDING HARBOR NAVIGATION PROJECT. THIS AUTHORIZED PROJECT IS OF SIGNIFICANT NATIONAL ECONOMIC BENEFIT AND CRITICAL ECONOMIC IMPORTANCE TO THE COMMERCIAL FISHING INDUSTRY, UNIVERSITY AND PRIVATE OCEANOGRAPHIC RESEARCH FLEET, AND MONTEREY COUNTY IN THE CENTRAL COAST REGION OF THE STATE OF CALIFORNIA FOR OVER 60 YEARS.

WE ARE EQUALLY GRATEFUL TO THE CHAIRMAN AND THE OTHER MEMBERS OF THIS SUBCOMMITTEE AND STAFF FOR THEIR CONTINUING EFFORTS IN SUPPORTING CRITICALLY NEEDED OPERATIONS AND MAINTENANCE FUNDING OF ALL OUR NATION'S PORTS BOTH LARGE AND SMALL WITHOUT DISCRIMINATION.

MOSS LANDING HARBOR IS PERHAPS BEST KNOWN AS THE GATEWAY TO THE UNIQUE MONTEREY BAY WITH ITS SUBMARINE CANYON AND NATIONAL MARINE SANCTUARY, AND AS THE HOMEPORT FOR ITS OCEANOGRAPHIC RESEARCH TENANTS, INCLUDING CALIFORNIA STATE UNIVERSITY MARINE CONSORTIUM, STANFORD UNIVERSITY HOPKINS MARINE INSTITUTE (WELL KNOWN TO JOHN STEINBECK FANS OF CANNERY ROW) AND THE MONTEREY BAY AQUARIUM RESEARCH INSTITUTE (MBARI) AN AFFILIATE OF THE MONTEREY BAY AQUARIUM – AMERICA'S MOST VISITED CULTURAL AND EDUCATIONAL SITE.

WITHOUT CONTINUED MAINTENANCE DREDGING OF THE FEDERAL CHANNEL AT ROUGHLY THREE YEAR INTERVALS, NONE OF THESE SCIENTIFIC, EDUCATIONAL, ENVIRONMENTAL RESEARCH, AND VITAL COMMERCIAL FISHING ACTIVITIES COULD CONTINUE UNINTERRUPTED.. THE YEAR 2012 REPRESENTS THE NEXT REQUIRED SCHEDULED TRIENNIAL DREDGING EVENT. FOR THIS PURPOSE WE ARE REQUESTING THE ADDITION OF \$3.2M TO THE PRESIDENT'S BUDGET. WE ARE ADVISED THE US ARMY CORPS OF ENGINEERS SAN FRANCISCO DISTRICT HAS THE CAPABILITY TO EXECUTE THIS MAINTENANCE DREDGING CYCLE.

FOR THOSE WHO ARE UNFAMILIAR WITH THE GEOGRAPHY OF MONTEREY BAY AND SURROUNDING REGION, WE INVITE YOU TO COME VISIT. MOSS LANDING IS STRATEGICALLY SITUATED APPROXIMATELY MID-POINT BETWEEN SANTA CRUZ AND MONTEREY HARBORS ON MONTEREY BAY. IT SHARES A COMMON ENTRANCE WITH ELKHORHN SLOUGH, A CRITICAL ESTUARY OF NATIONAL SIGNIFICANCE.

CONSTRUCTION OF THE PROJECT FOR NAVIGATION, MOSS LANDING, MONTEREY BAY, CALIFORNIA WAS AUTHORIZED IN THE RIVERS AND HARBORS ACT OF MARCH 2, 1945 AT AN AUTHORIZED DEPTH OF FIFTEEN FEET. THE CONGRESSIONAL FINDINGS REFLECTED THE NATIONAL SECURITY AND POST-WAR ECONOMIC DEVELOPMENT INTEREST IN MAINTAINING AND INCREASING COMMERCIAL FISH PRODUCTION. IN THE LEXICON OF NATIONAL ECONOMIC DEVELOPMENT. THE SAME IS TRUE TODAY.

IN ORDER TO HELP HARMONIZE THE AUTHORIZATION AND APPROPRIATIONS PROCESSES IN THE FUTURE AND INTRODUCE AN ELEMENT OF LONG TERM PLANNING AND BUDGETING STABILITY AT THE CORPS DISTRICT LEVEL, WE ARE SEEKING COMPLETION OF A LONG TERM DREDGED MATERIAL MANAGEMENT PLAN THAT WOULD BENEFIT BOTH US AND THE FEDERAL GOVERNMENT, AS WELL AS SAVE EVERYONE, ESPECIALLY THE BELEAGUERED U.S.TAXPAYER, MONEY.

THAT PLAN WOULD ALSO CONTINUE OUR USE OF SEVERAL GRANDFATHERED DREDGED MATERIAL DISPOSAL SITES, AS THE SAME LAND AND SEAWARD GEOGRAPHIC FACTORS THAT MAKE US AN INDISPENSABLE ELEMENT OF THE MONTEREY BAY ECOSYSTEM ALSO LIMIT OUR OPTIONS FOR DISPOSAL WITH FEW IF ANY LANDSIDE ALTERNATIVES.

IN THE FINAL ANALYSIS WE ARE JUST A SMALL HARBOR WITH A BIG PROBLEM NOT OF OUR CREATION IN SEARCH OF A COMPREHENSIVE SOLUTION. THE FIRST STEP IS FUNDING THE LONG OVERDUE MAINTENANCE. WE CANNOT WAIT ANOTHER YEAR.

THANK YOU FOR THE OPPORTUNITY FOR ME, LINDA MCINTYRE AS HARBORMASTER AND GENERAL MANAGER OF THE MOSS LANDING HARBOR DISTRICT IN CALIFORNIA TO SUBMIT PREPARED REMARKS TO YOU FOR THE RECORD IN SUPPORT OF THE FISCAL YEAR 2012 ENERGY AND WATER REGULAR APPROPRIATIONS MEASURE.

WE LOOK FORWARD TO APPEARING BEFORE THIS SUBCOMMITTEE ON FUTURE OCCASIONS TO PROVIDE PROGRESS REPORTS CONCERNING OUR UPHILL AND UPSTREAM EFFORTS TO BOTH PRESERVE NAVIGATION AND IMPROVE THE ENVIRONMENT IN MOSS LANDING HARBOR, CALIFORNIA

I AM PREPARED TO SUPPLEMENT MY PREPARED REMARKS FOR THE RECORD IN RESPONSE TO ANY QUESTONS THAT THE CHAIR, SUBCOMMITTEE MEMBERS, OR STAFF MAY WISH TO HAVE ME ANSWER.

THANK YOU MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE. THIS CONCLUDES MY PREPARED REMARKS.



Universities Research Association, Inc.

JOE B. WYATT
CHAIRMAN, BOARD OF TRUSTEES, UNIVERSITIES RESEARCH ASSOCIATION
TESTIMONY FOR THE RECORD: DOE FY 2012 BUDGET
SUBMITTED TO THE
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT AND RELATED AGENCIES
U. S. HOUSE COMMITTEE ON APPROPRIATIONS
APRIL 4, 2011

Chairman Frelinghuysen, Ranking Member Visclosky, members of the Committee, on behalf of Universities Research Association, Inc. (URA), I appreciate this opportunity to comment on the Administration's FY 2012 budget submission for the Department of Energy (DOE). URA, a non-profit organization comprised of 86 member universities, serves together with the University of Chicago through the Fermi Research Alliance, LLC, as the DOE contractor for the management and operation of the Fermi National Accelerator Laboratory (Fermilab). I write to express our grave concern for the future of fundamental research in the physical sciences in light of the proposed 2012 budget.

Scientific research is critical to innovation, which is fundamental to job creating, economic growth, and global competitiveness. Studies have demonstrated unequivocally double-digit percent returns on the nation's investments in fundamental discovery research. Once in an unquestioned lead role across all fields of research, we now face significant competition from other countries, like China, that have understood the importance of investment in science and technology for economic growth.

The President continues to place a priority on the Department of Energy in his FY 2012 budget request, proposing \$29.5 billion which represents an increase of \$3.1 billion (11.8 percent) above the FY 2010 enacted level. Within the President's proposed overall freeze on non-security discretionary spending, this is a significant commitment by the Administration. For DOE, as the nation's premier funding agency for the physical sciences, it is welcome news that the President proposes \$5.42 billion for the basic research carried out by the DOE Office of Science. The President would increase funding for fundamental research by about 9 percent above the FY 2010 level.

However, the lack of balance within the research programs of the Office of Science is troubling. For example, the President proposes a 24 percent funding increase for the Office of Basic Energy Sciences; a 22 percent increase for the Office of Biological and Environmental Research; and a 21.5 percent increase for Advanced Scientific Computing Research. In contrast, High Energy Physics is essentially frozen at the FY 2010 enacted level (\$797.2 million, an increase of \$6.4 million or 0.8 percent), and Fusion Energy Sciences is reduced below the FY 2010 funding request to \$399.7 million (a reduction of \$18 million or 4.3 percent).

This is a particularly critical time for High Energy Physics as Fermilab, the nation's only national laboratory devoted to research in particle physics, transitions from the highly successful running of the Tevatron Collider to new projects at the Intensity Frontier of particle physics. The Tevatron will shut down at the end of FY 2011, as originally planned, now that the Large Hadron Collider in Europe has become the focus of research at the Energy Frontier. Fermilab is ready to begin new experiments that will put the United States at the forefront of studies of neutrinos, a key area of study to understand the Standard Model and how the universe began. The delay in completing the FY 2011 appropriations bills, in turn, has delayed the start of the new undertakings critical to the future of the laboratory.



Universities Research Association, Inc.

High Energy Physics has blazed the path of international cooperation on large scientific projects with scientists collaborating on the planning, design, construction, and operation of facilities all over the world. The field hosts thousands of researchers each year at the various experiments and serves as a premier training ground for American university students to develop the next generation of scientists, engineers, and technicians to carry out discovery science and innovation. High Energy Physics, and Fermilab in particular, has long reached out to K-12 students to engage their interest in the STEM (science, technology, engineering, and mathematics) fields, which are important to the future economic competitiveness of the nation.

The COMPETES Act, reauthorized by Congress only this past December, affirms a bipartisan commitment to double the science budgets of DOE and NSF over the next 10 years. The current budget situation is indeed critical. But the growth, prosperity, and employment increase needed to deal with it over the long term are not achievable without the vibrant economy made possible through the innovation and research in which the physical sciences play a key role.

As a university-based organization in partnership to operate and manage Fermilab, we urge the Subcommittee to support funding for High Energy Physics within an overall balanced research program in the basic physical sciences within the Office of Science. We urge that the Committee approve, at a minimum, the President's request for High Energy Physics and specifically that it approve the \$56 million associated with the planned new experiments at Fermilab.



Universities Research Association, Inc.

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OHIO LAKE MANAGEMENT SOCIETY

P.O. Box 463 * Kent, OH 44240 * 440-708-2439 * www.olms.org

April 2, 2011

Testimony Submitted by:

Robert D. Davic, Ph.D.
 President
 Ohio Lake Management Society
 P.O. Box 463
 Kent, OH 44240
 Phone: (330) 678-7743
 Email: r_davic@yahoo.com
 Fax: none

Testimony Submitted to: House Subcommittee on Energy and Water Development

Regarding: FY2012 Appropriations for the US Army Corps of Engineers, Aquatic Plant Control and Research Program

To the Honorable Members of the House Subcommittee on Energy and Water Development:

I am writing in support of continued and expanded appropriations for the United States Army Corps of Engineers Aquatic Plant Control and Research Program (APCRP). I write on behalf of the membership of the Ohio Lake Management Society, a citizen based non-profit organization, founded in 1986, with mission to promote research and comprehensive management of lakes and reservoirs in Ohio.

For the past three decades the Ohio Environmental Protection Agency has repeatedly reported to Congress, in their Clean Water Act Section 305(b) and Section 314 documents, that the condition of Ohio's public lakes is being negatively impacted by nuisance growths of aquatic weeds, many of which are exotic species not native to the state. In 1996, the last year such data are available, the Ohio EPA reported in their Ohio Water Resource Inventory that recreation opportunities in 32% of 222 accessed public lakes in Ohio were threatened by nuisance growths of aquatic weeds. These data indicate that there exists a significant and widespread problem with aquatic weeds currently not be addressed by Clean Water Act regulations passed by Congress in 1972.

Public lakes in Ohio are used by millions of citizens each year for recreation, thus the impact of excessive growths of aquatic weeds on recreational opportunities is significant. The Ohio Department of Natural Resources, in their 2008 Statewide Comprehensive Outdoor Recreation Plan, reported that 33% of households representing 11+ million Ohio citizens enjoy recreational boating, an activity that demands proper control and management of aquatic weeds.

The extensive problems with aquatic weeds that are being faced in Ohio are expected to be present in lakes nationwide, thus impacting recreation for millions of Americans who enjoy boating, fishing, and swimming. Given this situation, it is inappropriate that Congress would eliminate funding for the Army Corps Aquatic Weed Research program, which provides useful

scientific information that affects so many citizens of the nation, for so few per capita dollars spent.

It is imperative that Congress continue to fund the APCRP program so that scientific research from multiple perspectives (chemical, biological, mechanical) is conducted to determine the most cost effective ways to control the multitude of aquatic weed species, many exotic species, that now overpopulate the nation's recreational lakes. The information gained from Army Corps research is important to those that manage lake water quality to help them select the best aquatic weed control option for their specific lake situation. The data from the APCRP program are not only of value to state and local government agencies that manage public lakes, but also to the nationwide network of consulting firms that provide lake management services to citizens that own private lakes, many of which have problems with too many aquatic weeds.

In conclusion, on behalf of the millions of citizens in Ohio that enjoy recreational activities on lakes and reservoirs, I urge you to support continued and expanded funding for the APCRP program to conduct research on the control of aquatic weeds at a minimum level of \$4M per year. This action by Congress will help ensure that the Army Corps of Engineers will continue to provide vital scientific data to those that manage and control nuisance growths of plants in our nation's waterways.

Respectfully submitted;

A handwritten signature in black ink, appearing to read "Robert D. Davic".

Robert D. Davic, Ph.D.,
President,
Ohio Lake Management Society

THE SOUTHWESTERN WATER CONSERVATION DISTRICT
Developing And Conserving the Waters in the
SAN JUAN AND DOLORES RIVERS AND THEIR TRIBUTARIES
IN SOUTHWESTERN COLORADO

West Building – 841 East Second Avenue
DURANGO, COLORADO 81301
(970) 247-1302 – Fax (970)259-8423

March 14, 2011

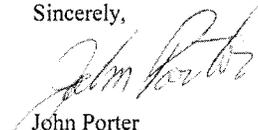
The Honorable Rodney P. Frelinghuysen, Chairman
The Honorable Peter J. Visclosky, Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives
2362-B Rayburn House Office Building
Washington, D.C. 20515

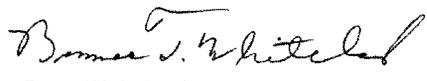
Dear Chairman Frelinghuysen and Representative Visclosky:

We are writing to request your support and assistance in insuring continued funding for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program in FY2012 as authorized by P.L. 106-392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah and Wyoming, Indian tribes, federal agencies and water, power and environmental interests. I am requesting your support for an appropriation for FY2012, consistent with the President's recommended budget, of \$6,248,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. Substantial non-federal cost-sharing funding is occurring pursuant to Public Law 106-392, as amended.

We thank you for the Subcommittee's past support and request the Subcommittee's assistance for fiscal year 2012 funding to ensure the Bureau of Reclamation's continuing financial participation in these critically important programs.

Sincerely,


John Porter
President


Bruce Whitehead
Executive Director



WYOMING WATER ASSOCIATION

Water is Wyoming's Gold

P.O. Box 21701 • Cheyenne, WY 82003-7032

Telephone: (307) 286-8614

E-mail: wwa@wyoming.com • Website: www.wyomingwater.org

Name: Nick Wambeke
Title: President
Organization: Wyoming Water Association

March 28th, 2011

The Honorable Rodney P. Frelinghuysen, Chairman
The Honorable Peter J. Visclosky, Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives
2362-B Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Frelinghuysen and Representative Visclosky:

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I thank you for the Subcommittee's past support and request the Subcommittee's assistance for fiscal year 2012 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Sincerely,

A handwritten signature in cursive script that reads "Nick Wambeke".

(Contact info: 307-286-8614, wwa@wyoming.com)

NW/rg

NEW MEXICO INTERSTATE STREAM COMMISSION

COMMISSION MEMBERS

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April 6, 2011

via e-mail

The Honorable Rodney P. Frelinghuysen, Chairman
Subcommittee on Energy and Water Development
House Appropriations Committee
United States House of Representatives
2369 Rayburn House Office Building
Washington, D.C. 20515-3011

Dear Chairman Frelinghuysen:

Attached herewith is my statement in support of funding for the U.S. Bureau of Reclamation's Colorado River Basin salinity control program. I appreciate your consideration of this statement and request that it be made a part of the formal hearing record for FY 2012 appropriations for the Bureau of Reclamation. Also, I fully support the statement of Don Barnett, Executive Director, Colorado River Basin Salinity Control Forum, submitted to you in support of the Bureau of Reclamation's Colorado River Basin salinity control program.

If you have any questions or need additional information, please contact Paul Harms of my staff at (505) 827-6126 or e-mail at paul.harms@state.nm.us.

Sincerely,

A handwritten signature in cursive script, reading "John R. D'Antonio, Jr.", written in dark ink.

John R. D'Antonio, Jr., P.E.
State Engineer and Secretary, New Mexico Interstate Stream Commission

JRD/ke

Enclosures

cc: w/enclosure: Don Barnett, CRBSCF

Statement of

JOHN R. D'ANTONIO, JR., P.E., NEW MEXICO STATE ENGINEER
AND SECRETARY, NEW MEXICO INTERSTATE STREAM COMMISSION

to the

HOUSE COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

in support of

FY 2012 Appropriation for
COLORADO RIVER BASIN SALINITY CONTROL PROGRAM, TITLE II,
BUREAU OF RECLAMATION

April 6, 2011

SUMMARY

This Statement is submitted in support of Fiscal Year 2012 appropriations for the Colorado River Basin Salinity Control Program of the Department of the Interior's Bureau of Reclamation (Reclamation). Congress designated Reclamation to be the lead agency for salinity control in the Colorado River Basin by the Colorado River Basin Salinity Control Act of 1974, and reconfirmed Reclamation's role by passage of Public Law 104-20. A total of \$17,500,000 is requested for Fiscal Year 2012 to implement the authorized salinity control program of the Bureau of Reclamation. Recent years have followed a trend of inadequate funding for the needs of the program. An appropriation of \$17,500,000 for Reclamation's salinity control program is necessary to restore the program to the level needed to protect water quality standards for salinity and to prevent unnecessary levels of economic damage from increased salinity in water delivered to the Lower Basin States of the Colorado River. In addition, funding for operation and maintenance of existing projects and sufficient general investigation funding is required to identify new salinity control opportunities.

STATEMENT

The water quality standards for salinity of the Colorado River must be protected while the Basin States continue to develop their compact apportioned waters of the river. The salinity standards for the Colorado River have been adopted by the seven Basin States and approved by the Environmental Protection Agency. While currently the standards have not been exceeded, salinity control projects must be brought on-line in a timely and cost-effective manner to prevent future effects that could result in unnecessary damages from higher levels of salinity in the water delivered to the Lower Basin States of the Colorado River.

The Colorado River Basin Salinity Control Act was authorized by Congress and signed into law in 1974. The seven Colorado River Basin States, in response to the Clean Water Act of 1972, formed the Colorado River Basin Salinity Control Forum (Forum), a body comprised of gubernatorial representatives from the seven states. The Forum was created to provide for interstate cooperation in response to the Clean Water Act and to provide the states with information necessary to comply with Sections 303(a) and (b) of the Act. The Forum has become the primary means for the Basin States to coordinate with federal agencies and Congress to support the implementation of the salinity control program for the Colorado River Basin.

Bureau of Reclamation studies show that quantified damages from the Colorado River to United States water users are about \$353 million per year. Unquantified damages are significantly greater. Damages are estimated at \$75 million per year for every additional increase of 30 milligrams per liter in salinity of the Colorado River. Control of salinity is necessary for the states of the Colorado River Basin, including New Mexico, to continue to develop their compact-apportioned waters of the Colorado River.

Timely appropriations for the funding of the salinity control program are essential to comply with the water quality standards for salinity, prevent unnecessary economic damages in the United States, and protect the quality of the water that the United States is obligated to deliver to Mexico. The Basin States and federal agencies agree that increases in the salinity of the Colorado River will result in significant increases in damages to water users in the Lower Colorado River Basin. Although the United States has always met the water quality standard for salinity of water delivered to Mexico under Minute No. 242 of the International Boundary and Water Commission, the United States through the U.S. Section of IBWC is currently addressing a request by Mexico for better quality water. Continued strong support and adequate funding of the salinity control program is required to control salinity-related damages in the United States and Mexico.

Congress amended the Colorado River Basin Salinity Control Act in July 1995 (Public Law 104-20). The salinity control program authorized by Congress by the amendment has proven to be very cost-effective, and the Basin States are standing ready with up-front cost-sharing. Proposals from public and private sector entities in response to Reclamation's requests for proposals and funding opportunity announcements have far exceeded available funding appropriated in recent years. Basin States cost-sharing funds are available for the \$17.5 million appropriation request for fiscal year 2012. The Basin States' cost-sharing adds 43 cents for each federal dollar appropriated.

Public Law 106-459 gave the Bureau of Reclamation additional spending authority for the salinity control program. With the additional authority in place and significant cost-sharing available from the Basin States, it is essential that the salinity control program be funded at the level requested by the Forum and Basin States to protect the water quality of the Colorado River. Some of the most cost-effective salinity control opportunities occur when Reclamation improves irrigation delivery systems concurrently with on-farm irrigation improvements undertaken by the U.S. Department

of Agriculture's Environmental Quality Incentives Program (EQIP). The Basin States cost-share funding is available for both on-farm and off-farm improvements. The EQIP funding appears to be adequate to accomplish the on-farm work. Adequate funding for Reclamation's off-farm work is needed to maintain timely implementation and effectiveness of salinity control measures.

Maintenance and operation of Reclamation's salinity control projects and general investigations to identify new cost-effective salinity control projects are necessary for the continued success of the salinity control program. Investigation of new opportunities for salinity control is critical while the Basin States continue to develop and use their compact-apportioned waters of the Colorado River. The water quality standards for salinity are dependent on timely implementation of salinity control projects, adequate funding to maintain and operate existing projects, and sufficient general investigation funding to determine new cost-effective opportunities for salinity control.

Continued funding primarily through Reclamation's Facility Operations activity to support maintenance and operation of the Paradox Valley Unit and the Grand Valley Unit is critically needed. General Investigation funding through Reclamation's Colorado River Water Quality Improvement Program needs to be restored to a level that supports the need for identification and study of new salinity control opportunities to maintain the levels of salinity control needed to meet water quality standards and control economic damages in the Lower Colorado River Basin.

I urge the Congress to appropriate \$17.5 million to the Bureau of Reclamation for the Colorado River Basin Salinity Control Program, plus adequate funding for operation and maintenance of existing projects and adequate funding for general investigations to identify new salinity control opportunities. Also, I fully support testimony by the Forum's Executive Director, Don Barnett, in request of this appropriation, and the recommendation of an appropriation of the same amount by the federally chartered Colorado River Basin Salinity Control Advisory Council.

John R. D'Antonio, Jr., P.E., New Mexico State Engineer,
Secretary, New Mexico Interstate Stream Commission

Staff Contact:
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Colorado Water Congress

1580 Logan Street, Suite 700, Denver, CO 80203 (303) 837-0812 FAX (303) 837-1607
E-Mail cwc@cowatercongress.org Website www.cowatercongress.org

Organization: Colorado Water Congress
Subcommittee: Energy and Water Development
Agency: Bureau of Reclamation

April 5, 2011

The Honorable Dianne Feinstein, Chairman
The Honorable Lamar Alexander, Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
United States Senate
186 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Chairman Feinstein and Senator Alexander:

I am writing to request your support for continued funding in FY2012 for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program as authorized by P.L. 106-392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah and Wyoming, Indian tribes, federal agencies and water, power and environmental interests. I request your support for an appropriation for FY 2012 of \$6,248,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region, consistent with the President's recommended budget. Substantial non-federal cost-sharing funding is occurring pursuant to Public Law 106-392, as amended.

The requested federal appropriations are critically important to these efforts moving forward. The past support of your Subcommittee has greatly facilitated the success of these multi-state, multi-agency programs. I thank you for the Subcommittee's past support and request the Subcommittee's assistance for fiscal year 2012 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Sincerely,

/S/

Douglas Kemper,
Executive Director
Colorado Water Congress
(303) 837-0812, (303) 837-1607 Fax, dkemper@cowatercongress.org

STATEMENT PRESENTED BY:

Reynold S. Minsky, President
Board of Commissioners
Fifth Louisiana Levee District
102 Burnside Drive
Tallulah, LA 71282
Email: fifthld@bellsouth.net

STATEMENT PRESENTED TO:

House Subcommittee on Energy and
Water Development
Fiscal Year 2012

The Board of Commissioners for the Fifth Louisiana Levee District respectfully requests that construction funding for Mississippi River Levees be increased from the \$24,180,000 contained in the proposed budget for Fiscal Year 2012, to the U.S. Army Corp of Engineers' capability of \$59,980,000.

Reduced funding, combined with the inability to let construction contracts under a continuing contract clause, has left thousands of people in Louisiana vulnerable to the adverse effects of a deficient levee system. Construction of levee enlargements is essential if the levee is to contain the "Project Flood" which is estimated to be 20 percent greater than the record Flood of 1927.

The effect of fully funded contracts for levee construction, now required under Public Law 109-103, (Sec. 106 and 108), adopted by the 109th Congress in 2005, as opposed to the previous system of continuing contract clauses, has virtually halted enlargement of the Mississippi River Levee System in Louisiana. Year after year, as the cost of projects and maintenance has increased, funding for levee systems and flood control has been reduced. The current proposed budget is no exception, with only \$210,000,000 allocated for the entire Mississippi River and Tributaries (MR&T) project. We request that be increased to the Corp's capabilities of \$335,000,000.

Since the Mississippi River and Tributaries project was established, less than \$11 Billion has been invested. This investment provides benefits far beyond their actual cost to the taxpayer by offering protection to the 4 million citizens, 1.5 million homes, 33,000 farms, and countless vital transportation routes from destructive floods.

With the help of Congress, great progress has been made in the Mississippi River Valley over the years, but there is still much to be done, and because of that, we urge Congress to increase funding to the Corp of Engineers in Fiscal Year 2012, to insure that the Corp is not forced to halt or delay contracts for levee construction essential to the well being of this Nation. It is vital that the MR&T project(s) be completed at the earliest possible date. This can only be accomplished through adequate funding and repeal of the mandate for contracts to be fully funded prior to the beginning of construction.

**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 2012**

April 7, 2011

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 \$335 Million for FY 2012 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.

We are concerned about the “earmark moratorium” that Congress has adopted for the next two years. Basically Congress has essentially given up their right to appropriate money. They have relinquished this right to the Office of Management & Budget (OMB). OMB always provides a budget that undercuts our projects in the MR&T Project because they know that Congress will provide “congressional adds.” Unfortunately people think that the “congressional adds” for the MR&T Project are “earmarks.” “Earmarks” account for less than 1% of the entire Federal budget, but it is these “earmarks” that provide money for much needed and essential projects and provide jobs for the economy. The Stimulus money spent the past two years created jobs, built projects and stimulated the economy. This ban on “earmarks” will cause many projects to be stopped, jobs will be lost and the economy will fall right back into a recession. Congress needs to define what an “earmark” is and they need to be able to do “congressional adds” for our projects.

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, 32.0 miles of work have been completed and 8.1 miles are currently under contract. We are requesting \$77.73 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 2011 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 recommended plan for the Yazoo Backwater Project includes a pump that 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. The plan also includes reforestation easements to 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. This is a model project that should be the standard for future public works projects in the United States. On August 31, 2008, the Environmental Protection Agency (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. The Mississippi Levee Board is

currently engaged in a lawsuit against EPA asking the Federal Court to determine if this project is indeed exempt from an EPA 404(c) veto by the exemption in Section 404(r) of the CWA. The Administration has ordered the cancellation of \$57 Million in reserves for the Yazoo Backwater Project. If we lose this money, we will have to start from scratch with the appropriations cycle. **Please do everything you can to keep the \$57 Million for the Yazoo Backwater Project and prevent this cancellation from happening.** These funds will allow the Corps to begin acquisition of the reforestation easements and initiate the award of the pump supply contract. These funds were appropriated to solve flooding in the South Mississippi Delta, therefore, they should be used to alleviate flooding in the Mississippi South Delta!

We are requesting \$4.575 Million for the Yazoo Backwater less Rocky Bayou Project. This money will be used to start the Environmental Impact Statement for the Yazoo Backwater Levee Enlargement Project. This levee is designed to overtop during a project design flood, but it needs to be raised 7' to get to the required elevation. Today this levee will overtop if we get a flood on the Mississippi River greater than the 100-year event.

Work on the Big Sunflower (Upper Steele Bayou) Project has proved to be very beneficial. The Steele Bayou Sedimentation Reduction Project has installed drop-pipe structures at headcut locations all along Steele Bayou. These control structures stop the movement of sediment into Steele Bayou. Sediment is bad for flood control and water quality. We are requesting \$2.5 Million to keep this project moving forward.

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 flood protection to the citizens of the Delta and increasing required maintenance. We are requesting \$23.2 Million to continue this project.

Maintenance of completed works can not be over looked. The four flood control reservoirs overlooking the Delta have been in place for 50 years and have functioned as designed. Required maintenance must be performed to avoid any possibility of failure during a flood event. We are asking for \$6.841 Million for Arkabutla Lake, \$7.174 Million for Enid Lake, \$8.051 Million for Grenada Lake, and \$12.693 Million for Sardis Lake.

We are requesting \$15.781 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 Mississippi River and our Ports and Harbors need money for maintenance dredging. The Mississippi River carries tons of sediment every second. This sediment falls out in slack water areas such as entrances to our Ports and Harbors. The Greenville Port needs \$1 Million and the Vicksburg Port needs \$750 Thousand dollars to perform annual maintenance dredging. This dredging is vital to keep these ports open during the low-water season when much of the farm harvest is ready to be transported.

We are requesting \$3.03 Million for the Lower Mississippi Valley Division for Collection of Basic Data under General Investigations. This money is used to monitor and collect water quality samples at gaging stations located throughout the Mississippi Delta. With the emphasis on water quality, water quantity and Total Maximum Daily Loads (TMDLs), we must be able to continue to collect good data on water quality so we can get a baseline established to be able to monitor and improve water quality in the Mississippi Delta. Improvements in water quality in the Mississippi Delta will translate into improved water quality in the Gulf of Mexico and help the Gulf Hypoxia issue.

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.**

The Council of Environmental Quality (CEQ) draft proposal of changes to the Principals and Guidelines (P&G) for Federal Agencies fails to establish a clear, concise, and workable framework to guide development of water resources projects. It is incoherent and inconsistent - and thus not implementable in a practical sense. It substantially fails to comply with the explicit directions in Section 2031 of WRDA 07 as well as the large body of previous law and policy related to water resources. It is written so as to not require or even encourage use of proven analytical tools to distinguish among alternatives. It elevates environment considerations over economic benefits, social well-being and public safety. Because of these critical and extensive failings, we recommend that this effort be put aside and restarted from the beginning.

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 2012.



THE
LITTLE RIVER
DRAINAGE DISTRICT

FLOOD CONTROL & DRAINAGE
SINCE — 1907

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Attorney

**STATEMENT OF
THE LITTLE RIVER DRAINAGE DISTRICT
HOUSE SUBCOMMITTEE ON
ENERGY AND WATER DEVELOPMENT
MARCH 29, 2011**

Congressman Rodney Frelinghuysen, Chairman
Subcommittee on Energy and Water Development
2362 Rayburn House Office Building
Washington, D. C. 20515

Dear Congressman Frelinghuysen:

My name is Dr. Sam M. Hunter, DVM of Sikeston, Missouri. I am a veterinarian, landowner, farmer and resident of Southeast Missouri.

I am the President of The Little River Drainage District, the largest such entity in the nation. Our District serves as an outlet drainage and flood control District to parts of seven (7) counties in Southeast Missouri. We provide flood control protection to a sizable area of Northeast Arkansas as well. Our District is solely tax supported by more than 3500 private landowners in Southeast Missouri.

My remarks will be directed toward the Mississippi River and Tributaries Project (MR&T) and the St. Francis River Basin portion of the MR&T. Those funds when properly expended are INVESTMENTS yielding a return of substantial benefits to the American taxpayer throughout this nation. They are used to prevent flooding to much of our valuable farmland, to industrial sites, and to upgrade our ever aging locks and dam system on our navigable streams which will prevent unscheduled lock closures, modernize our hydro-electric plants, and restore some of our environmental assets. MR&T authorized by Congress in 1928 AND STILL NOT COMPLETED is returning back to our nation more than \$25 for every dollar expended. This can be a job creating project for our nation each year.

HONORARY SUPERVISOR

E. B. Gee, Jr.
Blytheville, AR

We are fully aware of the financial situation of our nation and we must all learn to do more with less and strive to reduce our national debt, balance the budget and create more jobs for our citizens. There are projects and programs which are funded 100% or cost shared by our national treasury which need to be eliminated or at least reduced in scope. However, the MR&T Project is not one (1) of them. I will point out for you the reasons why.

1. This project has paid back to our treasury more than \$25 for every dollar invested for damages prevented and benefits derived.
2. The project was authorized by Congress almost ninety (90) years ago. Our nation made a commitment to our citizens to improve a very valuable resource of our nation and then maintain it. We MUST keep that commitment.
3. Investing and making funds available for the MR&T WILL create jobs and it WILL bring additional funds into our treasury.
4. It is the most environmental friendly form of transportation in our nation.
5. It is the most fuel efficient means of moving commodities. For instance consider one (1) gallon of fuel moves 155 tons of freight by truck 413 tons by rail and 576 tons by water.
6. It serves over seventy-five (75) percent of the population of this nation and touches thirty-six (36) states.
7. It provides a means for our commodity producers and manufacturers to compete fairly in a global market.
8. It provides protection from flooding to the many people who live along the Mississippi River and its tributaries.
9. It provides much needed energy from hydropower and provides many of our cities with drinking water.
10. It is used extensively each year for recreational purposes such as boating, camping, fishing, sightseeing and the like.

The above is a short list of the benefits of the MR&T Project which is a LINE ITEM in the budget. This administration and administrations for the past thirty (30) years each year submit budgetary amounts which are not sufficient to adequately maintain the channel as well as the locks and dams of which some are over seventy-five (75) years old. We MUST invest and we MUST improve this vital part of our infrastructure. One (1) lock failure upstream can have a devastating effect downstream for each and every port and other users of this system.

We currently spend less than \$6 billion annually for maintenance and construction on our major waterways system whereas China and Brazil are spending \$15 and \$30 billion annually to modernize and expand theirs respectively. We must close that discrepancy so we can compete on the open markets.

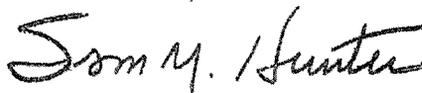
There is \$210 million in the President's budget for Fiscal Year 2012 for this project. This is totally unacceptable. This amount might pay the salaries of current employees without layoffs. We ask you to support funding of \$335 million for Fiscal Year 2012 which will provide some funds for maintenance and a small amount for new construction. The Corps capability is \$550 MILLION. The overall Corps budget is less than \$5 billion yet it is estimated we need \$110-200 billion over the next twenty (20) years just to modernize and keep our waterway system functional.

Further, I would be remiss to not mention the hardships and lengthy delays due to the restrictive nature of policies and regulations being implemented by EPA and other such agencies. EPA needs to be reduced in authority and the powers they have been asserting the past few years. Some of the policies and restrictions they are implementing are detrimental to the progress our nation needs to be making. The delays, lengthy reviews, and unnecessary requirements are costly and causes many worthwhile projects from being completed.

Also we ask you to review the mission and purposes of FEMA. The nationwide re-mapping of flood plains and zones is costly and having an adverse impact on those who live within our delta areas and who are protected by a well maintained levee system. Recent concessions made by Director Fugate will help but much more is needed.

I wish to thank you very much for your time and kind attention and for taking the time to review the above. We would be very appreciative of anything this committee can do to help us improve our environment, improve our livelihood, and improve the area in which we live and work which ultimately is good for America. We are also very appreciative of all this Committee has done for us in the past. We trust you will hear our pleas once more and act accordingly.

Dr. Sam M. Hunter, President

A handwritten signature in black ink that reads "Sam M. Hunter". The signature is written in a cursive, flowing style.

The Little River Drainage District
Cape Girardeau, Missouri



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Washington, D.C. 20036

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**Statement of the Energy Committee of ASME's Technical Communities
on the Department of Energy Fiscal Year 2012 Budget Request**

April 7, 2011

Mr. Chairman, Ranking Member, and Members of the Subcommittee:

The Energy Committee (EnComm) of ASME's Technical Communities is pleased to provide this testimony on the Fiscal Year 2012 (FY11) budget request for research and development (R&D) programs in the Department of Energy (DOE).

Introduction

The 125,000-member ASME is a nonprofit, worldwide educational and technical Society. It conducts one of the world's largest technical publishing operations, holds more than 30 technical conferences and 200 professional development courses each year, and sets some 600 industrial and manufacturing standards, some of which have become *de facto* global technical standards. The Energy Committee of ASME's Technical Communities comprises 40 members from 17 Divisions of ASME, representing approximately 40,000 of ASME's members.

ASME has long advocated a balanced mix of energy supplies to meet the nation's energy needs, including advanced clean coal, petroleum, nuclear, natural gas, waste to energy, biomass, solar, wind and hydroelectric power. ASME also supports energy efficient building and transportation technologies, as well as transmission and distribution infrastructure sufficient to satisfy demand under reasonably foreseeable contingencies. Only such a portfolio will allow the U.S. to maintain its quality of life while addressing future environmental and security challenges. Sustained growth in the energy systems on which the U.S. depends will also require stability in licensing and permitting processes not only for power generating stations but also for transmission and transportation systems.

A forward-looking energy policy will require enhanced and sustained levels of funding for R&D, as well as government policies that encourage deployment and commercialization. The Energy Committee supports much of the FY12 budget request, especially the increases in funding for fundamental scientific research. The Energy Committee also wishes to emphasize that a balanced approach to our energy needs is critical, and this is why we remain concerned about the substantial decrease in funding for fossil energy, which is essential to meeting our national energy needs now and in the future.

Fossil Energy

The FY 2012 budget request of \$520.7 million for fossil energy represents a \$206.7 million reduction compared to the FY10 appropriation; a 44.5 percent decrease. Fossil Energy Research and Development (FE R&D) would be reduced by 31.3 percent, or \$206 million to

\$452.9 million. The Administration continues to point out that \$3.4 billion was devoted to Fossil Research and Development (R&D) as part of the American Recovery and Reinvestment Act (ARRA), and conceding this point, other offices, such as EERE and Science, also received funding in ARRA and are slated for substantial increases as part of the FY 2012 budget.

Funding for Natural Gas Technologies and for Unconventional Fossil Energy Technologies would again be targeted for elimination by the Administration. The U.S. has access to significant unconventional gas resources with the potential to provide abundant, affordable, clean low-carbon energy source for years to come. Prior FE R&D has contributed to making this possible. However, this potential will not be realized unless this resource can be produced reliably, economically, safely and with minimal environmental impact. Accomplishing this task and keeping the U.S. in the forefront of unconventional fossil energy technology will require an investment in basic research, technology development, and investments in advances in low impact environmental technologies that will not be undertaken by industry in the current economic climate. The budget for these efforts should be maintained at least at the FY10 level. The EnComm encourages a restoration of funding for coal research programs to at least the levels appropriated for FY10. Coal remains a critical resource for our nation and its economy; however, we must continue to invest in technological advancements that will reduce environmental impacts for this energy. The use of more efficient processes for coal combustion, such as advanced integrated gasification combined cycle (IGCC) technology, combined with carbon sequestration will allow the U.S. to utilize its coal resources in a more environmentally sound and cost effective manner. We encourage strong and consistent funding for these programs now and in future years. The administration has also requested to zero out the section 999 program of the Energy Policy Act that is administered by the Research Partnership to Restore Energy for America (RPSEA), with oversight by FE-NETL. This program funds unconventional natural gas research, a small producers program and ultra-deep water. This program addresses needed technology developments in safety and environmental protection. The EnComm strongly supports the continuation of this important program,

Advanced Research Projects Agency-Energy (ARPA-E)

The EnComm supports the \$550 million budget request for the Advanced Research Projects Agency-Energy (ARPA-E). ARPA-E represents a significant opportunity for the U.S. to cultivate technological breakthroughs related to energy sources, and uses. A steady commitment to ARPA-E will encourage energy technology innovation and the Committee believes that this is a worthwhile endeavor for the DOE as we seek to accomplish technological breakthroughs in energy technology.

Nuclear Energy

The EnComm is discouraged to see a slight reduction of \$5 million in the FY12 DOE Nuclear Energy budget request to \$857 million over the FY 2010 appropriated amount. Although, this

represents a minor budget reduction, particularly during sensitive budget negotiations, the EnComm is disappointed to see that no funding was requested for the creation of the "Regaining our ENERGY Science and Engineering Edge" (RE-ENERGYSE) program, which was requested for \$5 million in FY 2011. Congress has not supported this program since it was first proposed in FY 2010 request and repackaged in the FY 2011 proposal. Still, educating the next generation of nuclear engineers will be critical to the fulfillment of both the Administration's Clean Energy Standard as well as national security. The EnComm is hopeful that the DOE will work to identify new opportunities for nuclear engineering scholarship.

Similarly, the Energy Committee is concerned about the plan by the Administration for a discontinuation of the Generation IV Nuclear Energy Systems program. The Energy Committee is curious to see how the proposed Reactor Concepts RD&D program distinguishes itself from the traditional R&D program under the Office of Nuclear Energy. Nuclear energy, as a low-carbon, non-greenhouse gas-emitting resource, is a critical component of a diverse U.S. power generation mix and should play a larger role in the nation's base power supply. Given the President's proposed national "clean energy standard" of 80 percent by 2035 the EnComm believes very strongly that sustained increases in nuclear power research are justified.

Energy Efficiency and Renewable Energy

The Office of Energy Efficiency and Renewable Energy (EERE) manages America's investments in research, development and deployment of DOE's diverse energy efficiency and renewable energy applied science portfolio. The FY12 request of \$3.2 billion, \$943 million above the FY 2010 appropriated amount of \$2.21 billion, and provides a broad and balanced set of approaches to address the urgent energy and environmental challenges currently facing our nation. Most of the key EERE programs, including Biomass, Solar, Wind, Geothermal, Building Technologies, Vehicle Technologies, and Industrial technologies, would receive substantial increases in funding to support the growth of renewable energy. The EnComm is particularly pleased to see large increases for both the Industrial Technologies Program (ITP), as well as the Building Technologies Program. ITP conducts energy assessments for energy-intensive factories to identify low-cost methods to improve their efficiency. The EnComm encourages Congress to include waste-to-energy as an important component of the Country's Renewable Energy portfolio to provide it with the same benefits as energy from biomass.

The EnComm believes that the development of transportation fuel systems that are not petroleum-based is a critical part of our future national energy policy. The FY12 budget for biomass and bio-refinery systems R&D is slated to receive a \$124 million increase to \$340 million for FY12, 57 percent above the FY10 appropriated amount. The Energy Committee supports the current appropriation and encourages Congress to ensure that these research programs continue to receive adequate funding. We are also pleased to see the \$273 million

increase in the effort related to vehicle technologies emphasizing plug-in hybrid electric vehicles.

The integration of all cost effective electric generating technologies into the operation of the electricity distribution system is critical to economic operation of the national electric grid. The EnComm believes that R&D related to the integration of the electric grid and its control as a truly national system is imperative for the growth of effective and economic energy generation technologies and we encourage full funding for such research.

Science and Advanced Energy Research Programs

The EnComm is pleased by the request for the Office of Science (OS) which restores the funding trajectory mandated in the America Competes Act of 2007 (P.L. 109-69). The FY12 budget proposal of \$5.4 billion is an increase of \$452 million from the FY10 appropriation. OS programs in high energy physics, fusion energy sciences, biological and environmental research, basic energy sciences, and advanced scientific computing, serve, in some small way, every student in the country. These funds support not only research at the DOE Laboratories, but also the work at a large number of universities and colleges. We believe that basic energy research will also improve U.S. energy security over the long term, through its support for R&D on cellulosic ethanol and other next-generation biofuels, advanced battery and energy storage systems, and fusion. The only program slated for a decrease in OS is Fusion Energy Sciences. The EnComm has some concerns about the recent delays for the International Thermonuclear Experimental Reactor (ITER) experiment being conducted in Cadarache, France. The EnComm would like to see ITER built by 2018 but, in recognition that this is now unlikely; the EnComm will reserve further judgment until more information becomes available. The Energy Committee strongly supports the budget request for the Office of Science, as well as the proposed doubling track for the office by FY17.

The Office of Science, in collaboration with ARPA-E, has announced the "Sunshot Initiative" to scale down the cost of solar energy by roughly 75 percent to \$1 per watt of electric power, or about 6 cents per kilowatt hour of electricity. The program would cost \$425 million to begin according to the Administration's FY 2012 budget request. The EnComm believes that this type of collaboration represents a good opportunity to leverage the technical resources available to both ARPA-E and the Office of Science. The EnComm would like to see the DOE make a strong effort to demonstrate the distinction between this project and similar types of research efforts, like the Energy Frontier Research Centers, and the Innovation Hubs to avoid redundancy.

Other DOE Programs

DOE is also very active in areas outside of R&D. The environmental remediation program that funds the decommissioning and decontamination of old DOE facilities is one such research area. The EnComm questions the advisability of flat funding for the Environmental

Management program. The Yucca Mountain Waste Repository is a critical part of the environmental cleanup activity. Termination of this project, in the short term, will only extend and increase the final cost of the environmental management program. The EnComm does not support this backward step. The coming resurgence in the commercial nuclear arena is likely to deplete the trained professionals available for this program as engineers choose to move to the more stable commercial environment. Congress should appropriate the funds to ensure that this work is accomplished in an expeditious manner.

Conclusion

Members of the EnComm consider the issues related to energy to be one of the most important issues facing our nation. The need for a strong and coherent energy policy is apparent. We applaud the Administration and Congress for their understanding of the important role that scientific and engineering breakthroughs will play in meeting our energy challenges. In order to promote such innovation, strong support for energy research will be necessary across a broad range of technology options. DOE research can play a critical role in allowing the U.S. to use our current resources more effectively and to create more advanced energy technologies.

Thank you for the opportunity to offer testimony regarding both the R&D and other parts of the proposed budget for the DOE. The EnComm is pleased to respond to requests for additional information or perspectives on other aspects of our nation's energy programs.

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This statement represents the views of the Energy Committee (EnComm) of ASME's Technical Communities of the Knowledge and Community Sector and is not necessarily a position of ASME as a whole.

7 April 2011

Members of the Energy and Water Subcommittee of the House Appropriations Committee

Defining priorities for federal research funding is all the more important when reductions in overall federal spending are being discussed. One such priority is the small but impactful **Strategic Center for Natural Gas and Oil** within the National Energy Technology Laboratory in the Department of Energy.

The US economy runs on fossil fuel, including twenty million barrels per day of crude oil, the greater part of which is imported. But thirty billion barrels of this essential resource can be extracted from *domestic* reservoirs if improved technology for injecting CO₂ into these reservoirs can be developed. The Strategic Center for Natural Gas and Oil has established a visionary program for just this purpose.

Continuation of this program is important for three compelling reasons:

- 1) Recent advances in science and technology **outside the oil industry** -- including **nanotechnology**, novel synthetic chemistry and efficient computational methods -- have opened up truly new possibilities for **substantially increasing recovery** of oil by injecting carbon dioxide. The Strategic Center for Natural Gas and Oil has committed to exploiting these possibilities.
- 2) **Independents and small operators**, not the majors, are conducting essentially all the carbon dioxide injection for oil recovery in the US. This segment of the oil and gas industry is eager to take advantage of new technology. But these operators do not have the wherewithal to conduct **basic research** needed to implement new ideas from outside the industry.
- 3) Federal funding is a critical mechanism for **training the next generation** of engineers and scientists who will implement these advanced technologies, working for domestic companies operating domestic oil fields -- very good jobs that are a boon to local and regional economies.

In view of the often strident discussion of budget priorities in Washington and the rest of the country, it seems timely to remind members of the committee that over the last sixty years the US has a proud history of investing in basic research at its universities. That investment has been **repaid countless times** over. Practitioners educated in this way have contributed to a decades-long stream of technical innovation which has maintained US leadership of the global economy. CEOs from all business sectors are unanimous on this point: *Without continued innovation, the US economic leadership will surely falter.*

Many federal programs have worthy justifications for their continued existence. But few can offer as large a return on the federal investment as this one in the Strategic Center for Natural Gas and Oil. Even fewer provide that return in an area of unquestionably **vital importance** to the US economy and national interest: the continued supply of domestically produced oil.

Yours truly,

Dr. Steven L. Bryant
 Department of Petroleum and Geosystems Engineering
 The University of Texas at Austin



STATEMENT TO: United States House of Representatives Committee on Appropriations, 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
 510-705-1885; EMAIL BILLDAY 3@COMCAST.NET

April 7, 2011

The Gas Turbine Association (GTA) 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 FY12 funding levels for the **Department of Energy**.

While the GTA recognizes the need to reduce federal spending in today's fiscal environment, we **respectfully recommend** that the FY12 appropriation for **Fossil Energy include \$20 million for the Advanced Turbines Program R&D** to meet critical national goals of fuel conservation, greenhouse gas reduction, fuel flexibility (including syngas and hydrogen), and criteria pollutant reduction. A spending level of \$20 million is more appropriate than the Administration's recommendation \$14.6 million considering the FY10 spending level was \$32 million. A spending level of \$20 million would still represent a significant cut of \$37% and will result in pushing out the timeline for the development and deployment of environmentally advanced gas turbines by several years.

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 efficient, 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 storage 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/H₂ Gas Turbine – Reducing the Penalty for CO₂ 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 carbon capture capable 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 Fossil Energy Advanced Turbines program will directly advance the performance and capabilities of future power generation with CO₂ capture and storage. Advances are needed to offset part of the power plant efficiency and

output reductions associated with CO₂ capture. Program funding is required to cost-share in the technology development of advanced natural gas/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 CO₂ capture and storage. This will help offset some of the efficiency and output penalties associated with CO₂ capture. These programs are funding technology advancement at a much more rapid rate than industry can do on their own.

The need for 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 power plants 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 CO₂ separation, capture, and storage 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 CO₂ capture and near-zero NO_x 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.

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 both natural gas and high-hydrogen fuels.

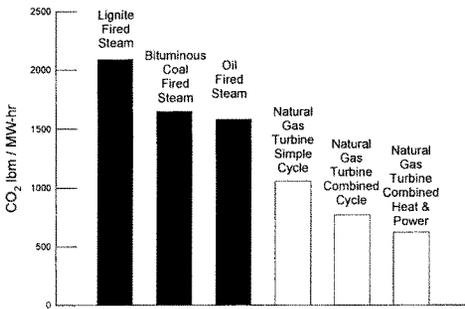
The turbine industry believes that this technology is highly relevant to industrial coal gasification applications including: 1) site-hardened black-start capability for integrated gasification combined cycle applications [the ability to restart an IGCC power plant when the electric grid has collapsed]; 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 either natural gas or 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.

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).

CO₂ Emissions



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 reinvestigate the gas turbine / government partnership in order to develop new, low carbon power plant solutions. This can be done by funding research to make gas turbines both efficient and 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 \$20 million in FY12 appropriations for the Fossil Energy Advanced Turbines Program to meet critical national goals of fuel conservation, fuel flexibility (including natural gas, syngas and hydrogen), greenhouse gas reduction, and criteria pollutant reduction.

GTA MEMBER COMPANIES

Alstom Power, GE Energy,
Florida Turbine Technologies, Siemens Energy, Solar Turbines,
Pratt & Whitney Power Systems, Strategic Power Systems, VibroMeter

Gas Turbine Association, William H. Day 510-705-1885, Email billday3@comcast.net

**Statement of
Hon. Dave McCurdy
President and Chief Executive Officer**

**On Behalf of the
American Gas Association
U.S. House of Representatives
Committee on Appropriations**

**Hearing on
FY 2012 Energy and Water Appropriations
Department of Energy**

April 15, 2011

Executive Summary

- Natural gas is America's clean, secure, efficient, and abundant fossil fuel
- DOE should include in its RD&D portfolio energy efficiency of natural gas equipment in commercial, residential and industrial markets
- The DOE's Building Technologies Program should spend at least \$12 million of its budget on natural gas RD&D
- The DOE's Industrial Technologies Program should spend at least \$30 million of its budget on combined-heat-and-power RD&D (request is \$25 million) with activities in small (below 20 KW), medium and large scale systems
- The DOE's Transportation Technologies Program should spend at least \$30 million on natural gas vehicle RD&D

Introduction

The American Gas Association, founded in 1918, represents 199 local energy companies that deliver clean natural gas throughout the United States. There are more than 70 million residential, commercial and industrial natural gas customers in the U.S., of which 91 percent — more than 64 million customers — receive their gas from AGA members. AGA is an advocate for natural gas utility companies and their customers and provides a broad range of programs and services for member natural gas pipelines, marketers, gatherers, international natural gas companies and industry associates. Today, natural gas meets almost one-fourth of the United States' energy needs.

On behalf of the American Gas Association, I urge you to support increased research, development and demonstration (RD&D) funding by the U.S. Department of Energy (DOE) on the natural gas end-use technologies, which are powered by an energy source that is domestically abundant, affordable, stable, highly efficient and clean.

To that end, we request a modest natural gas efficiency investment of \$12.0 million in the Building Technologies Program, \$30 million in the Transportation Program and \$10 million for small scale combined heat and power (CHP), as well as supporting sufficient funding in the overall Industrial Program.

At a time when there is growing instability in oil-producing regions such as North Africa and the Middle East, which has resulted in \$100 per barrel—and rising—oil prices that threaten to derail our economic recovery, we believe that DOE needs to reassess its R&D funding priorities. The DOE should join with us to develop highly efficient natural gas based appliances and systems. The natural gas industry, manufacturers and research and development (R&D) partners will identify and capture financial support for this effort with 20 to 40 percent co-funding expected, depending on the type of R&D performed.

Currently, DOE spends hundreds of millions of dollars yearly on energy efficiency research, yet very little of this is directed towards energy efficient natural gas products. In particular, over the past several years there has been almost no federal investment in natural gas technologies for residential and commercial buildings, the Combined Heat and Power Program in the Industrial Technologies Program has been dramatically reduced, and the R&D program for natural gas vehicles was totally eliminated in FY 2006 through 2009. At a time when the value of natural gas for reducing carbon emissions is being recognized as never before, this is misguided.

We feel that it is way past time for the office of EERE, whose mandate is furthering America's energy efficiency, to re-engage in developing energy efficient natural gas-based technologies. Combining our cleanest and most efficient fuel with new, highly efficient end-use technologies is the best way to ensure our economic viability in an increasingly carbon-constrained environment.

Such RD&D funding support must focus on highly efficient, superior performance technologies in which natural gas is used directly in the residential, commercial, industrial and transportation markets. Using natural gas directly in traditional end-use applications such as home heating, water heating and cooking, as well as increasingly in highly promising new applications such as natural gas vehicles and distributed—on-site—power generation, can save consumers millions of dollars, significantly reduce carbon emissions, and, given natural gas's domestic abundance, enhance our nation's energy security.

In particular, we urge a small fraction of the funding in the Building Technologies Program at DOE's Energy Efficiency and Renewable Energy Office be dedicated to natural gas based efficiency technologies. A \$12 million level would equate to approximately 5 percent of the appropriations for that office in 2010 and approximately 2 percent of the President's 2012 Buildings Budget Request.

Specific Building program initiatives include:

Space Conditioning and Water Heating Efficiency and Operational Improvements \$2.9 Million

This effort will focus on laboratory testing, component and technology development and field testing of new gas space conditioning technologies and systems. The water heating R&D effort will improve performance and cost of components and assembly/installation of currently available or soon-to-be available systems for domestic or commercial water heating.

These efforts will be in conjunction with gas utilities working closely with component and equipment manufacturers. In the commercial sector, the space conditioning effort will focus on developing new and improving current gas-based thermally activated (e.g., absorption) systems appropriate for space cooling and humidity/indoor air quality control in commercial buildings, while helping alleviate peak electric demand constraints. Combined space/water heating systems will also be developed and tested through laboratory and field testing.

- Advance energy efficient technologies and systems for space and water heating in existing single and multi-family residential buildings and the light-commercial sector
- Improve efficiency and reduce cost of highly efficient condensing gas furnaces and boilers that are poised for wider market adoption
- Optimize strategies and technologies for the control of humidity and indoor air quality in conjunction with gas-based space heating and cooling systems
- Reduce first costs of emerging tankless and storage type water heaters by at least 20 percent, while achieving efficiencies of over 80 percent for non-condensing and 90 percent for condensing type units

- Develop a combination space/water heating system with improved efficiency and reduced first cost to be used in residential, multi-unit and commercial buildings

Solar/Natural Gas Hybrid Systems \$2.8 Million

This effort will include technology development and laboratory and field testing, working with manufacturers of solar thermal or other renewable-resource systems. Particular attention will be given to integration/control and system sizing issues as well as safety and reliability (all of which will strongly impact commercial viability).

- Develop solar thermal-natural gas hybrid technology and products that cost-effectively generate heat, hot water, and steam, and thermally driven cooling – reducing carbon emissions and the use of fossil fuels
- Improve storage and integration of lower temperature thermal heat (solar) with higher temperature natural gas heat system
- Integrate concentrated solar with natural gas energy systems

Breakthrough Technology Development \$2.1 Million

This initiative will focus on developing and testing more advanced technologies and systems that will not be available for the market place for 3 to 7 years and will make extensive use of longer-term laboratory research. The main drivers for this research will be carbon emission reductions and improved efficiency thus producing the next wave of efficient and clean gas technologies for residential and commercial use. As promising technologies, components and systems emerge, appropriate lab and field testing will be conducted.

- Develop catalytic and other approaches for carbon management (e.g., formation, reduction, capture, conversion storage) of specific combustion byproducts like carbon dioxide or carbon monoxide.
- Support basic combustion research to improve efficiency, reduce pollutant formation, increase heat transfer to improve the operation of gas-based energy systems
- Perform hydrogen enrichment mixtures to reduce carbon emissions from gas equipment – (a carbon mitigating approach may be to provide a percentage of hydrogen through the natural gas pipeline system)

Building Systems and Community Energy System Technologies \$2.6 Million

Parallel attention will be given to both residential and selected commercial buildings. Different RD&D programs will be developed for selected building types (e.g., residential single-family homes retrofit, new-construction homes, multifamily dwellings, retail building, and institutional building) and regions (e.g., northeast, southwest). RD&D will include laboratory research but will also comprise extensive testing in instrumented buildings that will serve as field test facilities. R&D will be coordinated with architects and builders as well as developers and manufacturers of emerging energy systems and associated components and controls.

- Develop approaches for optimized integration of gas systems with the evolving Smart Energy Grid providing consumers new option for energy management, comfort control and communication with energy providers
- Perform advanced energy efficiency and carbon emission analysis utilizing full fuel cycle protocol, develop new scientific data and tools to support lowering overall energy use and carbon emissions in homes and buildings
- Improve the efficiency and flexibility of operation of gas-based equipment when used in combination with emerging building technologies, new communications systems and other energy systems

Development of higher-efficiency and Energy Star-rated commercial food service equipment \$1.6 Million

This effort will include laboratory development and field testing, working with manufacturers and food service preparers. It will develop improved components that will increase energy efficiency, reduce

emissions, and improve the productivity of ranges, ovens, grills, griddles, fryers, and other food preparation products.

- Develop new cooking equipment designed to improve the currently very low efficiency for natural gas cooking equipment
- Reduce combustion related emissions from gas-fueled residential and commercial cooking equipment
- Improve the performance and reduce the cost of critical heat transfer components in residential and commercial cooking equipment

In the industrial Program in DOE's Energy Efficiency and Renewable Energy Office, we encourage overall funding that accommodates a total of \$30 million for Combined Heat and Power (the Budget request level and the FY10 Appropriations are both \$25 million). At least \$8 million of these funds should be dedicated to small scale systems below 20 kW. We also support a budget that directs at least \$25 million to the Industries of the Future (Specific) Program, which would be in line with appropriated levels for the past several years and would be used to develop the technologies used in our nation's heavy industries to manage their energy expenditures.

Specific Combined Heat and Power initiatives include:

Small Scale CHP Research and Development - \$8.0 Million

- **Micro Combined Heat and Power Products (10kW or less)** Develop, using existing technological breakthroughs, a system which would provide on-site electric power and domestic hot water and heating for homes and small businesses utilizing either propane or natural gas. This will include development of "dark start" technology for use in communities where there is an inability to deliver reliable electricity via traditional central power station and transmission/distribution systems.
- **Gas Heat Pump (GHP) Technology (7.5 – 15 – tons)** Continue previous DOE efforts in gas fired heat pumps (80 percent reduction in electric peak demand in cooling and 150 percent efficiency in heating mode). Necessary work: fuel management and control development, heat recovery to provide domestic hot water and space heating, and power generation. Further enhancements of the heat exchangers, engine, and compressors will result in improved efficiency and lower first costs. This will include development of auxiliary power capability for plug in hybrid fueling or other potential critical power loads.
- **Emissions and Carbon Footprint Reductions R&D** - Continue ongoing activity. Although the GHP and Micro-CHP products meet the current air quality requirements, further emission reductions are being anticipated. This program would take a pro-active stewardship toward reducing product carbon footprints for small engine technology that requires particular attention.

Thank you for the opportunity to submit testimony and I am available for any follow up questions you might have at 202-824-7220.

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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

David G. Rensink, 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 activity in the areas 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 plays in our nation's economic and social fabric.

It is widely accepted that U.S. energy supplies will come from increasingly diverse sources over coming decades. New and alternative energy sources will supplement conventional energy sources to meet the nation's growing energy needs at affordable prices. Diversity in energy supplies enhances U.S. energy security by reducing our reliance on any single energy source.

Scientific and technological advances are necessary to ensure that this energy diversification occurs without economically damaging disruptions. This is very much in the public interest and a compelling reason why federal research and development (R&D) investment is needed.

What is often misunderstood, however, is that this R&D investment cannot be solely focused on new and alternative energy sources. Ensuring the uninterrupted availability of conventional energy, which provides the bulk of the nation's energy today, also requires new scientific insights and technological breakthroughs.

In fact, our nation is not facing a choice between conventional and alternative energy sources – a choice between yesterday’s energy and tomorrow’s energy – although that is how the debate is often framed.

Oil, natural gas, and coal currently supply 83% of the nation’s energy. These resources are the foundation of our energy future. Upon this foundation we are now developing and deploying new and alternative energy sources.

Our nation’s R&D choices must recognize the need to keep this foundation strong while also developing new energy sources for the future. Both of these tasks require sustained R&D investment.

Oil and natural gas technologies program

AAPG strongly urges continued funding of the DOE oil and natural gas technologies programs, which the President has proposed for termination.

Oil and natural gas supply 62% of our nation’s energy. Oil is the source of virtually all transportation fuels. Natural gas heats homes and businesses, generates electricity, is a chemical feedstock, and has potential for transportation systems. Supplying the oil and natural gas consumed today and in the future requires significant technological advancements.

Several commonly overlooked trends in the oil and natural gas sectors support a federal role in oil and natural gas technologies R&D:

1. **The independent oil and gas producer is responsible for finding and producing most U.S. oil and natural gas resources.** According to the Independent Petroleum Association of America (IPAA), a trade association, independent producers produce 68% of the nation’s oil, 85% of the nation’s natural gas, and drill 90% of the nation’s oil and natural gas wells. The median-sized independent producer is the epitome of American small business.
2. Independents typically work on projects that are too small for vertically-integrated “major” oil and gas companies to develop commercially. Technology is vitally important for locating these resources underground, but **these producers do not have the capacity to conduct independent research.**
3. **Increasingly domestic oil and natural gas production is coming from non-traditional (unconventional) resources**, such as the Barnett Shale of Texas or the Bakken formation of the Willison Basin. These resources play a vital role in building our nation’s energy future, and their development requires significant R&D investment.
4. **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 technology development has waned, so has the ability to conduct this type of research and train the next generation of U.S. scientists and engineers. There is a serious workforce shortage both in industry and government, and is the subject of a new study by the National Research Council.

The goal of a robust federal R&D program in oil and natural gas technologies is to enable and encourage the environmentally-responsible development of the nation's petroleum resources on behalf of the American people. This includes conventional oil and natural gas, non-traditional resources, and emerging resources, such as methane from methane hydrates, which according to a recent study by the National Research Council "could help to provide greater energy security for the United States and to help address future energy needs globally."

We request the Subcommittee on Energy & Water Development and Related Agencies appropriate \$100 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 resources are essential to U.S. energy security. AAPG supports research and development funding for coal, including clean coal technologies such as carbon capture and sequestration. *AAPG urges Congress to reject the President's proposed cuts to this program and provide funding of \$393 million, equal to FY2010 appropriations, for these activities.*

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. The study group observed that presently 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, as well as mining heat from low-temperature, co-produced, and fluids in permeable sedimentary resources.

AAPG supports the President's \$101.5 million request for the DOE geothermal program.

Summary

Our nation has the resources and capacity for a bright energy future. Realizing this future requires prudent R&D investment to supply the conventional energy sources we will rely on in coming decades, and the breakthroughs in new and alternative energy sources that will power the future. Thank you for the opportunity to submit this testimony.

Please contact me through our local office at 202-684-8225, fax 703-379-7563, or 4220 King Street, Alexandria, VA 22302.



**American
Public Power
Association**

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1875 Connecticut Avenue, NW
Suite 1200
Washington, DC 20009-5715

**Statement
of the
AMERICAN PUBLIC POWER ASSOCIATION
Submitted to the
HOUSE APPROPRIATIONS COMMITTEE'S
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT, AND RELATED
AGENCIES
April 7, 2011**

The American Public Power Association (APPA) respectfully requests funding for the Renewable Energy Production Incentive, Power Marketing Administrations, storage for high-level nuclear waste, the Nuclear Loan Guarantee Program, the Department of Energy Water Power Program, energy conservation, weatherization, clean coal, fuel cells, fuel and powering systems, the Navajo Electrification and Demonstration Program and the Federal Energy Regulatory Commission.

APPA is the national service organization representing the interests of over 2,000 municipal and other state and locally owned electric utilities in 49 states (all but Hawaii). Collectively, public power utilities deliver electricity to one of every seven electric consumers (approximately 46 million people), serving some of the nation's largest cities. However, the vast majority of APPA's members serve communities with populations of 10,000 people or less.

We understand that Congress is operating in a tight fiscal environment. APPA's priority is to support programmatic requests that bring down costs, conserve resources, or benefit our public power customers in other ways. We appreciate the opportunity to submit this statement outlining our FY 2012 funding priorities within the jurisdiction of the Energy and Water Development, and Related Agencies Subcommittee.

Renewable Energy Production Incentive (REPI): APPA is disappointed that the Administration and Congress have decided to stop funding the Renewable Energy Production Incentive. REPI was the first attempt by Congress to provide comparable renewable incentives to the non-profit electric utility industry and we continue to seek comparability to this day. The elimination of funding for the REPI program was a step backward in this process. Defunding not only decreases incentives for new production, but utilities who had been receiving the funding are stranded mid-program. \$5 million dollars would restore funding to the program for FY 2012, but any funding would help restore payments to those already approved for the incentive.

Power Marketing Administrations (PMAs)

- **Power Marketing Administration Proposals:** The President's National Commission on Fiscal Responsibility and Reform proposed a measure for all four PMAs that would have had the effect of raising the rates for PMA customers. We appreciate that the FY 2012 request did not include this type of proposal.

- **Purchase Power and Wheeling:** We urge the Subcommittee to authorize appropriate levels for use of receipts so that the Western Area Power Administration (WAPA), the Southeastern Power Administration (SEPA) and the Southwestern Power Administration (SWPA) can continue to purchase and wheel electric power to their municipal and rural electric cooperative customers. Although appropriations are no longer needed to initiate the purchase power and wheeling (PP&W) process, the Subcommittee continues to establish ceilings on the use of receipts for this important function. The PP&W arrangement is effective, has no impact on the federal budget, and is supported by the PMA customers who pay the costs. We support an increase over the funding levels of the Administration's budget for FY 2012, which are as follows: \$307 million for Western Area Power Administration (WAPA); \$100 million for Southeastern Power Administration (SEPA); and \$40 million for Southwestern Power Administration (SWPA).
- **Construction:** We urge the Subcommittee to authorize appropriate levels of funding for the construction budgets of WAPA, SEPA and SWAPA. These budgets have continued to decrease over the years however, this funding remains critical to the operation and maintenance of the PMAs.

Storage for High-level Nuclear Waste: APPA is disappointed that the Administration closed the Yucca Mountain Project and the Office of Civilian Radioactive Waste Management in FY 2010. We support the work of the Blue Ribbon Commission on America's Nuclear Future and look forward to hearing the Commission's recommendations on how the nation should manage nuclear waste.

Nuclear Loan Guarantees: APPA is pleased with the Administration's request for DOE Loan Guarantee authority up to \$36 billion for new nuclear facilities and encourages the Subcommittee to maintain this level of funding.

Department of Energy Waterpower Program: APPA was extremely disappointed that funding for water power was decreased by 20 percent while all other renewable resources were increased in the Administration's FY 2012 request. APPA believes there should be parity among renewable resource funding. APPA requests \$100 million for FY 2012 for the DOE's Water Power Program. At a time when utilities around our country must focus on finding carbon-free sources of energy because of pending state and Environmental Protection Agency regulations, the importance of hydropower research and development is more important than ever before. Not only is hydropower a renewable resource, but it can be used as baseload generation to back up more intermittent renewables such as wind and solar power.

Energy Conservation: APPA appreciates the funding increases for energy efficiency programs provided in the President's budget. The budget funding levels for FY 2012 are as follows: Building Technologies--\$470 million, Industrial Technologies--\$319 million, Federal Energy Management Program--\$33 million and Vehicle Technologies \$588 million. We urge the Subcommittee to maintain these funding levels.

Weatherization and Intergovernmental Activities: We are pleased that the Administration has requested \$394 million for the Weatherization program in FY 2012, a significant increase from FY 2010 and we encourage the Subcommittee to maintain that level of funding.

Clean Coal Power Initiative (CCPI) and FutureGen: APPA is disappointed that the budget did not include funding for large scale commercial applications of carbon capture and sequestration technology. We encourage the subcommittee to include funding for CCPI and FutureGen. APPA strongly believes as the need for clean energy increases, the FutureGen project, or something similar, will be critical in nearing us to the goal of the world's first near-zero-emissions coal fired plant. We urge the Committee and the Congress to work with the Administration on finding an appropriate role and funding level for the FutureGen project and CCPI.

Fuel Cells: APPA was disappointed that the Administration requested zero funding for fuel cell related research and development. We urge the Subcommittee to allocate additional funding for this program for FY 2012.

Fuels and Power Systems: We recommend these funding levels for the following programs: Innovations for Existing Plants—\$84 million; Advanced Integrated Gasification Combined Cycle—\$80 million; Turbines—\$45 million; Carbon Sequestration—\$150 million; Fuels—\$25 million; Advanced Research—\$48 million.

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

Federal Energy Regulatory Commission (FERC): The FY 2012 Budget requests \$305 million for FERC, an increase over FY 2010 levels. APPA supports this increase.



April 7, 2011

The Honorable Rodney Frelinghuysen, Chair
Subcommittee on Energy and Water Development
Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

The Honorable Peter J. Visclosky, Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

RE: Public Witness Testimony For the Record
Energy and Water Development Appropriations Subcommittee
\$67.0 m for DOE Small Modular Reactors – FY2012

Dear Chairman and Ranking Member:

On behalf of NuScale Power, Inc. of Corvallis, Oregon we request that the Subcommittee approve the President's budget request of \$67 million for the small, modular reactors (SMRs) licensing technical support program within the Office of Advanced Reactor Research Development and Demonstration. Our request would also be that the Subcommittee approves funding for the research and development portion of the SMR program.

Small, modular reactor technologies build on a rich history of American innovation and world class nuclear design, manufacturing and operations. The President has recognized the need for nuclear power as part of a comprehensive energy, environment and employment strategy for this country, including new financial incentives. NuScale is ready to deliver:

- NuScale Power uses a one-third scale test facility on the Campus of Oregon State University to document critical tests required to comply with NRC design certification and licensing. The next phases of regulatory approval are costly in the U.S. and require federal support.
- Since last year NuScale Power has conducted extensive discussions with various government operations centers managed by both DOE and DOD. We are in the process of scoping both research and deployment opportunities that have the potential to benefit the federal government directly by lowering the facilities' long term costs and reducing their greenhouse gas impacts as an electric power consumer.
- NuScale Power is constructing a full-scale control room simulator to specifically address digital instrumentation, control and human factors analysis that will be integrated in all of the next generation nuclear plants, regardless of size. NRC staff has visited Corvallis to review these plans and provide input.

April 7, 2011
Subcommittee on Energy and Water Development
Committee on Appropriations
U.S. House of Representatives
Page Two

- As confirmed by a panel of independent experts whose work was presented to the NRC in September 2009, NuScale Power has achieved safety margins that are ten times safer than the next generation of large nuclear plants. This translates into improved public safety and better financial risk management by using scalable technology.
- NuScale Power's inherently safe technology has received considerable attention since the natural disaster and ensuing nuclear incident in Japan. We have developed a nine page "safety illustration" that can be viewed on our website. It shows how our reactor and spent fuel pool might have responded to similar events. From what we know now, the results are very positive.
- Finally, in addition to the President's leadership in requesting funding for research, development and demonstration of small, modular reactors, the Nuclear Regulatory Commission and its staff have also continued to provide the on-going licensing support efforts in their own separate budget request. In a Commission briefing held on March 29, 2011, NRC staff outlined for the Commission the planned approach to licensing SMRs. Staff concluded by saying, "It's not a matter of whether we can license these plants but how we best proceed." This was encouraging to us, and is a positive sign that Congress can move forward with taxpayer dollars to support the licensing efforts.

Our company experienced a temporary financial setback earlier this year but we are receiving considerable interest in new funding from a consortium that includes American manufacturers, fabricators, suppliers, constructors and investment firms. We have advised DOE that we will be in a position to compete for federal cost sharing dollars as early as FY2011 if the program is approved by Congress.

NuScale Power wants to thank you and your Subcommittee Members for the support you have provided SMRs thus far. We look forward to continued work with you and your staff.

Sincerely,



Paul G. Lorenzini
Chief Executive Officer

Members of the Energy and Water Subcommittee of the House Appropriations Committee:

I would hereby like to recommend that you continue the **Strategic Center for Natural Gas and Oil** within the National Energy Technology Laboratory in the Department of Energy.

The US economy runs on fossil fuel, including twenty million barrels per day of crude oil. Thirty billion barrels of this essential resource can be extracted from *domestic* reservoirs if improved technology for injecting CO₂ into these reservoirs can be developed. The Strategic Center for Natural Gas and Oil has established a visionary program for just this purpose.

Continuation of this program is important for three reasons:

- 1) Recent advances in science and technology outside the oil industry -- including **nanotechnology**, novel synthetic chemistry and efficient computational methods -- have opened up truly new possibilities for **substantially increasing recovery** of oil by injecting carbon dioxide. The Strategic Center for Natural Gas and Oil has committed to exploiting these possibilities.
- 2) **Independents** and **small operators**, not the majors, are conducting essentially all the carbon dioxide injection for oil recovery in the US. This segment of the oil and gas industry is eager to take advantage of new technology. But it but does not have the resources to conduct basic research needed to implement new ideas from outside the industry.
- 3) Federal funding is a critical mechanism for **training the next generation** of engineers and scientists who will implement these advanced technologies, working for domestic companies operating domestic oil fields. Currently, so many students are working on non-fossil fuel related green energy that there is a shortage of graduating students to fill positions in fossil fuel energy recovery.

The continued supply of domestically produced oil will more and more be determined by enhanced oil recovery with carbon dioxide in existing fields, given much of the oil produced by primary means has been exhausted. I hope you decide to continue this **Strategic Center for Natural Gas and Oil**.

Sincerely yours,



Keith P. Johnston
M. C. (Bud) and Mary Beth Baird Endowed Chair
and Professor of Chemical Engineering

Member: National Academy of Engineering

Dean Keeton and Speedway NE Corner
Univ Texas
Austin, TX 78704

512-471-4617
FAX 512-471-7060
kpj@che.utexas.edu

Name: Michael Preston
Title: General Manager
Organization: Dolores Water Conservancy District

April 9, 2011

The Honorable Rodney P. Frelinghuysen, Chairman
The Honorable Peter J. Visclosky, Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives
2362-B Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Frelinghuysen and Representative Visclosky:

I am writing to request your support and assistance in insuring continued funding for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program in FY2012 as authorized by P.L. 106-392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah and Wyoming, Indian tribes, federal agencies and water, power and environmental interests. I am requesting your support for an appropriation for FY2012, consistent with the President's recommended budget, of \$6,248,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. Substantial non-federal cost-sharing funding is occurring pursuant to Public Law 106-392, as amended.

I thank you for the Subcommittee's past support and request the Subcommittee's assistance for fiscal year 2012 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Sincerely,

/s/ Michael Preston, General Manager
Dolores Water Conservancy District
(970) 565-7562, Fax: (970) 565-0870
mpreston@frontier.net



Name: Patrick Themig
Title: Vice President, Generation
Organization: PNM Resources, Inc.

April 11, 2011

The Honorable Rodney P. Frelinghuysen, Chairman
The Honorable Peter J. Visclosky, Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives
2362-B Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Frelinghuysen and Representative Visclosky:

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I thank you for the Subcommittee's past support and request the Subcommittee's assistance for fiscal year 2012 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Sincerely,

/s/

Patrick Themig
Vice President, Generation
PNM Resources, Inc.
(505) 241-4146 ph
(505) 241-4306 fx
PATRICK.THEMIG@PNMRESOURCES.COM

Written testimony from the Executive Committee of the Fermi National Accelerator Laboratory Users Organization to the House Subcommittee of Energy and Water Development and Related Agencies in support of the Department of Energy Office of Science and the National Science Foundation:

We are the Executive Committee of the Users Organization of the Fermi National Accelerator Laboratory (Fermilab) located outside of Chicago, IL, and represent the ~3000 user scientists of the premier U.S. laboratory for particle physics. Our membership includes researchers in high energy physics (HEP) who study fundamental particles, astrophysics, and accelerators. Eight national laboratories are actively engaged in high energy physics research. These laboratories host facilities that are used by scientists from other national laboratories, from hundreds of U.S. universities, and from dozens of foreign institutions. Fermilab is the only one of the laboratories dedicated exclusively to the field.

The U.S. Department of Energy Office of Science and the National Science Foundation supports high energy physics research at U.S. national laboratories and universities. **More than 160 U.S. institutions in 43 states host physicists, astrophysicists, engineers, and accelerator scientists who work in high energy physics.** More than half of these institutions are funded through the DOE Office of Science.

We urge the House of Representatives to support sustained funding for fundamental science within the Department of Energy Office of Science and the National Science Foundation. We request that the portfolio of funding for basic research be balanced. High energy physics research is a key part of these programs that yields valuable benefits to our nation as described below. Our field is undergoing a transition with the Fermilab Tevatron accelerator program coming to a conclusion after an incredibly successful three decades. New programs are underway or just beginning that will provide the basis for vibrant, world-class research for the next several decades. This transition is a critical time for our field in the United States and requires sustained funding to maintain our leadership in high energy physics research.

Value of high energy physics research

In our modern economy, science and technology (S & T) are driving forces of national strength as detailed in the National Academies report *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future* and the 2010 update *Rising Above the Gathering Storm Revisited*. Continued leadership in S & T fields is critical to our economic growth, national security, and world leadership. Innovation derived from a highly trained workforce is key.

Without new technological developments within the U.S., our economy will not grow and other countries will surpass us. But the most revolutionary technologies often require revolutions in our fundamental knowledge and understanding, or are invented in the research struggle of our most talented minds in pursuit of measuring, understanding, and testing new ideas and concepts. No one could have predicted the nature of our current society from the first studies of the electron, however we would not be communicating via email, fax, or text messages without them.

High energy physics strives to understand the most fundamental aspects of nature. We can rarely predict the outcome, but the quest for knowledge has always led to numerous

advances, some of which are listed below. Certain results are predictable: we will educate and train some of the best and brightest students who will contribute to our nation in many different arenas.

Value of technology development

While the primary purpose of high energy physics research is not the creation or development of new technology, our work often requires it to accomplish our goals. Many of our experiments require technology that does not exist when the project is started. Therefore, many of our researchers spend a significant part of their careers advancing high tech particle detectors, developing complex computing algorithms, and pushing the limits of high speed electronics. Without continuous innovation we would not be able to complete our experiments. But once these advances are made they are applied by industry.

An example of this is the construction of the Fermilab Tevatron accelerator that reigned as the world's most powerful machine of its kind for nearly three decades. It required 1000 superconducting magnets to be placed around a four mile ring. Creating superconducting magnets requires superconducting wire. At the start of the project in the 1970s, it was known how to make such wire but the industry needed to make it did not exist. Fermilab researchers helped to build up that industry and advance their production techniques through a very successful joint government/business venture. Once the accelerator was complete in 1983, these businesses looked around to see what other projects could use superconducting wire. MRIs that are commonly used for medical imaging are an example. Because of the work of Fermilab, MRIs became much more widely available in the 1980s.

A current experiment being led by Fermilab scientists is the Dark Energy Survey (DES). This experiment requires a digital camera larger than any ever built. Their technological developments will eventually influence the digital cameras available at your local electronics store as well as devices no one has even dreamed of yet.

High energy physicists have been the leaders in accelerator science since its beginning. Our work requires the most powerful particle accelerators that can be built. However, accelerators are now used in thousands of applications. More than 17,000 particle accelerators are used throughout the world, only a small fraction of these dedicated to high energy physics. Most are used by industry and for medical treatment. The tire industry, for example, now uses particle accelerators to treat their tires, which has resulted in a reduction of three pounds less rubber per tire and a reduction in the amount of chemicals needed in the production process. The industry is more efficient and better for our environment because of the application of particle accelerators. This success was unanticipated in the early days of accelerator development, but is certainly a positive result.

Value of education

The United States has long been the destination of choice for the best science students from around the world. Our universities provide an education that is second to none. Our national laboratories provide research opportunities that are unavailable elsewhere. Fermilab is an excellent example of this. Numerous students from foreign institutions travel to Fermilab to complete their research. Many of these students then choose to stay in the U.S. after completing their degrees.

Our students learn a variety of skills that are applicable in numerous fields. They learn how to work on problems where the answer is unknown and how to adapt to unforeseen challenges. They learn skills in computer programming, data analysis, simulation of complex problems, and electronics development, among others. They learn to work in teams and do collaborative projects. Most importantly, they learn how to take a project from start to finish, write a document detailing it, and present it to an audience. These skills are all highly desired by businesses.

Many of our students choose to continue their immediate careers as post-doctoral associates. This provides a post-graduate education that further develops their skills. Post-docs generally take on more complex projects and develop leadership and management skills. Most high energy physics experiments involve 20 to 2000 scientists and face challenges that are similar to those in many businesses.

Scientists trained in high energy physics work in telecommunications, software development, aerospace, education, medicine, government, and finance, to name a few. Approximately $\frac{3}{4}$ of our Ph.D. students enter new fields. Private businesses are the largest and most diverse employers of scientists trained in high energy physics. Several former HEP researchers have founded or led small and large companies, including Richard Wellner, chief scientist at Univa UD, a cloud management software company; Francisco Vaca, CEO of Vaca Capital Management LLC; George Coutrakon, director of operations at Loma Linda University Medical Center; and Homaira Akbair, CEO of SkyBitz, a satellite-based tracking company.

Our researchers are engaged in all levels of education and understand the importance of scientific literacy in our society. We use numerous venues to advance this. Hundreds or thousands of public lectures are given around the country each year. Our scientists visit local schools to share the excitement of science through physics demonstrations or presentations of their work. The QuarkNet program, funded through the National Science Foundation, trains K-12 teachers in 28 states in cutting edge research so that they can take it back into the classroom. More than 38,000 students attend Fermilab education activities each year.

Impact of budget cuts

Continued funding of science research is critical to our nation. Severe budgetary cuts will have devastating effects that will be felt for decades. Science opportunities will be delayed or lost to other nations. Our reputation as the place to be for the best and brightest will be damaged. The administration's request for FY12 maintains a funding level for science research that will allow us to avoid substantial damage.

Large cuts will have immediate impacts on our universities and national laboratories. Layoffs and/or furloughs will be unavoidable if we return to FY08 funding levels. Several Fermilab projects that were slated to start construction in FY11 have already been delayed. These projects are key to the near term future of the laboratory and the U.S. high energy physics program.

However, the largest and longest lasting impact will be in our training of the next generation of scientists. Severe cuts will force us to train fewer students. It will demoralize our current students and post-docs, and some will quit. And we will no longer attract the

best students. It will take a long time to overcome even a short term cut to funding. These young people will be the foundation on which our economic growth depends. Without the advanced training offered by fields such as high energy physics, they will lack the skills to develop the next technology or the next new industry. Or they will be trained in other countries and that innovation will occur overseas. It is critical that we remain attractive to U.S. and foreign students now and in the future.

Summary

Scientific research in general, and high energy physics in particular, provides value to our nation that will be lost without continued funding from the U.S. government. The knowledge that is gained will lead to future innovation that will continue our world leadership. The path to that knowledge will lead to advances in technology that will help sustain our economic recovery. And the education of students from the U.S. and abroad will provide the knowledgeable workforce that will carry us through the next half century.

It is critically important to maintain our leadership position in scientific research. The repercussions of severe cuts will be felt for a long time. We urge the House Appropriations Committee to support the President's request to maintain our scientific research program for the long-term health of the nation.

- The Fermilab UEC
Todd Adams
Michael Cooke
Marjorie Corcoran
Dick Gustafson
Heather Gerberich
Jonathan Lewis
Ronald Moore
Manfred Paulini
Brian Rebel
Mayly Sanchez
David Schmitz
William Wester
Lisa Whitehead

William Yates, Mayor
City of Morro Bay, California

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
Army Corps of Engineers

The City of Morro Bay is providing testimony to the House Subcommittee on Energy and Water Development to respectfully request that funding of \$2.5 million be included in the FY12 budget for the Army Corps of Engineers to dredge the Entrance/Transition channels in Morro Bay Harbor and to fund a condition survey of the North Breakwater.

During World War II the Army Corps of Engineers (ACOE) designed and constructed a new harbor entrance at Morro Bay with two rock breakwaters. Since the initial construction, over 60 years ago, the Federal government has maintained the harbor entrance, breakwaters and navigational channels. In FY 1995, the ACOE completed the Morro Bay Harbor Entrance Improvement Project to improve safety for commercial fishing and coastal navigation. The City of Morro Bay contributed almost \$1,000,000 in local cost share to this project.

Since 1995 the Federal government has funded maintenance dredging of Morro Bay Harbor entrance area every year and schedules a larger project to maintain the Morro and Navy Navigation channels every three to five years, as those channels accumulate sediment at a slower rate than the entrance area.

Below is a summary of dredging history for the federally designated navigation channels in Morro Bay.

DATE	AREA DREDGED	CUBIC YARDAGE
1997	Outer Entrance	63,009
1998	Entrance, Main, Navy, Morro & Sand Trap	695,080
1999	Entrance & Transitional Channel	134,234
2000	Entrance & Transitional Channel	236,883
2001	Entrance & Transitional Channel	180,467
2002	Entrance, Navy, Morro & Sand Trap	868,483
2003	Entrance & Transitional Channel	170,817
2004	Entrance & Transitional Channel	155,708
2005	Entrance & Transitional Channel	133,989
2006	Entrance & Transitional Channel	196,237
2007	Entrance & Transitional Channel	150,581
2008	Entrance & Transitional Channel	140,789
2009	Entrance & Transitional Channel	151,067
2010	Entrance, Main, Navy, Morro & Sand Trap	823,749

A condition survey of the North Breakwater has not been completed since 1986. Since that time Morro Bay Harbor was subject to effects from the San Simeon Earthquake of 2003, the Chilean Tsunami of 2010 and the recent Japanese Tsunami of 2011. In March 2011, the Morro Bay Harbor saw 9' surges and large waves at the entrance area during the Tsunami generated by a 9.0 earthquake centered in Japan. Due to the long period of time since the last condition survey and to the unusual stresses the breakwater has been subject to, we feel it is critical to complete this condition survey of the North Breakwater in FY12.

Morro Bay Harbor is the only all-weather harbor of refuge between Santa Barbara and Monterey along the rough waters of California's Central Coast. Our Harbor directly supports almost 250 home-ported fishing vessels and marine dependent businesses. We provide critical maritime facilities for both recreational and commercial interests. Businesses that depend on the harbor generate \$50,000,000 annually and employ over 700 people. In addition to the home-ported commercial fishing vessels, Morro Bay Harbor serves as port for 15—25 additional fishing vessels either transiting the coast, or here to fish during certain seasons. Over 400 recreational vessels come through Morro Bay Harbor while transiting the California Coast.

The United States Coast Guard (USCG) maintains a 27 person National Security Base and Search and Rescue Station at Morro Bay Harbor, which provides Coast Guard services for the entire Central California Coast, including port safety coverage for the Diablo Canyon Nuclear Power Plant and Vandenberg Air Force Base.

The California State Department of Fish and Game home ports their sixty-five foot enforcement vessel "Blue Fin" in Morro Bay. The Blue Fin enforces Federal and State Fish and Game regulations from Monterey to the Channel Islands and out 200 miles. The Fish and Game Department has an agreement with the Coast Guard to assist them with Homeland Security within this area as well. The Blue Fin is also made available through mutual aid agreements to all other law enforcement agencies, for enforcement assistance and search and rescue operations. It is vital that these vessels be able to safely transit the Morro Bay Harbor entrance and navigate within the Harbor to perform their missions.

The Morro Bay Harbor Patrol provides routine and emergency response to boaters within Morro Bay Harbor and responds to incidents as far as Montana de Oro to the south and Cambria to the north. The Morro Bay Harbor Patrol provides assistance to the United States Coast Guard, the Morro Bay National Estuary Program, the California Department of Fish and Game, the California Department of Parks and Recreation and San Luis Obispo County.

In 2000 the California legislature designated Morro Bay and several other small ports along the California coast as "Harbors of Safe Refuge". This legislation recognizes the critical role many small harbors play in affording a safety zone for commercial and recreational vessels transiting the California coast.

Morro Bay Harbor's configuration exposes the entrance to the open ocean and strong winter storms, creating swells and currents that constantly carry sand and sediment into the navigation channels. The Morro Bay National Estuary Program recognizes the need to maintain the navigational channels in the harbor not only for the safe access of emergency and fishing vessels, but also to maintain adequate tidal exchange for the health of the Morro Bay Estuary.

Morro Bay is a city of 10,000 people, with a total annual operating budget of approximately \$25 million. We are almost entirely reliant on tourism and a small fishing fleet for our revenue. The City simply cannot afford to maintain the harbor without continued Federal assistance. If the channels are not dredged, all of the past local and federal investment will be lost. It is imperative that the federally constructed navigation channels, entrance area and protective jetties be maintained on a consistent schedule.

The Army Corps of Engineers has the capability to execute \$2.5 million in maintenance dredging operations and a North Breakwater condition survey for FY12. We respectfully request that your distinguished subcommittee include \$2.5 million in funds for Morro Bay to keep our harbor open and safe in all conditions, to provide a safe base of operations for the United States Coast Guard, California Department of Fish and Game and the Morro Bay Harbor Patrol, and to protect the health of the Morro Bay National Estuary.

Thank you for your actions and support, and for the opportunity to present these requests to your subcommittee on behalf of the citizens of the City of Morro Bay.

THE FY 2012 FOSSIL ENERGY RESEARCH AND DEVELOPMENT BUDGET

Testimony of Kerry W. Bowers - Director, National Carbon Capture Center

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To the Committee on Appropriations, Subcommittee on Energy and Water Development

U.S. House of Representatives

April 12, 2011

Mr. Chairman and Members of the Committee:

Southern Company operates the U. S. Department of Energy's (DOE's) National Carbon Capture Center (NCCC) (<http://nationalcarboncapturecenter.com>) at the Power Systems Development Facility (PSDF) in Wilsonville, AL for DOE's National Energy Technology Laboratory (NETL) and several industrial participants¹. The PSDF was conceived as the premier advanced coal power generation research and development (R&D) facility in the world and has fulfilled this expectation. NETL responded to the need for cost-effective carbon dioxide (CO₂) capture technologies by establishing the NCCC which is collaborating with technology developers world-wide in accelerating development of lower-cost CO₂ capture technology for application to coal-fueled power plants.

I would like to thank the House of Representatives for its past support of the NCCC and request the committee's continued support of the DOE's Fossil Energy R&D core budget at recently enacted levels of \$404 million per year. The Obama Administration's FY2012 budget request of \$291 million per year for DOE coal R&D is inadequate to provide the robust Fossil Energy program needed to enable development of a range of advanced technologies necessary to assure continued use of coal. At a time when our country's economy is recovering, we need to assure continued utilization of domestically produced, low-cost, coal-based power generation. DOE's Fossil Energy R&D efforts have produced significant results to advance coal-based power. DOE's core R&D budgets, combined with investments by the private sector assure a sustainable technology base on which to address the environmental and economic challenges facing continued coal utilization. The continued operation of the NCCC in partnership with DOE will benefit the nation by responding to the need for developing cost-effective CO₂ capture technology for coal-fueled power generation by teaming with technology developers funded through the DOE Fossil Energy program and accelerating the progress of those technologies towards commercial deployment by testing and evaluation at the NCCC.

The NCCC offers a flexible applied R&D test facility which provides commercially representative flue gas and syngas and the necessary infrastructure in which developers' technologies are installed and tested to generate data for performance verification under industrially realistic operating conditions. This effort can bridge gaps between fundamental R&D and large-scale commercial demonstration and provides for a seamless transition for promising CO₂ technologies to migrate from laboratory into commercial applications. The DOE program for CO₂ capture in coal-fueled power plants is divided into three areas: post-combustion capture for conventional pulverized coal plants, pre-combustion capture for coal gasification power plants, and oxy-combustion processes

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

which produce a more CO₂-rich flue gas than conventional combustion for easier CO₂ capture. The NCCC's CO₂ capture efforts address all three areas.

Southern Company also supports the goals of the Clean Coal Technology Roadmaps developed by DOE, EPRI, and the Coal Utilization Research Council (CURC). These Roadmaps identify the technical, economic, and environmental performance that advanced clean coal technologies can achieve over the next 20 years. Over this time period coal-fired power generation efficiency can be increased to over 50 percent (compared to the current fleet average of ~32 percent) while producing *de minimis* emissions and developing cost-effective technologies for CO₂ management.

Summary

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

One of the key national assets for achieving these benefits is the NCCC. The FY 2012 funding for the NCCC needs to be about \$45.4 million to operate (and modify as needed) the 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. Any budget cuts in the DOE Fossil Energy Core R&D budget (for example from \$404 million to \$291 million per year) could proportionately impact the NCCC. A key feature of the NCCC is its flexibility to test new carbon capture technologies for coal-based power generation systems in an integrated fashion. The NCCC can evaluate solvent, sorbent and membrane CO₂ capture technologies as they are integrated into actual syngas (from gasification) or flue gas from actual power plant operations. Integrated operation allows the effects of system interactions, typically missed in un-integrated, laboratory-based, component development programs, to be understood. Testing at the NCCC 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. The NCCC is large enough to produce data to support commercial scale demonstration plant designs, yet small enough to be cost-effective and adaptable to a variety of technology research needs. Moreover, by operating a unique, but central R&D test

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

facility, available to all CO₂ technology developers, redundancy in testing sites and equipment is minimized and cost-effective use of R&D funds is achieved. The major accomplishments at the NCCC/PSDF to date and the current test program planned by DOE and the NCCC's industrial participants are summarized below.

Prior Accomplishments

The PSDF test-bed has operated successfully for many years in support of US-DOE's advanced coal program. The two significant achievements were in 1) a gasifier suitable for use with low rank fuels, and 2) hot gas filtration to improve energy efficiency. These two technologies have progressed to commercialization with integrated gasification combined cycle (IGCC) power plants being built at Kemper County, Mississippi, and Dong Guan, China. Skilled staff from disciplines essential for a successful research program has gained experience by designing and operating the test equipment and by working with vendors to develop and improve their technologies. The NCCC/PSDF has developed testing and technology transfer relationships with over 50 vendors to ensure that test results and improvements developed at the NCCC/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 NCCC/PSDF include: the Transport Reactor, Advanced Particulate Control systems, Filter Safe-Guard Device, Coal Feed and Ash Removal Subsystems: Syngas Cooler enhancements, and Sensors and Controls Automation improvements. These components were integrated into a Transport Integrated Gasification (TRIG™) system and successfully tested at the NCCC/PSDF. The TRIG™ process is now being scaled-up for commercial deployment. However, the pilot-scale test components remain in place and form the basis of a highly-flexible, unique testing infrastructure to enable pre-combustion (i.e. Gasification based) CO₂ capture technologies to be evaluated

NCCC Current Test Program

Building on success with TRIG™, the NCCC/PSDF facility has now refocused its mission on supporting the development and scale-up of cost-effective, commercially viable carbon capture technologies for coal-fueled power plants through collaboration with the DOE and third party technology developers. Most of the current CO₂ capture technologies are being developed at laboratory- or bench-scale under ideal conditions. Continued research and development (R&D) under realistic field conditions are needed to validate laboratory results and identify technical issues that are not present under ideal conditions. In collaboration with technology developers, the NCCC makes available coal-derived syngas and flue gas to carry out applied R&D on components or small pilot-scale systems to bridge gaps between fundamental R&D and large-scale commercial demonstration and provides for a seamless transition for promising technologies to migrate from laboratory into commercial applications.

The NCCC is a unique applied R&D test facility that consists of two major sets of infrastructure to support CO₂ capture technology development. One is the existing pilot-scale coal gasification facility that produces syngas for pre-combustion CO₂ capture technology evaluation and the other is the newly constructed Post-Combustion Carbon Capture Center (PC4) which enables testing of capture technologies on flue gas from an adjacent pulverized coal power plant. Both are readily

adaptable to test a variety of technologies at multiple scales, providing data for scale-up to commercial applications. This flexibility in conjunction with real-world operating conditions, allows the NCCC to support developers in advancing the CO₂ capture technologies that are critical to continued use of coal for power generation. Jointly with the DOE, NCCC has developed a Technology Screening Process which is a key evaluation tool to assess and prioritize technologies for testing at the facility. This process also ensures that final technology selection will form a balanced portfolio that promotes the advancement of both near-term and long-term candidate technologies.

Post-Combustion: Today's post-combustion capture technology is estimated to increase the cost of electricity (COE) by up to 80%.³ For both new and existing power plants, post-combustion capture technology must be made more efficient and cost-effective by reducing parasitic power and capital cost requirements. In post-combustion capture, CO₂ is separated from the flue gas in a conventional coal-combustion power plant downstream of the pulverized coal boiler. Many post-combustion capture technologies need to be proven and integrated in an industrial power plant setting. Activities at the NCCC for post-combustion capture technology include:

PC4: This test facility is being built to accommodate tests of a wide-range of capture technologies from flue gas. The test facility includes three major test areas: 1) a pilot solvent test unit (PSTU) to test developers' next generation CO₂ absorption solvents; 2) a second test bay to support evaluation of fully integrated test systems supplied by technology developers; and 3) a bench-scale test area to accommodate up to four small test skids of emerging, advanced technologies such as sorbents or membrane systems.

PSTU: This facility is designed and construction and commissioning were recently completed. Testing is underway with a reference solvent and will begin later this year on alternative advanced solvents with potential improvements in loading capacity, kinetics, or lower heats of regeneration.

Advanced Technology: Compact membrane contactors and solid phase CO₂ sorbents, currently being investigated by DOE-NETL and private companies, will be assessed and installed. NCCC will provide such technologies a scaled-up testing platform as development progress warrants.

Pre-Combustion: In pre-combustion capture, CO₂ is separated from the syngas produced by a coal gasification process, prior to the combustion of the syngas in gas turbine for power generation. CO₂ capture for IGCC is estimated to increase COE greater than 35%.³ Reducing parasitic power and capital cost requirements is also needed for development of efficient and cost-effective pre-combustion technology. R&D activities at NCCC for pre-combustion capture technology for application to gasification-based power generation include:

Advanced CO₂ Capture Systems: New solvents and gas-liquid contacting devices are being assessed on syngas. New CO₂ separation technologies (sorbents or membranes) are being scaled-up and tested based on fundamental R&D progress by third party developers.

Water Gas Shift (WGS) Enhancements: WGS catalyst test results have been conducted which reveal that parasitic steam consumption can be reduced, which in turn increases the net power output of an IGCC plant and reduces COE with CO₂ capture. Results have been supplied to catalyst suppliers and findings are being implemented at a commercial IGCC plant currently under construction. Testing of various WGS catalysts will continue.

³ "Cost and Performance Baseline for Fossil Energy Plants, Volume 1: Bituminous Coal and Natural Gas to Electricity, Final Report"; NETL, May 2007

Advanced Syngas Cleanup: New advanced syngas cleanup systems are being tested for reducing hydrogen sulfide, hydrochloric acid, ammonia, and mercury to near-zero levels.

Oxy-Combustion: The NCCC is also evaluating the potential benefits of oxy-combustion CO₂ capture using the pressurized transport reactor operating in oxygen combustion mode. Preliminary screening studies have been conducted with favorable results. Detailed system studies, modeling and additional economic analysis are being conducted to evaluate the commercial feasibility of this technology.

Gasification: In developing a cost-effective advanced coal power plant with CO₂ capture, all process blocks within the power plant must be optimized in addition to the capture block. Including CO₂ capture in an advanced coal power plant will increase the plant COE, so opportunities to reduce cost in every part of the process will be explored. With highest priority being given to low-cost CO₂ capture process development, projects that reduce overall capital and operating costs will also be included in the NCCC test plan to partially offset incremental cost increases from CO₂ capture addition. These cost reduction projects include technology development for syngas cleanup, particulate control, fuel cells, sensors and controls, materials, and feeders.

Conclusion

The collaboration among DOE Fossil Energy core R&D, technology developers, and private industry supported National Carbon Capture Center is making great strides towards advancing the next generation of CO₂ capture technologies. These technologies hold the promise of reducing the costs of CO₂ capture to levels necessary to assure that affordable, reliable coal-based electric power can be produced for America's economy, while also meeting all of the environmental challenges associated with coal use. Congress should sustain the DOE Fossil Energy R&D budgets at historical levels.

**Written Testimony of Rob Wallace, GE Energy
On the FY 2012 Department of Energy Budget Requests
Submitted to the
Subcommittee on Energy and Water Development
Committee on Appropriations, U.S. House of Representatives
April 12, 2011**

Overview: The following testimony is submitted on behalf of GE Energy (GE) for the consideration of the Committee during its deliberations regarding the FY 2012 budget requests for the Department of Energy (DOE). GE recognizes that particularly difficult choices must be made in FY 2012. These budget pressures make it essential that the Committee prioritize those programs that will contribute to economic growth and jobs creation and support core technology development. GE recommends: 1) in the Coal budget, increased investment in integrated gasification combined cycle technology development; 2) funding at the levels requested by the Administration for solar and wind technologies; and 3) support for Smart Grid Research and Development.

Fossil Energy

Coal Program, Advanced Energy Systems, Gasification Systems: The proposed FY12 budget would reduce gasification R&D by 32% from the FY10 funding level. This trend confirms a fundamental shift in DOE's focus to advanced combustion/post-combustion carbon capture -- ostensibly due to potential application to new and existing plants. GE believes that this is a flawed strategy that compromises the future of coal. It ignores the superior environmental performance of Integrated Gasification Combined Cycle (IGCC) with respect to water usage, criteria pollutant emissions, hazardous air pollutants and useful coal byproducts. It also ignores the proven ability of IGCC with full-scale, commercially-proven, pre-combustion carbon capture to provide the lowest avoided cost of CO₂ compared to other technologies.

It remains the case, however, that the base cost of IGCC must be reduced further to provide a low carbon option for coal that does not depend on incentives. Today the higher initial capital cost of IGCC combined with the current low cost of natural gas places IGCC at a disadvantage. DOE studies have shown that IGCC with carbon capture and sequestration (CCS) can achieve a cost of electricity equal to current new coal generation without CCS, but not without further technology improvements. The FY12 budget is insufficient to develop these improvements.

DOE should prioritize technology programs having dual benefits in terms of reducing base plant cost that will also reduce the avoided cost of CO₂ as compared to conventional coal with carbon capture. GE recommends that the FY 2012 budget for IGCC restore the FY 2010 funding level of \$63 million to support programs having nearer term and dual benefits: 1) design for constructability and cost/technology tradeoff modeling (\$8 million); 2) design methodologies and technologies for availability and reliability (\$7 million); and 3) operational flexibility for tomorrow's grid (\$5 million) (to support the higher penetration of renewable generation).

Clean Coal Power Initiative (CCPI): The CCPI is an outlet for validation at commercial scale and prototype application of technology from the coal R&D programs. The oversubscription of the CCPI-3 solicitation demonstrated industry's interest in undertaking coal projects. However,

the continuing uncertainty of carbon policy makes private investment in demonstrations that explicitly require carbon capture and sequestration – which reduces plant output, reduces efficiency, increases fuel consumption and exposes the project developer to potential legal risk – difficult to justify.

Taking these concerns into consideration, GE recommends that DOE move forward with the development of a CCPI-4 solicitation no later 2015. The solicitation should not exclusively require CCS, but should include EOR and other beneficial uses of CO₂, and should allow for technologies that have dual benefits as described above. A phased program should be employed for projects that incorporate CCS, to begin with funding of front-end engineering designs (FEEDs) and site characterization before proceeding further. This will enable a utility to provide accurate cost data to its regulators and demonstrate that it has a sequestration resource with sufficient capacity for the life of its plant.

Advanced Energy Systems, Hydrogen Turbines: The proposed FY12 budget will reduce funding for the Hydrogen Turbine program by 53% from FY10. The program has been successful in meeting technical goals and working toward offsetting much of the performance penalty associated with coal-fueled IGCC carbon capture while also achieving very low NO_x emissions. However, funding limitations have delayed the program from meeting its original 2015 goals until 2016-2017, and the FY12 budget reduction will extend the delay out until 2020. This presents a high risk of technology not being ready for the next CCPI demonstration opportunity. GE recommends funding of \$45 million in FY 2012 to help recover schedule so that advanced hydrogen turbine technology is ready for the next CCPI opportunity.

Water Management: Large amounts of water are needed to produce or extract energy, and large amounts of energy are needed to treat or transport water. EPA has recently released a proposed Cooling Water Intake Rule that underscores the important linkage between water use and energy generation. What is more, CO₂ capture increases raw water usage by up to 125%, depending on the underlying technology. In order to achieve DOE's aggressive goals of reducing freshwater withdrawals and consumption 50% by 2015 and 70% by 2020, water-related R&D funding is needed. Despite this need, yet again this year, DOE has requested no new funding for the Water Management subprogram, and also has stated that all projects involving Water Management are to be suspended.

GE believes that funding should be provided for R&D for innovative water reuse technologies and demonstration projects including: cooling tower blowdown reuse, Flue Gas Desulphurization (FGD) wastewater reuse and recovery, ash pond solids reduction, and treatment and reuse of produced water from unconventional oil and natural gas production to further reduce environmental impacts and operational costs of upstream energy processes. Support also is needed to advance reuse/treatment technologies for the conversion of impaired wastewater streams into sources of renewable water in areas of water scarcity, reducing the need to use energy to transport water over long distances and to support electricity generation.

Renewable Energy

Solar: GE urges Congress to fully fund the DOE's FY12 budget request for Solar Energy. This request for \$457 million represents a necessary commitment to accelerate the development and deployment of solar, particularly Photovoltaics (PV). GE is investing significantly in solar PV

technology with a focus on cost reduction. Public funding for technology innovation and R&D is critical to improving solar's cost competitiveness with traditional power generation technologies and to achieving the ambitious goal of a dollar-a-watt installed price for solar electricity before the end of the decade. In addition, funding for Systems Integration will provide more solutions for higher penetration of PV on the grid. By enhancing the affordability and reliability of solar, these investments in R&D and grid integration can advance the adoption of this technology by utilities and other consumers.

Wind: GE also urges Congress to fully fund the DOE's FY 12 budget request for Wind Energy of \$127 million. This funding will support the continued evolution and scaling of this technology. GE is the leading wind turbine supplier in the US and has invested over \$1 billion in wind technology development since 2002. Further progress in improving the cost, performance, and reliability of wind technology is critical. In particular, we believe the program's increased focus on advanced drivetrains, control systems, and components represent important investments in areas where public R&D plays a critical role in accelerating technology development and deployment. In addition, continued support for the DOE's new offshore wind R&D and demonstration program will be essential to the development of a domestic offshore wind market and manufacturing base.

Smart Grid

Electricity Delivery and Energy Reliability: GE supports the FY 12 budget request for Smart Grid Research and Development. R&D on Smart Grid technologies will advance reliable, affordable, efficient, and secure delivery of electric power to industrial, commercial, and residential customers, while at the same time transitioning the grid to support new forms of renewable energy. Integration of traditional grid electric infrastructures with modern IT computer and communications systems will be necessary, and GE is working closely with national and international standards development organizations in the development of Smart Grid interoperability standards. Cybersecurity is a fundamental design principle of this effort.

R&D is required to develop advanced grid analytics software to optimize grid efficiency and reliability, including "Big Data" storage and real time analysis and exascale computing. Funding through ARPA-E and its Wireless Innovation Fund also will be critical to the development of cutting edge wireless technologies needed for the acquisition of data for grid analytic programs.

In order to reduce risk and accelerate the adoption of new advanced Smart Grid technologies R&D funding will be required for the development of Smart Grid modeling, simulation, and visualization of both the transmission and distribution networks. Advanced modeling capabilities will serve as a critical tool in the modernization of the electric grid by assisting grid operators in identifying the technical limits of conventional grid technologies, and facilitating development of new technologies and solutions to respond to a changing energy mix and an increasingly responsive consumer base. In addition, advanced modeling capabilities can enable grid operators and power systems planners to aggregate, analyze, and act upon the vast quantities of data collected by Smart Grid technologies, thereby unlocking the full potential of the Smart Grid. DOE should expand industry participation in this program to fully leverage work already underway.

Smart Grid Renewables & EV Research and Development: The Smart Grid can fundamentally change the way electricity is generated, transmitted, and consumed, thereby delivering substantial improvements in the efficiency and reliability of our nation's electric grid. Additional research is needed in areas such as the integration of plug-in hybrid electric vehicles and advanced management of distribution voltage.

GE recommends that in order to achieve higher levels of renewables penetration, R&D funding should be set aside for power electronics development. GE recommends that Congress provide support for DOE to conduct research into applications of power electronics to support Smart Grid technologies.

Energy Storage: GE endorses the requested funding for further research into energy storage technologies. The FY 12 budget request appropriately broadens the scope of interest to include innovations in new battery chemistries. This could lead to radical improvements in energy storage performance. Electricity storage is a critical technology to enable both deployment of electric vehicles and improvements in grid stability and efficiency through utility scale storage.

GE recommends that equal attention should be given to both electric vehicles and storage. The requirements of utility scale storage are quite different from those of electric vehicles. GE recommends inclusion of research into large-scale energy storage into this line item. This includes all potential storage modalities such as compressed air, pumped hydro, and flywheel technologies.

Combined Heat and Power

Industrial Technologies Program: GE supports the request for \$25 million in funding for the Combined Heat and Power Generation line item of the Industrial Technologies Program. This funding has enabled demonstration of a reciprocating natural gas engine operating at 47% efficiency, up from a baseline of 37% while preserving the exhaust heat for combined heat and power (CHP) applications. When used in combined heat and power applications the total efficiency can reach 90%, making this by far the highest efficiency and lowest emission solution for distributed electricity generation. Gas engines also have rapid start and efficient load following capability making this a key technology to ensure continued stable electric grid operation with increasing addition of variable resources such as wind. Continued funding will enable completion of the final phase of demonstrating 50% efficiency.

**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 2012 Budget Request**

April 12, 2011

Introduction

After experiencing a record year of growth in 2009, the American wind industry installed just over 5,000 megawatts (MW) of capacity last year. Two of the principal causes for the decrease were the reduced demand for electricity due to the economic slowdown and the low price of natural gas compared with historic levels. Wind systems are commercially deployable today and cost-competitive with virtually all other new electricity generation sources. In addition, polling consistently shows that a strong majority of Americans want more wind power. Just last year, 89% of American voters (84% of Republicans, 88% of Independents, and 93% of Democrats) agreed that increasing the amount of energy our nation gets from wind energy is a good idea¹. However, keeping America's domestic wind industry competitive with other generation sources and the wind industry in other countries depends in part on increased research, development, and deployment (RD&D) funding to reduce costs and improve reliability.

The American Wind Energy Association (AWEA) requests a funding level of \$144.2 million for FY 2012 for the Department of Energy (DOE) Wind Energy Program, an increase of \$17.3 million above the President's Congressional budget request. Of this amount, AWEA requests that an additional \$10.1 million be designated for the integration of variable power sources. An additional \$6.2 million should be provided for the research and development of advanced technology components, and an additional \$1 million should be provided for the study of wind energy and wildlife interactions. While we recognize that DOE has proposed a \$64 million increase in funding for needed offshore wind R&D and generally concur with the proposed research activities, we wish to re-emphasize the importance of expanded R&D for land-based installations as well.

We appreciate the recognition of the important role wind energy will play in meeting America's future energy needs, which is reflected in the 60% increase in funding for the DOE Wind Energy Program that is included in the President's budget request. This funding increase is an important step in overcoming constraints to meeting the DOE's scenario of wind energy providing 20% of our nation's electricity by 2030,ⁱⁱ but funding should be increased in the three critical areas mentioned above, and maintained for wind resource characterization.

Importance of DOE's Wind Energy Program

For years, the DOE Wind Energy Program has provided important help to the wind industry by supporting technology advances and identifying and addressing other hurdles to wind energy development. The program provides needed technical support, guidance, information, and

limited cost-shared funding for efforts to explore and develop wind energy resources. AWEA commends the DOE Wind Energy Program for successfully developing programs that are consistent with the wind industry's long-term needs. We have noticed a growing rigor in the program's organization and structure to address the needs of the growing wind industry.

Past investments in wind have resulted in significant improvements over the past 30 years, such as increased output, improved reliability, and lower costs. In fact, the cost of wind, when adjusted for inflation, has dropped from over \$0.50/kWh in 1980 to between \$0.05 and \$0.06 todayⁱⁱⁱ. Despite this dramatic decrease, there is still plenty of room for further reductions that will be critical for wind energy to compete in an environment of very low electricity costs.

Clearly, more work is necessary. Wind power is still constrained by difficulties in market acceptance and the need for improvements in cost, performance, and reliability. The DOE's *20% 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 DOE report identifies a need for continued Federal investment in wind RD&D by stating, "In a functional sense, wind turbines now stand roughly where the U.S. automotive fleet stood in 1940^{iv}." As our nation turns to wind power to meet more of its energy needs, it is important for DOE to increase funding to improve wind turbine reliability and reduce costs.

Achieving 20% of U.S. electric power from wind, with the critical help of RD&D, would:

- Create 500,000 jobs, generating over \$1 trillion in economic impact by 2030;
- Reduce natural gas demand by approximately 7 billion cubic feet/day - nearly 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 Energy Program currently receives approximately \$79 million annually. In comparison, the RD&D budgets for many other traditional and emerging energy sources are much higher. Non-defense nuclear RD&D energy programs receive \$775 million, coal programs receive about \$383 million, and solar and biomass energy receive \$243 million and \$216 million, respectively. These are historic imbalances in funding that date back to the 1970s. A higher Federal funding level for wind energy RD&D will help ensure that wind energy remains competitive with other forms of energy.

Specific Wind Industry Priorities

Each year AWEA and its member companies identify the RD&D priorities that will most effectively help realize the vision of providing 20% of America's electricity from wind by 2030.

The following four areas are the wind industry's top priorities in addition to the funding that has already been requested in the President's budget.

Integration of Variable Power Resources

The integration of variable power sources, such as wind power, into the electrical grid is a key area of focus for meeting the 20% by 2030 wind energy goal. The systems integration program area focuses on the operations issues of integrating variable, non-dispatchable power sources into the power system. Numerous studies from the United States and Europe (with significant involvement from DOE-funded experts) have shown that even minor changes to power system operations can accommodate much greater amounts of wind.

Unfortunately, the DOE budget request justification includes a reduction in funding for renewable systems interconnection from \$14 million to \$3.9 million. The current funding level should be preserved.

Advanced Technology Components

Advanced technology components, from drive trains to blades to towers to controls and sensors, have enormous potential to drive down the cost and increase the reliability of all future wind turbine systems, not just those located offshore. Such advancements can be accelerated and stimulated by DOE, especially as industry deals with the current downturn in wind turbine installations. With continued and accelerated advancement, studies show that onshore wind turbine installations in the U.S. over the next decade can approach 150 gigawatts (enough to generate roughly 10% of U.S. electricity). The reduction in the utility scale R&D testing budget line item indicates a reduced emphasis on these important technologies, which instead should be receiving greater attention.

Wind energy is now cost competitive with virtually every other energy source and technology advancements can drive the cost down even more. Already, these technology advances have enabled a typical modern wind turbine to produce 15 times more electricity than the typical turbine in 1990, but further improvements are needed to meet the 20% goal by 2030.

Siting Issues

The DOE 20% report also identified siting issues as a potential barrier to achieving that level of deployment. To address these issues, the wind energy industry invests millions of dollars every year in research related to the interactions between wind energy and wildlife, including through a variety of collaborative efforts involving federal and state officials, as well as conservation organizations. However, given the importance of resolving siting issues, including wildlife-related concerns, to the future of the industry, it is necessary and appropriate for DOE to support such efforts as well. AWEA recommends devoting \$1 million of the DOE R&D budget to supporting research on wind energy and wildlife interactions.

Wind Resource Characterization

Discrepancies between the projected and actual performance of wind facilities illustrate the urgent and continuing need for improved wind resource characterization methods (modeling and measurements). These methods include micro-siting to reduce wind turbine wake losses and to optimize large wind farm array layouts. These key areas can be addressed in the short term to reduce the cost of energy. The DOE FY 2012 budget justification includes an increase from \$5.7 million to \$7.1 million for this area of research. AWEA endorses this funding increase.

Conclusion

The President and Congress have called for a bolder commitment to the development of domestic energy resources to meet our nation's growing energy demand. Continued investments in wind energy RD&D are delivering value for taxpayers by fostering the development of a domestic energy source that strengthens our national security, provides rural economic development, spurs new high-tech jobs, and protects the environment.

While the wind industry continues adding new generation capacity, challenges still exist. Continued support for DOE's Wind Energy Program is vital to helping wind become a more prominent energy source, which will benefit the economy and environment. To ensure that funding levels are commensurate with our nation's need for more domestic energy, AWEA urges the Subcommittee to provide \$144.2 million for the Wind Energy Program in FY 2012. Along with other key Federal policies, both new and sustained, greater RD&D funding through DOE will help transform the 20% wind vision into a reality.

AWEA appreciates this opportunity to provide testimony on DOE's FY 2012 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.

ⁱ March 2010 survey by Neil Newhouse, Public Opinion Strategies; Anna Bennett, Bennett, Petts & Normington

ⁱⁱ U.S. Department of Energy, "20% Wind Energy by 2030" (July 2008).

ⁱⁱⁱ Black and Veatch, "20% Wind Energy Penetration in the United States" (October 2007).

^{iv} U.S. Department of Energy, "20% Wind Energy by 2030" (July 2008).

BOB LAWRENCE & ASSOCIATES, INC.**Outside Witness Testimony
Department of Energy
Advanced Cables and Conductors Program****Subcommittee on Energy and Water Development
Committee on Appropriations
United States House of Representatives
April 14, 2011**

Mr. Chairman and Members of the Subcommittee. My name is Dr. Lloyd R. (Bob) Lawrence, Jr., and I am President of Bob Lawrence & Associates, Inc., a consulting firm in Alexandria, Virginia. I appreciate the opportunity to come before you today to discuss a key infrastructure problem facing our nation, our electric grid; and a key solution, Advanced Conductor Technology. Specifically, I wish to discuss two key technological solutions for major grid problems, one solution being composite conductor technology, and the second solution being High Temperature Superconductor technology. During the past 7 or 8 years, these two technologies, together, have been funded at an annual level of about \$25 Million. For reasons that are not clearly explained or understood, the FY 2012 Request suggests zeroing out the promising technology advances in these areas. I am here to request that the Subcommittee restore Advanced Conductor Technology to a reduced, but needed level of \$20 Million.

As you are aware, the backbone of the grid consists of many thousands of miles of transmission lines, virtually all of which are based on steel core conductors, which are cables constructed with steel cores for strength, and wrapped with heavy, aluminum wires which carry the electric current. Much of the nation's electric grid is 40 to 50 years old, and is in need of modernization and/or expansion to meet the growing electrical needs of the country, and the modern need for ultra high reliability to service our computer fleet and modern manufacturing processes.

The Congressional Budget Request for the Office of Electricity Delivery and Energy Reliability (OE) states that the Request is "OE's leadership in developing 'next generation' electric grid technologies, tools, and techniques." Further, the Request states that "today's electric grid was designed and constructed in the last century before cell phones, personal computers, and the Internet." And "society's changing needs have pushed an aging and sometimes congested grid to its operating limits." Finally; "A modern electric grid is critical to meeting the nation's energy, environmental, and security goals."

The Request states, unequivocally, that; “Without the development and deployment of ‘next generation’ electric transmission, distribution, and customer technologies, the grid could become a barrier to the adoption of cleaner energy supplies and more efficient demand-side measures.”

All that being said, the OE Request is for \$237,717,000, none of which is for research and development on Advanced Conductors, the basic structure of the grid!

One solution which has shown extraordinary success, with additional promise, is the “composite core” technology. In this case, the steel core of conventional cable is replaced with a composite core providing for higher temperature operation, with lower sag, and higher conductivity. The composite, itself, can be one of a number of different materials, individually chosen for its individual properties. The most successful to date, developed under a joint DoE – Industry program is the Aluminum Matrix Technology composite core, also known as ACCR. With a one-for-one replacement against conventional, steel core technology, the composite core has shown a doubling of electricity carrying capacity, with the same sized cable. This, then, allows for the doubling of capacity in critical transmission lines without needing any additional rights-of-way or additional tower structures. This provides huge environmental and permitting advantages, substantially lower cost of increased capacity, and a much shorter time from concept to operation. The producer of this modern grid option just celebrated the 1000th mile of commercial production and installation of ACCR. Due to the substantial ratepayer benefits demonstrated to date, further research in the composite conductor area is a productive and logical path to follow!

A second solution, which will take additional time for broad entry into the electrical marketplace, is High Temperature Superconductivity, also known as HTS. 20 years ago, laboratory scientists were ecstatic when a small, centimeter-squared wafer of HTS material could be shown to conduct electricity, without resistance, at the temperature of liquid helium. Today, according to the OE Budget Request, the technology has come to the point where HTS laboratories have “Demonstrated consistent production of second generation, High Temperature Superconductivity wire (greater than 300 meters long), with 70,000 ampere-meters critical current – length.” It also operates at the temperature of liquid nitrogen, a much cheaper and easier task than with liquid helium or hydrogen. Mr. Chairman, I first worked on a government grant in a University laboratory in the fall of 1964, nearly 47 years ago. I have been involved in Research and Development all my life. When you see a technology move forward, continuously, such as the HTS technology continues to move, it is not logical to cut it off and end its forward motion, when it promises such substantial benefits. Worst of all, you will lose the experience, knowledge, and corporate memories of the researchers and engineers who work on the technology, because they will be on to something else. You need to provide the funds to keep the present teams together.

HTS technology will have its first grid applications in high-capacity, underground transmission cables, Fault Current Limiters, and transformers. Additional benefits will come from the smaller “footprint” required to provide HTS substations. The first grid application is likely to be underneath our electrically congested cities, where HTS transmission and distribution cables can provide much higher electrical capacity in the same electrical conduits presently occupied by conventional technology.

In short, it is in the strong public interest to continue the Advanced Cables and Conductors program, addressing both composite technologies and high temperature superconductors, at a reduced level of \$20 Million for FY 2012.

I thank you for your attention to this testimony.

THE NAVAJO NATION



BEN SHELLY PRESIDENT
 REX LEE JIM VICE PRESIDENT

Name: Ben Shelly
 Title: President
 Organization: The Navajo Nation

April 12, 2011

The Honorable Rodney P. Frelinghuysen, Chairman
 The Honorable Peter J. Visclosky, Ranking Member
 Subcommittee on Energy and Water Development
 Committee on Appropriations
 United States House of Representatives
 2362-B Rayburn House Office Building
 Washington, D.C. 20515

Dear Chairman Frelinghuysen and Representative Visclosky:

The Navajo Nation is an active participant in, and strong supporter of, the San Juan River Recovery Implementation Program. On behalf of the Navajo Nation, I am writing to request your support and assistance in insuring continued funding for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program in FY2012 as authorized by P.L. 106-392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah and Wyoming, Indian tribes, federal agencies and water, power and environmental interests. I am requesting your support for an appropriation for FY2012, consistent with the President's recommended budget, of \$6,248,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region. Substantial non-federal cost-sharing funding is occurring pursuant to Public Law 106-392, as amended.

The Navajo Nation thanks the Subcommittee for its past support and requests the Subcommittee's assistance for fiscal year 2012 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Sincerely,
 THE NAVAJO NATION

/s/ Ben Shelly

Ben Shelly
 President

The Honorable Rodney P. Frelinghuysen, Chairman
The Honorable Peter J. Visclosky, Ranking Member
Subcommittee on Energy and Water Development
Re: FY 2012 Funding for Recovery Programs
April 12, 2011
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Testimony of the Izaak Walton League of America**Subcommittee on Energy and Water****April 15, 2011****Submitted by Scott Kovarovics, Conservation Director**

The Izaak Walton League of America appreciates the opportunity to submit testimony concerning appropriations for fiscal year (FY) 2012 for programs under the jurisdiction of the Subcommittee. The League is a national, nonprofit organization founded in 1922. We have approximately 38,000 members and more than 250 local 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, Missouri River

The League joins the Missouri River Association of States and Tribes (MoRAST), among other groups, in urging the Subcommittee to appropriate \$72.89 million in FY 2012, as requested by the president, for the Missouri River Recovery Program. With this funding, the Army Corps of Engineers, U.S. Fish and Wildlife Service (FWS), states, and other partners can continue important ecosystem restoration efforts that are producing long-term ecological and economic benefits.

The Missouri River basin encompasses land in 10 states covering one-sixth of the continental United States. The Missouri, America's longest river, is one of the most altered ecosystems on earth. Although recovery and restoration efforts are on-going, 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, FWS, and many state agencies have been working to restore habitat for fish and wildlife along the river. This work is critical for the Interior Least Tern and Pallid Sturgeon, listed as endangered, and the Piping Plover, listed as threatened, under the Endangered Species Act. The restoration efforts also benefit many other species of fish and wildlife throughout the region.

Studies conducted by the FWS show that over twice as many fish species are utilizing the created shallow water habitat (SWH) areas compared with the section of the river with a dredged channel. A Corps' study also shows 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 also generate additional economic activity in communities along the river. Anglers, hunters, boaters, birdwatchers, and others have been using these areas proving the old adage “if you build it, they will come.” In a recent report, the Missouri Department of Conservation and the Nebraska Game and Parks Commission found recreational spending provides \$68 million in annual economic impact to communities along the Missouri River from Yankton, South Dakota to St. Louis, Missouri. A South Dakota Game, Fish, and Parks study shows that recreational benefits from angling on the Missouri River account for over \$107 million in annual economic activity in the Dakotas and Montana. These projects are bringing more people to the river throughout the Missouri basin.

In addition to the economic boost from tourism, restoration projects, including building sandbars, support job creation throughout the entire region. To perform this work, the Corps contracts with local construction companies, creating or maintaining jobs, and injecting dollars into local economies through purchases of materials, fuel, food and lodging. With the funding requested, the Corps could readily implement more of these important economic and river restoration projects.

Missouri River Authorized Purposes Study: The League also urges the Subcommittee to continue to provide \$5 million for the Missouri River Authorized Purposes Study (MRAPS), and to oppose extraneous policy “riders” that would curtail or cancel this critical assessment. The League strongly opposes the funding prohibition for FY 2011 contained in section 1481 of the final continuing resolution (HR 1473). This limitation is “penny wise and pound foolish.” It will not provide taxpayers with meaningful savings in the near-term while it jeopardizes real savings in the future. Moreover, delaying this analysis deprives the country of Missouri river management geared toward future needs rather than those identified during World War II.

The MRAPS will, for the first time, review the eight authorized Missouri River project purposes established by the Flood Control Act (FCA) of 1944. This study will analyze the purposes in terms of what is best for the American taxpayer, the people within the entire basin, fish and wildlife, and today’s economic values and priorities, rather than those of nearly 70 years ago.

The Corps is working collaboratively with tribes, federal and state agencies, and other stakeholders within the Missouri River Basin and along the Mississippi River on this historic study - this has never happened before.

The eight authorized purposes -- flood control, hydropower, recreation, fish and wildlife, irrigation, water supply, water quality, and navigation -- have not been reviewed since Congress passed the FCA in 1944. In essence, the Missouri is operating on a 67-year-old business plan. This review is urgently needed and long overdue for the American taxpayer.

The Missouri River basin is very different today than what was envisioned in 1944. Some of the authorized purposes meet or greatly surpass expectations from decades ago. Currently, recreational uses of the river dramatically exceed original expectations while other purposes,

particularly navigation, have fallen far short. In spite of these changes, river management mostly favors navigation. This outdated and unbalanced approach is especially in need of review when one considers that navigation is being maintained largely to accommodate one commodity. According to the General Accounting Office (GAO), sand and gravel accounted for 84 percent of total tonnage shipped by barge on the Missouri between 1994 and 2006. Moreover, the GAO found that 54 percent of all sand and gravel was transported for one mile or less. Today, in part because the purposes in the 1944 Flood Control Act have not been modernized, the river is being managed to move sand less than a mile rather than for more diverse and beneficial purposes.

Continued full funding of MRAPS is a smart investment. A comprehensive review and accompanying changes will streamline future Corps operational expenses. This will save tax dollars and bring Missouri River management into the 21st century.

Corps of Engineers, Operations and Maintenance, Upper Mississippi River

The League is an active and long-time proponent of restoring the Upper Mississippi River (UMR) ecosystem. We have supported the Environmental Management Program (EMP) since its inception and continue to support this vital restoration program. We urge the Subcommittee to provide \$33.2 million for EMP in FY 2012 as authorized by the Water Resources Development Act (WRDA). Although we are encouraged by the president's request for FY 2012, pressing restoration needs on-the-ground require at least the full amount authorized for EMP.

The League has also strongly expressed its opinion that the large-scale navigation modifications included in the Recommended Plan 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 by 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. A report released last year by the Nicollet Island Coalition, of which the League is a member, provides additional evidence that proposed locks and dams in this region are not a good investment for American taxpayers. With this in mind, the League supports the administration's decision not to request funding for NESP in FY 2012.

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 EMP, 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, 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.

In assembling the UMR-IWW navigation study, the Corps recognized the critical need for ecosystem restoration 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 by appropriating \$33.2 million for the Environmental Management Program in fiscal year 2012. Appropriating additional funding for restoration will support economic development and job creation in communities along the UMR and provide long-term conservation and economic benefits for the region and the nation.

We appreciate the opportunity to submit this 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.



Testimony of the Diesel Technology Forum
 Subcommittee on Energy and Water Development
Regarding the Department of Energy: Energy Efficiency and Renewable Energy FY 2012 Budget Request April 7, 2011

The Diesel Technology Forum (“DTF”) www.dieselforum.org is a not-for-profit organization representing diesel engine and equipment makers, fuel suppliers and emissions control technology companies. We appreciate the opportunity to submit comments regarding certain aspects of the FY 2012 proposed budget of the US Department of Energy, particularly its Vehicle Technologies Program (VTP) and its various budget activities for commercial vehicles, advanced combustion Engine R&D (ACE R&D), fuels technology and materials research.

The FY 2012 EERE budget proposes to substantially reduce investments in several key budget activity areas that impact heavy-duty diesel engines, commercial vehicles and truck efficiency programs. This includes the Advanced Combustion Engine Research and Development “ACE R&D” (reduced 12.4 percent from FY 2010 Appropriated levels (\$55.987M to \$49M); a reduction of \$5 million for Fuels technologies; and reduction of \$2-3M in Materials Technologies.

Because of well-established future need, proven past performance, and extended societal benefits, funding for Vehicle Technologies Programs including Advanced Combustion Engine R&D, Fuels and Materials Technologies and SuperTruck activities has delivered proven benefits and must be restored.

The Subcommittee faces a difficult task of setting priorities among many competing programs with limited resources. The Subcommittee should seek to strike a better balance between fully funding programs that are known to improve efficiency of existing energy-intensive sectors on a near-term basis while at the same time supporting a reasonable vision and funding for infrastructure development, deployment and electrification of passenger vehicles; the potential energy-saving benefits of which may not be realized for several decades or more. We recognize that savings will need to be found across all programs but are concerned about the disproportionate impact on proven existing programs while unprecedented significant new resources are being requested elsewhere for new initiatives.

The commercial vehicle research activities have been cross-cutting in scope and shared risk and benefits between DOE, private industry, the US Department of Defense, Department of Transportation and US EPA. This suite of programs to make commercial vehicles more energy efficient – the 21st Century Truck Partnership and diesel engine and fuel research --- have been among DOE EERE’s most successful investments. They are proven to have helped meet important societal goals of economic growth and small business development (economics of more energy efficient commercial truck acquisition and ownership); cleaner air (reducing diesel engine emissions), reduced reliance on imported oil (increasing commercial truck energy efficiency). They have also enhanced our national security, through contributing to fuel savings of US DOD military vehicles. Fuel accounts for 70 percent of the bulk tonnage transported to the battlefield and reducing consumption by 1 percent leads to 6,500 fewer soldier trips, which has been identified with saving lives on the battlefield through reduced risk in transporting fuel.¹

1. **Existing DOE EERE Commercial Vehicle and Engine Programs have delivered substantial and proven economic, environmental and energy saving benefits:** For every one dollar invested, advanced combustion research delivered 53 dollars in benefits. According to a May 2010 study¹ previous

advanced combustion research for laser and optical diagnostics along with combustion modeling undertaken by the US DOE and now having been implemented in commercial vehicles on the road today saved 17.6 billion gallons of diesel fuel over a 12 year period (1995-2007); a 4.5 % savings in fuel consumption over what would have occurred without the program investments. This translates into a monetized saving of \$34.5 billion in 2008 dollars, and reduction of over 177 million tons of CO₂ prevented.

The established goal of improving fuel economy by 20% for commercial vehicles in the ACE R&D has the potential to save more energy than the electrification of one million cars. Past investments have contributed to diesel engine manufacturers being able to meet the most stringent emissions standards on record, resulting in today's clean diesel technology with near zero emissions of ozone forming compounds (nitrogen oxides) and particulate matter. The total health and environmental benefits in terms of savings in air pollution and energy savings exceed \$70 billion dollars according to the previously referenced May 2010 study.

2. The ongoing need to reduce energy consumption from commercial vehicles is well established.

Heavy-duty commercial trucks play the central role in the nation's freight movement and goods delivery system, transporting 70 percent of the US goods purchased. Diesel-power will be the primary technology of choice for providing this service in the foreseeable future due to its unmatched combination of efficiency, power, performance, reliability and durability along with economical ownership and operation. Tractor-trailer type trucks (Class 8) use 80 percent of commercial trucking industry fuel. This accounts for 28 percent of total US fuel usage. According to

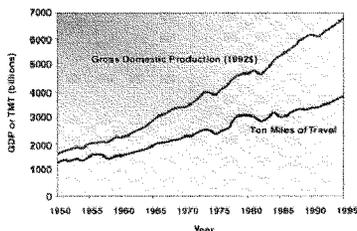


Figure 1. The nation's economy is linked to truck transport.
Source: Argonne National Laboratory.

the US Department of Transportation, from 1970-2007, the number of trucks more than doubled while the mileage increased by 3.9% during the same period. Economic growth and recovery demands more trucking services, more miles traveled and more energy consumption. These past and predicted future trends underscore the need for continued gains in fuel efficiency benefits from continued future investments in commercial truck and diesel engine efficiency.

Further, according to the Advanced Energy Outlook (Figure 2, below) with a 75 percent reduction in light-duty oil consumption; heavy-duty vehicles will make up the largest share of the consumption in the future.

As global commodity, heavy-duty petroleum consumption already rivals that of light-duty vehicles. US-developed fuel efficient technology for commercial vehicles through the EERE has had and will continue to have a global impact, adding much greater leverage on petroleum demand and cost on a global scale.

- 3. Future Societal and Technological Challenges Facing Commercial vehicles are Significant, and heighten the need for continued, robust government EERE Program investments.** A landmark final rule from the US EPA and US DOT- NHTSA is expected in July 2011 that will establish the first-ever greenhouse gas emissions reduction requirements for commercial trucks. Goals for near and long-term reductions in greenhouse gas emissions and fuel efficiency improvement will be established at that time and will likely stretch the limits of currently known technology capabilities. The significant funding reductions in the suite of EERE commercial vehicle and engine programs in the FY2012 budget could delay or jeopardize gains in meeting these important societal goals.

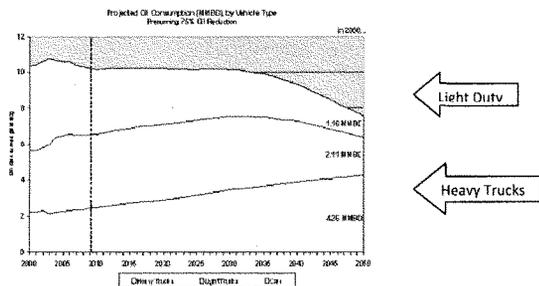


Figure 2: Source: Internal DOE analysis, August 2008, comparing Heavy Truck oil consumption at AEO 2008 reference case levels with a 75% reduction in light-duty oil consumption relative to EIA's AEO 2008 reference case due to significant light-duty fuel economy gains and fuel switching. (p.21)

Reaching these challenging goals will require substantial manufacturer investment in the next 3-5 years at a time when economic recovery and market potential for heavy duty commercial trucks remains tentative. More than ever, the combined collaborative approach of the DOE program of shared research toward common energy saving objectives is needed and necessary to assure continued progress and increase the speed of development, deployment of technologies and societal benefits.

4. **Fully funding commercial vehicle research budgets assures continued gains and leverage of ongoing progress that will help expedite fuel-saving technology development and deployment while managing risks that will lead to greater future fuel savings.** Given the substantial progress made in the 21st Century truck Program, a framework of continuous progress has been developed over time that is a predictive indicator of potential future success. Adequate DOE program funding can assure that the commercial vehicle, engine and SuperTruck program goals of 50 percent increase in freight efficiency (ton-miles per gallon) will be more likely to be met. Truck and engine manufacturers face the unique challenge of competing societal demands of improved efficiency, near-zero emissions while meeting customer demands for lowest cost of operation. Significant investments in research are required but there are diminishing opportunities to recoup the substantial investments needed to meet these goals with only an average 200,000 -250,000 heavy duty trucks sold annually. A fully funded SuperTruck program can assure these goals are more likely to be accomplished earlier than if companies alone shoulder larger research demands.
5. **Commercial vehicle, engine and SuperTruck Efficiency program benefits reach beyond private industry in the US, a factor to be carefully considered in the Final Decision making.** Collateral benefits have accrued to the Department of Defense from the 21st Century Truck Partnership program through the efficiency advancements extending to Military applications and a subsequent reduced dependence on petroleum. Continued funding of the vehicle technologies program, SuperTruck and ACE R&D will have long-term strategic value to reducing petroleum consumption of the US military. The US is the global leader in advanced clean diesel engines and efficiency gains here in the US will ultimately impact the global marketplace.

Conclusions

There is an incontrovertible and established need to improve energy efficiency of the nation's commercial vehicles. Commercial diesel-powered trucks are the backbone of the US Economy and the prime movers of the nation's goods movement system, and will be for the foreseeable future. Fuel consumption in this sector is projected to continue to grow with the economy. Past EERE engine and vehicle efficiency programs have delivered substantial and well-documented economic, energy and environmental benefits to society. However the continued progress of these efforts is in jeopardy due to an imbalanced FY2012 budget request.

An adequate government funding stream for the suite of Vehicle Technology programs like SuperTruck and the ACE R&D, Fuels Technologies and Materials must be restored to FY 2010 levels to assure continued progress and accelerate development and deployment of energy saving technologies. Proposed reductions to the FY 2012 EERE funding will jeopardize continued progress at an especially critical time as the industry moves to meet new GHG emissions and fuel efficiency goals, near zero emissions levels along with competing customer demands with the backdrop of a weakened and recovering economy.

A national energy strategy should seek to balance investments in near-term and long-term energy-saving strategies. Proven incremental gains in efficiency from existing fuels and technologies, particularly in sectors that use the most energy today without viable alternatives for the future must be a cornerstone of the national energy program and funded accordingly. While battery development and electric-powered vehicles may hold great promise, so too should investments in programs with assured near-term efficiency gains.

The diesel engine is the prime mover of America's transportation, infrastructure and goods movement today and for the foreseeable future. Now near zero emissions and still as the most energy efficient internal combustion engine (30 percent more efficient than gasoline), clean diesel technology has made great progress and has substantial future potential efficiency gains to meet future societal goals.

We appreciate the opportunity to file these comments. An ongoing dialogue with the Subcommittee on making best use of limited dollars to achieve shared goals of greater energy efficiency while preserving a major economic force for the US economy is essential.

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ⁱ Bochenek, Grace. US Army Tank Automotive Research Development and Engineering Center, 2010.

ⁱⁱ Link, Albert N. Retrospective Benefit-Cost Evaluation of U.S. DOE Vehicle Combustion Engine R&D Investments, Department of Economics, University of North Carolina at Greensboro; May 2010.



TESTIMONY OF
BRIAN P. WYNNE, PRESIDENT
OF THE
ELECTRIC DRIVE TRANSPORTATION ASSOCIATION
SUBMITTED TO THE
ENERGY AND WATER DEVELOPMENT APPROPRIATIONS SUBCOMMITTEE
OF THE
HOUSE APPROPRIATIONS COMMITTEE

APRIL 15, 2011

The Electric Drive Transportation Association (EDTA) is the cross-industry trade association promoting the advancement of electric drive technology and electrified transportation and we are writing regarding the FY12 request for the Department of Energy's Vehicle Technologies and other electric drive programs.

Our members include vehicle manufacturers, battery and component manufacturers, utilities and energy companies, and smart grid and charging infrastructure developers. We are committed to realizing the economic, national security, and environmental benefits of displacing oil with battery electric, hybrid, plug-in hybrid and fuel cell vehicles.

Electric drive vehicles, from mild hybrids to full electrics are being introduced into the market place in passenger cars; commercial trucks, neighborhood electric vehicles, buses; tractors and ground support equipment and are poised to advance to commercial scale. As the uncertainties roiling the global oil market are spiking the cost of gasoline, as well as consumer goods in the United States, it is more important than ever to push forward in our concerted efforts to increase electrification and reduce dependence on imported energy.

The Department of Energy, working with the electric drive industry and other stakeholders, is helping to accelerate technology breakthroughs, promoting investment in manufacturing capacity and speeding deployment of electric drive vehicles and infrastructure.

The Department's Vehicle Technologies program promotes government/ industry partnerships and leverages private sector investments to accelerate technologies that serve our national energy goals. Specifically, we support the Department's efforts to advance energy storage technologies and the Administration's request for the Batteries and Electric Drive Technology program, which will develop next generation battery technologies that increase performance and bring down costs. We further support the proposed level for Vehicle and Systems Simulation & Testing programs, including the Advanced Vehicle Testing Activity (AVTA), which are advancing next generation charging, systems integration and codes and standard for vehicle to grid communication.

The Vehicle Technologies program is also home to important work in reducing the cost and expanding the abilities of medium and heavy duty electric drive trucks. Recognizing their enormous potential to transform the commercial fleet and reduce oil consumption in that transportation segment, we ask that the committee direct sufficient resources toward program activities that advance electrification of medium and heavy duty vehicles, including work with industry partners to reduce component costs and further enhance performance.

Another key focus for Department of Energy advanced vehicle technology efforts is fuel cell electric vehicles, which are important zero emission/zero petroleum options that will be integral to meeting national goals for energy security and reduced emissions. The industry is meeting aggressive cost, performance and deployment milestones as it pushes toward commercialization in 2015. A meaningful partnership with the federal research and development community through the Hydrogen Technologies Program is critical to keeping that timeframe.

We believe the FY12 budget for Hydrogen should maintain the Department's commitment to hydrogen and fuel cell research, providing an expanded emphasis on programs that reinforce the vehicle commercialization effort. Specifically, we ask that funding for fuel cell electric vehicle and infrastructure deployment activities in Technology Validation and in early market development, including education and other enabling activities, be provided at levels sufficient to enable the industry to build on technology and market achievements to meet the 2015 target.

Finally, we strongly support the Vehicle Technologies Deployment programs, including Clean Cities' mission of advancing the nation's and energy security by reinforcing communities' own efforts to expand deployment of electric drive vehicles (battery electric, hybrid and fuel cell electric vehicles), other alternative fuel vehicles and recharging/fueling infrastructure. We are pleased that Department's FY12 budget requests an expansion of these partnerships and supports additional resources for communities deploying electric drive vehicles and recharging infrastructure.

Recognizing significant budgetary constraints that the Committee faces, we respectfully request that the Committee make the wise investment of resources in the Department of Energy's electric drive programs that will enable the Department to continue to be an effective partner in accelerating the achievement of a secure and sustainable transportation sector.

We thank you for your consideration.

Gas Technology Institute**1700 S. Mt. Prospect Rd. Des Plaines, IL**Washington office contact information: Daniel S. LeFevers, Executive Director, Washington Operations
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**Submitted to the Appropriations Subcommittee on Energy and Water Development
Addressing the United States Department of Energy**

GTI welcomes the opportunity to provide comments to the Appropriations Subcommittee on Energy and Water Development

Gas Technology Institute (GTI) is an independent not-for-profit organization serving research, development, and training needs of the natural gas industry, gas consumers, and energy markets. Most of the 250-person GTI staff is based at GTI's headquarters located on an 18-acre campus in Des Plaines, Illinois. Over 70% of our personnel are technically trained engineers and scientists. GTI has over 280,000 square feet of office, laboratory, shop, library, and training space with over 110,000 square feet devoted to laboratory, fabrication and testing facilities. GTI currently manages approximately \$60 million in research and development contracts per year (over 100 projects), and has been managing contracts of this type since the 1940's. GTI performs contract Research and Development (R&D) for the United States Department of Energy and is very familiar with many of its programs.

NATURAL GAS

New opportunities for the production of natural gas in the U.S. will provide a jobs and economic boom to many parts of our nation over the next ten years. In the last year alone Pennsylvania has created 44,000 new jobs and their residents have received over \$389 million in lease payments from private companies for the right to explore natural gas trapped in shale formations. By 2020, 211,000 new jobs are expected to be created in Pennsylvania and lease payments over \$1.9 billion¹ to be paid.

To assist in accomplishing the goals of energy independence, reducing emissions and creating hundreds of thousands of new jobs, the Congress and Executive branch should provide similar attention and resources to the development and deployment of natural gas technologies as are provided to other energy sources. Today, the USDOE spends billions of R&D dollars on wind, solar, coal and more efficient electric technologies. These are all important efforts, however, when reviewing the agency's **entire R&D budget**, less than 1% is spent on natural gas R&D even though natural gas represents 25% of our nation's primary energy use and that is expected to grow over the next several decades and natural gas provides compelling public benefits in terms of domestic economic growth, improved energy security, source energy efficiency, and reduced carbon dioxide emissions.

USDOE R&D FUNDING

For R&D related to natural gas, a review of the **combined budgets of EERE and Fossil programs** alone, show that in 2010, the U.S. Government provided an estimated \$80 million (3.5%), out of an almost \$2.3 billion dollar total. It is clear that if the U.S. wants to support an expanded role for clean burning natural gas, leading to improved energy independence, energy efficiency, job creation and reduced emissions, scarce R&D dollars should be, in part, focused on natural gas. These new natural gas technologies could be utilized in all energy sectors including homes, businesses, manufacturing, power generation and transportation; as well as to enhance reliability and safety of the natural gas production and delivery system.

¹<http://marcelluscoalition.org/wp-content/uploads/2010/05/PA-Marcellus-Updated-Economic-Impacts-5.24.10.3.pdf>

Natural gas R&D funding information and observations (Increase funding for Natural gas R&D)

1. The \$100M Industrial Technology Program (ITP) continues to be only program at USDOE that focuses a portion of their budget on developing new more efficient technologies for manufacturing. Many of these technologies will be powered by natural gas.
2. Approximately 60% of the \$673M2010 Fossil Energy budget for research and development was appropriated for coal while only 2.5% was directed to natural gas.
3. During 2010, Coal accounted for 22% of the country's primary energy use while natural gas represented 25% of the country's primary energy use. It would be fair and prudent to spend comparable R&D funding for natural gas.²
4. The ARRA spending stimulus provided \$3.4B dollars to the Fossil Energy Program. All was spent on coal.
5. The approximately \$200M Buildings Program at EERE has no specific program to support natural gas technologies for homes and businesses even though approximately 70,000,000 US homes and businesses use natural gas.³
6. Currently natural gas vehicle (NGV) R&D at USDOE is \$5M. Electric vehicle R&D is approximately \$128M.
7. The Office of Electricity and Energy Reliability only funds R&D programs for the Electric Grid, not the entire energy delivery system, thus discounting the importance of our nation's gas pipeline infrastructure which currently supplies 21% of US electricity.
8. No money within the Renewable program is directed towards the development of technologies to produce renewable natural gas (RNG) from livestock manure, landfills, wastewater treatment, or woody-bio-mass even though RNG may offer the most efficient means to deliver non wind or solar renewables to energy consumers.

The current proposed USDOE budget by the Administration provides no funding or R&D program direction for natural gas vehicles, efficiency improvements for natural gas power generation or home appliances, efficiency for natural gas commercial cooking, natural gas carbon capture, renewable natural gas technology or development of hybrid solar natural gas technologies.

Following are recommendations that begin to address the lack of natural gas R&D at USDOE. Within some of the recommendations are suggested resource amounts. GTI suggests these amounts as part of whatever allocated dollars are agreed upon between the Congress and the Administration. We are not suggesting new money – just a reasonable and prudent refocus supporting an equitable approach for natural gas R&D.

Residential homes and commercial buildings consume over 40 Quadrillion Btu's (or Quads) of energy. Developing building technologies that utilize the least amount of total energy; provide similar performance as existing technologies and take advantage of renewable opportunities can ensure the most efficient use of important domestic energy resources such as natural gas.

Natural gas is an important domestic energy resource, with nearly all of U.S. demand for natural gas coming from North America and 52% of all U.S. homes utilizing natural gas for space/hot 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 clean manner ensuring the maximum benefit of existing and future supply.

²<http://www.eia.gov/oiaf/aeo/tablebrowser/#?release=AEO2011&subject=0-AEO2011&table=2-AEO2011®ion=1-0&cases=ref2011-d120810c>

³A.G.A. "Gas Facts: with 2008 Data", Tables 8-2 and 8-3.

BUILDINGS PROGRAM

The natural gas industry, manufacturers and R&D performers will identify and capture financial support for this effort with 20% to 40% co-funding expected, depending on the type of R&D performed.

We recommend natural gas efficiency R&D within the U.S. Department of Energy's Buildings Technology Program of \$12M. This is a very small request relative to their overall 2010 budget which was over \$200M, and this request is supported by the American Gas Association (AGA) and numerous gas utilities and other gas related trade associations.

Specific program initiatives include:

- Space Conditioning and Water Heating Efficiency and Operational Improvements \$2.9M
 - Advance energy efficient technologies and systems for space and water heating in existing single and multi-family residential buildings and the light-commercial sector
 - Improve efficiency and reduce cost of highly efficient condensing gas furnaces and boilers that are poised for wider market adoption
 - Optimize strategies and technologies for the control of humidity and indoor air quality in conjunction with gas-based space heating and cooling systems
 - Reduce first costs of emerging tankless and storage type water heaters by at least 20%, while achieving efficiencies of over 80% for non-condensing and 90% for condensing type units
 - Develop a combination space/water heating system with improved efficiency and reduced first cost to be used in residential, multi-unit and commercial buildings
- Building Systems and Community Energy System Technologies \$2.6M
 - Develop approaches for optimized integration of gas systems with the evolving Smart Energy Grid providing consumers new option for energy management, comfort control and communication with energy providers
 - Perform advanced energy efficiency and carbon emission analysis utilizing full fuel cycle protocol, develop new scientific data and tools to support lowering overall energy use and carbon emissions in homes and buildings
 - Improve the efficiency and flexibility of operation of gas-based equipment when used in combination with emerging building technologies, new communications systems and other energy systems
- Breakthrough Technology Development \$2.1M
 - Develop catalytic and other approaches for carbon management (e.g., formation, reduction, capture, conversion storage) of specific combustion byproducts like carbon dioxide or carbon monoxide.
 - Support basic combustion research to improve efficiency, reduce pollutant formation, increase heat transfer to improve the operation of gas-based energy systems
 - Develop energy system that consumes natural gas, produces electricity, and creates an additional value or product
 - Perform hydrogen enrichment mixtures to reduce carbon emissions from gas equipment – (a carbon mitigating approach may be to provide a percentage of hydrogen through the natural gas pipeline system)
- Development of higher-efficiency commercial food service equipment \$1.6M
 - Develop new cooking equipment designed to improve the currently very low efficiency for natural gas cooking equipment
 - Reduce combustion related emissions from gas-fueled residential and commercial cooking equipment

- Improve the performance and reduce the cost of critical heat transfer components in residential and commercial cooking equipment
- **Solar/Natural Gas Hybrid Systems \$2.8M**
 - Develop solar thermal-natural gas hybrid technology and products that cost-effectively generate heat, hot water, and steam, and thermally driven cooling – reducing carbon emissions and the use of fossil fuels
 - Improve storage and integration of lower temperature thermal heat (solar) with higher temperature natural gas heat system
 - Integrate concentrated solar with natural gas energy systems

INDUSTRIAL TECHNOLOGY PROGRAM (ITP)

Within the Industrial Technology Program, we are concerned of the new focus proposed in the Presidents FY 2012 budget proposal. This new focus of R&D support for manufacturing of advanced materials discounts the 20 years of stakeholder involvement by the steel, glass, aluminum, heat treating food processing, and other energy intensive industries that have worked with the Industrial Technology Program to develop new processes and other means to reduce energy consumption and improve manufacturing technologies. Many of these stakeholders have already voiced their concerns to members of Congress and the USDOE.

GTI suggests that a good guide for ensuring that the ITP addresses the R&D needs of energy intensive manufacturing industries can be found in Section 452 of the “Energy Independence and Security Act of 2007”. We are not suggesting the specific funding outlined in that section, but rather the language regarding the scope and focus of the ITP presented in Section 452 titled “Energy Intensive Industries Program”.

We also recommend specifically that ITP include a focus on waste heat recovery, and combined heat and power.

- Gas Heat Pump Technology (Combined Heat and Power)
- Micro Combined Heat and Power Production Development (Combined Heat and Power)
- CHP efficiency and carbon reduction improvements (Combined Heat and Power)

VEHICLE TECHNOLOGIES

As mentioned earlier the President’s budget request for USDOE in 2012 provided no funding for natural gas vehicle R&D even though the request for the overall budget for the vehicle programs was \$588M. GTI proposes a budget of \$30M for natural gas vehicle R&D. This request is supported by AGA, numerous gas utilities and NGV America.

Specific program initiatives include:

- Development of new engines to meet a wider range of applications
- Integrating natural gas engines into additional medium and heavy duty vehicle platforms such as buses, trash trucks, delivery trucks and over-the-road trucks as well as marine and off-road applications
- Develop new natural gas hybrid-electric platforms
- Reduce cost and weight of compressed and liquefied natural gas storage systems

Renewables – Ensure that some portion of the Renewables program area can support the demonstration of a renewable natural gas production facility utilizing gasification to produce pipeline quality gas from woody-biomass. (Excellent efficiency – low emissions)

Fossil – Currently there is no funding for natural gas and the president’s USDOE Fossil Energy R&D budget request of \$453M is directed for coal carbon capture and sequestration. Program direction would be welcome for improving efficiency of natural gas power generation, natural gas exploration and production R&D to address environmental concerns, and natural gas power generation carbon capture.

Office of Electricity and Energy Reliability – Currently, all funding is focused on the electric grid. The President’s proposed budget of \$238M should also deliver programs to address the synergies of our nation’s pipeline infrastructure in relationship to electric grid reliability. The nation’s pipeline delivery infrastructure is critical to energy reliability and the smart communication and integration with our electric grid is paramount for reliable, low cost energy delivery now and in the future.

SECTION 999 /THE RESEARCH PARTNERSHIP TO SECURE ENERGY FOR AMERICA (RPSEA)

In 2005, as part of the Energy Policy Act, (Section 999) funding was directed from the nation’s Oil and Gas Royalty Trust Fund to create a program that would focus on unconventional natural gas exploration and production R&D and on deep-water fossil fuel extraction R&D. The program was designed to provide \$12.5 million to the National Energy Technology Laboratory (NETL) and \$37.5 million to a non-profit whose sole purpose was to manage and guide an energy R&D program as described above. This total of \$50 million annually is directed spending.

RPSEA was eventually chosen by USDOE to manage the \$37.5 million dollar R&D program. Today RPSEA continues to manage \$37.5 million of the program and provides a resource plan to USDOE annually for the execution of the funding.

RPSEA disseminates RFP’s once USDOE approves its annual plan and a majority of the funding supports work performed by universities and non-profits like GTI. The most recent annual plan delivered by RPSEA centers on performing environmentally focused R&D for shale gas and deep-water fossil fuel exploration. RPSEA stands ready to assist the nation in better understanding and addressing the environmental issues related to shale gas and deep-water fossil fuel exploration and production.

Congress should continue support for Section 999, (which funds RPSEA) at current or increased levels.

1. RPSEA continues to be a model of Private/Public R&D partnerships focused on delivering new technology and analysis.
2. RPSEA is developing environmental and process solutions for shale gas and deep-water fossil energy exploration.
3. Natural gas R&D funding in the 1980’s and 1990’s supported by the natural gas industry and the Federal government helped to make possible the current and growing production of natural gas from shale formations, and contributed to the technological breakthroughs that reversed a 40-year decline in domestic oil production.⁴⁵
4. RPSEA, while having considerable less financial resources than the R&D programs of the 80’s and 90’s, can help continue the development of breakthrough technologies and processes to improve and enhance natural gas exploration and production.

⁴<http://www.whitehouse.gov/sites/default/files/microsites/ostp/pcast-energy-tech-report.pdf>

⁵<http://miperry.blogspot.com/2010/12/us-oil-and-gas-reserves-increased.html> and http://www.eia.doe.gov/emeu/mer/pdf/pages/sec3_3.pdf

April 14, 2011

The Honorable Rodney P. Frelinghuysen
Chairman
House Energy and Water Subcommittee
2369 Rayburn House Office Building
Washington, DC 20515

Chairman Frelinghuysen:

I am writing to bring to your attention and request funding for a very important on-going effort for the constituents of Central New Jersey. Given the US Army Corps longtime support and work on the **Raritan River Sub-Basin, New Jersey**, project (also known as the Green Brook Flood Control Project), I respectfully request that you recommend \$15 million from the U.S. Army Corps of Engineers, Flood Restoration Account in the FY12. The request mirrors the shovel-ready capability expressed by the Army Corps of Engineers in FY 12 for this project.

These funds will be put to immediate use for construction of segment B2 and design of Segment B3 in Middlesex County, New Jersey. As you know from your previous support of this effort, completion of this portion of the project will protect the town from additional flooding and enable the vital economic development that has been on hold to proceed. In addition, these funds will also build upon and protect the \$100+ million of federal, state, and local resources previously committed towards this project.

I am mindful of the many demands for limited resources and am most grateful for your continued active support of making this request, and this most needed project, a priority. As the federal government looks to maximize limited dollars, the Raritan River Sub-Basin is an on-going successful effort where dollars are put to use immediately.

I thank you for your previous efforts to ensure the taxpayers of central New Jersey finally receive the flood protection they have sought for so long.

Sincerely,

Ted Bassman
Chairman, Green Brook Flood Control Commission

**Written Statement Submitted to the House Committee on Appropriations
Subcommittee on Energy and Water Development Appropriations
Testimony on the FY 2012 Budget Request for the Department of Energy, Fossil Energy Program
Submitted by Ben Yamagata, Executive Director
Coal Utilization Research Council (CURC)**

Introduction:

This statement is submitted on behalf of the membership of the Coal Utilization Research Council (CURC), an organization of coal-using utilities, coal producers, equipment suppliers, universities and institutions of higher learning, and several state government entities interested and involved in the use of coal resources and the development of coal-based technologies.¹ Members of CURC have developed, together with the Electric Power Research Institute (EPRI), a Technology Roadmap that defines a research, development and demonstration (RD&D) program that focuses upon the rapid development of cost-effective advanced coal and CCS technologies (www.coal.org). The recommendations discussed in this testimony are keyed off the CURC-EPRI roadmap.

Importance of the Department's Fossil Energy Research and Development Program:

The President recently announced his intent to launch a program aimed at achieving domestic energy security by increasing the production of America's domestic energy resources, and by producing them in a manner consistent with responsible stewardship of the environment. In order to fuel our recovering economy and ensure jobs are created, coal must be a part of the President's program. In turn, the Department's Fossil Energy RD&D program is fundamental to ensuring coal will play a vital role in our nation's energy future.

The Department's coal RD&D program seeks to develop more efficient and cleaner advanced coal technologies, including technologies to capture and store CO₂ emissions from the use of coal. The Department's program has a proven track record of partnering with industry to overcome the challenges of using coal and controlling its emissions. The proof of this successful partnership is evidenced by the fact that – since the inception of the Clean Air Act in 1970 – the use of coal in this country has increased by more than 200% while the emissions of criteria pollutants has decreased by an average of 88%. This success is largely attributable to our Nation's continuing investments in the RD&D of clean coal technologies.

Similarly, the actual tons of coal used in the U.S. are expected to increase over the next several decades. The challenge is to accompany these increases in coal use with the development of technologies to address environmental concerns at lower and lower overall costs. Successful technology investments will enable the nation to continue to reap the economic and energy security benefits associated with use of our most abundant domestic fossil fuel resource in a manner that is respectful of the environment. It also means that the U.S. will retain technology leadership in the use of coal and this can mean exporting products, growing jobs and assuring that developing economies that use coal will have access to technologies that assure a low carbon and overall environmental footprint.

Comments on Significant Issues Related to the FY 2012 Budget Request:

The programs administered and supported through the Department's Fossil Energy office have been distinguished by efforts to foster partnerships with industry RD&D efforts, as well as a broad spectrum of university research organizations. These programs between industry, government and the academic community have enabled participants to actively engage in each part of the technology development chain from basic research to applied research and development, and culminating in large-scale technology demonstrations and early commercial deployment. During the past several years, a principal focus of the DOE's coal R&D program has been the capture

¹ Several members of CURC are not-for-profit organizations designated as such for federal tax law purposes. Such organizations are prohibited in whole or in part from undertaking advocacy activities with respect to federal government appropriations. This written statement could be construed as such an activity. Membership contributions made to CURC by these organizations are not used for these advocacy purposes; rather such contributions are utilized to undertake analyses and other educational activities as provided by CURC.

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and storage of carbon dioxide. CURC members have participated in the DOE CCS related activity, and will continue to support that RD&D. However, the nation faces additional energy and environmental challenges which would also be amenable to collaborative coal-related RD&D by government and the private sector, and these challenges may be more immediate than the climate challenge. We recommend greater balance between support for CCS-related activities and other coal-related RD&D, as set forth below.

Specific Recommendations:

The Energy Information Administration (EIA) projects that coal will continue to provide over 40% of our nation's electricity in 2035. And yet, despite the enormous contributions that the Department's Fossil Energy program has made to the development and successful commercialization of clean coal technologies, the President's FY 2012 budget recommends a 30% decrease in funding from FY 2010 levels. Understanding the shared desire to constrain discretionary spending, we believe that it would be counterproductive to reduce federal investment which results in lower cost electricity and increased competitiveness of American goods. At a minimum, CURC recommends that the budget be maintained at the FY 2010 level of \$400 million for the coal R&D program, and that additional resources be appropriated to put us in a position to conduct second generation technology demonstrations by 2016.

DOE Proposal to Restructure the Coal RD&D Program

CURC believes that the proposed restructuring of the DOE coal RD&D program provides more transparency on the types of activities that are under the portfolio of each program area, and provides specific recommendations on those programs as proposed under the FY 2012 budget restructuring:

Demonstrations

- **Clean Coal Power Initiative (CCPI):** For the third consecutive year, the Administration did not request funding for large-scale demonstrations of advanced coal technology on the basis of funding provided by the Recovery Act for CCPI Round 3. As with other new and emerging technologies supported by the Department, support cannot be discontinued with this limited number of demonstration projects. A sustained and expanded demonstration program is integral to the commercialization of advanced coal and CCS technologies. In its proposed program plan, the Department suggests that CCPI Round IV must be initiated in 2016 if the programmatic goal of demonstrating 2nd generation technologies by 2020 is to be achieved. Incremental funding for the CCPI IV program must be provided in the FY 2012 budget, and each year thereafter, in order to initiate a CCPI Round 4 program in 2016.
- **FutureGen:** Funding for FutureGen has been made available through the Recovery Act. CURC reiterates its support for this project as an important and necessary step in the demonstration of an integrated CCS system. This type of government supported project is vital to make CCS a commercial reality.

Power Systems R&D:

Carbon Storage.

CURC recommends an increase of \$10 million over the President's request for a total of \$125.5 million. This increase corresponds with the funding recommended in the CURC-EPRI roadmap and will allow for the Phase III Regional Carbon Sequestration Partnership tests to proceed as planned, and will allow a reasonably robust set of projects to be selected in the current small-scale-test funding opportunity announcement. The program should emphasize beneficial use of carbon dioxide for hydrocarbon recovery to accelerate the development of the infrastructure needed to permit full scale deployment of CCS in the future.

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Advanced Energy Systems

1. **Advanced Combustion Systems.** This program should support development of technologies that increase the efficiency of coal conversion to energy and contribute to reducing the costs of carbon capture from combustion-based power generation, for both new and existing steam power plants. CURC recommends that the budget be increased by \$20 million (for a total of \$30.7 million) in FY 2012 as follows:
 - Restore the materials budget for ultra supercritical (USC - high temperature and pressure) boilers/steam turbines back to \$5 million. Without an increase, this program will be phased out and there will be no path forward towards a highly efficient, USC demonstration plant in the U.S. Without DOE completing this program, the US will lag behind India, China, and Japan on technology and competitiveness.
 - Add \$5 million for efficiency and heat rate improvements (beyond just higher steam temperature conditions) for both existing and advanced plants. Efficiency improvements are a fundamental step towards zero emission power and contribute towards reduced conventional emissions, reduced CO₂ emissions, and lower cost CO₂ capture systems.
 - Increase the Advanced Combustion Systems budget for oxy-firing systems by \$10 million. The proposed FY 2012 budget is well below the CURC-EPRI Roadmap and inadequate to fund both continuing oxy-fired projects plus a new funding opportunity that will focus on second-generation oxy-fired technologies.

2. **Gasification Systems.**² DOE studies have shown that integrated gasification combined cycle (IGCC) with carbon capture has the potential to achieve a cost of electricity at parity with current new coal generation without CCS. Achieving this goal requires (1) technology improvements that reduce the parasitic losses of carbon capture, (2) reduction of IGCC base cost through advanced modeling and construction techniques and (3) increasing gasifier availability to 90%. The proposed FY 2012 budget reduction will add years and uncertainty to the schedules for validation and commercial availability of currently identified improvements, and it does not provide funding for new solicitations needed to advance technology innovations. CURC recommends that the FY 2012 gasification systems budget be increased by \$26 million, for a funding total of \$64.9 million, to support new RD&D opportunities that improve gasifier availability (\$10 million); achieve major cost reductions (\$10 million); and improve cost and performance for gasification-based coal conversion to chemicals and fuels (\$6 million).

3. **Advanced Turbines.** CURC recommends that the Advanced Turbine program be increased by \$17.4 million for a total of \$32 million. The Department has been partnering with industry to develop the latest generation of advanced gas turbines (the "G" and "H" class of turbines), but these turbines are not yet ready to meet the demands of IGCC plants with high levels of CO₂ capture. Reduced funding in the last few years has delayed progress and jeopardized DOE's goal of developing advanced turbines capable of improving the total efficiency of an IGCC plant by 5 percentage points by 2015. The proposed reductions to the turbine budget will lead to an even more significant delay in meeting the 2015 targets. These gas turbine technologies will be at risk of not being ready for the next CCPI demonstration program opportunity; thereby, extending the availability of critical technologies to help lower the cost of IGCC well into the next decade.

² It is also important to note that advances in this area not only support advanced IGCC but support all gasification programs in general, including industrial gasification, biomass gasification, hydrogen and fertilizer production, SNG, and coal-to-liquids programs and to these ends this program should encompass the concept of advanced gasification technology.

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4. **Fuels.** Although the President's budget proposes to cut this program, CURC recommends the addition of \$20 million to continue coal conversion RD&D under the Fuels program. In 2008, we spent \$388 billion on imported petroleum products, or 57% of our balance-of-trade deficit. Production of liquid transportation fuels from 60% coal and 40% biomass could provide 3 million barrels per day of gasoline equivalent by 2020. This program would create new jobs through increased coal production, operating coal-to-liquid plants in widely dispersed geographic locations, and bolster our national, energy, and economic security through producing indigenous fuels. Coal plus biomass fuels meet the requirements of the Energy Policy Act of 2007 and have been shown to be net carbon sinks regarding carbon emissions. Funding should be directed toward simulation modeling and pilot plant testing on eastern, mid-content, and western coals, biomass characterization and feeding, and transformational research to reduce the energy penalty costs of conversion processes and plant capital costs which are currently a deterrent to implementation coal to liquids technologies.

Carbon Capture:

1. **Post-Combustion Capture.** CURC agrees with the Administration's request for FY 2012 of \$55.5 million for this program. However, funding should also target concepts at pilot scale as well as lab scale. In this program, DOE should also consider the development of technologies that (1) capitalize on the use of hardware being installed or planned for other uses at existing facilities and (2) that seek to co-benefit emission reductions that may achieve capture levels of less than 90% from flue gas streams. Technologies that have the ability to achieve incremental reductions at lower costs of electricity should be considered as part of the broader CCS goals of the DOE program.
2. **Pre-Combustion Capture.** CURC agrees with the Administration's request for FY 2012 of \$13.4 million for this program. Likewise for pre-combustion capture, funding should be robust and target concepts at pilot scale as well as lab-scale.

Cross Cutting Research.

CURC recommends that funding for the Cross Cutting Research program be increased by \$15.4 million (for a total of \$54.15 million) to support the following activities that will develop the next generation of advanced coal plants: (1) increase the budget for high performance materials research from \$0.973 to \$5 million in order to support development of new high temperature and pressure materials that will allow coal plants to generate electricity much more efficiently and therefore reduce overall emissions of both criteria pollutants and greenhouse gas emissions; (2) increase funding for university coal research from \$2.4 to 4.8 million to ensure there is a foundation for innovation with our university partners in developing advanced coal technologies; and (3) provide \$5 million in funding for a water management research program to develop technologies that reduce water consumption for power plant cooling.

The new emphasis upon computational modeling in the DOE program is conceptually attractive as a means to evaluate different concepts that are being developed in the coal research program, and could be useful in moving those technologies from basic research into scalable component technologies. Modeling is also useful in directing attention to targeted areas where further engineering research is needed to solve operational problems. While modeling may be successful in reducing the amount of time and funding required to develop, demonstrate and deploy technology, modeling simply cannot replace practical applications and demonstrations of the technology. Members of CURC do not believe that modeling and simulation programs should serve as surrogates in lieu of demonstrations at any scale that provide real operating results. CURC is supportive of efforts to fund the development of computational models if the budget is robust enough to fund all of the priorities identified in this

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testimony, but CURC does not believe funding should be provided at the expense of funding other R&D and demonstration activities.

Title XVII Loan Guarantee Program

The DOE loan guarantee program is one of several important tools that act to reduce the large cost penalty associated with the installation of first-of-a-kind (FOAK) advanced coal systems with CCS. Other tools, such as the Department's CCPI demonstration program, as well as investment tax incentives and CO₂ sequestration credits, are also necessary and equally as important, as these financial assistance programs (1) must in some cases be used in combination in order to bring down the cost of first of a kind projects and/or (2) provide different value to different business models, and therefore some tools may be used over others for specific projects and entities. CURC recommends that additional authority for fossil energy projects be provided in the FY 2012 budget to ensure this tool is available to support the deployment of new fossil-based projects.

April 14, 2011



Subcommittee on Energy and Water Development, and Related Agencies
Fiscal Year 2012

Testimony of Dr. Wayne A. Eckerle,
Vice President – Research and Technology
Cummins Inc.

Cummins Inc., headquartered in Columbus, Indiana, is a corporation of complementary business units that design, manufacture, distribute and service engines and related technologies, including fuel systems, controls, air handling, filtration, emission solutions and electrical power generation systems. The funding requests outlined below are critically important to Cummins' research and development efforts, and would also represent a sound federal investment towards a cleaner environment and improved energy efficiency for our nation. We request that the Committee fund the programs as identified below.

Department of Energy
Office of Energy Efficiency and Renewable Energy

1. Office of Vehicle Technologies:

Advanced Combustion Engine R&D: Increase the request of \$49.0M by \$20M to bring the program total to \$69M in FY2012. \$56M was appropriated in FY2010. Two important areas of research included in the Advanced Combustion Engine R&D are: 1) the development of more energy efficient technologies for diesel and gas engines, which will contribute to petroleum use reduction and 2) the development of robust engineering design tools for large scale computational combustion analysis to develop cost effective and efficient combustion engines.

Light duty trucks continue to be a large segment of the surface transportation fleet. The Department of Energy launched the Advanced Power Train (APT)-light duty (LD) initiative to reduce fuel consumption in this sector. The goal of the APT- LD program is to deliver cost competitive technologies for a standard light duty pickup truck which can achieve at least a 40 percent improvement in fuel economy over the state-of-the-art gasoline engines while meeting Tier 2 Bin 2 tailpipe emissions (the same emissions standard required for gasoline powered vehicles). Class 2a trucks consume nearly 3.9M oil barrels/day of petroleum fuel. A fuel efficiency enhancement of 40 percent can reduce petroleum consumption by 1.5M oil barrels/day. This enhancement will provide energy security by lowering petroleum imports, GHG emissions and the trade deficit. Innovative high risk technologies, such as low temperature combustion, variable valve actuation and closed loop selective catalytic reduction (SCR) controls are planned under this project. The funding increase will address significant technology hurdles in the areas of on-board diagnostics, parasitic loss reduction, after-treatment requirements and the use of renewable fuels.

Without the increased funding, research activities would be significantly limited. We understand the President's budget would provide \$10M in funding for the APT-LD program. We believe \$15M is needed in this area to adequately cover all research and development activities.

Advanced Computing, a large scale computational simulation initiative, is targeted at achieving cost effective means for even greater fuel efficiency; 60 percent thermal efficiency engines. Models will be developed for advanced chemical kinetics, computational fluid dynamics (CFD) and large eddy simulations. These models will simulate advanced combustion regimes, transient events and cycle to cycle variability. Development of better solver algorithms will minimize cycle to cycle variations and more rapid optimization of overall engine.

These projects are in line with the Administrations investment in clean energy technologies to reduce dependence on foreign oil. We understand the DoE intends to allocate \$15M out of the Advanced Combustion Engine budget to fund Advanced Computing. We support this allocation. However, adequate funds do not exist with Advanced Combustion Engine to cover this activity. Therefore, we are requesting an additional \$15M in funding to cover these important activities.

2. Office of Industrial Technologies Program (ITP):

Industries of the Future (Crosscutting)/Next Generation Manufacturing Processes, Combined Heat and Power Generation (CHP) - Advanced Reciprocating Engine Systems (ARES): The Combined Heat and Power Generation budget line includes the important Advanced Reciprocating Engine Systems (ARES) program funded at approximately \$10M in FY2012. We request that ARES program funding be increased by \$3M to \$13M in FY2012. The ARES program is an important component of distributed generation and has applications in Combined Heat and Power (CHP). The objective of this industry cost shared program is to develop high efficiency, low emissions and cost effective technologies for stationary engine systems (500-6500 kW) that can use natural gas or domestic renewable resources "opportunity" fuels. Natural gas-fueled reciprocating engine power plants are preferred for point of use power generation, low operating costs and reliability. Opportunity fuels can be renewable fuels (e.g. land fill gases) which exhibit low BTU, lower methane number and varying gas composition. Their use reduces the dependence on high quality pipe-line natural gas. Technologies sponsored by the ARES program have demonstrated 47% engine efficiency (a 20-40 % increase from the baseline engines), higher power densities than current products, with an expected reduction in life cycle costs and green house gas emissions. Recent technology advances include advanced ignition systems, analytical tools for optimum combustion and prediction of onset of knock in a field test generator set. The funding increase in FY2012 budget will support advanced technology challenges including combustion enhancements with low BTU and methane gases, nitrogen oxides (NOx) reductions, advanced sensors and controls, hardware durability and lower life cycle costs. The development of distributed power generation supports national energy security needs, improves protection of critical infrastructure and decreases dependence on the national electrical grid system through point of use energy production.

Industries of the Future (Crosscutting)/Next Generation Manufacturing Processes, Combined Heat and Power Generation (CHP)

Support the request of \$25M in FY2012. \$24.7M was appropriated in FY2010. This project is to develop a flexible CHP system that can be deployed to commercial and light industrial (100-500kWe) applications at a lower total cost of ownership than current CHP solutions. This project will result in a CHP system that is easy to use and inexpensive to install, offering world class customer support while providing the lowest-emissions internal combustion engine for a CHP system of this size. CHP systems offer higher system energy-efficiency, lower emissions and economic benefits. Combined heat and power systems use an internal combustion engine to produce electricity at point of use and recover waste heat for heating or cooling purposes. Energy intensity of the CHP customer can be reduced in excess of 35% due primarily to more efficient electrical generation and recovered waste heat. Modern engine designs operate with much lower regulated exhaust emissions and carbon dioxide. The FY2012 budget will support CHP performance modeling, cost effective package design, remote modeling, and CHP system integration. The project will result in a system that is easy to use and inexpensive to install, while providing the lowest-emissions internal combustion natural gas engine for a CHP system of this size.

Advanced Combustion Engines – Health Impacts: No funds were requested by the Administration for this program. We request an increase of \$2.0M to bring the program total to \$2.0M in FY2012. The objective of this program is to expand the knowledge base relating to the health implications of emissions technologies being developed to meet energy efficiency goals. The Advanced Collaborative Emissions Study (ACES) is funded under this program. The ACES program is a cooperative effort between government (DOE, EPA) and industry (EMA, MECA, API) to assess health effects of emissions from 2010 compliant heavy-duty engines. The ACES program will include emissions characterization, chronic exposure animal bioassays, and identification of any unanticipated emissions or health effects from new engine technologies. Continuous monitoring of air toxins and source apportionment techniques are also proposed.



Testimony: Stockton Port District, California, April 14, 2011.

House Subcommittee on Energy and Water Development.

Department/Agency: U.S. Department of the Army, Army Corps of Engineers (COE).

We wish to thank you for this opportunity to provide Congressional testimony by the Port of Stockton, CA on behalf of its appropriations requests. The Stockton Port District is a California public agency created by the California State Legislature. The Port is approaching its 80th year of operations.

The Port is located in the City of Stockton, CA, which has an unemployment rate over 21%, and nearly 18% for San Joaquin County (source: Feb. 2011 data, CA Employment Dept.). The Port is the economic portal for the San Joaquin Valley and beyond. It is considered by many to be the economic engine that generates jobs and income for the Central Valley and the region.

The Port suffered significantly during the economic downturn but it is recovering rapidly with strong growth and jobs creation. We have more than 1,200 acres available for development, which is almost unique among California ports. In CY 2010, the Port achieved a throughput of 3.83 million tons. With the introduction of iron ore exports in January 2011, we expect total throughput to double in the very near future and expect export tonnages to surpass import tonnages within 2 years. We are expanding our rail capacity right now and during the next fiscal year, starting on July 1, 2011, we will spend another \$1 million as well with a goal of being able to increase the throughput capacity of iron ore and coal unit trains from two per week to seven per week. This would equate to over 3 million tons per year and provide for an export gateway to Asia that is only available at few ports situated on the West Coast. For our bulk commodities, the availability of a year round authorized channel depth of 35' or deeper is a very critical factor. Currently our iron ore ships have to top off downstream in deeper channels before export to Asia. It is inefficient. Nevertheless, we are rapidly fulfilling the President's National Export Initiative.

The Port and its waterway are of national significance as a “Marine Highway” (M-580), a recent designation by the US Dept. of Transportation. This is one of eighteen marine highway corridors nationally. Additionally we are officially designated a “strategic corridor of the future” by the US Dept. of Transportation. The Port is also designated as a reserve facility by the US Dept. of Defense in time of need.

Logistically, the Port has direct access to two transcontinental rail lines. Direct rail-to-ship facilities exist at the Port which is nearly unique for California ports. We are within a mile of Interstate 5, which serves the entire West Coast, North to South.

We are highlighting and updating the three priority projects in our appropriations requests for your consideration.

1. The San Joaquin – Stockton Project is under the Operations & Maintenance Budget of the US Army Corps of Engineers. It is our most urgent and highest priority request. For the past several years, the COE has not been able to maintain the John F. Baldwin and Stockton Ship Channels to the federally authorized depth of 35’ on a year round basis. We have been restricted to 31’ – 33’ channel depths for many months and have been unable to do any dredging. This consistent problem stems from insufficient funding, unpredictable shoaling locations, and a very short dredging window. Unfortunately, our only dredging window closes just before the winter when storm flows create shoaling at unpredictable locations in the channels. This has impaired the efficient movement of commerce and sustained employment for the Port, its tenants, and the region.

We have requested the COE for maintenance dredging to 37’ plus 1’ overdraft to insure a year round controlling depth of 35.’ We believe the COE supports our case through its expressed budget capabilities to Congress. The Port is requesting \$12.5 million for FY 2012. The President’s FY 2012 budget contains only \$3.7 million for this project, which is not enough to assure a year round authorized depth. Bulk commodities vessels are very sensitive to any loss of authorized depth; shippers would incur several hundred thousand dollars of losses per vessel for each foot of channel depth blocked by shoaling.

2. The San Francisco Bay to Stockton Channel Deepening Project is in the Construction General Budget of the COE. This project would deepen the John F. Baldwin Channel to 45’ and the Stockton Ship Channel to 40.’ Our FY 2012 request is for \$2.5 million to keep pace with a State of California construction award of \$17.5 million towards the non-Federal share of the project. This State construction grant expires in CY 2013 if construction is not started. No funds are shown in the President’s Budget for FY 2012. This deepen marine highway project would significantly increase goods movement efficiencies, especially iron ore and

other bulk exports, increase employment in an area where unemployment rates are more than twice the national rate, and keep thousands of trucks off of congested roadways, especially I-880, I-80, I-580, and I-205. One ship utilizing the ship channel can take approximately 1300 trucks off of congested highways between the Central Valley and the San Francisco Bay Area. The economic and environmental benefits, especially in air quality, are very robust.

A preliminary economic analysis by the COE show a conservative National Economic Development (NED) average annual benefits of \$73.5 million for this project. Not all the commodity movements, especially CY 2011 iron ore exports, are included in this preliminary analysis. A very robust and positive benefit – cost ratio is expected once the NED costs are prepared. The Stockton Ship Channel is the primary access route for waterborne shipping from and into the Central Valley and beyond.

3. The Rough and Ready Island Storm Water Project would be in the Construction General Budget of the COE. This project would replace an obsolete storm water system and include drainage detention and lift facility on Rough and Ready Island. The project would also reduce environmental problems, increase flood protection, and create more usable land for development on the island. Rough and Ready Island is one of the State's last remaining large parcels of industrial property available for immediate development. \$3 million is requested and is authorized pursuant to the Water Resources Development Act of 2007, P.L. 110-114. The project can be constructed within a short time period and benefit employment in the immediate area experiencing a very high rate of unemployment.

We thank you for your consideration for the Port of Stockton requests.

Point of Contact: Richard Aschieris, Port Director, Port of Stockton, P.O. Box 2089, Stockton, CA, 95201. Business telephone: 209-946-0246.
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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)**

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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.

BRAZOS RIVER HARBOR NAVIGATION DISTRICT-FREEPORT, TEXAS

**HOUSE ENERGY AND WATER SUBCOMMITTEE
ON APPROPRIATIONS**

US ARMY CORPS OF ENGINEERS

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**We express full support of the inclusion in the FY'10 budget for the full capability of the USACE of..... \$775,000 – PED- (0 in budget)
(\$4,578,000 in budget) \$15,577,000 addl Capability – 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-Phillips 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 16th in foreign tonnage in the United States. It is responsible for augmenting the Nation's economy by over \$10.2 billion annually and generating over nearly 25,000 jobs in Texas, nearly 12,000 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, LNG, clothing, paper goods, resins and windmills while top export commodities are rice , chemicals, autos, clothing, resins , foods and paper goods . 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 began 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 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.

Cabett Subsea – Cabett Subsea, a division of Parker Hannifin Industries, is a manufacturer of fiber optic cable used in the offshore exploration industry. This is an attempt of the port to diversify its portfolio in attracting a sector of the energy industry. Very large cable laying vessels receive miles of continuous cable from this facility on a regular basis. There are about 150 jobs associated with the facility.

Reliance Bulk Carriers / Suzlon Wind Energy – Port Freeport recently signed a multi-year contract with this company, based in India. They import windmill components by ship to be dispatched to such far away places as Wyoming, Idaho, Oklahoma and throughout Texas. They presently occupy 15 acres of prime port property and are growing.

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

Dow Chemical — A diversified chemical company that offers a broad range of products and services to customers in more than 175 countries, helping them to provide everything from fresh water, food and pharmaceuticals to paints, packaging and personal care products. Dow has annual sales of \$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'12

We respectfully request that the full amount of the Corps capability for PED and O & M be included in the final budget.

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.

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
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**We express full support of the inclusion in the FY'10 budget for the full capability
of the USACE of..... \$7,368,000 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.

From the Executive Director of the Port:

All of the sugar grown in the Rio Grande Valley is exported exclusively via the Port of Harlingen, barged to NOLA for processing there. Due to the silting of the channel all of our barge shippers have had to reduce draft as much as 2 feet 6 inches, which is quite a bit. 90% of the fertilizer that is used in the valley by the various agricultural entities is imported via our port as well. The fertilizer barges could not come alongside the dock and had to moor at a 45 degree angle to the dock and start discharging. Once they offloaded sufficient cargo then the barge became light enough to come alongside the dock, this is unacceptable to the shippers and dangerous. Additionally, when the sugar barges are loaded, they hit the bottom of the channel prior to being completely loaded so they have to go out at a lighter draft. Silting of the channel has also reduced the amount of sand, aggregates and cement that we bring in to the port for projects throughout the greater Rio Grande Valley, i.e. road projects, construction, etc... resulting in higher consumer costs as the shippers are not able to bring in cargo at maximum draft.

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

The Port of Harlingen's sugar mill shipped 171,962 short tons of sugar to Louisiana in 2006-2007 and shipped 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'12

The Administration's FY'12 budget included no funds for O & M for the Port of Harlingen; 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 \$7,368,000 so that the port can move forward and ensure that the Gulf Intracoastal Waterway – Port of Harlingen receive essential maintenance dredging at the federally authorized depth.



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Submitted April 14, 2011 via email to EW.Approp@mail.house.gov

Caron Gala Biji
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Outside witness testimony in support of FY 2012 Appropriations for the Department of Energy's Office of Science.

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

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

The **American Society of Agronomy (ASA)**, **Crop Science Society of America (CSSA)**, and **Soil Science Society of America (SSSA)** are pleased to submit the following funding recommendations for the *Department of Energy* for FY 2012. For the *Office of Science*, ASA, CSSA, and SSSA recommend a funding level of \$5.4 billion.

With more than 10,000 members across all three societies and 14,000 certified practicing professionals in working in the field, ASA, CSSA, and SSSA are the largest life science professional societies in the United States (U.S.) dedicated to the agronomic, crop and soil sciences. ASA, CSSA, and SSSA play a major role in promoting progress in these sciences through the publication of quality journals and books, convening meetings and workshops, developing educational, training, and public information programs, providing scientific advice to inform public policy, and promoting ethical conduct among practitioners of agronomy and crop and soil sciences.

Department of Energy Office of Science

ASA, CSSA, and SSSA understand the challenges the House Energy and Water Development Appropriations Subcommittee faces with the tight budget for FY 2012. We also recognize that the Energy and Water Development Appropriations bill has many valuable and necessary components, and we applaud the Subcommittee for the support provided to the DOE Office of Science. For FY 2012, ASA, CSSA, and SSSA recommend a funding level of \$5.4 billion.

Congress approved the America COMPETES Reauthorization Act of 2010 (P.L. 111-358), 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 moving overseas. Such an investment is needed to keep U.S. science



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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. However, because of the uncertainty of the federal budget, the Office of Science was not able to provide the essential support needed in FY 2011. As a result, it is important that increase emphasis is placed on these programs in FY 2012. Nearly one third of its research funding goes to support research at more than 300 colleges and universities nationwide. 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 \$5.4 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 \$5.4 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 PhDs, postdoctoral associates, and graduate students; ensure maximum utilization of DOE research facilities; and allow the *Office of Science* to develop and construct the next generation facilities necessary to maintain U.S. preeminence in scientific research.

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. The research disciplines that the BES program supports include condensed matter and materials physics, chemistry, soil, mineralogical, and geo sciences, influencing virtually every aspect of energy resources, production, conversion, transmission, storage, efficiency, and waste mitigation. Research in geosciences leads to advanced monitoring and measurement techniques for reservoir definition. The BES program is one of the nation's largest sponsors of research in the natural sciences. In FY 2010, the program funded research in more than 170 academic institutions located in 50 states and in 14 DOE laboratories located in 12 states. Thus, approximately 40% of the BES program's research activities are sited at academic institutions.

Within the Basic Energy Sciences Program, the Chemical Sciences, Geosciences, and Energy Biosciences subprogram supports fundamental research in soil, biogeochemistry, geophysics and biosciences. We support funding this subprogram at \$394.7 million in FY 2012.

Within BES there exists several critical pieces of equipment essential for elucidating the soil's potential to provide essential services—carbon sequestration, nutrient cycling, water purification, waste treatment, provisioning of industrial and pharmaceutical goods, and a mitigating sink for chemical and biological agents—that enhance the resilience of managed and natural systems.



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As such, the Societies support the increases included in the President's budget for the Major Items of Equipment projects, including the Linac Coherent Light Source (LCLS) at SLAC National Accelerator Laboratory, the world's first hard X-ray free electron laser (FEL), which produces ultrafast pulses of X-rays millions of times brighter than even the most powerful synchrotron light sources. The LCLS provides scientists with a unique tool for studying the arrangement and motion of atoms and electrons in metals, semiconductors, ceramics, polymers, catalysts, plastics, and biological molecules with the potential to significantly impact advanced energy research and other fields. **The Societies support the requested increase for the LCLS included in the President's FY 2012 budget (+\$30,000,000 over FY 2010) to extend the x-ray spectral range at the LCLS.**

Our soil scientists also are users of the National Synchrotron Light Source (NSLS-II) built to enable the study of material properties and functions, particularly materials at the nanoscale, at a level of detail and precision never before possible. **We support the increase requested in FY 2012 (+\$12,000,000 over FY 2010) to initiate the fabrication of approximately five to six additional instruments.**

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. **We support the \$19.3 million increase proposed by the President to the Geosciences program, specifically for the purposes of continuing to expand research on geochemical studies and computational analysis of complex subsurface fluids and solids.**

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. **ASA, CSSA, and SSSA support the funding of the BES at the President's requested level for FY 2012 of \$717.9 million.** A variety of programs within BER are essential to continued fundamental research about biological systems science, geochemical observations, and determining environmental sustainability of our energy production systems. Among other items, the DOE Bioenergy Research Centers (BRCs), the Joint Genome Institute, the Environmental Molecular Science Laboratory (EMSL), and biological sequencing science are essential for overcoming the challenges of ensuring our nation's energy security and environmental health.

The Climate and Environmental Sciences subprogram, Environmental Systems Science will support essential subsurface biogeochemical research and basic research on the fate and transport of contaminants in the subsurface. **The ASA, CSSA, and SSSA support funding for Environmental Systems Science at \$104.2 million for FY 2012, a level which would retain**



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funding for the Terrestrial Carbon Sequestration Research, while also investing in research on contaminant transport to ensure minimal risk to exposure. This research addresses unique physical, chemical, and biological processes controlling the flux of contaminants across and within the root zone of soils and the flux of contaminants to surface water bodies. Processes in these critical zones influence fluxes of carbon and key nutrients between the atmosphere and terrestrial biosphere.

Identifying Essential Research

Our members participated in the community-based workshop in March 2010 that developed the workshop report, “Complex Systems Science for Subsurface Fate and Transport.” The report emphasized the need to understand the role that subsurface biogeochemical processes play in determining the fate and transport of contaminants including heavy metals and radionuclides. Participants concluded that computational models of coupled biological, geochemical, and hydrological processes are needed to predict the rates and kinetics of transformation and sequestration of these critical DOE contaminants.

Within BER, we support the increase included in the President’s budget for the Genomic Science Program, to bring the total level of funding to \$241.5 million for FY 2012. The Joint Genome Institute within the Genomic Program is an essential infrastructural component which uses tools from contemporary systems biology to understand and predict the energetic relationships between microbes and plants. The increase would support synthetic molecular toolkits that predict, design, construct, and test new biological systems for clean energy solutions.

National Laboratories

The Office of Science manages 10 world-class laboratories, which often are called the “crown jewels” of our national research infrastructure.

National Energy Technology Laboratory (NETL)

NETL’s Carbon Sequestration Program is helping to develop technologies to capture, purify, and store carbon dioxide (CO₂) in order to reduce greenhouse gas emissions without adversely influencing energy use or hindering economic growth. 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.

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 about ASA, CSSA, and SSSA, please visit: www.agronomy.org, www.crops.org or www.soils.org or



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contact ASA, CSSA, and SSSA Senior Science Policy Associate, Caron Gala Bijl by email (cgala@sciencesocieties.org) or by phone 202-408-5558.

Written Statement Submitted to
Subcommittee on Energy and Water Development and Related Agencies
House Committee on Appropriations
By
Richard A. Bajura, West Virginia University
On the
Programs of the U.S. Department of Energy
Fiscal Year 2012

This testimony is submitted on behalf of West Virginia University on R&D programs in the U.S. Department of Energy, including the Office of Fossil Energy, the Office of Electricity Delivery and Energy Reliability, and the Office of Energy Efficiency and Renewable Energy. We also recommend the initiation of additional programs.

In our testimony, we make the following recommendations for FY 2012 appropriations:

- Restore the Fuels Program to \$20 million for coal conversion research
- Restore the Fuel Cells Program to \$50 million
- Support both modeling & simulation and experimental research programs for coal systems
- Restore funding for oil and natural gas programs, and increase budget to \$80 million
- Reject Administration recommendation to repeal the Section 999 Ultra-Deepwater and Unconventional Natural Gas and Other Petroleum Resources program in EPACT 2005
- Restore core Coal Research Program to \$404 million
- Initiate programs in water availability, energy security, and rare earth minerals

Introduction

Both the DOE Strategic Plan and the DOE Quadrennial Technology Review Framing Document cite a projected long-term dependency of our nation on fossil energy for electric power and transportation fuels. Time frames of twenty-five years and longer are considered in these projections. It is imperative that the United States place strategic importance on the use of our nation's coal, oil, and natural gas resources to meet our energy needs. Our testimony recommends strong support for key programs in coal, oil, and natural gas R&D.

Fuels Program

Consider transportation fuels. Patrolling oil transit routes adds an estimated \$80 billion annually to our defense costs. In 2008, we spent \$388 billion on imported petroleum products, 57% of our balance-of-trade deficit. Production of liquid transportation fuels from a mixture of 70% coal and 30% biomass could provide 3 million barrels per day of gasoline equivalent by 2020. A coal-plus-biomass Fuels Program would create new jobs through increased coal production that could reach to upwards of 50% from our current levels, exceeding a half a billion tons in new

production. Coal-to-liquid plants located in widely dispersed geographic locations would support additional jobs and reduce the risks of supply interruptions from events such as major hurricanes in the Gulf of Mexico. These plants would bolster our national, energy, and economic security through mining and processing our indigenous mineral resources. Coal-plus-biomass fuels meet the requirements of the Energy Policy Act of 2007 regarding their CO₂ footprint, compared to conventional petroleum, and have been shown to be net sinks regarding CO₂ emissions (National Academy of Sciences, 2010).

We recommend restoring funding for the Fuels Program to a level of \$20 million for coal conversion research using feedstocks such as coal and biomass for the production of liquid transportation fuels, chemicals, synthetic natural gas, and agricultural products. Funding should be directed toward simulation modeling and pilot plant testing on eastern, mid-continent, and western coals; biomass characterization and feeding; and transformational research to reduce the energy penalty of conversion processes and plant capital costs, which are currently a deterrent to building a coal fuels and chemicals industry.

Fuel Cells Program

Solid oxide fuel cells (SOFC) operating on coal-based syngas can form a key component of the Administration's goal of having 80% of our nation's electricity generated by clean energy technologies. SOFC technology can be deployed in both central station and distributed generation modes, thus strengthening our electric grid. A successful collaboration of government and industry under the Solid State Energy Conversion Alliance (SECA) is reducing the cost of SOFC. The SECA fuel cell program is a critical element of fossil energy's technology portfolio. Integrated gasification fuel cell (IGFC) systems are highly efficient with near-zero atmospheric emissions of CO₂ and air pollutants, and use minimal amounts of water compared to traditional pulverized coal power generation systems. We disagree with the Administration's recommendation to defund the fuel cell program and recommend continuation at a level of \$50 million.

Modeling and Simulation

The emphasis on computational modeling in the DOE program is attractive for evaluating new concepts at scales ranging from molecular interactions through large-scale system simulations. Information gained from modeling will be useful in moving new concepts from scientific research discoveries into scalable component technologies, with added benefits of attendant time and cost savings afforded by performing inexpensive computer experiments versus numerous costly laboratory experiments. Modeling is also useful in directing attention to targeted areas where further engineering research is needed to solve operational problems. We believe that experimental research is an integral part of successful modeling programs in that operational data are essential for validating the predictions of model studies. With successful modeling, we can reduce development times for scaling up promising technologies by testing pilot plants using scale-up factors of 10-to-15, versus a more conservative scale-up program in which the size of the system is increased by factors of 3-to-5, for example for each larger pilot plant experiment.

Industrial research often discovers unanticipated mechanisms in pilot and commercial-scale field research on actual systems that are not, and can not, be predicted from modeling alone or laboratory-scale research. It is essential that the DOE Coal Program continues to support pilot-scale and commercial-scale experimental and demonstration research to allay the valid concerns of technology developers who must invest billions of dollars to prove the cost and performance viability of new systems. Close collaboration between computer modelers and industrial developers is recommended to ensure the effective use of funding in both the modeling and experimental aspects of developing and deploying new technologies.

Oil and Natural Gas Programs

We recommend restoration of the Oil and Natural Gas Programs in the Office of Fossil Energy at a funding level of \$80 million for FY 2012. We further recommend maintaining the program on Ultra-Deepwater and Unconventional Natural Gas and Other Petroleum Resources authorized in the Energy Policy Act of 2005.

Shale Research: Technologies developed at the National Energy Technology Laboratory (NETL) for directional drilling and hydraulic fracturing of formations can be applied to produce the plentiful natural gas reserves of the Marcellus and similar shale formations. Much work remains to be done, however, to validate estimates of how much gas can be recovered, to develop the geological sciences needed to understand these underground reservoirs, to effectively treat produced water, to protect groundwater supplies, and to allay the concerns of residents affected by drilling and fracking operations. We request that \$40 million in the above recommendation be directed to shale gas research programs and to related technology transfer programs to provide information on environmentally safe drilling practices. The Utica shale formation is also a national resource for which little is known and research on this formation is also recommended. With the Administration's focus on using natural gas for transportation fuels in addition to current markets for chemicals production and home applications, it is necessary to ensure adequate supplies of natural gas since existing wells will deplete at approximately the same rate that Marcellus shale production is increasing, according to EPA projections.

Oil Research: Funding of \$25 million is recommended for advanced oil research to support programs such as the large-scale storage of carbon dioxide in enhanced oil recovery applications, and the development of new resources such as the Baaken shale and similar formations that are now commercially viable thanks to the drilling technologies developed at NETL. Research should be directed toward pilot tests, non-core studies, and advanced research and development for next-generation technologies.

Methane Hydrates Research: The remaining \$15 million in our recommendation should be directed toward continuation of the methane hydrates program within the Office of Fossil Energy. This resource is extensive and will provide a needed supplement to our natural gas resource base if it can be successfully developed.

Section 999 Program: DOE Secretary Chu recently met with the FACA committee providing guidance to the Section 999 Ultra-Deepwater and Unconventional Natural Gas research program funded by royalties from offshore production of oil and natural gas. He asked that the program focus its activities to ensuring the safety of offshore drilling operations to avoid events such as the Macondo well accident of

the past year. The Section 999 program also provides support for small operators by funding collaborative research with national universities and for technology transfer programs. The past and present Administrations have recommended that this program be repealed. We urge the Subcommittee to reject the Administration request and maintain the Section 999 program, especially in view of the need for increased safety in offshore drilling operations.

Core Fossil Energy Scientific Research Programs

The United States needs a strong core program of scientific research in fossil fuels. We recommend maintaining the core Coal Research Program at \$404 million annually in addition to supporting the Oil and Natural Gas Program at the \$80 million level discussed above.

Fossil fuels are mainstays of our national energy demand for the foreseeable future. Our economic prosperity and national security are linked through investment in scientific research. More than half of our economic growth since World War II can be traced to science-driven technological innovation. Today's investments in fossil energy research will lead to tomorrow's discoveries that will build a better America.

NETL, as a fossil energy field laboratory, has a long history of support for external entities such as industry and universities. As a national laboratory, NETL must also increase its level of program support for on-site scientific research. Significant past accomplishments include the drilling technologies described above and materials developed to reduce criteria pollutants from coal-based power systems. Present activities include developing excellence as a computational modeling & simulation center and serving as a regional engine for economic development through collaborations with local universities to stimulate advanced research that leads to spin-off industries under programs such as the Regional University Alliance (RUA). Within the funds provided, NETL should be encouraged to continue these scientific research and economic development programs.

Core research programs should be expanded through the designation of additional funding to include an enhanced focus on water-related issues. Public concern about groundwater contamination from Marcellus shale production can be addressed under the Oil and Natural Gas Programs described above. Additional funding should be identified to address a broader array of water issues associated with energy production. Power plants need to reduce the amount of water both used and consumed in their operations. These needs are especially acute in areas of water shortages, such as the arid western states. Production of fuels and chemicals will require additional water supplies. DOE goals include producing liquid transportation fuels from coal with processes that consume only 2 barrels of water per barrel of fuel produced versus the 7 barrels of water consumed with conventional technologies. Coal conversion plants in China are now producing liquid transportation fuels at a ratio of 3 barrels of water per barrel of fuel. The US runs a strong risk of falling behind China in developing technologies that can be exported and licensed to the rest of the world unless we maintain strong research programs. The world-wide availability of natural gas available by using advanced drilling and fracturing technologies of ubiquitous shale formations will also afford opportunities for gas-to-liquids plants for meeting transportation fuels.

Energy Security and Energy Efficiency

Fossil energy contributes approximately 70% of the electricity to the national grid. We recommend the programs in the Office of Electricity Delivery and Energy Reliability (OE) include components addressing the role of fossil energy in maintaining a reliable supply of electricity and fuels. Analytical tools should be developed to monitor energy supply and reduce risks from upsets in the fuel supply chain and energy production infrastructure. The role of the Office of Fossil Energy in the Administration's proposed Future Smart Grid Program and emergency response programs should be enhanced and integrated into planning and analysis activities undertaken through OE. Programs currently at NETL in assessing the energy efficiency of appliances can be used as a base to develop the next generation of "smart grid ready" appliances. We recommend enhancement of NETL's role in supporting energy efficiency programs in the Office of Energy Efficiency and Renewable Energy. Collaborations with the member universities in the Regional University Alliance provide NETL with enhanced expertise to successfully undertake programs in energy security and energy efficiency.

Rare Earths

Advanced materials will increasingly rely on rare earth elements. The Office of Fossil Energy has a long history of extraction expertise, tracing back from its origins as a part of the U.S. Bureau of Mines, and its work in coal cleaning and advanced separations technology. The Department of Energy should be more active in helping ensure a supply of rare earth minerals through improved recovery and processing technologies. We recommend that the Department of Energy engage the Office of Fossil Energy in programs to maintain our supply of rare earth elements.

Thank you for the opportunity to testify on these programs.

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Official Written Testimony for Fiscal Year 2012

Submitted by: Dr. Lloyd Nicholas Trefethen
President, Society for Industrial and Applied Mathematics (SIAM)
&
Dr. Reinhard Laubenbacher, Vice President for Science Policy, SIAM

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

Testimony on: Department of Energy Office of Science,
FY 2012 Appropriations

April 15, 2011

Summary: This written testimony is submitted on behalf of the Society for Industrial and Applied Mathematics (SIAM) to ask you to continue your support of the Department of Energy (DOE) Office of Science by providing \$5.42 billion in fiscal year (FY) 2012. In particular, we urge you to provide significant support for the Applied Mathematics Program within the Office of Science. We also emphasize the importance of support for graduate students, post-doctoral fellows, and early career researchers.

Written Testimony

We are Dr. Lloyd Nicholas Trefethen, President, and Dr. Reinhard Laubenbacher, Vice President for Science Policy, of the Society for Industrial and Applied Mathematics (SIAM). On behalf of SIAM, we are 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 approximately 13,000 members, including applied and computational mathematicians, computer scientists, numerical analysts, engineers, statisticians, and mathematics educators. They work in industrial and service organizations, universities, colleges, and government agencies and laboratories all over the world. In addition, SIAM has over 400 institutional members—colleges, universities, corporations, and research organizations. 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.

First, we 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. 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.



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Today, we submit this testimony to ask you to continue your support of the DOE Office of Science in FY 2012 and beyond. In particular, *we request that you provide the Office of Science with \$5.42 billion, the level requested in the FY 2012 budget request.* SIAM is aware of the significant fiscal constraints facing the Administration and Congress this year, but we note that, in the face of economic peril, federal investments in mathematics, science, and engineering create and preserve good jobs and help to maintain U.S. pre-eminence in innovation, upon which our economy depends.

The Role of Mathematics in Meeting Energy Challenges

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 nanotechnology, biofuels, genomics, climate modeling, and materials fabrication.

To tackle many of these challenges, DOE must be able to understand complex systems such as the US power grid, the dispersion of nuclear radiation after a disaster, and the Earth's climate system. These and other complex systems have high levels of uncertainty, lack master plans, and are susceptible to breakdowns that could have catastrophic consequences. Understanding complex systems helps mitigate these risks and facilitate the development of controls and strategies to make systems more efficient.

These issues were addressed in a May 2008 report by an independent panel of mathematicians that reviewed the challenges and strategic plans of all units of DOE in order to better define the goals for the DOE Applied Mathematics Program, which is located within the Office of Advanced Scientific Computing Research (ASCR) in the Office of Science.¹ In light of the broad need for complex systems understanding, 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.)

¹ 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.



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While progress has been made in these areas since the 2008 report, further research is necessary to fully understand these systems and address our energy challenges.

Department of Energy Office of Science

Activities within ASCR play a key role in supporting research that begins to fulfill the needs described above. Particularly critical programs include: the Applied Mathematics program, the Scientific Discovery through Advanced Computing (SciDAC) program, and programs to maintain the pipeline of the mathematical workforce. *SIAM supports the \$466 million requested for ASCR for FY 2012. SIAM appreciates that the requested increase for FY 2012 is more balanced among ASCR programs and not entirely directed to investments in computing hardware as it was in the FY 2011 request. Without investments in algorithm research, software development, and partnerships between mathematicians, disciplinary researchers, and computer and computational scientists, we cannot realize the full benefit of new high performance computers or effectively develop the next generation of such computers.*

The applied mathematics and computational science and engineering work supported by the Applied Mathematics Program is a necessary element for many of the flagship efforts of the Office of Science and other units of DOE. Therefore, partnerships within the Department are critical for applying mathematics to key challenges in effective creation and use of a variety of energy sources. SIAM supports ASCR plans to initiate new partnerships with other DOE offices such as the Office of Electricity Delivery and Energy Reliability, the Office of Nuclear Energy, and the Office of Environmental Management. SIAM also supports the proposed activity on uncertainty and climate change within the Biological and Environmental Research Office, which will help to quantify the uncertainty in the predictions of current climate models, as well as the proposed activity on Computational Materials and Chemistry by Design within the Basic Energy Sciences Office.

Supporting the Pipeline of Mathematicians and Scientists

Investing in the education and development of young scientists and engineers is a major step that the federal government can take to ensure the future prosperity and welfare of the U.S. Currently, the economic situation is negatively affecting the job opportunities for young mathematicians--at universities, companies, and other research organizations. It is not only the young mathematicians who are not being hired who will suffer from these cutbacks. The research community at large will suffer from the loss of ideas and energy that these graduate students, postdoctoral fellows, and early career researchers bring to the field, and the country will suffer from the lost innovation.

Maintaining the pipeline of the mathematical workforce with programs that fund research and students is especially important because of the foundational and cross-cutting role that mathematics and computational science play in sustaining the nation's economic competitiveness



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and national security, and in making substantial advances on societal challenges such as energy. DOE programs support the educational and professional development of the researchers who

will, at universities, companies, and the national laboratories, tackle the research problems (such as the complex system modeling described above) needed to change energy usage in this country.

Within the Office of Advanced Scientific Computing Research, the Computational Science Graduate Fellowship program is a highly successful and model program that enables students to receive robust training in mathematics and also learn to interface with a wide variety of other fields. We request that strong support for this program continue, as well as ongoing support for post-doctoral fellows at DOE national laboratories and universities. In addition, we endorse DOE's proposed continuation in FY 2012 of the Office of Science Early Career Research Awards and Graduate Fellowships programs.

Conclusion

The programs in the Office of Science, particularly those discussed above, are important elements of DOE's efforts to fulfill its mission. They contribute to the goals of dramatically transforming our current capabilities to develop new sources for renewable and low-carbon energy supplies and improve energy efficiency to ensure energy independence and facilitate DOE's effort to increase U.S. competitiveness by training and attracting the best scientific talent into DOE headquarters and laboratories, the American research enterprise, and the clean energy economy.

We would like to conclude by thanking you again for your ongoing support of the DOE Office of Science and the actions you have already taken to enable DOE and the research and education communities it supports, including thousands of SIAM members, to undertake the activities that contribute to the health, security, and economic strength of the 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 support of these critical programs.

We 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 2012 appropriations process.

Testimony Submitted for the Record
To House Appropriations Energy and Water Development Subcommittee
Regarding the Department of Energy
By Symbiotics
975 South Hwy 89-91, Logan, UT 84321

April 14, 2011

On behalf of America's independent power producers and hydropower developers, I respectfully request the full appropriation of funds authorized in Section 242 and Section 243 of the Energy Policy Act of 2005 (P.L. 109-58) in Fiscal Year 2012 appropriations. Full funding for the Hydroelectric Production Incentives and Hydroelectric Efficiency Improvements authorized in P.L. 109-58 is critical for getting new hydropower projects into production.

Currently, there are numerous projects across the United States that are under construction, or nearing the construction phase, that would be eligible to receive these important incentives if they are appropriated for FY 2012. These projects need tax considerations to remain competitive for private financing. Without these production and efficiency incentives, many of the projects under development will become economically unfeasible and may never be built.

As you may know, the provisions in Section 242 and 243 of the Energy Policy Act of 2005 were critical in facilitating the financing necessary to make many hydroelectric projects economically feasible while pursuing the permitting process. The subsequent appropriation of these already-authorized funds would enable developers across the country to complete their projects and allow for the production of clean electricity. Furthermore, it would help our nation achieve energy independence and foster significant new job creation.

For several years after the passage of the Energy Policy Act of 2005, appropriation of Section 242 and 243 funds was unnecessary because no projects existed that were capable of utilizing them. Today, hydropower developers and producers are reaching a point in the development process in which these funds could be used. In fact, the hydropower projects currently being developed represent the first new non-municipal hydro projects to come on line in over two decades. Full appropriation of Section 242 and 243 funds would provide the critical assistance to get these vital projects into production.

As you may know, hydropower is a significant but largely untapped resource. Hydropower accounts for 7% of the electrical supply in the country, and 65% of all renewable energy produced in the U.S. Yet only 3% of the over 80,000 dams in the country actually produce electricity. Funding already existing tax incentives would go a long way in helping companies like Symbiotics and others provide safe, clean, and renewable hydroelectric power across the country while creating jobs for American citizens.

I, as well as other hydropower producers and developers, respectfully request full appropriation of the funds authorized over six years ago.

Symbiotics appreciates the opportunity to submit testimony for the record. Please contact Vince Lamarra, Chief Executive Officer, (vince.lamarra@symbioticsenergy.com, 435/752-2580) with questions about this statement. Symbiotics is a wholly owned subsidiary of Riverbank Power Corp.

**Written Testimony Submitted by
Wilson Bonner and Linda Rowan, Government Affairs Staff
American Geological Institute
to the U.S. House of Representatives
Subcommittee on Energy and Water Development Appropriations
April 15, 2011**

To the Chairman and Members of the Subcommittee:

Thank you for this opportunity to provide the American Geological Institute's perspective on fiscal year (FY) 2012 appropriations for geoscience programs within the Subcommittee's jurisdiction. The President's budget request for the Department of Energy (DOE) research programs provides important and modest investments in research and development (R&D) that will help develop and sustain energy resources for economic growth of resilient communities. **AGI strongly supports the wise investments in the Office of Science [\$5.4 billion] and Energy Efficiency and Renewable Energy [\$3.2 billion]. AGI strongly supports funding for geoscience education, training and workforce development through the Office of Science's Workforce Development for Teachers and Scientists [\$35 million] and geothermal R&D [\$102 million] within EERE.**

AGI is concerned about the termination of limited investments in oil and natural gas R&D within the Office of Fossil Energy. Oil and natural gas supply 62% of our nation's energy and will continue to play a major role in the future. These investments will drive innovation to support and improve safe and effective domestic development of cleaner fossil fuels. The bulk of DOE's oil and gas R&D investments go to institutions of higher education for training and research. The U.S. has a substantial workforce and significant investments in oil and natural gas research, development, exploration and production. Steady, but modest federal investments in fossil energy R&D with a longer term strategic plan would benefit the academic, private and public sectors.

The Office of Fossil Energy suffers from an unbalanced portfolio that focuses primarily on coal, faces uncertainty about direction and investments, and receives inconsistent funding. We ask for the Subcommittee's support for oil and gas, unconventional natural gas, geothermal, hydropower, methane hydrates and carbon sequestration R&D so the nation can develop a diverse portfolio of energy resources while enhancing carbon mitigation strategies to secure clean, affordable and secure energy supplies for now and the future.

AGI is a nonprofit federation of 49 geoscientific and professional associations that represents more than 120,000 geologists, geophysicists, and other earth scientists. The institute serves as a voice for shared interests in our profession, plays a major role in strengthening geoscience education, and strives to increase public awareness of the vital role that the geosciences play in society's use of resources and interaction with the environment.

DOE Office of Science

The DOE Office of Science is the single largest supporter of basic research in the physical sciences in the United States, providing more than 40 percent of total funding for this vital area of national importance. The Office of Science manages fundamental research programs in basic energy sciences, biological and environmental sciences, and computational science and, under the budget request, would receive \$5.4 billion in FY 2012. AGI asks that you support this funding level.

The President's request would provide \$35 million for Workforce Development for Teachers and Scientists, a program aimed at ensuring that DOE and the nation have a sustained pipeline of highly skilled and diverse science, technology, engineering, and mathematics (STEM) workers. AGI strongly supports investments in geoscience education, training and workforce development within DOE and other federal agencies.

DOE Energy Efficiency and Renewable Energy

Within Energy Efficiency and Renewable Energy, the President's FY 2012 budget request would increase investments for R&D for many renewable energy resources. AGI applauds the \$102 million requested for geothermal R&D and greatly appreciates previous support from Congress for this key alternative energy resource. The geothermal research program within the Renewable Energy account, which funds Earth science research in materials, geofluids, geochemistry, geophysics, rock properties, reservoir modeling, and seismic mapping, will provide the nation with the best research to build a successful and competitive geothermal industry. AGI supports an Energy Innovation Hub focused on critical materials and hope this hub will consider ways to improve exploration, extraction and processing of necessary raw materials as well as replacement materials.

DOE Fossil Energy Research and Development

AGI urges you to look critically at the Fossil Energy Research and Development (R&D) portfolio as you prepare to craft the FY 2012 Energy and Water Development Appropriations bill. Many members of Congress have strongly emphasized the need for a responsible, diversified and comprehensive energy policy for the nation. The growing global competition for fossil fuels has led to a repeated and concerted request by Congress to ensure the nation's energy security. The President's proposal, which provides no funding for oil and gas R&D, is short sighted and inconsistent with congressional and public concerns. No funding for oil and gas R&D will hinder our ability to achieve energy stability and security.

The research dollars invested in oil and gas R&D go primarily to universities, state geological surveys and research consortia to address critical issues like enhanced recovery from known fields and unconventional sources that are the future of our natural gas supply. This money does not go into corporate coffers, but it helps American businesses remain competitive by giving them a technological edge over foreign

companies. All major advances in oil and gas production can be tied to research and technology. AGI strongly encourages the subcommittee to ensure a balanced and diversified energy research portfolio that does not ignore the nation's primary sources of energy for the near future, fossil fuels.

Thank you for the opportunity to present this testimony to the subcommittee. If you would like any additional information for the record, please contact Linda Rowan at 703-379-2480, ext. 228 voice, 703-379-7563 fax, rowan@agiweb.org, or 4220 King Street, Alexandria VA 22302-1502.

National Hydropower Association – Jeffrey Leahey, Director of Government Affairs
Phone: 202.682.1700 ext. 15 – Email: jeff@hydro.org
House Appropriations Energy and Water Subcommittee
Department of Energy (Water Power Program)

The National Hydropower Association (NHA)¹ appreciates the opportunity to submit this statement regarding hydropower research and development (R&D) funding priorities for the FY 2012 appropriations budget cycle.

NHA requests \$100 million in the FY 2012 Energy & Water Appropriations bill for the Department of Energy’s (DOE) Waterpower Program to support initiatives across all hydropower technology sectors. The types of technologies covered are conventional hydropower, including pumped storage, as well as marine and hydrokinetic (MHK) technologies that access energy in ocean waves, tides, and the flowing water in rivers and man-made channels.

A \$100 million funding level, split equally between the conventional and MHK programs, is necessary to support a national goal to double U.S. capacity of renewable hydropower and the research needed to increase production and create more than 1.4 million cumulative new jobs all across the country. Investment in hydropower R&D will drive innovation across the economy and maintain American competitiveness and create jobs.

Taking maximum advantage of our nation’s hydropower infrastructure by increasing efficiencies at existing hydro facilities and adding capacity at non-powered dams are two near-term steps in the long-term effort to expand hydropower resources. 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 impacts, understand the extent of the developable resource and more.

In particular, government funding is needed at the front end when private investments would not recoup the full value of the resulting social good. This is especially true in the case of basic R&D initiatives, where under-investment is prevalent and is equally relevant to MHK technologies.

Hydropower’s Current and Potential Contribution

As America’s leading renewable electricity resource, hydropower currently provides approximately 7 percent of our nation’s electricity supply and two thirds of America’s

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

renewable electricity.² In addition, hydropower is positioned to meet 20 percent of President Obama's goal of 80 percent clean energy by 2035.

Looking to the future, NHA believes hydropower can double its contribution to the nation's electricity portfolio, providing affordable, reliable, and sustainable baseload electricity through the responsible development and expanded use of conventional hydropower, pumped storage and new technologies, both MHK and conduit applications.

Support for this forecast is evident. With approximately 100,000 MW of installed capacity today, recent studies have determined that 60,000 MW of growth is possible by 2025 alone. Right now, there are projects with over 88,000 MW of capacity before the Federal Energy Regulatory Commission (FERC). Applications for DOE Waterpower program funding opportunities in the past far outnumbered available funds – both for new MHK and conventional technologies. For example, in 2010 DOE awarded \$32 million to 7 projects to pursue upgrades to existing facilities, although dozens more projects submitted applications.

These investments have been particularly important to marine and hydrokinetic technologies, which represent a promising opportunity to create reliable, clean energy. While these technologies are currently in various stages of research, development and deployment, industry estimates show US wave potential at 90GW. In 2010, the Department of Energy awarded Snohomish County PUD, among others, matching funding to study water quality and evaluating fish and marine mammal presence of its tidal pilot project in the Puget Sound Admiralty Inlet. Research, development and demonstration funding for projects like this are essential to tap the potential of this emerging technology.

In addition to the new generation this development will bring online, hydropower projects provide a host of ancillary services to the grid and environmental benefits. Hydropower facilities can quickly go from zero power to maximum output, making them exceptionally good at meeting rapidly changing demands for electricity throughout the day. In fact, because of its ability to be quickly dispatched, and its blackstart capability, hydropower was key in restoring power to the grid during the 2003 Northeast blackout. From a clean air perspective, hydropower generation in 2009 avoided over 196 million metric tons of carbon emissions³.

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

To realize the opportunity to increase hydropower generation that will strengthen our economy, environment and renewable energy supplies, continued and expanded funding support is needed to develop and deploy novel technologies, improve operational procedures, and provide rigorous analysis. Under a fully funded DOE Water Power program, all involved

² Based on 2009 generation data. Energy Information Administration.
http://www.eia.doe.gov/cneaf/electricity/epm/table1_1.html

³ According to EPA Carbon Equivalencies Calculator <http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results>

interests will have better access to information on the potential extractable energy from rivers and coastal waters; and technical support to harness this renewable resource through sustainable and cost-effective electric generation.

Funding to support these goals should be directed to:

Technology Development and Demonstration – Improving hydropower technologies is the most important function of the Water Power Program. Through previous funding, increases in efficiency and decreases in environmental impact have been realized. This investment must continue. New materials research and development and testing of better small and low-head hydro technologies would bring down the costs of converting existing infrastructure for electricity generation and result in important upgrades and modernization of existing power plants.

Along these lines, initiatives that may be pursued include (but are not limited to):

- Deployment support for projects, both MHK and conventional hydro
- Feasibility studies to identify additional low-cost, advanced-technology opportunities (Hydro Advancement Project)
- Development of operational tools, standard methods, and best practices to maximize generation at existing and new facilities

Resource Assessment/Environmental - Innovation in the hydropower industry also goes beyond creating new technologies. The DOE program plays an important role in gathering baseline industry data, developing updated resource assessments and new growth analyses, studying project operations for maximization of both energy and environmental values, as well as studying new issues that may affect the industry — from potential effects of climate change on operations to addressing the energy storage needs to maintain a secure and functioning electric grid. Another key role for DOE is to determine the potential capacity on existing infrastructure. The work on the National Hydropower Assets Assessment Program is one example of a valuable tool that needs continued support. Also, the creation of a data clearing house of studies and funding for operations benchmarking would enable both the conventional and MHK industries to better forecast and model data and demonstrate the cost effectiveness of projects.

Additional activities include:

- Identify resources and address technology/policy needs to maximize medium-long term opportunities
- Integrate resource assessments and cost curves with key pumped storage and small hydro technology needs to identify critical COE drivers
- Provide market analysis to accurately quantify and monetize hydropower ancillary services

Regulatory Analysis - In addition to these areas, hydropower development faces a comprehensive regulatory approval process that involves many participants that includes FERC, federal and state resource agencies, local governments, tribes, NGOs and the public. The system strives to promote development while protecting important environmental values. However, it can also contain redundancies and inefficiencies that unnecessarily slow the deployment of clean renewable hydropower and delay much-needed environmental enhancements and benefits. At a time when we need all the renewable, affordable and reliable energy we can get, the United States needs an updated regulatory process that gets projects off the drawing board and puts people to work in a more efficient way. To support these efforts, programmatic funding could:

- Engage regulators and environmental stakeholders to reduce license time and cost
- Align energy generation and environmental priorities across river basins to facilitate development
- Generate data to more accurately correlate generation with environmental impacts

Associated Funding Support for Hydropower Development within the Civil Works Programs of the Army Corps of Engineers

NHA is also working in partnership with federal agencies to identify and pursue smarter and more efficient processes to develop hydropower projects on federal facilities. A new Memorandum of Understanding signed recently by the Army Corps of Engineers and the FERC demonstrates an on-going and active commitment to work together and identify current challenges and opportunities to increase hydropower development.

In this vein, NHA also calls for support of the Corps' own efforts to operate, maintain and upgrade its existing hydropower projects. NHA specifically supports the work the Corps is doing under its Hydropower Modernization Initiative (HMI) to develop a long-term capital investment strategy. One significant feature of the HMI is the Asset Investment Planning Tool, which was designed to: (1) analyze the condition of critical components and the consequences of failure; (2) determine the value of additional hydropower and its cost; (3) quantify risk exposure for capital investments; and (4) create 20-year funding scenarios to allow for timely and cost-effective rehabilitation or replacement of hydropower facilities and their components. To assist the Federal government in rehabilitating aging equipment, the Corps also is pursuing increased use of non-Federal funds.

Conclusion

Unlocking the vast hydropower potential of our rivers, oceans, tides and conduits requires funding the R&D initiatives that make innovative ideas a reality. The DOE Water Power Program is an important source of support for the researchers, scientists and developers working to grow hydropower's contribution to our country's clean energy resources. Continued investment in this program is crucial to ensuring that innovative new technologies come to market and are able to generate the clean electricity America needs.

And the hydropower industry itself is doing its part to support investment in new technologies and project improvements. Among the hundreds of millions of dollars invested each year in environmental enhancements at hydro facilities, companies are supporting the development of a new generation of turbines that improve fish passage, generate more power, utilize water more efficiently, and improve the oxygen content of the water released downstream of a facility, among many other inventive technological and operational advancements.

OUTSIDE WITNESS TESTIMONY

**Energy and Water Development Subcommittee on Appropriations
Honorable Rodney P. Frelinghuysen, Chairman**

Mni Wiconi Project (PL 100-516, as amended), testimony submitted by
 Oglala Sioux Rural Water Supply System, Frank Means, Director
 Oglala Sioux Rural Water Supply System, Troy Ferguson, Director WMC
 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 2012 Request

The Mni Wiconi Project beneficiaries respectfully request \$26.238 million in appropriations for construction and \$11.754 million for operation and maintenance (OMR) activities for FY 2012, a total request of \$37.992 million:

FY 2012 Total Request		
Construction	OMR	Total
\$26,238,000	\$11,754,000	\$37,992,000

The construction request includes \$0.960 million for Bureau of Reclamation oversight, and the OMR request includes \$1.447 million for Bureau of Reclamation oversight.

2. Construction Funds

Construction funds would be utilized as follows:

Project Area	Construction Request FY2012
Oglala Sioux Rural Water Supply System	
Core	Complete
Distribution	10,848,000
West River/Lyman-Jones RWS	5,475,000
Rosebud RWS	9,915,000
Total	\$26,238,000

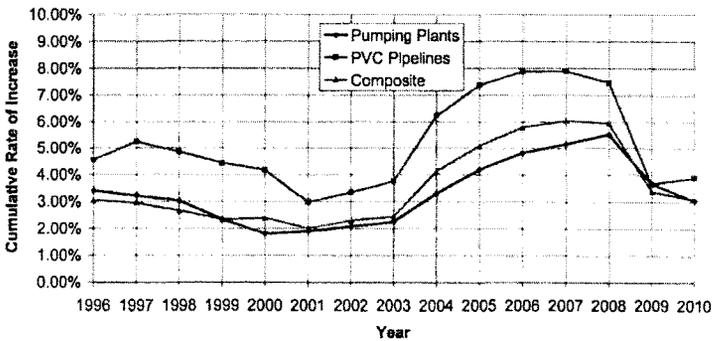
As shown in the table below, the project will be 89% complete at the end of FY 2011. Construction funds remaining to be spent after FY 2011 will total \$49.568 million within the current authorization (in October 2010 dollars). Additional administrative and overhead costs of extending the project, additional construction costs, and inflation at 3.89% over the next 2 years will increase remaining project costs to \$83.217 million after FY 2011.

Total Federal Construction Funding (Oct 2010 \$)	\$464,669,000
Estimated Federal Spent Through FY 2011	\$415,101,000
% Spent Through FY 2011	89.33%
Amount Remaining after 2010	
Total Authorized (Oct 2010 \$)	\$49,568,000
Adjusted for Extension to FY 2013 and Other Cost	\$78,607,000
Adjusted for Annual Inflation	\$83,217,000
Completion Fiscal Year (Statutory FY 2013; PL 110-161)	2013
Years to Complete	2
Average Annual Required for FY 2013 Finish w/ Re-Authorization	\$41,609,000
Average Annual Required for FY 2013 Finish w/o Re-Authorization	\$26,238,000

Cost indexing over the last five years has averaged 3.89 % for pipelines, primarily due to a 7.7% reduction in 2009 during recession. The increase in pipeline costs last year was 6.17%. Pipelines are the principal components yet to be completed (see chart below). Assuming average 3.89% inflation in construction costs over the remaining two years, average funding of \$26.238 million is required to complete the project within the existing authorization, and \$41.609 is required to complete the project if re-authorized to finish the project as planned.

The extension of the project from 2008 to 2013 did not provide for budgeting of Reclamation oversight, administration and other “overhead” costs, which will total \$27.157 million by the end of 2013. These costs have been and will be incurred at the expense of construction elements, and a \$29.039 million re-authorization of the construction ceiling is needed to recover those overhead costs, due primarily to the slow pace of budgeting by the Administration. The Administration’s budget for construction for FY 2012 is \$16.0 million, far less than the \$26.238 million needed, and threatens to extend the project beyond 2013 with continued increases in overhead costs and depletion of funds that would otherwise be applied to finishing construction.

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



The request will create an estimated 210 full-time equivalent (FTE) construction jobs and 94 OMR jobs in an area of the nation with the lowest per capita income and deepest poverty.

Poverty is the harbinger of the severe health care crisis facing the Indian people in the Northern Great Plains. The present value of *extra* costs of health-care during the lifetime of each 24,000 members of the Indian population in the Mni Wiconi Project is estimated at \$1.12 to \$2.25 billion (in 2010 dollars). The costs are based on extraordinarily high rates of mortality due to heart disease, cancer and diabetes. The Mni Wiconi Project has the direct effect of employing part of our unemployed and underemployed Indian population and creates the necessary infrastructure for more employment in indirect commercial and industrial development. This will reduce poverty, mortality and the national cost burden of Indian health care.

3. Oglala Sioux Rural Water Supply System (OSRWSS)

Core System

The Oglala Sioux Tribe has completed the core system. The completion of the OSRWSS core system was an historic milestone and permits greater focus in remaining years of the project on completion of the distribution systems.

Distribution System

The Pine Ridge Indian Reservation will receive significantly more water from the OSRWSS core system in FY 2011. Major segments of the main transmission system will be completed across the Reservation and connect many of the larger communities with safe and adequate drinking water. OSRWSS pipelines now deliver water from the Missouri River to the communities of Georgetown, Wanblee, Crazy Horse School, Lakota Fund Housing and Potato Creek Community and the large number of rural homes between the communities. The communities of Hisle, Kyle, Manderson, Red Shirt, Porcupine and Wounded Knee can be served with Missouri River water by the end of 2011.

FY 2012 will be another historic year, 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, and only 78% of the distribution system will be complete at the end of 2011. The Reservation public received its first Missouri River supply in 2009 after waiting 15 years for construction of core facilities to the Reservation.

Project funds in FY 2012 will continue building the on-Reservation transmission system. Funding will be used for transmission and service line development east of Pine Ridge Village between Wakpamni, Batesland and Allen and south toward the Nebraska State line. This area has been deferred in the past due to funding constraints. The

supervisory control and data acquisition (SCADA) facilities will be installed with state of the art electronic equipment.

As set forth above, activity on the Pine Ridge Indian Reservation in FY 2012 continues to focus on constructing the transmission system that serves as the “backbone” of the Project on the Reservation from the White River in the northeast corner of the Reservation to Pine Ridge Village. The Tribe will continue focus on the disinfection requirements to blend Missouri River water and high quality groundwater without creating harmful contaminants. State-of-the-art designs are being implemented for water quality control, and the Project will serve as a model for other projects requiring these facilities.

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

4. West River/Lyman-Jones Rural Water System

West River/Lyman-Jones RWS projects for FY2012 include standby generation facilities, conversion of community water systems, storage reservoirs, SCADA, and cold storage additions.

The upper mid-west and specifically the Mni Wiconi project area regularly experience power outages as the result of winter weather conditions. Regulatory authorities in South Dakota have recommended standby generation as the result of statewide power outages experienced during the winters of 2005-06 and 2009-10. The Bureau of Reclamation has concurred in the addition of standby generation to the Mni Wiconi plan of work. WR/LJ has outlined a three year standby generation project schedule.

The WR/LJ project includes four areas in which area ranchers are served by a common well of limited capacity and unacceptable water quality. The construction of WR/LJ facilities to serve them as individual members of WR/LJ will provide the pipeline capacity and water quality meeting Mni Wiconi project design standards.

Water storage needs include an elevated tower in the Reliance service area, a ground storage reservoir in Mellette County and supplemental storage in the Elbon service area.

System Control and Data Acquisition (SCADA) capability provides accurate and efficient transmission of data and allows remote control of pumping and storage facilities. The WR/LJ SCADA system will be completed using the requested funding.

Storage facilities at the Murdo and Philip operations centers will complete the building components of the WR/LJ project.

Previous Federal appropriations to the Mni Wiconi project have made possible the delivery of much needed quality water to members of the West River/Lyman-Jones RWS and to the livestock industry in the project area. This would not have been possible without State and Federal assistance.

5. Rosebud Sioux Rural Water System – Fiscal Year 2012

Funding for FY 2012 will be used to complete two major projects begun in FY 2011 and further work on the Rosebud Sioux Rural Water System (RSRWS or Sicangu Mni Wiconi) distribution system. In FY 2011 work began on the water supply for the Rosebud Adult Correctional Facility (ACF). The ACF is a major project that will be constructed in 2011 and in operation in August 2012. The intent of locating the facility on Rosebud is that incarcerated individuals are closer to the family and cultural and the recidivism rate will be lower and the local economy also benefits. The Mni Wiconi Project is responsible for delivering water to the ACF and providing adequate volumes to meet peak demands. An elevated storage tank appears to be the only feasible option available.

The other major project initiated in FY 2011 requiring FY 2012 funds is the Sicangu Village Supply Project. Because of unexpected quality and quantity limitations of the aquifer in southern Todd County, high quality surface water from OSRWSS will be conveyed by a transmission pipeline to a new elevated storage reservoir at Sicangu Village. The elevated reservoir is currently under contract and will be completed this summer. Sicangu Village is an expanding housing area and the local wells cannot meet demands of expansion. The transmission line and elevated reservoir will provide a reliable supply of high quality water to the development corridor along Highway 83 between Mission and Sicangu Village. It was hoped that this area of the Rosebud Reservation would not need to be connected to the Mni Wiconi Project because of the presence of the Ogallala aquifer. The estimated demands for the area were however included in system planning and it now appears this foresight was beneficial because portions of the aquifer have high nitrates and other areas are not as high yielding as originally thought.

Distribution system projects will extend service to two schools in southern Todd County and meet domestic needs in other areas of the Primary Service Area (Todd and Mellette Counties). It was hoped to connect the Lakeview and Littleburg schools to the system in FY 2011 but FY 2011 funds are not sufficient. The wells that supply water to both of the schools have high nitrates. The Mni Wiconi Project will ensure that future generations on the Rosebud Reservation, both Indians and non-Indians alike, will be supplied with water that meets safe drinking water standards.

The other distribution system expansion planned for 2012 is the completion of the East Todd Project. The initial phase of this project was completed by the Tribal Force Account Program in late 2009 and rights-of-way have now been obtained to undertake the remainder of the project. This project also serves an area where water quality has been declining due to elevated nitrate levels.

The ongoing effort to connect rural homes to transmission and distribution lines will also continue in 2012. This work is undertaken through the Tribal Force Account Program. The Force Account Program not only provides a reliable source of high quality water to rural homes, it also provides employment to numerous tribal members and helps circulate dollars on the Reservation thereby stimulating the local economy.

6. Operation Maintenance and Replacement (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. Unfortunately the Administration's budget for FY 2012 (\$10.058 million) is under-stated for the first time in the history of the project. The project needs \$11.754 million. The Reclamation budget for 2012 will cause the project to fall into a state of disrepair and will threaten the considerable investment of the United States from 1994 to date.

The project has been treating and delivering more water each year from the OSRWSS Water Treatment Plant near Fort Pierre as construction is advanced in the Rosebud, WRLJ and Oglala service areas. Completion of significant core and distribution pipelines has resulted in more deliveries to more communities and rural users. The need for sufficient funds to properly operate and maintain the functioning system throughout the project has grown as the project has now reached 89% completion. The OMR budget must be adequate to keep pace with the system that is placed in operation.

The Lower Brule Rural Water System (LBRWS) is essentially complete with all major components such as the water treatment plant, booster stations and tanks/reservoirs in full operation. As a result, LBRWS's operation and maintenance portion of the budget has reached a baseline amount to which only slight adjustments along with inflation should be made each year. The portion of the LBRWS OM&R budget that is somewhat variable is the Replacement Additions and Extraordinary (RAX) maintenance items. LBRWS will continue to work with the Bureau of Reclamation and the other sponsors to prioritize their needs and ensure that their system is operating to the standards that have been established over the past several years. With that in mind, the LBRWS request for OMR for FY 2012 is \$1,550,000.

The RSRWS expanded significantly in 2010 and surface water now reaches Todd County. To accomplish this, two additional high capacity pumping stations were added to the system. The new pumping stations increase operational costs for both energy, maintenance and personnel. In addition, energy costs increases have significantly impacted Rosebud for electrical costs and vehicle expenses. With the oldest parts of the system in service for 15 years replacement costs covered under RAX are also becoming more significant. RAX funds must be included in the Mni Wiconi Project appropriations because they are not funded through the Bureau's RAX program.

OSRWSS will incur unanticipated core OMR expenses in FY 2012 to replace valves, remove sludge at the water treatment plant and supplement ARRA funds for chlorine booster stations and generators/transfer switches. The unanticipated costs are \$661,000, which will improve facilities that benefit all project sponsors.

The Mni Wiconi Project tribal beneficiaries (as listed below) respectfully request appropriations for OMR in FY 2012 in the amount of \$11.754 million.

<u>Project Area</u>	<u>FY 2011 OMR Request</u>
Oglala Sioux Rural Water Supply System	
Core	\$3,380,000
Distribution	3,100,000
Lower Brule	1,550,000
Rosebud RWS	2,277,000
Reclamation	1,447,000
<u>Total</u>	<u>\$11,754,000</u>

7. Trust Responsibility

PL 100-516, the Mni Wiconi Project Act, provides that:

“...United States has a trust responsibility to ensure that adequate and safe water supplies are available to meet the economic, environmental, water supply, and public health needs of the... Indian Reservation[s]...”

The field staff and the Regional Office of the Bureau of Reclamation have been extremely helpful in advancing this project, but there has been concern that Reclamation mid-managers and OMB are making unilateral decisions that harm the trust relationship. The following are specific instances:

- Reclamation has re-distributed funds allocated to the Oglala Sioux Tribe to West River/Lyman Jones without the urging of West River/Lyman Jones to further Reclamation performance objectives. While OSRWSS has consistently carried funds over from one fiscal year to another, there has never been an instance or a threat of an instance of not spending funding appropriated in a given year in that year or the year that follows. The rate of completion of the OSRWSS project is decelerated and the rate of other projects has been accelerated without the urging of recipients of re-distributed funding;
- To our complete satisfaction on construction, Reclamation has yielded to the leadership of the Indian and non-Indian sponsors to permit their collaborative development of annual *construction* funding allocations and budgets. On the other hand, Reclamation has imposed its structure and budget specifics in lieu of Indian leadership on the formulation of annual *OMR* allocations and budgets;
- OMB has budgeted funds to the Bureau of Reclamation for its Rural Water Program without separation of Construction and OMR accounts, and the constraints on the total budget have fallen heavily on the funds available to complete construction. OMR budgeting has been held relatively constant with higher percentages of construction completion, and construction budgeting has decreased. The fixed level of OMR funding has constrained the activities needed

on the Indian distribution systems. The construction budget is diminishing at a time when acceleration of construction is needed to deliver the benefits of the project to the Indian people. At a minimum, the construction budget should be a priority and should be held at a level needed to complete the project on the statutory schedule in 2013 while providing an adequate OMR budget;

- Mid-levels managers have often view the project as a Reclamation project, rather than as an Indian project as provided by PL 100-516, and their vision is affected.

Improvement of the relationship and performance has been observed over the last year as Reclamation has responded to this concern.

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 15, 2011

The Nuclear Energy Institute¹ (NEI) supports the Administration's request for Fiscal Year 2012 (FY12) funding for the Nuclear Regulatory Commission (\$1.038 billion) and the following Department of Energy programs:

- LWR Small Modular Reactor Licensing Technical Support - \$67 million
- Fuel Cycle Research and Development - \$155 million
- Light Water Reactor Sustainability Program - \$21.3 million
- Nuclear Energy Enabling Technologies - \$97 million
- Integrated University Program - \$45 million
- Next Generation Nuclear Plant - \$49.5 million
- Innovative Technology Loan Guarantee Program Office - \$36 billion in new loan guarantee authority for nuclear power projects

In addition, the nuclear energy industry strongly opposes legislation to impose a proposed tax on electric consumers for the uranium enrichment facility decontamination and decommissioning fund.

Ensuring a Strong Nuclear Regulatory Commission

An independent, credible regulatory agency is required for public confidence in commercial nuclear energy facilities. During the next few years, the NRC will be challenged to continue its inspection and licensing activities while analyzing the Fukushima Daiichi nuclear accident and determine what changes, if any, may be necessary in NRC requirements. Continuity and stability of the five-member commission during this critical time will be essential to ensure NRC staff and licensees have clear guidance on implementation of the lessons learned. The Commission functions most effectively when it has a full complement of five commissioners, and the nuclear energy industry believes Congress' highest priority should be ensuring that vacancies on the Commission do not occur.

¹ The Nuclear Energy Institute is the industry's policy organization, whose broad mission is to foster the beneficial uses of nuclear technology in its many commercial forms. Its membership, more than 350 corporate members in 17 countries, includes every U.S. utility that operates a nuclear power plant as well as international utilities, plant designers, architect and engineering firms, uranium mining and milling companies, nuclear service providers, universities, manufacturers of radiopharmaceuticals, universities, labor unions and law firms.

The industry supports FY 12 funding at the NRC's requested level of \$1.038 billion, which is a \$28.7 million decrease below its FY10 funding levels. The industry remains concerned, however, at the steep escalation in agency budgets and staffing levels over the last decade, from 2,763 staff in FY01 to 3,981 staff proposed in FY12, and from \$487 million in FY01 to more than \$1 billion proposed in FY12. The industry recommends, therefore, that any additional Fukushima-related work be funded by re-allocating resources and achieving greater efficiencies, without compromising safety oversight of existing plants and ongoing licensing activities on license renewal, power uprates, reactor design certifications, combined construction and operating licenses and small modular reactor licensing issues. The industry believes the NRC can absorb additional analysis of the Fukushima accident without diverting resources from other programs. If the NRC is cannot do so, the commission should explicitly provide the subcommittee with the specific resource needs and what the agency can do to accommodate new activities within its current budget.

The industry applauds the continued oversight of the NRC by Congress to prioritize agency actions. The agency has made some progress, but should continue to achieve greater transparency in its budgeting to reveal planned staffing and resource needs by individual divisions. This is particularly true concerning the defense and national interest programs funded by the taxpayer in appropriated funds. In any one year, the NRC should ensure that these programs are funded at the entire 10% of available funds. A firewall should exist between fee and fee-relief sources of funds so the user fee is not used as an additional source of funding for appropriated programs. This would demonstrate to Congress, the public and the industry, which pays 90 percent of the NRC's budget, that the budget fairly reflects those activities that are licensee-specific.

Once again, the Administration has proposed terminating the Integrated University Program, which supports the nation's universities and community colleges. This program is unique in supporting important nuclear science and engineering research and workforce training. It is a vital program that provides financial support for students and junior faculty. The program is managed jointly with DOE's Office of Nuclear Energy and DOE's National Nuclear Security Administration and has been authorized by Congress. NEI supports \$15 million for NRC to continue its participation in the program in FY12 and recommends that NRC fund the program at that level, not at the \$11.5 million it has proposed for FY11.

Development of Advanced Reactor Technologies

The DOE Office of Nuclear Energy FY12 budget as proposed by the Administration is lower than what was appropriated in FY10. NEI supports the FY12 budget as it continues the new initiatives for the Office of Nuclear Energy requested in FY11. NEI believes that the following programs deserve support and represent the highest priorities for the nuclear energy industry:

- Light Water Reactor Sustainability Program—\$21.3 million

- LWR Small Modular Reactor Licensing Technical Support—\$67 million
- Nuclear Energy Enabling Technologies—\$97 million
- Integrated University Program—\$45 million
- Next Generation Nuclear Plant—\$49.5 million

The Idaho National Laboratory (INL) is designated as the lead lab for nuclear energy. INL maintains an extensive research infrastructure and workforce that will become even more vital for post-accident analysis and response to the radiological clean-up at Fukushima Daiichi.

Uranium Enrichment D&D Fund Tax Undue Burden on Consumers

The Administration's FY12 budget calls for legislation to reinstate the uranium enrichment decontamination and decommissioning fund, with a proposed tax on electric consumers of \$200 million a year for 10 years. Electric utilities have already paid twice for decommissioning and decontamination at uranium enrichment plants that were originally operated by the Energy Department—first as part of the price for uranium enrichment services from the facilities and again under provisions of the Energy Policy Act of 1992. Under the 1992 law, the tax on utilities was to end after 15 years or the collection of \$2.25 billion, adjusted for inflation. The utilities paid this amount in full as specified by law. NEI will continue to oppose this proposal in legislation and appreciates the support of the Subcommittee in rejecting this proposal in FY10 and FY11.

Integrated Used Fuel Management Program

The government has an obligation under the Nuclear Waste Policy Act to dispose of used nuclear fuel from commercial reactors and defense applications. The industry believes licensing should be completed. Also, numerous state and local governments and the National Association of Regulatory Utility Commissioners are actively opposing DOE's withdrawal of the application for the Yucca Mountain repository at the NRC and in the courts. The project should proceed and be funded so that the technical review of the license application is completed. The industry opposes the FY12 budget request by the NRC to terminate the licensing proceeding. We urge the Committee to request a specific plan and resources required for continuing the Yucca Mountain licensing process, assuming the courts rule the application cannot be withdrawn.

Given that it has been terminated, consumer payments into the Federal Nuclear Waste Fund should be suspended for the period of time for which there is no waste management program against which to assess costs. The industry supports a three-part integrated used fuel management strategy that includes: 1) on-site storage at reactor sites and development of centralized storage at volunteer locations; 2) research, development and demonstration of advanced fuel cycle technologies; and 3) development of a permanent repository. NEI supports the work of the Blue Ribbon Commission on America's Nuclear Future to develop recommendations on how the nation should manage used nuclear fuel and high-level radioactive waste and looks forward to reviewing the draft report scheduled for release this summer. Given

the importance of this report, the subcommittee should encourage the commission to complete its work as soon as possible.

The nuclear energy industry consistently has supported research and development of the advanced fuel cycle technologies proposed in the Fuel Cycle Research and Development program (\$155 million). DOE's plans should be adjusted based on its review of the recommendations of the Blue Ribbon Commission that Congress accepts.

Industry Supports \$36 Billion for DOE Innovative Technologies Loan Guarantee Program

The nuclear industry appreciates the support provided by the subcommittee for the DOE loan guarantee program for nuclear energy plants and uranium fuel cycle facilities. NEI urges members to maintain the appropriated funds for projects under development for FY11. The Administration has requested an additional \$36 billion in loan volume in FY12. This would provide sufficient loan volume for projects already in due diligence at DOE, and would provide certainty to other projects in the development pipeline that financing support will be available. Absent some certainty that financing will be available, companies may slow development of these projects.

Loan guarantees for nuclear energy projects are not a subsidy and there is no cost to the taxpayer. The use of loan guarantees will lower the overall cost of nuclear energy projects, ultimately reducing the cost of electricity to consumers. Companies granted loan guarantees by DOE for nuclear energy projects must pay a premium for use of the program, plus cover all administrative costs.

Budget scoring is not required for nuclear energy loan guarantees, because simply approving loan "volume" is not an appropriation. It simply authorizes the agency to issue loan guarantees up to that amount. For most loan guarantee programs, in which the federal government pays the cost of the loan guarantee, the 1990 Federal Credit Reform Act requires authorization of loan volume in an appropriations bill. However, the Government Accountability Office determined that the clean energy loan guarantee program authorized by the 2005 Energy Policy Act should not be subject to this FCRA requirement, because the companies receiving the loan guarantee pay the cost to the federal government of providing that guarantee—not taxpayers.

NEI continues to believe that the clean energy loan guarantee program, although essential, is not yet a workable financing platform, and urges the Subcommittee to exercise its oversight responsibilities on implementation by the Executive branch, particularly on the issues of the credit subsidy cost that project sponsors are expected to pay.

Environmental Clean Up

NEI supports DOE's budget request of \$6 billion for the Environmental Management Office.



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**STATEMENT OF
THE AMERICAN SOCIETY OF CIVIL ENGINEERS
BEFORE THE
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT, AND RELATED AGENCIES
U.S. HOUSE OF REPRESENTATIVES
ON THE
ON THE FY 2012 BUDGETS OF
THE U.S. ARMY CORPS OF ENGINEERS AND THE BUREAU OF RECLAMATION
APRIL 15, 2011**

Mr. Chairman and Members of the Subcommittee:

The American Society of Civil Engineers (ASCE) is pleased to provide this statement for the record on the proposed budgets of the U.S. Army Corps of Engineers (USACE) and the Bureau of Reclamation for Fiscal Year 2012.

A. U.S. Army Corps of Engineers

The FY 2012 budget provides \$4.6 billion. The president's budget for FY 2012 for these agencies is inadequate and must be increased. Congress must expand funding for FY 2012, and the continuing resolution for fiscal year 2011 must at a minimum restore funding for these agencies to their FY 2010 levels for key infrastructure program accounts.

ASCE recommends a minimum appropriation of \$5 billion for the Corps of Engineers in FY 2012 to reverse the budget trajectory to ensure safe infrastructure and a sound economy.

Unfortunately, the FY 2012 budget resolution released by the House Budget Committee last week would further erode the nation's capacity to rebuild its aging water resources infrastructure.

The administration proposal would fund the operation and maintenance of more than 600 flood and storm damage reduction projects, 143 commercial coastal navigation projects, and 51 commercial navigation projects on the inland waterways, according to USACE statements. It also funds construction of 90 projects where construction is already under way as well as two new construction starts.

The budget would fund 58 studies already under way and studies for four new starts. It will enable the Corps to process approximately 70,000 permit requests and to operate 75 hydropower plants with 350 generating units that produce about 24,000 megawatts per year. The budget will enable about 370 million outdoor recreational visits to Corps projects and will provide water supply storage for about 14 percent of the nation's municipal water needs.

Nevertheless, the president proposes to reduce spending on critical Corps of Engineers infrastructure programs in FY 2012. The funding for Civil Works in the 2012 Budget is about 15 percent below the enacted amount of \$5.445 billion in FY 2010. It is about 6 percent below the FY 2011(unenacted) budget level. These budget cuts must be reversed to ensure safe infrastructure and a sound economy.

More recently, the House passed a continuing resolution that would cut \$516 million from the Civil Works program in FY 2011. The presidential and congressional reductions continue the unfortunate trend toward under investing in federal infrastructure that saves lives and promotes economic growth.

In 2005, Hurricane Katrina vividly demonstrated the perils of relying upon poorly funded infrastructure to protect lives and property. An ASCE investigation (conducted on behalf of the Corps of Engineers) reported in 2007 that chronic under funding was one of the principal causes of the levee failures after Katrina.

Because of the congressional budgeting process, the stream of funding for the New Orleans hurricane protection system was irregular at best. If a project was not sufficiently funded, the USACE was often required to delay implementation or to scale back the project.

This push-pull mechanism for the funding of critical life-safety structures such as the New Orleans hurricane protection system is essentially flawed. The process creates a disconnect between those responsible for design and construction decisions and those responsible for managing the purse-strings. Inevitably, the pressure for tradeoffs and low-cost solutions compromised quality, safety, and reliability.

The project-by-project approach—in which projects are built over time based on the availability of funding—resulted in the hurricane protection system being constructed piecemeal with an overall lack of attention to “system” issues. The project-by-project approach appears to be associated with congressional limitations. The USACE was forced into a “reductionist’s” way of thinking: reduce the problem into one that can be solved within the given authority and budget. Focus only on the primary problem to be solved, inevitably making the issues of risk, redundancy, and resilience a lower priority.

American Society of Civil Engineers, The New Orleans Hurricane Protection System 71-72 (2007).

Problems continue on a larger scale: forty-one states, including all states east of the Mississippi River and 16 state capitals, are served by commercially navigable waterways. The U.S. inland waterway system consists of 12,000 miles of navigable waterways in four systems—the Mississippi River, the Ohio River Basin, the Gulf Intercoastal Waterway, and the Pacific Coast systems—that connect with most states in the U.S. The system comprises 257 locks, which raise and lower river traffic between stretches of water of different levels.

Forty-seven percent of all locks maintained by the U.S. Army Corps of Engineers were classified as functionally obsolete in 2006. Assuming that no new locks are built within the next 20 years, by 2020, another 93 existing locks will be obsolete—rendering more than 8 out of every 10 locks now in service outdated.

The Corps of Engineers continues to suffer from many years of under funding for essential infrastructure systems. If allowed to continue, this trend likely will result in ever greater system failures and the consequent expenditure of tens of billions of dollars to rebuild what could have been built more economically in the first instance.

In the face of the Corps' aging infrastructure needs, the president's budget for the Civil Works Program in FY 2012 reduces federal investments in essential national civil works systems. Moreover, the negative budgeting trend is not likely to improve in future years. The Corps estimates that its budget proposals will continue to decline through FY 2015, with a low estimate of \$4.5 billion for FY 2013. The Corps expects that inflation will reduce actual spending on key infrastructure programs by a further \$3 billion over the next five years. ASCE believes that these levels of spending are inadequate to meet the nation's security, economic and environmental demands in the 21st century.

To cite one striking example, in 1986, Congress enacted the Harbor Maintenance Trust Fund (HMTF) to provide federal funding for the operation and maintenance (O&M) costs at U.S. coastal and Great Lakes harbors from maritime shippers. O&M costs involve mostly the dredging of harbor channels to their authorized depths and widths. The HMTF is financed by a tax on importers and domestic shippers using coastal or Great Lakes ports. The tax is assessed at a rate of 0.125 percent of cargo value (\$1.25 per \$1,000 in cargo value).

In FY 2012, the HMTF balance will be an estimated at \$6.1 billion. The administration is requesting \$732 million in FY 2012 for the O&M of channels and harbors—equal to 45 percent of the anticipated FY 2012 revenues of nearly \$1.6 billion and to about eight percent of the fund's anticipated year-end balance. Despite this large and growing surplus in the trust fund, the busiest U.S. harbors are presently under maintained. The Corps of Engineers estimates that full channel dimensions at the nation's busiest 59 ports are available less than 35 percent of the time. This situation can increase the cost of shipping as vessels carry less cargo in order to reduce their draft or wait for high tide before transiting a harbor. It could also increase the risk of a ship grounding or collision.

ASCE strongly supports enactment of H.R. 104, the Realize America's Maritime Promise Act, which would require that all revenues flowing into the HMTF (plus any interest earned) in any fiscal year would be appropriated for O&M expenses at harbors and channels.

ASCE recommends an appropriation of \$1.597 billion from the HMTF for operations and maintenance of harbors in FY 2012, an amount equal to the total revenues (taxes and interest) to be received into the trust fund.

B. Bureau of Reclamation

The FY 2012 budget request for Water and Related Resources, Reclamation's principal operating account, is \$805.2 million, a decrease of \$108.4 million from the FY 2011 request.

The request includes a total of \$398.5 million for water and energy, land, and fish and wildlife resource management and development activities. Funding in these activities provides for planning, construction, water conservation activities, management of Reclamation lands, including recreation, and actions to address the impacts of Reclamation projects on fish and wildlife.

The request also provides \$406.7 million for water and power facility operations, maintenance, and rehabilitation activities. Reclamation's FY 2012 budget request is \$1 billion, which includes \$53.1 million for the Central Valley Project Restoration Fund (CVPRF). This request is offset by discretionary receipts in the CVPRF, estimated to be \$52.8 million. The request for permanent appropriations in FY 2012 totals \$194.5 million.

ASCE recommends an appropriation of \$1.2 billion for the Bureau of Reclamation in FY 2012.

C. Conclusion

It is not clear how federal agencies will continue to pay for essential infrastructure systems with greatly reduced appropriations. "Doing more with less" may seem like a workable fiscal solution to some, but it is obvious that drastic budget cuts or the complete elimination of funding will mean little or nothing will be done to maintain these vital programs.

Enabling the eventual failure of the nation's essential public infrastructure through arbitrary budget-cutting is deeply troubling. Placing abstract notions of budget deficits above the primary duty of the federal government to protect human life is a dubious policy choice—a choice whose lethal consequences were amply demonstrated in New Orleans in the wake of Hurricane Katrina and the failure of that city's inadequately designed and constructed levee system. They will never be able to escape the knowledge that they were complicit in the failure. One thing Congress may never be allowed to say: We weren't told.

For further information, please contact:

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TESTIMONY OF ROBERT S. LYNCH, COUNSEL AND ASSISTANT
SECRETARY/TREASURER,
IRRIGATION & ELECTRICAL DISTRICTS ASSOCIATION OF ARIZONA,
BEFORE THE HOUSE COMMITTEE ON APPROPRIATIONS,
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT,
ADDRESSING FY 2012 APPROPRIATIONS FOR THE BUREAU OF RECLAMATION
AND THE WESTERN AREA POWER ADMINISTRATION

APRIL 15, 2011

The Irrigation & Electrical Districts Association of Arizona (IEDA) is pleased to present written testimony regarding the fiscal year 2012 (FY 2012) proposed budgets for the Bureau of Reclamation (Reclamation) and the Western Area Power Administration (Western).

IEDA is an Arizona nonprofit association whose 25 members and associate members receive water from the Colorado River directly or through the facilities of the Central Arizona Project (CAP) and purchase hydropower from federal facilities on the Colorado River either directly from Western or, in the case of the Boulder Canyon Project, from the Arizona Power Authority, the state agency that markets Arizona's share of power from Hoover Dam. IEDA was founded in 1962 and continues to represent water and power interests of Arizona political subdivisions and other public power providers and their consumers.

Bureau of Reclamation

IEDA has reviewed the Reclamation Budget and found, not unexpectedly, that it does not address the enormous backlog of needs of the agency's aging infrastructure. We support the important projects and programs that are included in the proposed budget. We are especially mindful that the Yuma Desalting Plant is an essential element of the problem solving mechanisms being put in place for the Colorado River and especially the Lower Colorado River. Problem solving on the Lower Colorado River will be substantially improved by using the plant as a management element.

We also wish to call to the Subcommittee's attention the issue concerning increased security costs at Reclamation facilities post-9/11. Legislation has passed Congress addressing that issue and a budget approved for Reclamation for FY 2012 should reflect that this legislation became law and affects Reclamation operations. We believe security costs under that legislation should be reduced because of the recently declining Consumer Price Index.

Western Area Power Administration

IEDA has reviewed the proposed budget for the Western Area Power Administration. We wish to call the Subcommittee's attention to the limited appropriation for construction funding proposed for FY 2012. We believe this shortfall is irresponsible. Western has over 17,000 miles of transmission line for which it is responsible. It has on the order of 14,000 megawatts of generation being considered for construction that would depend on that federal network. The existing transmission facilities cannot handle all of these proposals. Moreover, the region is

projected, by all utilities operating in the region, to be short of available generation in the ten-year planning window that utilities and Western use.

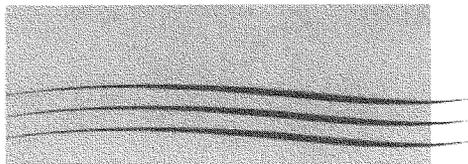
The appropriation proposed in this category cannot come even close to keeping existing transmission construction going. Repairs and replacements will have to be postponed and considerable hardships to local utilities that depend on the federal network are bound to occur. In Western's Desert Southwest Region, our region, work necessary just to maintain system reliability will have to be postponed.

We would be the first to support additional customer financing of federal facilities and expenses through the Contributed Funds Act authority under Reclamation law that is available to Western. However, programs utilizing non-federal capital formation require years to develop. One such program being proposed by the Arizona Power Authority in a partnership with Western died because it was enmeshed in bureaucratic red tape at the Department of Energy. There is no way that Western customers can develop contracts, have them reviewed, gain approval of these contracts from Western and their own governing bodies, find financing on Wall Street and have monies available for the next fiscal year. It is just impossible, especially in this economy.

There are impediments to using existing federal laws in facilitating non-federal financing of federal facilities and repairs to federal facilities and Congress should examine them. Artificially designating customer funding for construction, in lieu of real solutions, is bad public policy and should not be countenanced. We urge the Subcommittee to restore a reasonable amount of additional construction funding to Western so it can continue to do its job in keeping its transmission systems functioning and completing the tasks that it has in the pipeline that are critical to its customers throughout the West.

Conclusion

Thank you for the opportunity to submit this written testimony. If we can provide any additional information or be of any other service to the Subcommittee, please do not hesitate to get in touch with us.



WATER RESOURCES COALITION

**STATEMENT OF
THE WATER RESOURCES COALITION
BEFORE THE
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT, AND RELATED
AGENCIES
U.S. HOUSE OF REPRESENTATIVES
ON THE
ON THE FY 2012 BUDGETS OF
THE U.S. ARMY CORPS OF ENGINEERS AND THE BUREAU OF RECLAMATION
APRIL 15, 2011**

Mr. Chairman and Members of the Subcommittee:

The Water Resources Coalition (WRC) is pleased to provide this statement for the record on the proposed budgets of the U.S. Army Corps of Engineers (USACE) and the Bureau of Reclamation for Fiscal Year 2012.

A. U.S. Army Corps of Engineers

The FY 2012 budget provides \$4.6 billion. The president's budget for FY 2012 for these agencies is inadequate and must be increased. Congress must expand funding for FY 2012, and the continuing resolution for fiscal year 2011 must at a minimum restore funding for these agencies to their FY 2010 levels for key infrastructure program accounts.

WRC recommends a minimum appropriation of \$5 billion for the Corps of Engineers in FY 2012 to reverse the budget trajectory to ensure safe infrastructure and a sound economy.

Unfortunately, the FY 2012 budget resolution released by the House Budget Committee last week would further erode the nation's capacity to rebuild its aging water resources infrastructure.

improve, prevent, save

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The administration proposal would fund the operation and maintenance of more than 600 flood and storm damage reduction projects, 143 commercial coastal navigation projects, and 51 commercial navigation projects on the inland waterways, according to USACE statements. It also funds construction of 90 projects where construction is already under way as well as two new construction starts.

The budget would fund 58 studies already under way and studies for four new starts. It will enable the Corps to process approximately 70,000 permit requests and to operate 75 hydropower plants with 350 generating units that produce about 24,000 megawatts per year. The budget will enable about 370 million outdoor recreational visits to Corps projects and will provide water supply storage for about 14 percent of the nation's municipal water needs.

Nevertheless, the president proposes to reduce spending on critical Corps of Engineers infrastructure programs in FY 2012. The funding for Civil Works in the 2012 Budget is about 15 percent below the enacted amount of \$5.445 billion in FY 2010. It is about 6 percent below the FY 2011(unenacted) budget level. These budget cuts must be reversed to ensure safe infrastructure and a sound economy.

More recently, the House passed a continuing resolution that would cut \$516 million from the Civil Works program in FY 2011. The presidential and congressional reductions continue the unfortunate trend toward under investing in federal infrastructure that saves lives and promotes economic growth.

In 2005, Hurricane Katrina vividly demonstrated the perils of relying upon poorly funded infrastructure to protect lives and property. An engineering investigation (conducted on behalf of the Corps of Engineers) reported in 2007 that chronic under funding was one of the principal causes of the levee failures after Katrina.

Because of the congressional budgeting process, the stream of funding for the New Orleans hurricane protection system was irregular at best. If a project was not sufficiently funded, the USACE was often required to delay implementation or to scale back the project.

This push-pull mechanism for the funding of critical life-safety structures such as the New Orleans hurricane protection system is essentially flawed. The process creates a disconnect between those responsible for design and construction decisions and those responsible for managing the purse-strings. Inevitably, the pressure for tradeoffs and low-cost solutions compromised quality, safety, and reliability.

The project-by-project approach—in which projects are built over time based on the availability of funding—resulted in the hurricane protection system being constructed piecemeal with an overall lack of attention to “system” issues. The project-by-project approach appears to be associated with congressional limitations. The USACE was forced into a

“reductionist’s” way of thinking: reduce the problem into one that can be solved within the given authority and budget. Focus only on the primary problem to be solved, inevitably making the issues of risk, redundancy, and resilience a lower priority.

American Society of Civil Engineers, The New Orleans Hurricane Protection System 71-72 (2007).

Problems continue on a larger scale: forty-one states, including all states east of the Mississippi River and 16 state capitals, are served by commercially navigable waterways. The U.S. inland waterway system consists of 12,000 miles of navigable waterways in four systems—the Mississippi River, the Ohio River Basin, the Gulf Intercoastal Waterway, and the Pacific Coast systems—that connect with most states in the U.S. The system comprises 257 locks, which raise and lower river traffic between stretches of water of different levels.

Forty-seven percent of all locks maintained by the U.S. Army Corps of Engineers were classified as functionally obsolete in 2006. Assuming that no new locks are built within the next 20 years, by 2020, another 93 existing locks will be obsolete—rendering more than 8 out of every 10 locks now in service outdated.

The Corps of Engineers continues to suffer from many years of under funding for essential infrastructure systems. If allowed to continue, this trend likely will result in ever greater system failures and the consequent expenditure of tens of billions of dollars to rebuild what could have been built more economically in the first instance.

In the face of the Corps' aging infrastructure needs, the president's budget for the Civil Works Program in FY 2012 reduces federal investments in essential national civil works systems. Moreover, the negative budgeting trend is not likely to improve in future years. The Corps estimates that its budget proposals will continue to decline through FY 2015, with a low estimate of \$4.5 billion for FY 2013. The Corps expects that inflation will reduce actual spending on key infrastructure programs by a further \$3 billion over the next five years. WRC believes that these levels of spending are inadequate to meet the nation's security, economic and environmental demands in the 21st century.

To cite one striking example, in 1986, Congress enacted the Harbor Maintenance Trust Fund (HMTF) to provide federal funding for the operation and maintenance (O&M) costs at U.S. coastal and Great Lakes harbors from maritime shippers. O&M costs involve mostly the dredging of harbor channels to their authorized depths and widths. The HMTF is financed by a tax on importers and domestic shippers using coastal or Great Lakes ports. The tax is assessed at a rate of 0.125 percent of cargo value (\$1.25 per \$1,000 in cargo value).

In FY 2012, the HMTF balance will be an estimated at \$6.1 billion. The administration is requesting \$732 million in FY 2012 for the O&M of channels and

harbors—equal to 45 percent of the anticipated FY 2012 revenues of nearly \$1.6 billion and to about eight percent of the fund's anticipated year-end balance. Despite this large and growing surplus in the trust fund, the busiest U.S. harbors are presently under maintained. The Corps of Engineers estimates that full channel dimensions at the nation's busiest 59 ports are available less than 35 percent of the time. This situation can increase the cost of shipping as vessels carry less cargo in order to reduce their draft or wait for high tide before transiting a harbor. It could also increase the risk of a ship grounding or collision.

WRC strongly supports enactment of H.R. 104, the Realize America's Maritime Promise Act, which would require that all revenues flowing into the HMTF (plus any interest earned) in any fiscal year would be appropriated for O&M expenses at harbors and channels.

WRC recommends an appropriation of \$1.597 billion from the HMTF for operations and maintenance of harbors in FY 2012, an amount equal to the total revenues (taxes and interest) to be received into the trust fund.

B. Bureau of Reclamation

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The request also provides \$406.7 million for water and power facility operations, maintenance, and rehabilitation activities. Reclamation's FY 2012 budget request is \$1 billion, which includes \$53.1 million for the Central Valley Project Restoration Fund (CVPRF). This request is offset by discretionary receipts in the CVPRF, estimated to be \$52.8 million. The request for permanent appropriations in FY 2012 totals \$194.5 million.

WRC recommends an appropriation of \$1.2 billion for the Bureau of Reclamation in FY 2012.

C. Conclusion

It is not clear how federal agencies will continue to pay for essential infrastructure systems with greatly reduced appropriations. "Doing more with less" may seem like a workable fiscal solution to some, but it is obvious that drastic budget cuts or the

complete elimination of funding will mean little or nothing will be done to maintain these programs.

Enabling the eventual failure of the nation's infrastructure through arbitrary budget-cutting is deeply troubling. Placing abstract notions of budget deficits above the primary duty of the federal government to protect human life is a dubious policy choice—a choice whose lethal consequences were amply demonstrated in New Orleans in the wake of Hurricane Katrina and the failure of that city's inadequately designed and constructed levee system. They will never be able to escape the knowledge that they were complicit in the failure. One thing Congress may never be allowed to say: We weren't told.

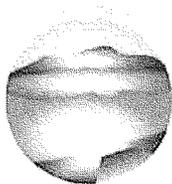
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SOUTHEASTERN COLORADO
Water Conservancy District

"Your investment in water"

April 15, 2011

Chairman Rodney Freilinghuysen
 Congressman Peter Visclosky, Ranking Member
 Subcommittee on Energy and Water Development
 House Appropriation Committee
 2362 Rayburn House Office Building
 Washington, D.C. 20515

Dear Chairman Freilinghuysen and Congressman Visclosky,

As you are aware, the Arkansas Valley Conduit (Conduit) project currently being undertaken by the Southeastern Colorado Water Conservancy District in conjunction with the Bureau of Reclamation, is in the environmental compliance phase. Continued appropriation levels as requested by the Administration are vital to keeping this essential project on schedule.

The Arkansas Valley Conduit (Conduit) is an originally authorized feature (1962) of the Fryngpan-Arkansas (Fry-Ark) Project. However, because of financial constraints, it has never been built.

The Conduit was originally intended to provide clean drinking water to the lower Arkansas River valley where poor water quality issues existed then and continue now. Not only has the water quality in the Arkansas River continued to deteriorate, the ground water supplies in many cases are no longer considered safe to drink per EPA standards. To illustrate this point, 13 water providers in the valley are under compliance orders from the Colorado Department of Public Health and Environment. Thus, they must comply with the Safe Drinking Water Act as soon as possible.

The most efficient and effective answer to the water quality problem is a regional approach, delivering clean water from the Fryngpan-Arkansas project's Pueblo Reservoir to about 40 valley water providers via the Conduit. This water will be the lifeblood for the future of these entities.

The Southeastern Colorado Water Conservancy District (Southeastern) successfully sought legislation that provides a federal cost share as well as a local funding mechanism for the construction of the Conduit. This legislation combined with the progress on the Environmental Impact Statement demonstrates clearly that the Conduit is a viable project that should be built.

In 2010, the Conduit received \$5 million in appropriations from the House and Senate appropriations committees. This money funded the start of the environmental process – including a contract (\$4.3 million) between Reclamation and MWH Engineering to perform the EIS over the next two years. In 2011, the Conduit was included in the Bureau of Reclamation budget for \$3 million. This money has kept the environmental process moving. This provided for internal Reclamation funding as well as engineering support work for the EIS by the Technical Service Center (TSC) of Reclamation in Denver which is very important to keeping the EIS on schedule.

The FFY 2011 budget delay has prevented certain engineering elements from progressing. Therefore, the EIS process must be funded at the nearly \$3 million in fiscal year 2012 to assure that the study will be completed on schedule with the necessary engineering support.

The engineering studies and projects to support the EIS that still need to be completed include the water treatment planning, a corridor study, and aerial mapping of the alternatives. These elements must be completed quickly to help with the completion of the EIS and the design work which is also underway. The appropriation is the critical component of getting this work completed.

We ask this subcommittee to continue to fund the Conduit at the necessary level as requested by the Bureau of Reclamation.

Respectfully,



James W. Broderick
Executive Director

Cc: Bill Long, District President

**TESTIMONY OF PHILIP GIUDICE, UNDERSECRETARY FOR ENERGY,
COMMONWEALTH OF MASSACHUSETTS AND CHAIR, THE NATIONAL
ASSOCIATION OF STATE ENERGY OFFICIALS, BEFORE THE HOUSE ENERGY
AND WATER DEVELOPMENT APPROPRIATIONS SUBCOMMITTEE IN SUPPORT
OF FY'12 DEPARTMENT OF ENERGY FUNDING**

April 15, 2011

Mr. Chairman and members of the Subcommittee, I am Phil Giudice of Massachusetts and Chair of the National Association of State Energy Officials (NASEO). NASEO is submitting this testimony in support of funding for a variety of U.S. Department of Energy programs. Specifically, we are testifying in support of no less than \$125 million for the State Energy Program (SEP), which is equal to the authorization. SEP is the most successful program supported by Congress and DOE in this area. This should be base program funding, which allows states to set their own energy priorities while contributing to national energy goals, with no competitive portion which focuses primarily on DOE's internal priorities. 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. As ARRA winds down over the remainder of this year, the base SEP funds are the critical linchpin to help states in building on these activities and expanding energy-related economic development, much as SEP has done for 30 years. We also support the \$320 million FY'12 Budget Request for the Weatherization Assistance Program (WAP). These programs are successful and have a strong record of delivering savings to low-income Americans, homeowners, businesses, and industry. We also support the Budget Request for the Energy Information Administration (EIA) of \$124 million. EIA's state-by-state data is very helpful. EIA funding is a critical piece of energy emergency preparedness and response, and there are significant new EIA responsibilities under EISA. NASEO continues to support funding for a variety of critical buildings programs, including Building Codes Training and Assistance, Energy Star, the commercial buildings initiative/Better Buildings and residential energy efficiency at least at the FY'10 level. NASEO also supports funding for the Office of Electricity Delivery and Energy Reliability ("OE"), at least at the FY'10 funding level. 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 least at the FY'10 level, to promote efficiency efforts and to maintain US manufacturing jobs.

Formula SEP funding provides a basis for states to share best practices among themselves. These best practices (even without stimulus funds) allow states to get a great deal accomplished. These types of activities include energy financing programs, revolving loans, utility-based programs, energy service performance contracts, etc.

In January 2003 (and updated in 2005), 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 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. Energy price volatility makes the program more essential as businesses and states work together to maintain our competitive edge.

Stimulus Funding Implementation

We have been working closely with DOE to implement the ARRA programs as quickly as possible. We have had regular calls with all the state energy officials to address implementation questions. We have also had a series of regional conference calls among the states, and we have seven regional coordinators helping to share best practices among the states. NASEO is sharing best practices and providing information to officials at all levels of government in order to more effectively coordinate this effort. We are convinced that these funds are helping to assist the private sector to implement major positive changes in the U.S. economy that will improve all sectors of the economy. NASEO believes it is important to maintain base levels of appropriations for critical programs, such as SEP and Weatherization, in order to avoid a huge decrease in funding after a rapid stimulus increase.

With respect to ARRA spending for SEP, of the \$3.1 billion appropriated, virtually all the money is now under contract and work is being implemented quickly. We and DOE are working through the barriers that slowed spending, including NEPA compliance, Davis-Bacon wage rates, Buy-American clauses, historic preservation, lead paint requirements and general procurement issues. It is important to stress that the key figures are the “commitment” and “contracted” amounts, because that is when people get hired and work commences. States generally do not pay until projects are actually completed and milestones are met. We do not pay-up front in most cases. In economics jargon, the federal spending figure is actually a lagging indicator. Of the ARRA funds dedicated to SEP and EECBG, over \$1 billion has been dedicated to energy financing programs in cooperation with the private sector. This has the greatest long term potential.

Examples of Successful State Energy Program Activities: The states have implemented thousands of projects. We have previously supplied to subcommittee staff examples of programs and projects implemented. Here are a few representative examples.

Arizona: Fourteen non-profit organizations received funding for renewable energy and energy efficiency projects throughout Arizona in combination with utility rebates. An example is the Society of St. Vincent de Paul's donations warehouse in Phoenix, which used SEP funding for a day lighting project. The state leveraged \$69.7 million in non-federal funds for 157 energy-related projects statewide, saving almost \$12 million annually in energy costs and helping the private sector create important jobs.

Arkansas: One of the scores of new projects in this state include help for the chicken industry to install a combination of LED (light-emitting diodes) and compact fluorescent bulbs (CFLs) in chicken houses. This project is helping the chicken industry to become much more efficient by reducing energy costs dramatically.

California: The state is implementing a comprehensive residential and commercial (\$18.8million) building retrofit program, an energy finance program for municipalities, and state building retrofits through revolving loans (over \$25 million), clean energy business financing, low-interest loans for local governments and “Green Jobs” work force training (\$20 million). Jobs associated with the residential/commercial program total 1,200. The Energy Technology Assistance Program is creating over 700 jobs.

Idaho: K-12 schools has been a focus of the energy efficiency efforts in Idaho. HVAC tune-ups alone are saving millions of dollars each year in the 894 school buildings already

completed. Energy expert software has been installed in 91 school buildings, and millions of dollars each year will be saved once the lighting upgrades are all completed next year.

Indiana: A major focus of energy projects here has been in the commercial and industrial sector. The Indiana Conserving Hoosier Industrial Power Program has provided grants through a competitive process for cost-effective energy efficiency improvements. Projects range from controls/sensors, chillers, furnaces, boilers, heat pumps, building insulation and lighting. Partnering companies have included ArcelorMittal, Analytical Engineering, Atlas Foundry, Frito-Lay, Haynes International, Koetter & Smith, Louisiana Pacific, Minnich Poultry, Perennial Washington Street, Thyssen Krupp Waupaca and Vertellus Specialties, etc. The state energy office has also supported E85 and B20 refueling stations on the I-65 corridor.

Kentucky: \$14 million has been dedicated to the Green Bank of Kentucky for energy efficiency financing for public buildings by utilizing revolving loans. In addition, funds were provided for an advanced energy efficient battery initiative, commercial office building energy efficiency retrofits, industrial facility energy efficiency retrofits, Home Performance with Energy Star, utility smart grid activities and \$10 million for energy efficiency in K-12 schools. The school districts are targeting over \$14 million in savings for the program. The partnership with the University of Kentucky is also providing funds for “circuit riders” to work across the state on energy projects.

Louisiana: \$25.7 million has been committed to energy efficiency retrofits in higher education buildings. \$15.7 million is dedicated to retrofits of commercial buildings and energy efficiency for new and existing homes. \$10 million has been committed to renewable energy development. Their Home Energy Rebate Option (HERO) program provided energy efficiency rebates of over \$1 million in 3 months for over 400 homeowners. The commercial rebates are as high as \$5,000 per facility.

Massachusetts: \$16.25 million has been dedicated to building energy retrofit projects across the Commonwealth. These include “deep energy retrofit” construction projects - several of which are complete - reducing energy consumption at target buildings by over 50%, and two community programs engaging Commonwealth homeowners on oil heat efficiency and home energy improvement. Others, like a museum project in North Adams, MA, are increasing efficiency via fuel-switching, lighting and equipment upgrades, and several SEP ARRA-funded solar installations. Approximately 700 energy meters have been installed as part of the \$10 million Enterprise Energy Management System, enabling energy cost savings of 5-15% by providing real-time energy use data and alerts at 17 million square feet of state facilities. In addition, a grant to the state’s Division of Capital Asset Management (DCAM) continues to accelerate a \$200 million bond-financed Massachusetts Clean Energy Investment Program. This quarter, for example, four contracts were signed for large comprehensive energy projects including a close to \$50 million project at UMass Dartmouth, the largest in DCAM’s history.

Mississippi: \$17 million was dedicated for energy efficient public buildings, including retrofits, performance contracting and building energy codes. \$10 million was allocated for renewable energy projects, smart meters on public facilities and support for community college work force training. An additional \$10 million was slated for businesses to implement energy efficiency or renewable energy upgrades. The Mississippi Job Protection through Energy Economic Development Program has provided grants to 55 companies for energy retrofits, with annual savings of almost \$4 million. One example is the Laurel Machine and Foundry Company, where they are savings almost \$100,000/year and the company said that without these funds they would have closed and 32 employees would have lost their jobs.

Montana: \$22.3 million has been allocated to state universities, community colleges and other state facilities for energy efficiency projects; 89 projects are underway. The Montana Veterans Nursing Home in Columbia Falls has been the beneficiary of one of these projects, allowing the state to be repaid in only 3 months for the energy efficiency upgrade, including cost share. Additional funds have been dedicated to renewable energy demonstration projects, including CORE Wind Power for a 3 MW facility in Ronan, Algae Aqua Culture Technologies for biomass projects, the biodiesel blend project in the Hi-Line area and a Chester-based oilseed processor project.

New Jersey: \$7 million has been committed to fund solar installations on multi-family buildings, \$4 million for residential energy efficiency financing, \$4 million for multi-family energy efficiency loans, \$17 million for municipal energy efficiency incentives, \$6 million for state building energy efficiency and an additional \$15 million for grants and loans for energy efficiency and renewable energy applications. 430 home energy retrofits were completed recently under their Home Performance with Energy Star program.

Pennsylvania: \$100 Million of SEP investment has been dedicated to the deployment of renewable energy projects and creation of financial assistance tools aimed at deploying energy efficiency. These investments have leveraged over \$600 Million in private investment resulting in economic development and jobs. SEP has helped entrepreneurs build 128 MW of new renewable energy capacity (equivalent to powering 36,000 homes). PA has used SEP to deploy long term assets that will be operating for 20 or more years. A sampling of the types of assets deployed in PA as a result of SEP funds include: a 38 MW Wind Farm in SW PA built with Pennsylvania-made Gamesa turbines and blades, a 1MW solar array at Longwood Gardens in Chester, PA built with Delaware-made solar panels and a 200KW natural gas-fired turbine made in California and installed at the Philadelphia Gas Works in Philadelphia Pa.

Washington: More than \$20 million was allocated for an energy efficiency and renewable energy loan and grant program, including a \$2 million grant to Port Townsend Paper Corp. for a biomass project that is supporting 398 full and part-time jobs and leveraged \$53 million in other funds. Over 10 times the amount of available funds was requested by potential recipients. Additional funding of \$5 million was provided for energy efficiency credit enhancements (supporting \$50 million in total project expenditures). Community-wide residential and commercial energy efficiency pilots received \$14 million in grants. Other projects include an “electric highway initiative establishing recharging locations on I-5, support for a 7.5 MW wind turbine at the Grays Harbor Paper mill in Hoquiam in cooperation with the Grays Harbor PUD and a \$1 million project for a wood-fired boiler at Forks Middle School in the Quillayute Valley Schools district.

Examples of projects funded by the State Energy Program in the other states,

AL: 50 schools received funds for energy efficient retrofits resulting in \$390,682 in annual savings

AK: Village End-Use Efficiency Measures netted 4.5% total power reduction in 31 villages

CO: Energy revolving loans to wind turbine supply chain, energy efficient window manufacturing and smart grid software development that have created 350 jobs

CT: Lighting retrofit at W. CT State U. will repay the SEP investment in less than six years

DE: Supporting 20 contractors participating in a residential HVAC upgrade rebate program

DC: Retrofit of HVAC at Judiciary Square will reduce energy consumption for AC by 20%

FL: Retrofit 1,531 billboards to renewable energy sources creating 60 jobs and reducing costs

GA: Community grants demonstrating a solar technology developed by the Georgia Institute of Technology

HI: Electric car infrastructure grants advance electric car technology and displace imported oil

IL: Supporting a geothermal heating/cooling project at four Rantoul schools resulting in 145 local jobs

IA: Funded efficiency upgrades at a community college reducing energy costs by \$280,000 a year

KS: Training 60 energy auditors statewide to work on residential energy efficiency projects

ME: 40 jobs retained at a sports equipment manufacturer through an energy efficiency retrofit

MD: Through MEA's innovative Project Sunburst grant program, awarded local governments over \$9 million to engage in power purchase agreements for over 9 MW of solar.

MI: Supported an automotive parts manufacturer diversification into wind turbines, creating 165 jobs

MN: Provided residential energy rebates producing \$5 in energy improvements for every \$1 invested

MO: Developing five farm and landfill biogas projects creating 30 permanent and 100 temporary jobs

NE: Solar project in Norfolk created demand for new-line of product manufactured in Behlen

NV: 124 state buildings undergo energy efficiency/renewable upgrades saving \$745,000 a year

NH: Grants to 5 nascent clean tech businesses to showcase innovation and entrepreneurship

NM: 332 intersections statewide retrofitted with LED traffic lights saving 80% a year in energy costs

NY: Lighting retrofit for Rochester General Hospital saving \$80,000 a year in energy costs

NC: Pilot to reduce energy consumption in 4,680 new single, multi, and manufactured homes by 15%

ND: Lighting retrofit project at small business, Gefroh Electric, will pay for itself and retain/create jobs

OH: Supporting a project at Norwalk bakery to reduce energy use 25% and increase production 20%

OK: Tulsa school bus retrofit will save district \$750,000 to \$1 million annually

OR: Lighting retrofit in Fossil School District saves 50-60 percent a year in energy costs for lighting

RI: Partnering with 25 businesses and municipalities on renewable energy projects statewide

SC: Providing alternative energy grants to 12 colleges and non-profits for solar and biomass

SD: 100-year old Capitol boiler plant retrofitted saving taxpayers \$2 million in energy costs annually

TN: Awards to 108 solar projects resulting in an estimated 5.8 MW of new solar on the electric grid

TX: 15 cities installed U.S.-made efficient streetlights that use 1/30th the power of old technology

UT: Solar on schools project delivering solar to each of the state's 41 school districts

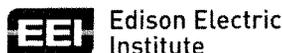
VT: Funding 15 energy projects in businesses and public institutions to lower operating costs

VA: \$10 million in grants to 15 biomass projects leveraging \$110 million in private investment

WV: Launched an energy efficiency project at a state prison to save \$400,597 a year

WI: Established a wind-turbine service facility in Hartland that created 111 jobs

WY: Residential solar and wind projects increased under renewable energy program



Written Statement
Submitted by Thomas R. Kuhn
President
Edison Electric Institute
Regarding Fiscal Year 2012 Appropriations
For the Department of Energy
To the
Subcommittee on Energy and Water Development
House Committee on Appropriations
April 14, 2011

The Edison Electric Institute (EEI) respectfully submits this written testimony for the record to the House Appropriations Subcommittee on Energy and Water Development.

The Edison Electric Institute is the association of U.S. shareholder-owned electric companies. Our members serve 95 percent of ultimate electricity customers in the shareholder-owned segment of the industry and represent approximately 70 percent of the U.S. electric power industry.

EEI appreciates this opportunity to share our views on some of the Department of Energy's (DOE) programs for the fiscal year 2012. We believe a robust national energy policy that supports the full portfolio of energy resources is critical to our country's national security and economic growth. Therefore, we respectfully ask the Subcommittee to direct sufficient resources toward these critically important activities.

ELECTRIC TRANSPORTATION

EEI embraces the goal of having one million electric vehicles on the road by 2015. The United States faces numerous energy policy challenges, but perhaps none looms larger than energy security. Ongoing conflict in the Middle East and increasing demand as nations' economies recover have left crude oil prices hovering around \$110 per barrel. U.S. drivers are now paying an average of \$3.73 per gallon of gas, a 65 percent increase in four months. We strongly support increasing domestic oil supply. Turning to electricity as a transportation fuel is critical, too.

The transformation of the nation's transportation fleet to one fueled in part by domestically produced electricity can gradually help reduce our dependence on foreign energy sources. Plug-in electric vehicles (PEVs) are being rolled out in major U.S. markets, as automobile manufacturers join utilities in embracing electricity as an important transportation fuel.

The job creation potential behind electric transportation is enormous. As the nation transitions to a new era of electric transportation, demand for jobs in this new technology sector will continue to increase. From manufacturing batteries to building the necessary electricity recharging stations, PEVs will create high-quality employment opportunities throughout the country. The federal government estimates that tens of thousands of American jobs will be created to manufacture PEV batteries and components.

Congress has a significant role to play in securing a place for electric vehicles in the transportation fleet. Federal funding is crucial to help break down market barriers to the commercial-scale deployment of electric vehicles and related infrastructure. Accordingly, EEI supports funding for DOE's PEV vehicle technology programming, including battery and electric drive technology development and grants to communities for the installation of PEV recharging infrastructure.

FOSSIL ENERGY

Coal generates almost 45 percent of our electricity and will continue to be an important fuel source for our nation's electricity mix. Coal is the largest domestically produced source of energy in the United States.

EEI urges strong support for carbon capture and storage (CCS) and advanced coal technology programs, including loan guarantee authority for advanced fossil projects. CCS is a promising and important technology that will allow continued utilization of our abundant domestic coal reserves to generate a reliable and affordable supply of electricity in a cleaner manner. CCS commercialization is still in the future, but demonstration technologies hold great promise, and we are working with Congress and the Administration to develop policies that will accelerate its commercial availability and deployment.

NUCLEAR ENERGY

EEI urges support for DOE's nuclear loan guarantee program and recommends approval of the additional \$36 billion requested in loan volume for nuclear energy projects. Nuclear power plants generate about 20 percent of the industry's electricity and are the largest source of carbon-free electricity production in the country.

SMART GRID

EEI supports robust funding for smart grid programs. In addition to operational benefits such as automatic outage detection and automated meter reading, customers with smart meters receive other types of benefits, including easier energy management and the potential of the electric grid to act as a platform for future energy technologies, including plug-in electric vehicles and distributed generation. Currently, electric utilities install between 15,000 and 20,000 smart meters every day. By 2019, it is estimated that more than 58 million smart meters will be in use in more than half of all U.S. households.

Deployment of smart grid technology means job creation across the economy. Researchers at the Milken Institute point out that smart grid construction requires highly skilled labor from various architectural and engineering occupations. Because smart grid investments have a significant economic impact, technology deployment would revitalize employment in R&D and in construction, where more than 1.3 million jobs were lost from 2007 to 2009.

CYBER SECURITY AND PHYSICAL INFRASTRUCTURE RELIABILITY

Protecting the nation's electric grid and ensuring a reliable, affordable supply of power are EEI's member companies' top priorities. Indeed, system reliability requirements are what set electric utilities apart from most other industries. Utilities have an obligation to serve, to maintain exceptional reliability, and to keep their systems secure in an era of increasing cyber threats.

The electric power industry is constantly making investments to strengthen and improve the operations and security of its cyber systems and to identify and address vulnerabilities. One research organization has projected that global spending on utility cyber security will top \$21 billion over the next five years. Industry in the United States, however, cannot go it alone. We urge Congress to continue public-private partnerships to help ensure a robust and resilient electric grid.

TRANSMISSION, SITING AND PERMITTING

Siting new transmission is critical for electric companies to be able to move power to where it is needed, to maintain a reliable electricity system, and to expand access to renewable energy resources.

In 2009, shareholder-owned electric utilities and stand-alone transmission companies invested an unprecedented \$9.3 billion in our nation's transmission infrastructure. This represents a 9 percent increase over 2008 levels and an 82 percent increase over 2000 investment levels. Since the beginning of 2000, industry has invested \$68 billion in transmission. We anticipate at least \$56 billion in transmission system investments through 2020.

The siting of new transmission lines, however, remains a difficult and lengthy endeavor, particularly where multiple states or regions must approve the project, or when the siting involves federal lands. Sufficient funding to ensure timely coordination between federal agencies and prompt issuance of federal authorizations and permits is essential for a robust transmission system.

ENERGY EFFICIENCY

Utility spending on energy efficiency continues to increase. Over the past three years, electric utilities doubled their budgets for energy efficiency, growing from \$2.7 billion annually to \$5.4 billion. Utility efficiency budgets are expected to reach or exceed \$12 billion by 2020.

As in the past, EEI recommends that federal funding be used for the development and deployment of efficient energy technologies to help meet electricity demand growth, while enabling consumers to manage their energy usage.

RENEWABLE ENERGY

EEI supports funding for renewable energy research and development to help make these resources cost-competitive. The Energy Information Administration (EIA) projects that renewable energy resources will continue to increase their share of the nation's generation mix—from 11 percent in 2009 to 14 percent in 2035. Twenty-nine states and the District of Columbia have renewable portfolio standards.

ENERGY STORAGE AND BATTERIES

Improved energy storage is critical for enabling the widespread use of electric vehicles, efficient and reliable smart electric grid technologies, and variable renewable energy resources. EEI supports federal initiatives to advance and accelerate storage/battery technologies.

National Waterways Conference, Inc., 4650 Washington Boulevard, #608, Arlington, VA 22201



Via email: EW.Approp@mail.house.gov

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April 15, 2011

The Honorable Rodney P. Frelinghuysen
Chairman
Subcommittee on Energy and Water Dev.
Committee on Appropriations
U. S. House of Representatives
2362-B Rayburn House Office Building
Washington, D.C. 20515-6020

The Honorable Peter J. Visclosky
Ranking Member
Subcommittee on Energy and Water
Committee on Appropriations
U.S. House of Representatives
2362 Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Frelinghuysen and Ranking Member Visclosky:

As the Subcommittee begins its work on the FY12 budget for the U.S. Army Corps of Engineers Civil Works program and the Bureau of Reclamation, the National Waterways Conference, Inc. (NWC or Conference) submits these comments for your consideration.

At the outset, we understand that, as a nation, we are faced with crippling debt that must be addressed. We also support efforts to eliminate earmark abuses that will help in this regard. However, investments in water resources projects are essential to the nation's economic vitality, public safety, environmental health and competitive position within the global economy. Our nation simply cannot afford the negative economic impacts, the diminished export capabilities and the detriment to our way of life that surely would result if we fail to invest in our water infrastructure.

Water resources planning and development is a collaborative process occurring at the Federal, state and local levels. Local communities and non-Federal sponsors bear a significant share of the cost of projects. Without funding for the Federal portion of ongoing projects, the local communities, faced with the prospect of substantially higher costs, will be forced to halt many projects, resulting in job losses, local economic harm and continued flood risk, which in turn results in loss of life, and more economic harm.

We are very concerned that the President's FY12 budget fails to recognize the critical role of our water resources infrastructure to a robust economy, job creation, public safety and environmental well-being. Overall, the budget does not reflect a balanced approach to the management our nation's water resources, largely ignoring the

human and economic uses, including navigation, flood control, municipal and industrial water supply and hydropower, in favor of ecological considerations. Given that disparity, we would suggest that funding be allocated according to business lines. One possible approach for the civil works budget would be to have the appropriations accounts align with major program areas – Navigation, Flood Risk Management, Environmental Restoration, Recreation, Hydropower and Water Supply. This approach would appropriately place with the Congress the decisions as to where investments should be made, and such decisions would be made in an open and transparent process.

Thank you for your consideration and we look forward to working with the Congress to ensure our nation's continued prosperity.

Respectfully submitted,

Amy W. Larson

Amy W. Larson, Esq.
President

The National Waterways Conference, established in 1960, is the national organization to advocate for the enactment of common sense policies recognizing the widespread public benefits of our nation's water resources infrastructure. Membership is comprised of the full spectrum of water resources stakeholders, including flood control associations, levee boards, waterways shippers and carriers, industry and regional associations, port authorities, shipyards, dredging contractors, regional water districts, engineering consultants and state and local governments. www.waterways.org



American Society of Plant Biologists

Cultivating a better future through plant biology research

Official Written Testimony in Support of the Department of Energy's Office of Science Fiscal Year 2012 Budget

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

Submitted by

Dr. Nicholas Carpita, President, American Society of Plant Biologists
&

Dr. Richard Sayre, Chair, Public Affairs Committee, American Society of Plant Biologists

April 15, 2011

On behalf of the American Society of Plant Biologists (ASPB), we submit this statement for the official record to support the requested level of \$5.42 billion for the Department of Energy (DOE) Office of Science for Fiscal Year (FY) 2012. The testimony highlights the importance of biology—particularly plant biology—as the nation seeks to address vital issues such as energy security.

ASPB and its members recognize the difficult fiscal environment our nation faces, but believe investments in scientific research will be a critical step toward economic recovery. We would also like to thank the Subcommittee for its consideration of this testimony and for its support for the basic research mission of the DOE Office of Science.

The American Society of Plant Biologists is an organization of approximately 5,000 professional plant biology researchers, educators, graduate students, and postdoctoral scientists with members in all 50 states and throughout the world. A strong voice for the global plant science community, our mission—achieved through work in the realms of research, education, and public policy—is to promote the growth and development of plant biology, to encourage and communicate research in plant biology, and to promote the interests and growth of plant scientists in general.

Food, Fuel, Environment, 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 the primary producers on which all life depends. Indeed, plant biology research is making many fundamental

contributions in the areas of domestic fuel security and environmental stewardship; the continued and sustainable development of better foods, fabrics, pharmaceuticals, and building materials; and in the understanding of basic biological principles that underpin improvements in the health and nutrition of all Americans. In fact, the 2009 National Research Council (NRC) report *A New Biology for the 21st Century* placed plant biology at the center of urgent priorities in energy, food, health, and the environment.

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 DOE—is central to so many vital practical considerations for our country, the amount invested in understanding their basic function and mechanisms is relatively small when compared with broader impacts on areas including energy security and economic development. For example, even though plants make all of the biofuel feedstocks—including lignin, cellulose, lipids, and hydrocarbons—there is still much to learn about how these feedstocks are synthesized, which can help us understand how to break them down more efficiently.

Recommendations

Because of our membership's extensive expertise, ASPB is in an excellent position to articulate the nation's plant science priorities as they relate to bioenergy and, specifically, with regard to recommendations for bioenergy research funding through the Department of Energy's Office of Science.

Within the Office of Science, the programs in Biological and Environmental Research (BER) and Basic Energy Sciences (BES) are crucial to understanding how basic biological processes work. For this reason, ASPB is supportive of the FY 2012 request to fund BER at \$717.9 million and BES at \$1.985 billion. Sustained funding for these programs is vital as the discoveries made in these areas will ultimately be the foundation for the next fuels and technologies we use in our daily lives.

In addition:

- We commend the DOE Office of Science, through their programs in Basic Energy Sciences and Biological and Environmental Research for funding the Bioenergy Research Centers and the Energy Frontier Research Centers. These centers are achieving the major goal of developing resources such as liquid biofuels to provide a secure and sustainable national energy source. *ASPB calls for expansion of these and other initiatives to develop next generation sources of sustainable energy.*
- The importance of disciplinary integration is a central theme of several recent NRC reports including *A New Biology for the 21st Century*, *Research at the Intersection of the Physical and Life Sciences*, and *Inspired by Biology: From Molecules to Materials to Machines*. Interdisciplinary research is at the heart of the missions of the Bioenergy Research Centers

and Energy Frontier Research Centers, from the genetic design of highly productive plants tailored for optimal biological and catalytic thermoconversion to biofuels and bio-based products, to fundamental studies of photosynthesis—the primary source of chemical energy on the planet. *ASPB calls for continued and expanded support of interdisciplinary research and centers within the Department of Energy's Office of Science to address our nation's critical energy challenges.*

- Although these large interdisciplinary centers, referenced above, are already highly productive, expanding the knowledgebase also depends on DOE's essential investments in individual investigator and small group science. Hence, *ASPB calls for the Office of Science to provide continued and expanded funding specifically targeted for individual or small group grants in bioenergy research.*
- Considerable research interest is now being paid to the use of plant biomass for energy production. However, for biomass crops to achieve their full potential, we must improve our understanding of their basic biology and development. It is at this fundamental level where there is the most promise for improving agronomic performance. *Therefore, ASPB calls for DOE to continue and advance partnerships with the U.S. Department of Agriculture and the National Science Foundation to support research targeted at efforts to integrate advances in fundamental knowledge with 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 ASPB if we can be of any assistance in the future; ASPB Public Affairs Director Dr. Adam P. Fagen can be reached at 301-296-0898 (phone), 301-296-0899 (fax), or afagen@aspb.org.

For more information about the American Society of Plant Biologists, please see www.aspb.org.

Dr. Nicholas Carpita
Professor of Botany and Plant Pathology,
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Dr. Richard Sayre
Director, Enterprise Rent-A-Car Institute for Renewable Fuels, and
Director, Center for Advanced Biofuel Systems, and
Donald Danforth Plant Science Center; and
Chair, Public Affairs Committee,
American Society of Plant Biologists

Testimony of Steven Payne, Director
Washington Department of Commerce, Community Services and Housing Division
Chair, Board of Directors for the
National Association for State Community Services Programs
For the U.S. House of Representatives Committee on Appropriations Energy and Water
Subcommittee

April 15, 2011

As Chair of the Board of Directors for the National Association for State Community Services Programs (NASCSPP), I am pleased to submit testimony in support of the Department of Energy's (DOE) Weatherization Assistance Program (WAP) and in support of DOE's State Energy Programs (SEP). In these difficult budgetary times, we understand that tough decisions have to be made. However, WAP and SEP are proven, cost-effective, measurably successful, and vital to the nation's energy security and energy efficiency movements, delivering savings to low-income Americans, businesses, and industry. In order to sustain the infrastructure and training and technical assistance, expertise, and activities of the network, we seek a FY2012 appropriations level of **\$320 million for the WAP** and **\$125 million for SEP**. These funding levels are essential to continue and improve these outstanding programs for our citizens. Due to the close of Recovery Act funding in March 2012, normally appropriated funds are even more critical to allow the WAP network to fulfill its administrative duties and ensure continued quality and success at the expanded Recovery Act level.

Some examples of the Program's accomplishments include:

- Creation and continued support of more than 15,000 full time, highly skilled jobs within the service delivery just in Recovery Act funds, with 8,000-10,000 additional jobs from annual grant funding, and many more in related businesses, such as materials suppliers;
- Returns \$2.51 for every dollar spent in energy and non-energy benefits over the life of the weatherized home;
- Serves as a foundation for residential energy efficiency retrofit standards, technical skills, and workforce training for the emerging broader market;
- Supports communities through local purchasing and jobs created nationwide;
- Reduces residential and power plant emissions of carbon dioxide by 2.65 metric tons/year per home;
- Decreases national energy consumption by the equivalent of 24.1 million barrels of oil annually;
- Weatherization of an additional 650,000 homes occupied by low-income families due to the Recovery Act and approximately 28,000 homes through annual appropriations, thereby reducing energy use and associated energy bills;
- Served over 6.7 million low-income homes since the program's inception, with an additional 38.3 million eligible;
- Saves an estimated 35% of consumption for the typical home, with savings continuing year-after-year, and actual dollar savings increasing as fuel prices increase;
- Saves \$437 in first year energy savings for households weatherized;

WAP is the largest residential energy conservation program in the nation and serves an essential function by helping low-income families reduce their energy use. The program was developed in the late-1970s as a response to rapidly rising energy costs associated with oil shortages created by oil embargoes. Congress acknowledged that low-income families were particularly vulnerable to increased energy price fluctuations and created the program to assist those families by reducing the cost to heat their homes. WAP was institutionalized within the Department of Energy in 1979 and today operates in all 50 states, the District of Columbia, five U.S. Territories, and two Native American Tribes. Approximately 1,000 local agencies provide Weatherization services in every political jurisdiction of the country using direct hire crews and local contractors to do the work. These network providers use program funds to improve the energy efficiency of low-income dwellings, utilizing the most advanced technologies and testing protocols available in the housing industry. Since the Program's inception, more than 6.7 million homes have been weatherized using federal, State, utility, and other monies.

Because of the advanced diagnostics and technology developed in WAP, the program is the foundation for the emerging green energy efficiency retrofit workforce. There are approximately 25,000 jobs in the Weatherization network, with many more supported in related businesses, such as material suppliers. These jobs are good, living wage jobs, which are more important than ever due to the economic downturn in the housing and construction industries. Workers are highly trained and receive on-going instruction to further develop their skills. WAP is at the core of the larger energy efficiency retrofit market, and its training curricula, methods, and centers play an integral role in developing skills and a workforce. WAP managers, trainers, and technical experts figure prominently in the Recovery Through Retrofit initiative, contributing their expertise to the Workforce Guidelines for Residential Energy Efficiency Workers and playing a key role in the development of standardized training curricula, worker certifications, and training facility accreditations.

The Weatherization Assistance Program is still as relevant now as it was when it was formed in response to the energy crisis 30 years ago. The savings to America's most vulnerable citizens are significant and make a huge, immediate difference in their lives. These families have an average energy burden – the percentage of their income needed to pay residential energy bills – around 15% of their income as compared to around 3% for non-low income households, or five times greater. And the poorest families have a much higher energy burden than that. For example, in the state of Michigan, Congressman and House Energy and Commerce Chair Fred Upton's home state, there are over 180,000 households below 50% of the federal poverty level. Those families have an energy burden of 52.6% - over half of their income. With lower energy bills, these families can increase their usable income and buy other essentials like food, shelter, clothing, medicine, and health care. WAP provides a positive return on investment to meet its primary objectives of making homes warmer in winter and cooler in summer and creating safer and healthier indoor environments.

In order to sustain the program beyond March 2012 it is critical that the WAP maintain adequate funding so the network can continue to provide jobs and support local economies as well as promote energy efficiency nationwide.

NASCSP urges the Subcommittee to fund the Weatherization Assistance Program at \$320 million while providing \$125 million for the State Energy Program. The WAP remains a crucial component of our nation's energy future. WAP is a clearly proven investment, has provided significant energy savings, and has helped over 6.7 million families live in safer, more comfortable living conditions. This is a program that has proved its worth and effectiveness for over thirty years. 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,

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Comments Submitted by Clean Line Energy Partners LLC

April 14, 2011

Clean Line Energy Partners (Clean Line) appreciates the opportunity to submit written comments to the House Appropriations Committee, Subcommittee on Energy and Water Development in regard to the appropriations request for the United States Department of Energy (DOE).

Clean Line is an independent developer of long haul high voltage direct current (HVDC) transmission lines and focuses exclusively on connecting the best renewable resources in North America to large population centers. Clean Line provides transmission solutions to generators and load serving utilities to efficiently interconnect clean energy with consumers. Clean Line is backed by leading private equity investors who share the vision that independent transmission developers can and should contribute to the strengthening of our electric grid by building new infrastructure where needed.

Clean Line is NOT requesting any federal dollars nor any new statutes or rules from the DOE.

Clean Line is simply informing the Committee that the DOE is impeding the movement toward a cleaner economy by not executing a joint development agreement that they requested pursuant to a Request for Proposals that DOE began in July 2010 to facilitate the private sectors participation in the development of new transmission facilities that will move cost effective renewable energy to distant load centers.

The development of a robust, domestic clean energy industry is in the critical interest of the United States. When President Barack Obama addressed the nation from the Oval Office on June 16, 2010, he stated, "The transition to clean energy has the potential to grow our economy and create millions of jobs – but only if we accelerate that transition - only if we seize the moment".

Clean Line supports this movement towards a cleaner fuel mix.

While the United States has the best renewable resources in the industrialized world, the transmission infrastructure does not yet exist to connect the bulk of these resources, predominantly located in remote areas, to distant load often located near urban centers. New long-haul transmission lines must be built to fully capture the potential of America's vast renewable resources and further the development of a clean energy economy.

Developing and building new transmission in the United States is extremely difficult since there is no federal authority to site interstate lines. FERC has this authority for interstate pipelines, but not for interstate transmission lines. Furthermore, recent court cases have made the

congressionally approved "FERC backstop authority" included in the Energy Policy Act of 2005 unusable.

An alternative is to use existing DOE authority to promote transmission development for renewable energy. Congress passed Section 1222 of the Energy Policy Act of 2005 as a means to help the private sector develop transmission lines needed to modernize the electric transmission system. Section 1222 allows the Secretary of Energy, in consultation with the Administrator of Western Area Power Administration (WAPA) and Southwestern Area Power Administration (SWPA), to accept funds from private companies to develop much needed transmission infrastructure.

Section 1222 of the Energy Policy Act of 2005 authorizes DOE to partner with private sector entities in designing, developing, constructing, operating, maintaining or owning new electric power transmission facilities that are located in states in which Southwestern operates.

Congress gave DOE, Southwestern Power Administration (Southwestern) and Western Area Power Administration (Western) this authority, after the successful efforts during the administration of President George W. Bush, to partner with private parties to provide much-needed transmission capacity through the development of the Path 15 transmission facilities in California. Western participated in the planning and development of those facilities and, in certain limited cases, exercised its condemnation authority under federal law to acquire needed property rights. Western's use of eminent domain authority to enable development of the Path 15 facilities was upheld by the U.S. Court of Appeals for the Ninth Circuit. *United States v. 14.02 Acres of Land More or Less in Fresno County*, 547 F.3d 943 (9th Cir. 2008).

DOE, Southwestern and Western have the same authority in carrying out Section 1222 projects. DOE and Southwestern are authorized to accept and use funds contributed by another entity for the purpose of carrying out a Section 1222 project, although there is no requirement that a private party contribute funds or that DOE accept such funds in carrying out a Section 1222 project. Because DOE and Southwestern are already authorized to accept and use private funds to defray costs in connection with their participation in a Section 1222 project, they do not need any further Congressional authorization or appropriation before doing so.

As noted above, DOE published a solicitation in the federal register on July 10, 2010 seeking proposals from the private sector to utilize Section 1222. Clean Line submitted its response to DOE on July 26, 2010. On September 2, 2010, DOE called a meeting with Clean Line to provide notification that the initial criteria of the RFP had been met and they were ready to negotiate joint development agreement. DOE went so far as to document Clean Line's initial acceptance in letters to industry participants in the region.

However, Clean Line heard nothing more from DOE until notified in January 2011 that DOE was unable to move forward with the proposed partnership at that time. Clean Line has yet to receive any substantive reason as to why this decision has been delayed. Clean Line has been made aware that there is a significant split within DOE as to how to proceed with a joint development agreement and the result is to take no action at all.



Clean Line intends to fund the project development costs and sell transmission capacity, similar to an interstate pipeline, to renewable energy generators or load serving entities such as utilities. The cost of the projects is paid for by only those that benefit, not spread across all customers.

There are tens of billions of dollars waiting to be invested in new transmission infrastructure. In order to move these important projects forward, loan guarantees, financing, or grants are not what is necessary – DOE must simply exercise its authority. Clean Line hopes the Committee will take an interest in Section 1222 and how DOE can facilitate new needed transmission infrastructure in a free market manner with existing laws and regulations. Clean Line appreciates the opportunity to submit comments and bring this to the Committee's attention.

If you have any further questions, please contact Jimmy Glotfelty, Executive Vice President, Clean Line Energy Partners at 713-306-3593 or at jglotfelty@cleanlineenergy.com.

As a chemical engineering faculty member at Worcester Polytechnic Institute in Worcester, MA, I would like to urge to continue funding the Clean Coal and Carbon Sequestration Program. As a person doing research on clean coal and pre-combustion carbon dioxide sequestration for over 20 years, I would like to point out that renewable energy is important to the nation's energy future. However, for the seeable future in the next 30 -40 years, the consensus among the technical community that fossil fuel will remain to be the key fuel for our nation. We need to find ways to minimize the environmental impact by developing clean coal program. Through DOE support. we have developed an efficient and economical process for generating electricity and producing hydrogen and at the same time producing high pressure carbon dioxide readily available for sequestration.

I urge you to continue funding the DOE Clean Coal and Carbon Dioxide initiative.

Thank you.

Yi Hua Ma

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**STATEMENT BY
MS. RUTH COX, EXECUTIVE DIRECTOR,
FUEL CELL AND HYDROGEN ENERGY ASSOCIATION
ON DEPARTMENT OF ENERGY FUNDING
SUBMITTED TO THE SUBCOMMITTEE ON
ENERGY AND WATER DEVELOPMENT
HOUSE COMMITTEE ON APPROPRIATIONS
APRIL 15, 2011**

On behalf of the members of the Fuel Cell and Hydrogen Energy Association, we are writing to urge your continued support for fuel cell and hydrogen energy programs for Fiscal Year 2012 Energy and Water Appropriations. These critical programs create green jobs, increase the efficient use of our nation's natural resources, reduce dependence on foreign oil and enhance energy security, while reducing criteria air pollutants and greenhouse gas emissions.

As the Committee develops the FY2012 Energy and Water Appropriations Bill, we urge you to support the fuel cell and hydrogen programs at the FY2010 levels of \$174 million managed by the Energy Efficiency and Renewable Energy (EERE) and \$50 million in Fossil Energy (FE) organizations at the Department of Energy. This amount would fully fund the critical research, development, demonstration and deployment of these technologies in order to gain a stronger foothold in current markets and move the others to commercialization in the near-term.

Fuel cell and hydrogen technologies produce jobs and are a crucial part of the portfolio of advanced energy technologies that will help achieve the nation's oil and greenhouse gas reduction goals. Fuel cells for stationary power and material handling equipment are commercially available and creating jobs today in domestic and export-oriented manufacturing. The U.S. is poised to introduce fuel cell electric vehicles by 2015, as long as there is continued support for technology maturation, supplier development and infrastructure deployment. Advanced R&D in FE and EERE, market transformation, technology validation and hydrogen efficiencies in EERE are key components of the fuel cell budget.

The U.S. currently leads the world in fuel cell and hydrogen technologies. Japan, Germany, Korea, and China have made it a national priority to develop these technologies and attract the skills and intellectual property to create a domestic clean energy business as a platform for a future export market. In the U.S., fuel cell commercialization is underway, and businesses are making the necessary investments to bring fuel cell-powered products to American customers.

President Obama has set strong targets for the nation for clean energy generation and manufacturing; and for increasing the number of vehicles fueled by biofuels, natural gas, and powered by electric drive trains. Fuel cells and hydrogen energy can help America meet those goals faster, more efficiently, and with less impact on the environment. Fuel cells are always the cleanest way to use any fuel, whether renewable or fossil and all fuel cell electric vehicles are hybrids, as they use batteries to store energy; moreover, there is no cleaner way to use natural gas as a transportation fuel than to reform it for use in a fuel cell electric vehicle.



What the industry needs now is help from the Department of Energy in leveraging these private dollars to help mature current markets and aid in creating a competitive landscape for budding ones. Realizing the budget constraints you are working under, a budget consistent with FY2010 levels will send a strong, positive signal to other investors, companies investing in fuel cell products, auto makers, supply chain partners and potential customers. We need a robust market for fuel cells and hydrogen energy in the U.S. if we want to keep these industry jobs and the resulting economic growth here, as well. [for something to that effect]

Thank you for your consideration of our request.

STRENGTHEN FEDERAL HYDROGEN AND FUEL CELL PROGRAMS

PROPOSAL: Fund DOE fuel cell programs at Congress-approved level for FY2010; restore reductions proposed by the Administration for FY2012.

The Department of Energy's Office of Fuel Cell Technologies, Fuel Cell and Infrastructure Technologies Program supports the development of fuel cells, hydrogen fuel and supporting infrastructure for power generation, backup power, industrial vehicles, portable applications, and passenger cars. The program has made exceptional progress in a few short years, helping to reduce the cost of fuel cells by 45% since 2007 and the cost of hydrogen produced from renewable sources and natural gas by 40%. The program has tested and evaluated 160 fuel cell vehicles in real-world operation, led the development of safety codes and product standards, and helped deploy more than one thousand fuel cell systems to federal agencies and early private sector customers where they are improving energy efficiency and security of supply with low or zero emissions.

The US is the recognized world leader in fuel cell technology. DOE research has supported more than 200 patents. But the full benefits of commercialization, including, by DOE's estimate, up to 677,000 jobs in the next 25 years, will go where the government policies and public-private partnerships are strongest. Germany, South Korea, Japan, and China, among others, are implementing long-term programs designed to capture the fuel cell lead and reap the economic and energy security benefits that will follow. The Obama Administration's proposal to reduce fuel cell funding would send just the opposite signal to our domestic market, and have long-term undesirable consequences.

Fuel cell technologies are a crucial part of the new energy network that is needed to achieve the nation's energy policy and greenhouse gas reduction goals. The US DOE estimates fuel cells can reduce oil imports by nearly 8 billion barrels over the next 40 years, reduce CO2 emissions by 2.4 billion tons, and save consumers \$1.6 trillion. A robust public-private partnership focused on cost reduction and early deployment will accelerate commercialization and the benefits that accrue with marketplace success.



Office of Energy Efficiency and Renewable Energy (EERE) Programs: \$174 Million

1. **Vehicles and Infrastructure:** Support for deployment and fueling infrastructure, backed by testing and evaluation, is essential to accelerating the transition to the marketplace. As its Phase I Technology Validation program winds down, DOE should evolve to support early volumes of commercial FCEVs and related infrastructure.
2. **Market Transformation:** The Market Transformation Program provides technical and financial support for purchase or lease of fuel cell systems entering the marketplace. The program creates U.S. jobs, improves security of air travel and communications, and enables a commercial transition in early markets by driving down costs through economies of scale. DOE should continue Market Transformation activities in all market sectors.
3. **Enabling Activities:** These programs prepare local communities for fuel cell installations, fueling stations and vehicles, and help DOE evaluate program options. Systems analysis, safety, codes and standards, education and manufacturing technology programs all contribute to commercialization.
4. **Research and Development:** DOE's robust program of cost reduction via research into materials, catalysts and components should continue. Hydrogen is one of a portfolio of fuels that together will achieve U.S. energy security while meeting greenhouse gas reduction goals. Improved hydrogen storage will reduce vehicle cost and improve capability, and will enable efficient use of hydrogen as a storage strategy for intermittent renewable resources, such as wind and solar power. Hydrogen from biomass uses a renewable domestic energy source and provides greater greenhouse gas reductions than biofuel combustion.

Office of Fossil Energy: Solid State Conversion Alliance Program: \$50 million

The SECA is a cost-shared public-private partnership developing high-temperature solid oxide fuel cells (SOFCs) for stationary power generation that has met or exceeded every benchmark set for it by Congress and the DOE in its more than ten years of existence. Industry has spent three dollars for every dollar of government funds, and decreased the cost of solid oxide fuel cells (SOFCs) tenfold, while increasing their efficiency and durability by two to three times. Continued support is needed to scale up the technology to central power station levels. The U.S.'s lead in SOFCs, and has created commercially viable distributed power generation using natural gas, biogas, and landfill gas that emits zero criteria pollutants at a low GHG intensity. Continued development and commercialization of SECA technology will deliver a significant return to the U.S. economy. Walking away now would hand the fruits of our investments to our foreign competitors.

**Research Need for
Advanced Separation Technology Development**
Outside Written Testimony

Submitted to

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

by

Roe-Hoan Yoon, Director
University Distinguished Professor
Center for Advanced Separation Technologies
Virginia Tech, Blacksburg, VA 24061

April 15, 2011

Honorable Chairman Frelinghuysen, Ranking Member Visclosky, and Members of the Subcommittee, I appreciate the opportunity to submit this testimony to your Subcommittee on behalf of the Center for Advanced Separation Technologies (CAST). The center is a consortium of five universities with strong programs in energy and minerals resources. I and the representatives of the member universities participating in the consortium as listed below,

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,

are writing this testimony to request that your committee appropriate research funding for *advanced separations* as part of the Fuels Program, Fossil Energy Research and Development, U.S. Department of Energy. The advanced separations research is mandated by the Energy Policy Act of 2005, Title IX, Subtitle F, Sec. 962.

In 2010, the U.S. mining industry produced coal and mineral concentrates with a sales value of \$107.5 billion at the mine mouth. These raw materials were used to produce approximately 50% of the nation's electricity and various mineral materials worth \$578 billion. According to the 2011 Mineral Commodity Summary published by the U.S. Geological Survey

(USGS), the value-added mineral materials contributed \$2,100 billion to the nation's economy, which accounted for 14.4% of GDP. Further, some of the mineral materials produced by the U.S. mining industry are of strategic importance to the development of renewable energy resources and the defense industry. Despite the importance of the mining industry, there are no federally funded R&D programs that help the industry better meet the environmental regulations and the national needs.

We would like to address two major issues the U.S. mining industry is facing today. One concerns the coal industry complying with the Clean Water Act, and the other is developing domestic mineral resources to supply rare earth elements (REE) for the energy and defense industries.

In 2009, the U.S. produced 1.07 billion tons of coal, with 55% of which produced in the western U.S. and 45% in the east. The bulk of the mined coal in the east is washed in water to remove mineral matter impurities. Burning coal as mined incurs a high shipping costs and produces large amounts of ash, SO₂, mercury, and other undesirable elements. Most of the mineral matter is removed at mine sites, and the efficiency of cleaning coal is high for the coarse coal, which is larger than approximately 0.15 mm in size. However, cleaning finer coal becomes more costly and difficult, causing some operators to discard the finer size fraction despite the fact that the fine coal refuse contains recoverable coal. Some companies recover part of the fine coal using the process known as *flotation*, while discarding ultrafine coal smaller than 0.044 mm in size. A recent Congressionally-directed study conducted by the National Research Council (NRC) showed that 70-90 million tons of fine refuse is being discarded to 713 active slurry and fresh water impoundments in the U.S. Assuming that 30-40 million tons of the refuse is recoverable coal, the dollar value of the coal wasted in this manner is estimated to be \$2.0-2.6 billion per year.

A study conducted by the U.S. Department of Energy (DOE) in the 1980s showed that approximately 2.0-2.5 billion tons of fine coal have been discarded over the years to numerous impoundments. The total amounts may be close to 4 billion tons by now as the coal industry continued to discard the ultrafine coal since the DOE report was written, and the coal production has also been steadily increasing. Assuming that roughly one third of this amount is recoverable, the dollar value of the coal discarded in the existing impoundments may exceed \$100 billion.

Some companies discard the fine coal slurry to underground mine workings, while others store it in large impoundments. There are several citizens groups in the Appalachian coal fields opposing to these practices by citing violation of the Clean Water Act. Some groups contend that the fine coal impoundments represent the worst form of valley-fill mining. To address these issues the West Virginia legislature is debating legislations. If the legislature bans permits for new impoundments or mandates elimination of impoundments by law, the cost of producing coal would rise significantly and can adversely affect the nation's economy.

A better alternative would be a technological solution. CAST has been developing advanced technologies that can be used i) to help companies eliminate the problem at the source, *i.e.*, stop discarding fine coal to impoundments or injecting it into old underground workings, and further ii) to recover the coal from existing impoundments. A series of advanced technologies

has already been developed, which include the Microcel™ flotation column, dewatering aids, and hyperbaric centrifuge, all of which are marketed commercially under appropriate license agreements. The hyperbaric centrifuge was tested at pilot scale in 2009, and the successful test results have been reported in the DOE Fossil Energy Techline report on February 9, 2010. Encouraged by the test results, a first full-scale unit was tested successfully in February, 2010, in Alabama, and the results were reported in the Techline again on January 4, 2011. On the basis of the successful test results, the company has installed additional units for commercial use. It is believed that other companies will follow the suite.

The hyperbaric centrifuge described above is an advanced dewatering technology. It is useful for separating spent water from clean coal; however it is not designed to remove mineral matter from ultrafine coal. Therefore, CAST has been developing a new technology that can remove both mineral matter and water simultaneously, so that it can be used to recover coal from the fine coal refuse that has been deposited in impoundments. Laboratory experiments conducted on ultrafine refuse samples consisting of particles that are finer than 0.044 mm showed that this new process can be used to reduce ash contents to 3-4% by weight and the moisture contents to 1-2% by weight, with 94-98% coal recoveries. An international patent application has been filed on the basis of the laboratory test results. It is necessary, however, that scale-up tests be conducted at 1-3 tons/hr capacity before the technology can be commercialized.

With the remaining pages of this testimony, we would like to address the needs for R&D funding to develop advanced separation technologies that can be used to recover minerals containing rare earth elements (REE) from domestic resources. China produced 55,000 metric tons of the rare earth oxides (REO) in 2009, which accounted for 97% of the world production. Recently, the Chinese government announced that it would impose production and export quotas for the REO. This new policy created serious concerns in the U.S. and many other countries that have been relying on the Chinese export of the rare earths. As shown in the CRS report for Congress (R41744), REEs are critical elements for the manufacture of the world's strongest permanent magnets, which are essential components for producing various military weapons systems, such as precision-guided missiles, smart bombs, and aircrafts, *etc.*

The U.S. used to be the world's largest producer of REE during 1960s and '80s. Due to the high cost (mainly labor) of production, and the stringent environmental constraints, the production shifted gradually to China. However, the U.S. still has 13 billion metric tons of reserves. The major rare earth minerals in the U.S. are basinasite ((Ce,La,Y)CO₃F) and monazite ((Ce,La,Y,Th)PO₄) that are recovered by flotation. In China, the ores containing these minerals are in the range of 4-7%, which are increased to 50 to 70% by flotation. The basinasite and monazite concentrates are then treated chemically to extract different REOs and rare earth metals.

As is well known, rare earth elements are not rare. In average, they are more abundant than copper and silver except that they do not occur in concentrated forms, making it difficult to mine economically. Further, the mineral grains are very small, usually smaller than 0.074 mm, which also contributes to the high costs of separation (or processing). In the U.S., the mineable rare earth deposits are found in Mountain Pass, California; Bear Lodge, Wyoming; Diamond Creek, Idaho; Elk Creek, Nebraska; Lemhi Pass, Idaho-Montana; and also in South and North Carolinas.

The key technology that is currently used to separate rare earth minerals from associated gangue minerals is flotation, which is also used for the separating mineral matter from coal and for the separation of one mineral from another in the mining industry. The MicrocelTM flotation technology, which has been developed by CAST and is used commercially in the coal and base metals industries, can also be used for the separation of rare earth minerals. What is of critical importance in the flotation separation of these uncommon minerals is the control of surface chemistry of the minerals involved. If your Subcommittee appropriates R&D funding for the FY 2012, CAST can develop reagents that can facilitate the beneficiation of domestic rare earth mineral resources.

CAST has also developed a mathematical model for flotation in general. Unlike other models developed to date, it is based on first principles. Therefore, it has predictive and diagnostic capabilities. If funding becomes available, a model-based computer simulator will be developed for applications to the separation of rare earth minerals.

As has already been noted above, CAST has developed a novel separation process for fine coal cleaning, in which both mineral matter and water can be separated simultaneously from coal. This process is more selective than flotation, particularly for the separation of fine particles. This process can be further developed to recover rare earth minerals.

CAST is a premiere research center for developing advanced separation technologies for the minerals and coal industries. Many of the technologies developed at the center are commercially used in the industry. Some of the technologies developed more recently will be able to help the coal industry stop the practice of discarding fine coal to the environment and at the same time maximize the utilization of a valuable energy resource. Further, the advanced technologies can also be used to recover coal from the 4 billion tons of fine refuse that have been discarded in numerous impoundments and thereby create jobs. CAST also has acquired expertise in developing separation technologies that can be used to produce rare earth elements from domestic resources, so that the U.S. can continue developing renewable energy resources and secure the defense industry.



ASSOCIATION OF STATES AND TRIBES

Outside Written Testimony

April 15, 2011

U.S. House of Representatives
 Committee on Appropriations
 Subcommittee on Energy and Water Development
EW.Approp@mail.house.gov

Regarding the

U.S. Army Corps of Engineers FY-2012 Budget

Submitted by
 The Missouri River Association of States and Tribes
 E-mail address: david.pope@mo-rast.org

We are requesting your support for three items in the FY2012 budget for the U.S. Army Corps of Engineers (USACE), related to the Missouri River Basin. These include: 1) \$5 million to continue funding for the Missouri River Authorized Purposes Study, 2) \$72.888 million to continue implementation of the Missouri River Recovery Program, 3) \$7 million to increase the operations and maintenance budget for the Northwestern Division, Omaha District, for protection of cultural and historical sites impacted by the operation of the Missouri River Mainstem Reservoir System

The Missouri River Association of States and Tribes (MoRAST) is an association of representatives of the Governors of the States of Wyoming, Montana, North Dakota, South Dakota, Nebraska, Iowa and Kansas and many of the American Indian Tribes in the Missouri River Basin. MoRAST is interested in the proper management and protection of natural resources, including water resources, fish and wildlife and other related issues of interest to the States and Tribes in the basin, including cultural resources. The programs and operations of the USACE are very important to our members, especially due to the legal responsibilities of the States and Tribes related to water and the fish and wildlife resources in the basin, as well as the trust responsibilities of the USACE to the Tribes. The following paragraphs provide detailed information regarding the bases for our support of the three items referred to above for FY2012 budget of the USACE, as outlined below:

Funding for the Missouri River Authorized Purposes Study (MRAPS). MoRAST strongly supports the appropriation of \$5 million to continue funding for MRAPS in FY2012¹. Congress

¹ The State of Iowa does not support the continued funding of the MRAPS study
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appropriated \$4.483 million in FY2010. MRAPS was authorized to study the Missouri River Projects under the 1944 Flood Control Act (FCA) to determine whether changes to the purposes and existing Federal infrastructure may be warranted. The study was authorized for a total cost of \$25 million at Federal expense. This study does not duplicate any previous study.

The Missouri River Basin Project (Pick-Sloan Program) envisioned a comprehensive system of projects and facilities in the Missouri River basin constructed by both the Bureau of Reclamation and the USACE. The plan was only partially completed and there continue to be water needs and related issues in the basin, many of which are different than they were in 1944. This study is important for many reasons. It has been over 66 years since the 1944 FCA was enacted and many changes have occurred. The Missouri River Mainstem Reservoir System continues to be operated in accordance with the 1944 FCA for various authorized purposes including flood control, water supply, water quality, irrigation, hydropower, navigation, recreation and fish and wildlife. However, while the construction of the reservoir system and other works have resulted in large project benefits from some of the authorized purposes and much less for others, it has also created substantial negative impacts on the economies and resources of Indian Tribes and others, as well as large environmental losses, such as wetlands and habitat for a number of native species, including three that are threatened or endangered.

In summary, there have been many changes in the physical, economic and environmental conditions that affect the Missouri River Projects and the basin since 1944. The USACE needs \$5 million for the study in FY2012. However, the USACE has made significant progress with the implementation of the study with the assistance of the US Bureau of Reclamation and other Federal agencies, as well as extensive input from States, Tribes, stakeholders and the general public. The USACE held over 40 public meetings and Tribal focus events throughout the Basin and other areas to engage the public and collect information. It has recently released a draft scoping summary report and is currently holding feedback meetings to receive comments on the draft report until April 30th. Additional work is needed to complete this process and the additional data collection, analysis and public engagement needed to complete the study. Funds should be provided so the study can objectively determine whether changes are needed to the 1944 FCA in order to best meet the contemporary needs of the Missouri River Basin. Once the study is complete, Congress can decide whether or not the law should be amended, additional project purposes added and/or other changes made.

Funding for Missouri River Recovery Program: We strongly support the \$72.888 million recommended in the President's budget. It is the minimum necessary for current year compliance with the Biological Opinion (BiOP). The Missouri River Recovery Program (MRRP) was established by the USACE as a collaborative program to protect, recover and restore the Missouri River ecosystem and its native species, including the endangered pallid sturgeon, least tern and piping plover. This program is authorized by Sections 3109, 3176 and 5018 of the Water Resources Development Act (WRDA) 2007. Support for this program is critical to ensure at least enough funding is available for compliance with the Biological Opinion, as amended in 2003. Compliance with the BiOP also protects economic uses as failure to comply with the Biological Opinion could require changes to reservoir operations and negatively impact other purposes.

The USACE, various Tribal, State and Federal Cooperating Agencies and the Missouri River Recovery Implementation Committee (MRRIC), that includes these entities and various Stakeholders, are in the process of developing a collaborative study and plan known as the Missouri River Ecosystem Restoration Plan (MRERP) to identify and guide long term actions required to restore ecosystem functions, mitigate habitat losses, and recover native fish and wildlife on the Missouri River, while seeking to balance social, economic, and cultural values for future generations.

In addition to recovery and mitigation projects on the Missouri River Mainstem, a project to provide for fish passage through a diversion dam on the Yellowstone River near Intake, Montana is especially important to the recovery of the endangered Pallid Sturgeon, as it will open up a large segment of free flowing river for the pallid to spawn in. Work on this important tributary project is underway and is being implemented through a cooperative effort of the U.S. Bureau of Reclamation, USACE, U.S. Fish and Wildlife Service (USFWS) and the State of Montana.

On a related matter, we also support removal of the prohibition on federal reimbursement of travel expenses for non-federal members of the Missouri River Recovery Implementation Committee (MRRIC) to attend its meetings. No new funds are required for this action as it can be funded through the Missouri River Recovery Program (MRRP), but this action is needed to improve the functionality and chances for success of MRRIC. The basin covers 1/6th of the Continental United States and travel to meetings in various parts of the basin is expensive.

Section 5018 of WRDA 2007 authorized the creation of MRRIC, but prohibited federal reimbursement of travel expenses for non-federal members of the Committee. The same section of WRDA 2007 also authorized the development of a Missouri River Ecosystem Restoration Plan (MRERP), which is a part of the MRRP. The failure to reimburse travel expenses hinders participation, prevents balanced representation by Tribal, State and non-governmental members on the committee and is a hardship for some MRRIC members. Lack of travel reimbursement also makes participation by States and Tribes difficult as Cooperating Agencies for the MRERP study, especially during these trying economic times and budget shortfalls for States, Tribes and others.

This issue could be resolved by either the inclusion of a provision in the FY2012 Budget bill to allow travel reimbursement for attendance at MRRIC meetings or by amending Section 5018 of WRDA 2007 in a new WRDA bill to remove the prohibition on federal travel reimbursement. In any event, this issue needs to be resolved soon so that all members can participate, receive the background information, interact with other participants and provide meaningful recommendations to the USACE and other agencies regarding Missouri River Recovery programs as may be appropriate through the MRRIC process.

The USACE has a unique trust responsibility to the 28 Missouri River Basin Tribes and their participation in both MRRIC and MRERP activities is vital to the success of efforts to restore the ecosystem of the Missouri River consistent with the social, cultural and economic needs in the Basin. The failure to fund travel for the Tribes to attend these meetings will not save money and may result in delay or the need for more extensive government to government consultations if

the Tribes are not able to participate adequately during the course of efforts by MRRIC to make recommendations to the USACE regarding recovery programs and the development MRERP.

In summary, funding the Missouri River Recovery Program at a minimum of \$72.888 million for FY2012 is essential to ensure compliance with the Amended Biological Opinion on the Missouri River and to implement the project on the Yellowstone River near Intake, Montana, both of which are of critical importance to the recovery of endangered species and the restoration of the ecosystem. We also support removal of the prohibition on Federal reimbursement of travel for members of MRRIC to meetings of the Committee to allow for full participation of Tribal, State and stakeholder members to the Committee.

Funding to protect Tribal Cultural Resources: It is requested that Congress appropriate an additional \$7 Million for FY2012 for the Omaha District, Northwestern Division, USACE for the stabilization of cultural and historic sites that continue to be negatively impacted by the operation of the Missouri River Mainstem Reservoir System. Funding for the protection of cultural and historic sites within the Omaha District has remained at \$3 Million for the past several years. Past funding through the USACE operation and maintenance budget has been woefully inadequate to address the ongoing damage to sites from operation of the Missouri River Mainstem Reservoir System.

The USACE has identified over four hundred (400) historic and cultural sites protected by federal law that will be potentially damaged by the current Annual Operating Plan and the Tribal Nations in the Missouri River Basin have identified many more sites that could be impacted. However, there have only been funds to mitigate damage to a few sites each year. The USACE has a unique trust responsibility to the 28 Missouri River Basin Tribes arising from the government-to-government relationship between the Tribes and the United States government, as well as an obligation under Section 106 of the National Historic Preservation Act, applicable Executive Orders, and other Federal laws, which require the USACE to either halt any federal undertaking that will damage or destroy sites protected, or to mitigate the potential damage.

Summary: We believe each of these programs is essential to the success of efforts to properly manage and protect the natural resources of the Missouri River Basin, satisfy the USACE trust responsibilities to the Indian Nations in the basin and operate its projects in accordance with applicable federal law. We would appreciate your help in providing adequate funding for these important programs and projects. Please let David Pope, MoRAST Executive Director, or Chairman Sando know if you have questions.

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ANITA WINKLER, EXECUTIVE DIRECTOR
OREGON WATER RESOURCES CONGRESS

Testimony submitted to the United States House of Representatives Committee on
Appropriations, Subcommittee on Energy and Water Development
April 15, 2011

RE: U.S. Department of the Interior's FY12 Budget for the Bureau of Reclamation

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 other special districts and local governments that deliver irrigation water. About one-half of our members are in Reclamation Projects; most of the rest of our members have contracts for water with Reclamation or have been awarded grants under the WaterSMART program. 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 FY12 Budget request for the Bureau of Reclamation's programs west-wide. We are disappointed that the Administration's budget proposal is less than the Enacted FY 10 budget, especially for the Water and Related Resources program at a time when there is broad consensus that the water supply for the West is inadequate to meet current diverse needs and when needs for rehabilitation or replacement of aging infrastructure are increasing. Reclamation's ability to claim and sustain its roles as the leader in meeting the water needs in the West hinges on its ability to respond to water supply needs, and its budget must reflect these increasing needs rather than a budget that reduces the Bureau's ability to provide that level of leadership.

The Administration's current budget proposal is more than \$200 million less than what we in the water community feel is necessary to carryout an effective 21st Century water program for the West.

WaterSMART Initiative

While the total budget for the WaterSMART Initiative is reduced by just under 16%, comparable to the decrease for the overall budget for Reclamation of just over 15%, we are disappointed to find that the budget for the WaterSMART Grants and Water Conservation Field Services Programs—the two programs that are used the most by Oregon's irrigation districts to support water conservation activities—are suffering some of the largest reductions in the Reclamation budget – a reduction of over 31% for each of them. These two programs support Interior's Priority Goal seeking to conserve an estimated 490,000 acre-feet of water by the end of 2012 in a manner that local watershed councils in Oregon and local communities support, that leverage the federal dollars far beyond normal amounts, and that add to the conserved water within a fairly short time-frame. These programs are also an important part of the overall funding package for water conservation projects that are collaboratively developed by local communities and are

designed to meet those communities' needs while still meeting the Secretary's goal of water conservation.

Water Conservation Field Services Program

The Water Conservation Field Services Program is a key component in supporting irrigation districts' and similar water delivery systems' water conservation efforts. In the last two years the Water Conservation Field Services Program provided a breadth of technical assistance to irrigation districts and awarded grants totaling over \$1.5 million to irrigation districts in Oregon. Those grants provided partial funding for pipe for used to pipe canals, canal linings, SCADA systems, GIS systems, and water conservation plans – all supporting water conservation program being implemented by these districts.

The planning projects and technical assistance funded under the Field Services program are often the planning work that helps our member districts identify opportunities for water conservation through improved water management and capital investments. The Federal share in these projects ensures that the districts are able to continue these planning efforts without which the projects described in the WaterSMART Grant Program below may not be implemented and the water not conserved. This program provides seed money for both short and long term planning by districts and water users that results in helping Oregon meet the competing demands for water in basins throughout the state. Without these projects, basin planning efforts become just that – plans sitting on shelves without the ability to implement them.

We are disappointed that the Administration's budget reduces funding for the Water Conservation Field Services Program by about 35%. This reduction in planning support provided in the past by this program will hamper districts' ability to planning and feasibility work for their water conservation efforts.

We request that this program be funded at least at the 2010 Enacted level of just under \$8 million. The actual need may be closer to \$17 million (\$1 million for each of the 17 Reclamation states), but we recognize the realities of the current Federal budget.

We are disappointed that the FY 2012 budget includes a shift for the Water Conservation Field Services Program from a "regionally defined" water conservation grant toward the centrally-budgeted grant programs that have selection criteria and defined internal controls" (Bureau of Reclamation's FY 2012 Budget submittal at <http://www.usbr.gov/budget/2012Budget.pdf>, starting at PN-1). The Water Conservation Field Services Program is significant in its connection at the regional level to the Reclamation Projects in that it can be and is administered to best meet the needs of the projects in a region rather than as a centrally driven program based on Reclamation-wide needs.

- ◆ Each Region in Reclamation has unique characteristics for water demand, water supply, water management, geography, climate, and environmental pressures. Further, within each Region, each state has different programs that can be coordinated with a Reclamation program to meet the needs of the Reclamation projects in that state.
- ◆ Regionally-based programs can also respond quickly to changing situations, including something that arises suddenly that demands immediate attention in a manner a centralized program cannot.

- ◆ A regionally managed program allows Reclamation staff that is familiar with Projects in their region to best support local programs that will best meet Interior's and Reclamation's goals.
- ◆ The regional nature of this program provides a compliment to the centrally managed Reclamation projects as the only regional connection to assist the districts in Reclamation Projects.

The Water Conservation Field Services Program is one of the Reclamation services most appreciated by our members. The regional staff managing the program understands the Projects and the environment in which they are managing their facilities and water and thus have been able to provide support that is meaningful and helpful to the managers of those projects. We believe the management of this program should remain with the Regional Offices in order to retain the close connection between Reclamation and Project managers and ensure that Reclamation's resources are used to best support the management of its Projects.

WaterSMART Grants

OWRC has been a strong advocate for the former Challenge Grant program that is now part of the WaterSMART Program. Oregon's districts have successfully competed for these cost-share grants, typically with a non-federal share exceeding the required amount. The grants have supported districts' efforts to improve water delivery systems, conserve water, and implement innovative projects to meet the water needs in our state. With a return of over \$5 for every \$1 of Federal investment, this program far exceeds the results of other partnerships between the Federal government and local project sponsors.

Oregon projects funded through WaterSMART Grants have led to significant amounts of water returned in-stream without reducing the amount of land to which the districts deliver water. These projects have been key to some of the districts' ability to work cooperatively with other parties in their respective river basins to address the in-stream needs and water quality needs of their basins and avoiding enforcement actions by the Federal or State governments. Please see the list of projects below for examples.

We are disappointed that the Administration's budget reduces the WaterSMART Grant program by about 31%. We anticipate continued success with this program for our member districts to implement system improvements that benefit their respective water users and their communities but this reduction in funding will hamper their ability to continue their success in these efforts.

We request that the WaterSMART Grant program be funded at the level of the 2010 Enacted budget, \$27 million, to enable local water supplies to continue their work to conserve water and make their contribution to the Secretary's water conservation goal.

Examples of Oregon Projects Funded through the WaterSMART Initiative

The following projects are examples of how the Bureau of Reclamation's WaterSMART Initiative has helped Oregon districts. More projects like these could be developed and implemented with additional federal support through the WaterSMART Grant program and Water Conservation Field Services Program.

- **Ochoco Irrigation District, System Optimization Review Project**

The Ochoco Irrigation District will review its operations to analyze ways to optimize water and energy efficiency. Activities include updating the District's water budget and prioritizing piping projects based on water savings, energy efficiency, and cost.

FY 2010 Reclamation funding: \$110,025 Total Project Cost: \$229,219.

- **Three Sisters Irrigation District, Collaborative Restoration Project**

The Three Sisters Irrigation District will convert 5,200 feet of existing unlined canal to buried pipeline, install four new automated fish screen weir gates, and put into place a Supervisory Control and Data Acquisition system. The project is expected to result in 1,500 acre-feet of water savings annually in the Upper Deschutes Basin in Oregon. Approximately 833 acre-feet in water saved as a result of the project will be marketed to the Deschutes River Conservancy for a protected instream right, complementing habitat restoration efforts in Whychus Creek for threatened species, including Bull Trout, Red Band Trout, Summer Steelhead, and Chinook. Once the project is completed, water users will receive pressurized water, reducing pumping needs and associated energy costs.

FY 2010 Reclamation Funding: \$1,000,000 Total Project Cost: \$6,629,724

- **Tumalo Irrigation District, Piping Project**

The Tumalo Irrigation District will convert 6,528 feet of the open Tumalo Feed Canal to pipeline. The state of Oregon will receive rights to the 1,242 acre-feet of water expected to be conserved through the project. Conserved water will be applied to permanent in-stream use, which will provide critical base habitat for native red-band trout, bull trout, mountain white fish, and reintroduced anadromous Mid-Columbia steelhead.

FY 2010 Reclamation Funding: \$1,000,000 Total Project Cost: \$3,200,000

While funding for project implementation and construction is primary, our member districts also need funding assistance for the design and engineering of these projects. Many have reached a point at which the lack of funding for the non-construction phase of projects is becoming and will continue to be an impediment to the districts' ability to move forward with water conservation projects. Federal support for planning and development of water conservation projects should also be included in the WaterSMART Initiative.

Cooperative Watershed Management Program

The Cooperative Watershed Management Program aligns more closely with Oregon's well-developed approach to watershed planning than other federal proposals we have seen over the last few years. We are encouraged by this approach and support the initial funding in Reclamation's budget to get this program off the ground to see how it is implemented in practice. We will be watching with interest to see how the program evolves as we think it may have potential to support Oregon's watershed planning program

Water Reclamation and Reuse Program

The significant increase within the WaterSMART Initiative is for the Title XVI Water Reclamation and Reuse Program—more than double the 2010 Actual appropriation. While we support water reclamation and reuse projects, they are only one of many ways to improve water management and increase water conservation. In general these projects are expensive and take a

long time to develop and provide the water conservation that is the return on the investment. They are not the kinds of projects that are usable in many areas because of the technology and the cost as compared the projects funded with through the Challenge Grant program which are tailored to the local community's needs and environment. We believe the increased funding for water reclamation and reuse projects is disproportionate in comparison to the decreased funding for the WaterSMART Grants and the Water Conservation Field Services Program. Shifting the funding in this manner focuses on a few projects with somewhat limited application and away from the ability to help fund more projects that can be completed in a fairly short timeframe and increase water conservation more quickly.

Bridging the Headgates MOU

The need for continued coordination among federal agencies is a significant issue. The Bridging the Headgates program established by a MOU between the Natural Resources Conservation Service and the Bureau of Reclamation has proven successful in coordinating their efforts and we support the reauthorization of this program. We made the same request in our testimony on the Department of Agriculture's FY 2012 budget submitted to the Subcommittee on Agriculture, Rural Development, Food and Drug Administration and refer to that testimony for details of this request.

SECURE Water Act

OWRC and our members will be following the implementation of provisions of the SECURE Water Act. We anticipate certain provisions of that Act may provide funding for districts' feasibility studies and project implementation for their operations to improve water management through conservation, improved efficiencies, and the production and use of renewable energy in their delivery system

Principles and Guidelines

From a future policy standpoint we continue to be concerned with the efforts of the CEQ to rewrite the rules- the Principles and Guidelines - for evaluating water resource programs in the Federal government. This has created a level of uncertainty about planning for the future. And it has seemingly taken place without the opportunity for the nation's water community to have been provided a level of transparency in the process given the potential consequences of the Federal government being able to assist our future needs. I would ask on behalf of our membership that you review their efforts.

Thank you for the opportunity to provide testimony regarding the FY12 budget for the U.S Bureau of Reclamation.

Sincerely,



Anita Winkler
Executive Director
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Record Statement of Representative Jon Runyan
House Appropriations Committee
Subcommittee on Energy and Water Development and Related Agencies
April 2011

I write today in support funding for the Army Corps of Engineers – Civil Works projects, and the Flood Control and Coastal Emergencies Fund.

Let me start my testimony by acknowledging the need to cut spending. However, we should be judicious about cuts to Army Corps funding. The Army Corps provides unique services that few other entities can perform. From keeping important trade routes navigable to protecting our coasts it is evident that the Army Corps plays an invaluable role in maintaining our nation's infrastructure.

Within my Congressional district the Army Corps of Engineers has been active in past years on beach replenishment and channel dredging projects. These projects are essential in ensuring the safety of mariners in New Jersey and vital to the economy its economy. Without the dredging performed by the Army Corps of Engineers many of our nation's rivers and channels would be rendered innavigable. This would severely impact our nation's economy, as billions in commerce would come to a halt.

New Jersey has 127 miles of coastline with a large portion of it lying within my Congressional district. This shoreline is the economic engine behind a multi-billion coastal tourism industry, New Jersey's second largest. Additionally over 35 million people live within 100 miles of New Jersey beaches. These beaches are frequently devastated by flooding from hurricanes and nor'easters. After such emergencies many shore towns are eligible for funding for repairs from the Flood Control and Coastal Emergencies fund. These repairs help the towns not only to re-build but to brace for future impacts. In fact the Army Corps itself estimates that for every \$1 invested on beach replenishment there is a savings of \$7 in response and post-storm recovery costs.

I appreciate the committee considering my statement, and am grateful for the opportunity to submit it for the record.



**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 2012 Appropriation for the Department of Energy Science Programs*

April 7, 2011

The American Society for Microbiology (ASM) is pleased to submit the following testimony on the Fiscal Year (FY) 2012 appropriation for science programs at the Department of Energy (DOE). The ASM is the largest single life science organization in the world with over 38,000 members. The ASM mission is to enhance the science of microbiology to gain a better understanding of life processes and to promote the application of this knowledge for improved health and environmental well being.

The ASM supports the Administration's proposed FY 2012 budget of \$5.4 billion for the DOE's Office of Science, a 9.1 percent increase over the FY 2010 appropriation level. The proposed FY 2012 budget will enable the Office of Science to continue its leadership in critical areas including, renewable energy, environmental cleanup, carbon capture and sequestration, climate change and basic research across the physical and biological sciences.

DOE investments in science and technology create new industries and jobs, and strengthen US basic research capabilities. The Office of Science funds research in academic institutions, DOE laboratories and technology centers that employ over 30,000 scientists and engineers. In FY 2012, more than 26,000 researchers from universities, national laboratories, industry and international groups are expected to use the DOE's world renowned research facilities.

The Office of Science is the largest federal sponsor of basic research in the physical sciences as well as the largest federal funder of materials and chemical sciences. The ten national laboratories directly overseen by the Office of Science are world leaders in basic and applied research, generating breakthroughs in multiple disciplines. DOE provides scientific expertise to address challenges including events in post earthquake Japan, the search for clean energy and many environmental challenges.

The ASM has a specific interest in microbiological research overseen by the Biological and Environmental Research (BER) program. Microorganisms are essential to research areas like biofuels and environment remediation. The ASM recommends Congressional approval of the proposed budget increase for the BER program to \$718 million, about 22 percent over the FY 2010 level.

DOE Investments in Biological and Environmental Research Yield Innovative Solutions

The Biological and Environmental Research program cuts across scientific and engineering disciplines to understand complicated biological, climatic and environmental systems. BER funded research has advanced scientific knowledge providing the foundational research to support biofuels development, monitor subsurface contaminants and expose the effects of greenhouse gas emissions. BER funding is also responsible for new research tools that help investigators explore the interface of biological and physical sciences.

The BER research portfolio has transformed science and technology in the United States. An example is the Human Genome Project initiated by BER in 1986, a catalyst for the biotechnology industry and the emerging field of systems biology. BER sponsored activities have helped shape modern climate science with powerful climate modeling capabilities. BER's computing experts and facilities have guided new disciplines dependent upon high end computer resources, such as computational biology and bioinformatics. DOE funding has influenced scientific discovery. Recent examples include:

- use of a newly patented group of naturally occurring microbes to detoxify chlorinated solvents that contaminate a former DOE reactor site, improving groundwater quality
- genetic mapping of plant digesting microbes from the cow rumen, generating 270 billion letters of the DNA code in a massive data collecting effort to understand how to efficiently degrade plant biomass for biofuels production
- atomic scale X-ray crystallography studies that identified microbial proteins possibly key to formation of drug resistant biofilms, suggesting new antibiotic targets

The FY 2012 budget proposes increases for the areas of genomic science and computational biosciences, as well as for BER's Joint Genome Institute (JGI) and Structural Biology Infrastructure programs.

BER's major scientific goals for FY 2012 include advances in genomic science, radiological sciences, climate research and subsurface biogeochemistry. Relevant research will be distributed between BER's two subprograms, Biological Systems Science Division (BSSD) and Climate and Environmental Sciences Division (CESD). The former focuses on fundamental principles related to function and structure of living systems from microbes to mammals, while the latter examines environmental impacts of energy production and use. Both rely heavily on microbiological systems and techniques.

The FY 2012 request for BSSD is \$376 million, an increase from the FY 2010 level of \$310 million. In FY 2012, CESD would receive nearly \$342 million compared to \$278 million in FY 2010. Within CESD, Environmental System Science activities increase by 22 percent. BER budgets also include support for world class facilities and research consortia. The BSSD subprogram manages the Joint Genome Institute, the Bioenergy Science Center, the Joint Bioenergy Institute and three DOE Bioenergy Research Centers. The CESD oversees two scientific user facilities, the Atmospheric Radiation Measurement Climate Research Facility and the Environmental Molecular Sciences Laboratory (EMSL). The Joint Genome Institute is now sequencing more than four trillion genome base pairs annually (more than 130 times that of five

years ago), while EMSL with its powerful instrumentation and computing housed at DOE's Pacific Northwest National Laboratory, leads worldwide efforts in the field of proteomics. Results reported from BER funded research in the past year include:

- Scientists at Massachusetts Institute of Technology concluded that various microbial species cooperate in marine environments during their cycling of organic matter, important to the global carbon cycle (BSSD funded).
- Bioenergy Science Center studies described a new method to genetically modify the cellulose degrading bacterium *Clostridium thermocellum*, with potential to expedite critical degradation steps in biofuels production. DOE scientists at Princeton University developed the first ever quantitative model for metabolic processes in another *Clostridium* species that produces butanol, ethanol, and hydrogen during biomass fermentation and is already used by industry, a step toward engineering the microbe for biofuels synthesis.
- Another collaborative CESD study determined that different microorganisms convert soluble uranium to different forms of reduced uranium, pertinent to controlling contaminants at nuclear sites. Other researchers used microbial fuel cell techniques and electrodes inserted into soil to monitor microbial activity as related to the progress of uranium bioremediation, a technique also applicable to other microbial processes in the environment.

DOE Research Builds R&D Infrastructure, Workforce

DOE science programs have evolved and expanded into an R&D infrastructure unparalleled in specific areas of science, technology, engineering and mathematics. DOE laboratories operate sophisticated equipment often not available elsewhere, and large numbers of non DOE researchers from the US and other countries regularly use DOE facilities to conduct studies that would otherwise be impossible.

The DOE Office of Science has built extraordinary research capabilities, including particle accelerator centers, advanced computational centers and atmospheric monitoring facilities. As an example, EMSL offers users a supercomputer and over 60 major instruments to support environmental sciences, serving more than 700 users annually. In the past year, an international team of over 80 researchers from 21 institutions used the world's first hard X-ray free electron laser, the Linac Coherent Light Source at DOE's SLAC National Accelerator Laboratory, to produce the first single shot images of intact viruses, expected to lead to eventual videos of molecules, viruses and live microbes in action.

Innovative research tools developed at the national labs or other DOE funded institutions regularly stimulate multiple scientific fields, often transferring to the technology marketplace as valuable commercial products. The DOE toolkit includes research protocols, monitoring and measuring equipment, computer models and databases and considerably more. One commercialized example is the PhyloChip developed by DOE scientists that can detect up to 50,000 species of bacteria and archaea in a single environmental sample, which was deployed at last year's Gulf oil spill. The innovation has already spawned a start up company and is expected to have broad applications in monitoring. At BER's Joint Bioenergy Institute, scientists developed a mass spectrometry based detection technique called multiple reaction monitoring, to

more efficiently and accurately identify microbial proteins that convert cellulosic sugars to biofuels. Last year, BER sponsored university scientists introduced an optimization method that delineates all possible metabolic pathways in an organism like biofuels related bacteria, then suggests which genetic changes could trick the microbe into overproducing a desired product like ethanol.

The Office of Science also supports the Workforce Development for Teachers and Scientists (WDTS) program, at \$35.6 million, a substantial 72 percent increase over FY 2010. The WDTS program continues DOE's long history of training scientists, mathematicians and engineers as US technical workforce, principally through research grants and contracts at universities, the private sector, and DOE's own laboratories. The program also reaches out to all academic levels. Each year, participants in training and education programs at DOE laboratories include more than 250,000 K-12 students, 22,000 K-12 educators, 4,000 undergraduate interns, 3,000 graduate students and 1,600 post doctoral employees. In 2010, a new graduate fellowship program selected its first cohort of 150 students, beginning an initiative to attract more students to careers in physics, chemistry, biology, mathematics, engineering, environmental sciences or computer sciences.

DOE Partnerships Elevate US Science & Technology

The BER program collaborates with other federal agencies including the National Science Foundation, the Department of Agriculture (USDA), the National Institutes of Health and the Department of Defense, to optimize complementary research. DOE and USDA for example share similar goals in finding new bioenergy sources while DOE's climate change studies integrate closely with those in multiple federal agencies. DOE collaborations extend to academia, industry, nonprofits and international partners. The Office of Science funds more than 7,000 individual research projects at universities, national laboratories, US industry and the nonprofit sector. In FY 2012, the BER budget would support approximately 2,400 researchers and graduate students in more than 200 US federal, academic and private institutions. DOE personnel also advise non DOE scientists and policymakers. About 40 DOE experts have travelled to Japan with more than 17,000 pounds of equipment to help monitor radiation released by the recent earthquake.

Extramural DOE funding contributes significantly to science and technology achievements. More than 110 Nobel laureates have received DOE support, as did two recipients of the 2011 Franklin Institute Medal. Last year, 39 DOE funded projects garnered R&D 100 Awards which recognize the world's most promising new products, processes, materials or software that had entered the market the previous year. DOE funding has supported the basic research for 800 R&D 100 winners since 1962.

Conclusion

The ASM recommends that Congress approve the proposed FY 2012 budget for the DOE science programs that support diverse often large scale research, uniquely important to the US economy, national security, a healthy environment and the future status of US science and technology.



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**Statement of Robert Bendick, Director of U.S. Government Relations
Before the House Subcommittee on Energy and Water Development
Committee on Appropriations
April 14, 2011**

Mr. Chairman and members of the Subcommittee,

Thank you for the opportunity to present The Nature Conservancy's testimony on the FY 2012 appropriations for the US Army Corps of Engineers (Corps) and Bureau of Reclamation. The Nature Conservancy is a nonprofit organization dedicated to the conservation of biological diversity. Our on-the-ground conservation work is carried out in all 50 states and over 30 foreign countries and is supported by approximately one million members.

We recognize the challenges of working in a constrained fiscal environment and that Congress is making appropriations decisions differently than in years past. We also recognize the critical importance of our water resources and the benefits these resources provide to virtually every sector of the economy, the quality of life in our communities, and the health of our people. Our focus is on the programs and investments needed to ensure these benefits are enhanced today and made sustainable for tomorrow. The continued strong public support for our water resources – even in these challenging economic times – is demonstrated by the results of recent polls that show that nearly 80% of Americans are concerned about the health of our nation's rivers and lakes.

The Nature Conservancy supports the overall approach of building sustainability into the development and management of our nation's water infrastructure, including the ecosystem restoration projects essential to ensuring that sustainability. These ecosystem restoration projects pay dividends through higher quality water, natural flood control, sustaining commercial fisheries, and supporting economically important outdoor recreation; with impacts stretching out for decades to come, the projects and proposals that follow reap high returns on investment.

We recognize there are many competing demands for the time and resources of the Corps to address critical water resources issues and the questions raised about how these needs are balanced. We note that, according to the March 9th testimony of Assistant Secretary Darcy to this subcommittee, only 18% of the Corps budget is allocated to environmental restoration and protection. She further added, "the distribution of funding among programs is similar to the distribution in the FY 2011 Budget, except that environmental restoration received a slightly *lower* [emphasis added] proportion of overall funding." We urge the sub-committee to maintain its commitment to ecosystem restoration projects and their multiple benefits for people, for jobs, and for the environment.

Sustainable Rivers Project

The Sustainable Rivers Project (SRP) is an initiative launched by the Corps in partnership with the Conservancy to update decades-old water management practices to meet society's needs today and in the coming decades. The SRP – which has engaged dozens of partners across the country representing local, state, and federal agencies, academic institutions, and private interests – is developing and demonstrating innovative approaches to maintain and enhance water supply, flood protection, hydropower generation, and recreation while restoring critical ecosystems and the

economically valuable services they provide. The President's budget includes two specific initiatives that support these efforts:

Global Change Sustainability: This project will allow the Corps to advance a variety of new and innovative practices through several initiatives, including the SRP, that will enhance the agency's ability to meet the current and future water needs of the nation in the face of ongoing shifts in population, and associated municipal and industrial water supply demands, food production, and energy needs. Further, the project will support the agency's work with state and other federal agencies to develop a national strategy to update drought contingency plans and other initiatives to ensure a sustainable water supply and adapt to projected changes in precipitation patterns and other future conditions impacting the nation's water supplies. The Conservancy supports the \$10 million in the President's budget for this program.

National Portfolio Assessment for Reallocations: Launched in FY2008, this assessment is a national effort to update information critical to the operation and maintenance of Corps projects, to learn from past water management techniques, and to apply the lessons learned more broadly. Part of this effort involves developing and documenting the application of new methods and tools that can be transferred to Corps projects nationwide. The Conservancy supports the \$571,000 included for this program.

Corps Construction Priorities

Hamilton City Flood Damage Reduction and Ecosystem Restoration: We were pleased to see Hamilton City selected as one of two new construction starts in the Corps' FY12 proposed budget. This project, developed with substantial assistance by the Conservancy, will increase flood protection for Hamilton City, CA, while restoring approximately 1,500 acres of riparian habitat. Appropriations for the first phase will initiate construction of approximately two miles of levee, removal of half of the existing levee, and roughly one-third of the habitat restoration. The Conservancy strongly supports the \$8 million proposed in FY 2012 to complete the first phase of construction.

South Florida Ecosystem Restoration Program: Corps flood control projects, coupled with agricultural and urban development, have degraded the Everglades, one of the most diverse and ecologically rich wetlands ecosystems in the world. WRDA 2007 authorized construction of the first projects under the Comprehensive Everglades Restoration Plan (CERP), and we encourage funding the Indian River Lagoon South, Picayune Strand, and the Site 1 Impoundment projects. The Conservancy supports the \$162,724,000 proposed for the South Florida Ecosystem Restoration Program in FY 2012.

Upper Mississippi River Environmental Management Program (EMP): Authorized in 1986, this program supports coordinated habitat rehabilitation and enhancement projects in the Upper Mississippi River system. Over the 25 years of the program, the Corps has completed more than 54 projects, benefiting over 94,000 acres of aquatic and floodplain habitat. Currently, 22 projects in the program are in planning, design, or under construction. Completion of these projects will benefit an additional 70,000 acres of aquatic and floodplain habitat. The Conservancy supports the \$18,150,000 proposed for EMP in FY 2012.

Missouri River Fish and Wildlife Recovery Program (MRRP): Under this program, the Corps has completed 30 projects in the lower Missouri basin states to assist in the recovery of three listed species, restoring more than 40,000 acres of habitat. New authority 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 is a priority for the recovery of the endangered pallid sturgeon and other warm-water fish. The Conservancy supports the

\$72,888,000 proposed for the MRRP in FY 2012, including funding to continue progress on the design and construction of fish passage and screens at Intake Dam.

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 \$5 million proposed for the FY2012 budget will create more than 60 acres of additional oyster habitat.

Great Lakes Aquatic Nuisance Species Dispersal Barrier: Invasive fish, plants, and invertebrates have had severe economic impacts to human uses and to freshwater biodiversity of the Great Lakes. Preventing further invasions through the waterway system is the most cost-effective way to protect the plethora of federal lands and infrastructures threatened. The Nature Conservancy supports the budget request of \$13,500,000 in the Construction account; \$10,565,000 from Operations and Maintenance; and no less than \$3,000,000 in the Investigations account to expedite the Great Lakes and Mississippi River Interbasin Study (GLMRIS).

Continuing Authorities Program

We urge the Subcommittee to continue its strong support of the *Section 1135: Project Modifications for Improvement of the Environment* and *Section 206: Aquatic Ecosystem Restoration* programs. Demand for these valuable programs continues to outstrip funding. The Conservancy supports adequate funding for these programs in the FY2012 budget.

Adequate funding will ensure support for two Section 1135 projects, Spunky Bottoms (IL) and the Lower Cache River (AK). **The Spunky Bottoms project** is a model floodplain restoration and reconnection effort on the Illinois River that needs \$750,000 to complete the Plans and Specifications phase and initiate construction. **The Lower Cache River project** seeks to restore natural meanders to the lower seven miles of the river, improving bottomland hardwood forests and expanding habitat for a variety of sportfish and mussels.

The Conservancy also supports the request for \$4,001,000 to complete design and initiate construction for a Section 206 project for **Emiquon East (IL)**, a floodplain restoration and reconnection project.

Corps Investigation Priorities

Illinois River Basin Restoration Program: This federal-state partnership sustains the health of the entire Illinois River Basin through projects that restore habitats, species, and the natural processes that sustain them. It complements other federal programs such as the Illinois Conservation Reserve Enhancement Program and Environmental Management Program of the Upper Mississippi, yet is unique in its basin-wide approach to restoration. The Conservancy supports the \$400,000 funding proposed for this program in FY 2012.

Puget Sound Nearshore Marine Habitat Restoration: This study, when completed, will identify restoration and protection needs and opportunities in the nearshore regions of Puget Sound. The Sound supports the second largest U.S. port (combined Ports of Seattle and Tacoma) for container traffic that has accounted for over \$70 billion in foreign trade; it is an economic priority to ensure that Puget Sound maintains the ecological resiliency to sustain vital services for both people and nature. The Conservancy supports the proposed \$400,000 in FY 2012 to carry out this investigation.

Willamette River Floodplain Restoration Study: The Corps and the Conservancy are working together to identify ecological flow requirements downstream of Corps dams on the Willamette River and incorporate those flows into dam operations to improve fish and wildlife habitat and community flood protection. Additionally, this study will assess the potential for floodplain restoration in the Middle Fork and Coast Fork tributaries of the Willamette River to reduce flood damage while

restoring natural wetlands and promoting ecosystem restoration. The Conservancy supports the \$213,000 proposed in FY 2012 to continue this study.

Yellowstone River Corridor Comprehensive Study: Funding these ongoing economic, 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 uses of its waters. The study will help determine the significance of the cumulative effects of water use on aquatic species and riparian hardwood forests, while guiding the establishment of beneficial management practices. The Conservancy supports the proposed \$200,000 for FY 2012.

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 – the pikeminnow, humpback chub, razorback sucker, and bonytail – that adhere to existing and state-specific water law while facilitating each state’s development of their Colorado River Compact allocation. These programs implement a range of basin-wide strategies, including improved management of federal dams, river and floodplain habitat improvement, stocking of endangered fish, and management of non-native fish species. The Conservancy supports the proposed \$6,200,000 in FY2012 for the two programs.

Platte River Recovery Implementation Program: The program helps restore the four endangered or threatened species in the basin – whooping crane, interior least tern, piping plover, and pallid sturgeon – while enabling existing water projects in the basin to continue operations. Specifically, the program is working to increase stream flows in the central Platte River at ecologically and economically important times; enhance, restore and protect lands for target bird species; and offset post-1997 depletions. The Conservancy supports the proposed \$11,037,000 for this recovery effort in FY 2012.

Basin Studies and WaterSMART: We support the request for the basin study programs and WaterSMART grant programs. These programs support sustainable water use and management by focusing on water conservation, reuse and recycling, and on environmental protection and restoration. We also support the proposed funding for the Bureau’s environmental restoration work, including the programs in the California Bay Delta and Colorado River.

Potential Additional Funds

We recognize that previous year’s appropriations for the Corps of Engineers, including 2010 and 2008 appropriations, have been higher than the President’s FY2012 request. Should the Subcommittee decide to appropriate more than the amount requested by the President, we would work with the Corps of Engineers and partners to promote use of additional funds for other priority projects, including:

Upper Mississippi and Illinois Navigation and Ecosystem Sustainability Program: This project would begin construction on 11 ecosystem restoration and five navigation projects while continuing planning and design work for lock expansion on the Illinois and Mississippi Rivers.

Cartersville Diversion Dam Fish Passage: This project would construct a fish passage at Cartersville Dam, allowing fish, including the federally listed endangered pallid sturgeon, to reach the upstream portions of the Yellowstone River.

Connecticut River Watershed Study: This project will restore 410 miles of river flow and thousands of acres of natural habitat in the Connecticut River Basin. The study identifies dam management modifications for environmental benefits while maintaining beneficial human uses.

White River Basin-Wide Comprehensive Study: This project will evaluate the impact of federal impoundments, navigation, and water withdrawals for agriculture, power generation, modifications and a variety of other uses on the White River basin and help determine ecological and human needs.

Big Cypress Basin Watershed Study: This project will restore the natural river flow of Big Cypress Bayou to enhance the health of Caddo Lake and the downstream wetlands, wetlands recognized as globally significant by the Ramsar Convention.

Long Island Sound Oyster Restoration: This project will develop a comprehensive plan for restoring oysters and other shellfish in Long Island Sound to support the ecological and economic well-being provided by a sustainable oyster fishery.

Lower Mississippi River Resource Assessment: Flood control and drainage systems have accelerated erosion and habitat loss along the Lower Mississippi River and its tributaries. Working with the Department of Interior, the Corps will evaluate river management, habitat, and public access to recommend actions for addressing current and future needs.

West Pearl River Navigation Study: The aquatic communities of the Pearl, West Pearl, and Bogue Chitto Rivers are severely disrupted by old and disused navigation structures. This study will examine the feasibility of removing them or repurposing the structures to improve environmental and recreational conditions.

Thames River Basin Watershed Study: This study for the Thames River Basin ecosystem, including its tributaries to Long Island Sound, will determine the research and management measures necessary to improve the management of water control structures in the basin.

Middle Potomac River Watershed Comprehensive Study: This study will develop a comprehensive, multi-jurisdictional sustainable watershed management plan for the Middle Potomac River watershed, balancing the ecological functions and services provided by the river with the human demands upon it.

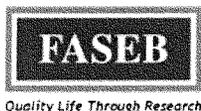
The Conservancy would like to thank the Subcommittee for supporting the restoration of large scale restoration programs over the last decade. These programs have been essential to restoring and maintaining some of America's most precious and imperiled ecosystems. We are also appreciative of past support for smaller-scale projects that provide cumulative benefits and serve as powerful demonstrations of effective restoration.

We appreciate 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



April 15, 2011

Federation of American Societies for Experimental Biology
 Office of Public Affairs • 9650 Rockville Pike, Bethesda, MD 20814-3998 • www.FASEB.org/OPA

Testimony of
William T. Talman, M.D., President
Federation of American Societies for Experimental Biology
 On
FY 2012 Appropriations for the Department of Energy Office of Science
 Submitted to the
House Committee on Appropriations
Subcommittee on Energy and Water Development
Congressman Rodney Frelinghuysen, Chair
Congressman Peter Visclosky, Ranking Member

April 15, 2011

The Federation of American Societies for Experimental Biology (FASEB) respectfully requests an appropriation of \$5.10 billion for the Department of Energy Office of Science (DOE SC) in fiscal year 2012. This figure is in keeping with President Obama's vision for strong national investment in innovation, and it would enable DOE SC to continue to support essential research programs that enhance human health and quality of life, invigorate the economy, bring the nation closer to energy independence, and drive scientific advances.

As a Federation of 23 scientific societies, FASEB represents more than 100,000 life scientists and engineers, making it the largest coalition of biomedical research associations in the United States. FASEB's mission is to advance health and welfare by promoting progress and education in biological and biomedical sciences, including the research funded by DOE SC, through service to its member societies and collaborative advocacy. FASEB enhances the ability of scientists and engineers to improve—through their research—the health, well-being, and productivity of all people.

DOE SC provides over 40 percent of the total funding for basic research in the physical sciences, including fundamental research in energy sciences, biological and environmental sciences, materials and chemical sciences, and computational science. In addition to supporting research at over 300 colleges and universities, DOE SC funds and manages ten world-class national laboratories.

The DOE SC national laboratories, located in eight states across the country, maintain essential research and development facilities containing sophisticated instrumentation such as particle accelerators, advanced light sources, and supercomputers. Because large-scale facilities provide infrastructure beyond the budget of any individual research institution, tens of thousands of university and industry scientists rely heavily on access to unique DOE SC instrumentation in order to conduct cutting-edge research. For example, x-ray facilities housed at DOE SC national laboratories, such as the Advanced Photon Source at Argonne National Laboratory, are used by nearly all U.S.-based pharmaceutical and biotechnology companies to conduct protein structure studies critical to the drug design process. Furthermore, the oil and gas industry uses DOE SC instrumentation to study the atomic structure of chemicals used to process and refine fossil fuels. Without strong and sustained support for

DOE SC, operations at national laboratory facilities could be limited or terminated, forcing U.S. companies that depend on them to move their research studies to overseas locations providing better access to instrumentation.

At academic institutions and national laboratories across the country, DOE SC-funded scientists have uncovered a wealth of knowledge that has led to life-changing developments in energy, medicine, computer science, and other fields. For example, a team of DOE SC-funded scientists is studying a fungus capable of degrading plant material into the simple sugars necessary to make biofuels, possibly leading to a more economical means of manufacturing ethanol for industrial applications. DOE SC also partners with other federal science agencies on projects requiring multidisciplinary resources and expertise. Along with the National Science Foundation and the National Eye Institute, DOE SC sponsored the research and development of an artificial retina to restore sight in patients blinded by eye diseases such as macular degeneration and retinitis pigmentosa. The study of artificial retina technology has advanced the general field of neural prostheses, which has the potential to improve the lives of people with spinal cord injuries, Parkinson's disease, deafness, and other neurological disorders.

Now is not the time to abandon investment in the innovative research supported by DOE SC. Insufficient funding for the agency would curtail groundbreaking scientific discoveries by forcing essential research facilities to close, causing thousands of scientific jobs to be lost, and deterring the next generation of scientists and engineers. A source of abundant, safe, clean, and sustainable energy is critical to the nation's future. Development of new energy sources that can be used in place of fossil fuels will create new industries, reduce U.S. dependency on foreign oil, protect the environment, provide economic opportunities, and strengthen national security. Furthermore, because of the collaborative work of science agencies and the increasingly interdisciplinary nature of scientific research, support for the federal research and development portfolio has never been more important. With its vital mission and unique research facilities, investment in DOE SC programs should be one of our highest national priorities.

Thank you for the opportunity to offer FASEB's support for DOE SC.

FASEB is composed of 23 societies with more than 100,000 members, making it the largest coalition of biomedical research associations in the United States. FASEB enhances the ability of scientists and engineers to improve—through their research—the health, well-being and productivity of all people. Our mission is to advance health and welfare by promoting progress and education in biological and biomedical sciences through service to our member societies and collaborative advocacy.

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