

**Summary Minutes of the United States Environmental Protection Agency (U.S. EPA)
Science Advisory Board (SAB) Teleconference
February 19, 2010**

Chartered SAB Members: See Roster provided in Attachment A.

Date and Time: February 19, 2010, 1:00 - 4:00 p.m. Eastern Time

Location: By Teleconference

Purpose: To provide comments on the FY 2011 President's Budget Request for the Office of Research and Development.

SAB Participants:

Dr. Deborah Swackhamer, Chair	Dr. Bernd Kahn
Dr. David Allen	Dr. Catherin Kling
Dr. Timothy Buckley	Dr. Kai Lee
Dr. Thomas Burke	Dr. Cecil Lue-Hing
Dr. Terry Daniel	Dr. Floyd Malveaux
Dr. George Daston	Dr. Jana Milford
Dr. Costel Denson	Dr. Eileen Murphy
Dr. Otto Doering	Dr. Duncan Patten
Dr. David Dzombak	Dr. Stephen Polasky
Dr. Elaine Faustman	Dr. Paige Tolbert
Dr. Jeffrey Griffiths	Dr. Thomas Wallsten
Dr. James Hammitt	Dr. Robert Watts
Dr. Rogene Henderson	

SAB Staff Office Participants

Dr. Angela Nugent, Designated Federal Officer (DFO)
Dr. Vanessa Vu, Director

EPA Participants Identified on the Agenda

Ms. Carol Terris, Office of the Chief Financial Officer
Mr. Lek Kadeli, Deputy Assistant Administrator, Office of Research and Development
Dr. Paul Anastas, Assistant Administrator, Office of Research and Development

Meeting Summary:

The teleconference discussion at the meeting followed the issues and timing as presented in the agenda (Attachment B).

1. Convene Teleconference

Dr. Angela Nugent, SAB DFO, convened the teleconference and welcomed the group. She noted that no member of the public provided written information for SAB consideration and no time was requested to make a public statement. She noted that representatives of the Agency not listed on the agenda and members of the public participating in the call would be listed in the minutes of the meeting (Attachment D).

2. Purpose and Review of the Agenda

Dr. Deborah Swackhamer, the SAB Chair, asked that members focus on the adequacy of the Agency's requested FY 2010 research budget for making progress on EPA's long-term research goals. She briefly described SAB interactions with the Office of Research and Development on long-range research goals at several SAB meetings since 2007. She asked chartered SAB members to reflect on the Agency presentations at the teleconference and the budget-related materials provided to them in advance and then to highlight how well the budget fits and is consistent with ORD's long-term research agenda.

3. EPA FY 2011 Budget

Ms. Carol Terris, Director of the Office of the Budget in EPA's Office of the Chief Financial Officer, provided an overview of EPA's Requested FY 2011 Budget (Attachment E). She noted that EPA's overall budget had increased in FY 2010 by \$3 billion and that the President's budget request carried over this significant increase to FY 2011. She described:

- trends in EPA's overall resources by major categories (i.e., operating programs, trust funds, and infrastructure financing);
- shifts in the overall budget between FY 2009 and FY 2010;
- trends in resource allocations to research across EPA strategic plan goals,
- FY 2011 Science and Technology Funding in ORD, compared to other national program offices,
- Federal government-wide FY 2011 budget requests for Research and Development
- trends in ORD's proportion of the overall EPA budget, and
- research funding highlights.

Ms Terris noted that OCFO had provided errata slides for slides 16, 17, and 18 in its presentation (Attachment F). The errata slides clarify that highlights of increased funding for ORD in FY 2011 include: 1) an increase of \$6 million for research in endocrine disruptors; 2) an increase of \$1.8 million (not \$1.9 million) for computational toxicology; and 3) increases for STAR Research Fellowships by \$6million, an increase that includes funding for nanotechnology fellowships.

SAB members asked several follow-up questions and Agency representatives responded with the following information:

- Although EPA does not currently monitor the amount of funds leveraged through the work of other federal agencies, ORD provided examples of how researchers leverage EPA's budget through such interactions (e.g., EPA participates in the U.S. Global Change

Research Program and uses its products; NASA's satellite imagery provides monitoring information; the nanotechnology program leverages a National Science Foundation effort to develop a federal government-wide research program).

- A major part of EPA's focus for the FY 2011 budget overall on community-level environmental protection comes from EPM funds, not research funds.

4. FY 2011 President's Budget Request for the Office of Research and Development

Mr. Lek Kadeli, Deputy Assistant Administrator, expressed appreciation for SAB's constructive engagement with ORD's strategic research planning and budget planning. He presented an overview of the FY 2011 President's Budget Request for the Office of Research and Development (Attachment G).

He provided members with a discussion of:

- planning and budgeting activities, October 2009-October 2010 (Slide 9),
- the link between investment in research and support for technological growth and job creation (Slide 10), highlighting the 25-30% increase in STAR grants, especially the increase in nanotechnology STAR fellowships (Slide 18)
- the FY 2011 allocation of the S&T account for ORD and program office laboratories (Slide 12)
- growth in ORD funding over the 2007-2011(proposed) budgets in nominal and real dollars (Slides 13-24)
- growth in ORD costs, especially personnel compensation and benefits, reflecting ORD's investment in its intramural program (Slide 15)
- comparison of the requested FY 2011 budget with the FY 2010 enacted budget by program/project, the basic ORD planning unit (Slide 17).

Dr. Paul Anastas provided some brief remarks for the consideration of the SAB. He highlighted important areas of investment in the President's requested FY 2011 budget for ORD, including endocrine disruptors, restoration of STAR fellowships and STAR grants, and computational toxicology, and noted that other investments in priority areas were also included in the budget. He expressed the desire to think about how to increase investments in other research areas as well to support the "world-class" work at ORD, its new integrated multi-disciplinary research transformation, and the need to stimulate the science needed to fashion solutions to environmental problems. His vision is for ORD's research to catalyze and enable others in EPA, decision makers outside the Agency, and the wider scientific community in developing and using science to solve environmental problems. He expressed the desire for additional dialogue with the SAB, and the SAB Chair expressed thanks and welcomed the opportunity for future discussion.

Dr. Anastas responded to a few questions from members of the chartered SAB. He acknowledged that the ORD transformation and the Administrator's priorities may call for additional science addressing the human dimensions of environmental protection, but he noted that EPA should not ignore its statutory and regulatory responsibilities. Although Dr. Anastas envisioned a continuum of tools for addressing environmental problems, from traditional

regulatory mechanisms to a suite of science-based, non-traditional regulatory tools, there may not be a need for a significant shift in resources. He responded to a question about the multi-pollutant approach being pursued by the Office of Air and Radiation by emphasizing that it will be important for EPA programs generally to increase their focus on multiple chemicals and multiple stressors on a population or community. EPA will need to develop the science needed to support the approach, but it is "still the correct direction."

5. The Discussion of the FY 2011 EPA Research Budget

The SAB Chair began the discussion of the FY 2011 ORD budget request by providing her initial thoughts to give members a sense of the high-level recommendations she hoped to include in the three-to-five-page letter to be developed for the Administrator.

She provided the follow comments as examples of the kinds of comments that might be included in the letter:

- the increase for FY 2011 was welcome
 - the increase in STAR grants, fellowships and extramural programs is especially welcomed, because the SAB values investment in the next generation of environmental scientists and EPA's interactions with a wider scientific community
 - the requested investments in new technologies, endocrine disrupting chemicals, green technology, and computational toxicology tools are appropriate
 - In general, disinvestments indicated are where research is reaching a natural decision or ending point. The budget reflects the need to make hard choices when tasks are completed
- Some concerns
 - similar to concerns communicated in previous SAB letters, the budget has no mention of social science investment except in the Ecological Services Research Program. There is a need for investment in social, behavioral, and decision sciences and risk communication. ORD's integrated multi-disciplinary research transformation will need this expertise to be successful
 - the requested budget for the Ecological Services Research Program shows a reduction in FTEs. This research program is a priority area and may not survive additional cuts.

Several expressed agreement with these points. SAB members discussed additional comments by goal areas:

Clean Air

- The relatively modest increase proposed in clean air and global change may not be enough to support a major shift in EPA's role in the global change area. Although there has been historical interagency collaboration, EPA is entering a new phase with its Endangerment Finding, where it will need to take regulatory action. The types and number of scientific activities will increase to support EPA's central, critical role.
- The multi-pollutant approach may need additional funding to be successful

Clean and Safe Water (Drinking Water, Water Quality)

- Commends increase in investment in green infrastructure, which includes \$6 million for STAR grants and 7 FTEs to address green infrastructure practices relating to storm water management, water quality and quantity at multiple scales, including large watershed scales.

Land Preservation and Restoration :

Dr. David Dzombak provided written comments before the meeting concluded: A key point that added to the oral discussion was:

- An area that has seen withdrawal of all EPA financial support and that should be reconsidered is technology evaluation and verification. The EPA ETV (Goal 5) and SITE (Goal 3) programs have been highly effective to moving technology to commercialization and have involved substantial leveraging of limited EPA funds. Studies by NACEPT and others have concluded that these evaluation activities have had high value to supporting environmental technology development by private sector organizations. While budget realities and new priorities make the reduction of these programs understandable, the EPA should seek ways to keep these programs alive - through partnerships - with minimum commitment of resources.

Other SAB members made the following comments:

- The requested budget indicates an important investment in contaminated sediments.
- EPA increase of \$3 million for studying hydraulic fracturing may not be sufficient, given potential impacts on drinking water and clean water

Healthy Communities and Ecosystems (a goal that includes Homeland Security, Human Health Risk Assessments, Computational Toxicology, Endocrine Disrupting Chemicals, Global Change, Human Health and Ecosystems Protection, Pesticides and Toxics, and Fellowships)

SAB members made comments on the following program/projects:

Homeland Security

- No investment in social sciences

Human Health Risk Assessment

- Increase in FTEs for Integrated Science Assessments appropriate; collaboration with programs outside EPA appropriate

Computational Toxicology

- Important investment for EPA

Endocrine Disrupting Chemicals

- Received the greatest increase in STAR grants, appropriately emphasizing next generation of tools and approaches. Important because few training programs exist for *in vitro* and short term testing

Human Health and Ecosystems Protection

- Human Health
 - Budget shows reductions for mercury and cumulative risk.
 - Reductions for cumulative risk research inconsistent with: 1) National Research Council *Risk and Decisions Report*, 2) the Administrator's priority for environmental justice, 3) the ORD Assistant Administrator's call for Agency and ORD initiatives on multi-chemical analyses; and 4) results of interviews held by the SAB Committee on Science Integration for Decision Making, where regions call for more scientific tools to address cumulative risk and multiple stressors
 - Increase in funding for the child health stressor study insufficient investment for cumulative risk
- Ecological Services Research Program (ESRP)
 - Reductions, especially in FTEs, unacceptable for program with minimal funding
 - Components of ESRP particularly reduced (i.e., mapping, modeling, and monitoring) and may weaken the program
 - SAB has consistently recommended the ESRP receive more funding to accomplish the goals of the program
 - Budget information provided by EPA's National Center for Environmental Economics shows no integration with ESRP; NCEE needs to be engaged

6. Action Items

- a) The Chair asked members to provide written comments to the DFO by February 20, 2010.
- b) The Chair and DFO will provide a draft letter for review by members at the February 24, 2010 teleconference, from 12:30 to 3:30 pm (Eastern Time)

Adjourn the Teleconference

The Designated Federal Officer adjourned the teleconference.

Respectfully Submitted:

Certified as True:

_____/Signed_____
 Dr. Angela Nugent
 SAB DFO

_____/Signed_____
 Dr. Deborah L. Swackhamer
 SAB Chair

ATTACHMENTS

Attachment A:	Board Roster
Attachment B:	Agenda
Attachment C:	FR Notice
Attachment D:	Members of the Public and EPA Representatives who requested call-in information or asked to be identified as participating in the teleconference.
Attachment E:	Office of the Chief Financial Officer Presentation: FY 2011 President's Budget
Attachment F:	Office of the Chief Financial Officer Errata Slides 16, 17, and 18
Attachment G	ORD Presentation - FY 2011 President's Budget Request for the Office of Research and Development

**Attachment A
SAB Roster**

**U.S. Environmental Protection Agency
Science Advisory Board**

CHAIR

Dr. Deborah L. Swackhamer, Professor and Charles M. Denny, Jr., Chair in Science, Technology and Public Policy and Co-Director of the Water Resources Center, Hubert H. Humphrey Institute of Public Affairs, University of Minnesota, St. Paul, MN

SAB MEMBERS

Dr. David T. Allen, Professor, Department of Chemical Engineering, University of Texas, Austin, TX

Dr. Claudia Benitez-Nelson, Associate Professor, Department of Earth and Ocean Sciences and Marine Science Program, University of South Carolina, Columbia, SC

Dr. Timothy Buckley, Associate Professor and Chair, Division of Environmental Health Sciences, College of Public Health, The Ohio State University, Columbus, OH

Dr. Thomas Burke, Professor, Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health, Johns Hopkins University, Baltimore, MD

Dr. Deborah Cory-Slechta, Professor, Department of Environmental Medicine, School of Medicine and Dentistry, University of Rochester, Rochester, NY

Dr. Terry Daniel, Professor of Psychology and Natural Resources, Department of Psychology, School of Natural Resources, University of Arizona, Tucson, AZ

Dr. George Daston, Victor Mills Society Research Fellow, Product Safety and Regulatory Affairs, Procter & Gamble, Cincinnati, OH

Dr. Costel Denson, Managing Member, Costech Technologies, LLC, Newark, DE

Dr. Otto C. Doering III, Professor, Department of Agricultural Economics, Purdue University, W. Lafayette, IN

Dr. David A. Dzombak, Walter J. Blenko Sr. Professor, Department of Civil and Environmental Engineering, College of Engineering, Carnegie Mellon University, Pittsburgh, PA

Dr. T. Taylor Eighmy, Vice President for Research, Office of the Vice President for Research, Texas Tech University, Lubbock, TX

Dr. Elaine Faustman, Professor, Department of Environmental and Occupational Health Sciences, School of Public Health and Community Medicine, University of Washington, Seattle, WA

Dr. John P. Giesy, Professor and Canada Research Chair, Veterinary Biomedical Sciences and Toxicology Centre, University of Saskatchewan, Saskatoon, Saskatchewan, Canada

Dr. Jeffrey Griffiths, Associate Professor, Department of Public Health and Community Medicine, School of Medicine, Tufts University, Boston, MA

Dr. James K. Hammitt, Professor, Center for Risk Analysis, Harvard University, Boston, MA
Also Member: COUNCIL

Dr. Rogene Henderson, Senior Scientist Emeritus, Lovelace Respiratory Research Institute, Albuquerque, NM

Dr. Bernd Kahn, Professor Emeritus and Associate Director, Environmental Radiation Center, School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA

Dr. Agnes Kane, Professor and Chair, Department of Pathology and Laboratory Medicine, Brown University, Providence, RI

Dr. Nancy K. Kim, Senior Executive, New York State Department of Health, Troy, NY

Dr. Catherine Kling, Professor, Department of Economics, Iowa State University, Ames, IA

Dr. Kai Lee, Program Officer, Conservation and Science Program, David & Lucile Packard Foundation, Los Altos, CA

Dr. Cecil Lue-Hing, President, Cecil Lue-Hing & Assoc. Inc., Burr Ridge, IL

Dr. Floyd Malveaux, Executive Director, Merck Childhood Asthma Network, Inc., Washington, DC

Dr. Lee D. McMullen, Water Resources Practice Leader, Snyder & Associates, Inc., Ankeny, IA

Dr. Judith L. Meyer, Distinguished Research Professor Emeritus, Odum School of Ecology, University of Georgia, Lopez Island, WA

Dr. Jana Milford, Professor, Department of Mechanical Engineering, University of Colorado, Boulder, CO

Dr. Christine Moe, Eugene J. Gangarosa Professor, Hubert Department of Global Health, Rollins School of Public Health, Emory University, Atlanta, GA

Dr. Eileen Murphy, Manager, Division of Water Supply, New Jersey Department of Environmental Protection, Trenton, NJ

Dr. Duncan Patten, Research Professor , Department of Land Resources and Environmental Sciences, Montana State University, Bozeman, MT

Dr. Stephen Polasky, Fesler-Lampert Professor of Ecological/Environmental Economics, Department of Applied Economics, University of Minnesota, St. Paul, MN

Dr. Stephen M. Roberts, Professor, Department of Physiological Sciences, Director, Center for Environmental and Human Toxicology, University of Florida, Gainesville, FL

Dr. Amanda Rodewald, Associate Professor, School of Environment and Natural Resources, The Ohio State University, Columbus, OH

Dr. Joan B. Rose, Professor and Homer Nowlin Chair for Water Research, Department of Fisheries and Wildlife, Michigan State University, East Lansing, MI

Dr. Jonathan M. Samet, Professor and Flora L. Thornton Chair, Department of Preventive Medicine, University of Southern California, Los Angeles, CA
Also Member: CASAC

Dr. James Sanders, Director and Professor, Skidaway Institute of Oceanography, Savannah, GA

Dr. Jerald Schnoor, Allen S. Henry Chair Professor, Department of Civil and Environmental Engineering, Co-Director, Center for Global and Regional Environmental Research, University of Iowa, Iowa City, IA

Dr. Kathleen Segerson, Professor, Department of Economics, University of Connecticut, Storrs, CT

Dr. V. Kerry Smith, W.P. Carey Professor of Economics , Department of Economics , W.P Carey School of Business , Arizona State University, Tempe, AZ

Dr. Herman Taylor, Professor, School of Medicine, University of Mississippi Medical Center, Jackson, MS

Dr. Barton H. (Buzz) Thompson, Jr., Robert E. Paradise Professor of Natural Resources Law at the Stanford Law School and Perry L. McCarty Director, Woods Institute for the Environment, Stanford University, Stanford, CA

Dr. Paige Tolbert, Professor and Chair, Department of Environmental Health, Rollins School of Public Health, Emory University, Atlanta, GA

Dr. Thomas S. Wallsten, Professor and Chair, Department of Psychology, University of

Maryland, College Park, MD

Dr. Robert Watts, Professor of Mechanical Engineering Emeritus, Tulane University,
Annapolis, MD

SCIENCE ADVISORY BOARD STAFF

Dr. Angela Nugent, Designated Federal Officer, 1200 Pennsylvania Avenue, NW
1400F, Washington, DC, Phone: 202-343-9981, Fax: 202-233-0643, (nugent.angela@epa.gov)

**Attachment B
Meeting Agenda**

**U.S. Environmental Protection Agency
Science Advisory Board
Teleconference
Agenda
February 19, 2010, 1:00 p.m. to 4:00 p.m. Eastern Time**

Purpose of the Meeting: to provide comments on the FY 2011 President's Budget Request for the Office of Research and Development

1:00 p.m.	Convene the Teleconference	Dr. Angela Nugent <i>Designated Federal Officer EPA SAB</i>
1:05 p.m.	Purpose and Review of the Agenda	Dr. Deborah Swackhamer <i>Chair EPA Science Advisory Board</i>
1:10 p.m.	EPA FY 2011 Budget	Ms. Carol Terris <i>Deputy Director EPA OCFO, Office of Budget</i>
1:30 p.m.	FY 2011 President's Budget Request for the Office of Research and Development	Dr. Lek Kadeli <i>Deputy Assistant Administrator</i>
2:00 p.m.	Discussion of the FY 2011 EPA Research Budget	Dr. Deborah Swackhamer The Board Dr. Paul Anastas <i>Assistant Administrator EPA Office of Research and Development</i> ORD Staff
3:45 p.m.	Next Steps	Dr. Deborah Swackhamer The Board
4:00 p.m.	Adjourn the Teleconference	The DFO

Attachment C
FR Announcement

[Federal Register: January 29, 2010 (Volume 75, Number 19)]
[Notices]
[Page 4816-4817]
From the Federal Register Online via GPO Access [wais.access.gpo.gov]
[DOCID:fr29ja10-55]

ENVIRONMENTAL PROTECTION AGENCY

[FRL-9108-2]

Science Advisory Board Staff Office; Notification of Two Public
Teleconferences of the Chartered Science Advisory Board

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: The EPA Science Advisory Board (SAB) Staff Office announces
two public teleconferences of the Chartered Science Advisory Board to
discuss EPA's requested research budget for Fiscal Year 2011.

DATES: The teleconference dates are February 19, 2010 from 1 p.m. to 4
p.m. (Eastern Time) and February 24, 2010 from 12:30 p.m. to 3:30 p.m.
(Eastern Time).

ADDRESSES: The teleconferences will be conducted by telephone only.

FOR FURTHER INFORMATION CONTACT: Any member of the public wishing to
obtain general information concerning this public teleconference should
contact Dr. Angela Nugent, Designated Federal Officer (DFO), EPA
Science Advisory Board (1400F), 1200 Pennsylvania Ave., NW.,
Washington, DC 20460; via telephone/voice mail: (202) 343-9981; fax:
(202) 233-0643; or e-mail at nugent.angela@epa.gov. General information
concerning the EPA Science Advisory Board can be found on the SAB Web
site at <http://www.epa.gov/sab>.

SUPPLEMENTARY INFORMATION: The SAB was established by 42 U.S.C. 4365 to
provide independent scientific and technical advice to the
Administrator on the technical basis for Agency positions and
regulations. The SAB is a Federal advisory committee chartered under
the Federal Advisory Committee Act (FACA), as amended, 5 U.S.C., App 2.
The SAB will comply with the provisions of FACA and all appropriate SAB
Staff Office procedural policies. Pursuant to the Federal Advisory
Committee Act, Public Law 92-463, notice is hereby given that the
chartered SAB will hold two public teleconferences to discuss the
President's requested Fiscal Year 2011 Budget to support EPA research
needs.

Background: The chartered SAB conducts a review of the EPA research budget annually and provides written comments to the EPA Administrator and to Congress, if requested, on the adequacy of EPA's requested research budget. At the teleconferences, the chartered SAB will receive briefings on the requested research budget for Fiscal Year 2011 and develop major comments on the budget, in light of EPA's research needs. Previous SAB budget advisories are on the SAB Web site at <http://www.epa.gov/sab>.

Availability of Meeting Materials: The agendas and other materials in support of the teleconferences will be placed on the SAB Web site at <http://www.epa.gov/sab> in advance.

Procedures for Providing Public Input: Interested members of the public may submit relevant written or oral information for the SAB to consider on the topics included in this advisory activity. Oral Statements: In general, individuals or groups requesting an oral presentation at a public teleconference will be limited to three minutes per speaker, with no more than a total of one-half hour for all speakers. Interested parties should contact Dr. Nugent, DFO, in writing (preferably via e-mail) at the contact information noted above for the February 19, 2010 teleconference by February 16, 2010 to be placed on a list of public speakers for the teleconference. Interested parties should

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contact Dr. Nugent, for the February 24, 2010 teleconference by February 23, 2010 to be placed on the list of public speakers for the February 24, 2010 teleconference. Written Statements: Written statements for the February 19, 2010 teleconference should be received in the SAB Staff Office by February 16, 2010 and written statements for the February 24, 2010 teleconference should be received in the SAB Staff Office by February 23, 2010 so that the information may be made available to the chartered SAB members for their consideration and placed on the SAB Web site for public information. Written statements should be supplied to the DFO in the following formats: one hard copy with original signature, and one electronic copy via e-mail (acceptable file format: Adobe Acrobat PDF, WordPerfect, MS Word, MS PowerPoint, or Rich Text files in IBM-PC/Windows 98/2000/XP format). Submitters are asked to provide versions of each document submitted with and without signatures, because the SAB Staff Office does not publish documents with signatures on its Web sites.

Accessibility: For information on access or services for individuals with disabilities, please contact Dr. Angela Nugent at (202) 343-9981, or nugent.angela@epa.gov. To request accommodation of a disability, please contact Dr. Nugent, preferably at least 10 days prior to the meeting, to give EPA as much time as possible to process your request.

Dated: January 25, 2010.
Anthony Maciorowski,
Deputy Director, EPA Science Advisory Board Staff Office.
[FR Doc. 2010-1942 Filed 1-28-10; 8:45 am]
BILLING CODE 6560-50-P

Attachment D: Members of the Public and EPA Representatives who requested call-in information or asked to be identified as participating in the teleconference

Public and Agency Staff requesting call-in information for February 2010 SAB Budget discussions

Anne M. Cooper, Ph.D.
U.S. House of Representatives
Committee on Science and Technology

Aaron Lovell
Associate editor
Risk Policy Report

Rachel Poor
Science Policy Intern
American Society of Agronomy
Crop Science Society of America
Soil Science Society of America

Pat Rizzuto
Chemicals, Science Policy Reporter
BNA, Inc.
Daily Environment Report

Steve Via
Regulatory Affairs Manager
American Water Works Association

Shimere Williams.
U.S. House of Representatives
Committee on Science and Technology
Subcommittee on Energy and Environment

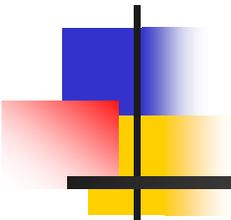
Jane Williams
U.S. House of Representatives
Committee on Science and Technology
Subcommittee on Energy and Environment

Joanne Stone Wyman, Ph.D.|Principal,
Environmental Policy and Regulatory Affairs
Dynamac Corporation

U.S. EPA Participants

Paul Anastas
Stan Barone
Amy Battaglia
Gul Beg
Dan Costa
Sally Darney
Chris Dockins
Alvin Edwards
Peter Fargo
Lynn Flowers
Elaine Francis
Gary Foley
Mary Greene
Kevin Garrahan
Iris Goodman
Alan Hecht
Phillip Juengst
Michael Loughran
Lek Kadeli
Brian Kleinman
Audrey Levine
Rick Linthurst
Al McGartland
Bruce Mintz
Jeff Morris
Charles Noss
Gregory Sayles
Joel Scheraga
Laurel Schultz
Brett Snyder
Kevin Teichman
Randy Wentsel
Pai-Yei Whung

**Attachment E: Office of the Chief Financial Officer Presentation: FY 2011
President's Budget**

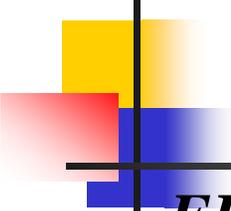


U.S. Environmental Protection Agency

FY 2011 President's Budget

Prepared for the Science Advisory Board February 19, 2010



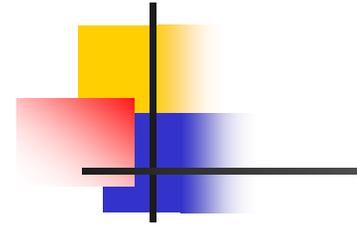


FY 2011 President's Budget Request

- *EPA's FY 2011 Budget Request totals \$10.02 billion.*
- *The FY 2011 Request builds on past successes by:*
 - *Taking action on climate change,*
 - *Improving air quality,*
 - *Assuring the safety of chemicals,*
 - *Cleaning up our communities,*
 - *Protecting America's waters,*
 - *Expanding the conversation on environmentalism and working for environmental justice and*
 - *Building strong State and Tribal partnerships*

EPA's Resources by Major Category

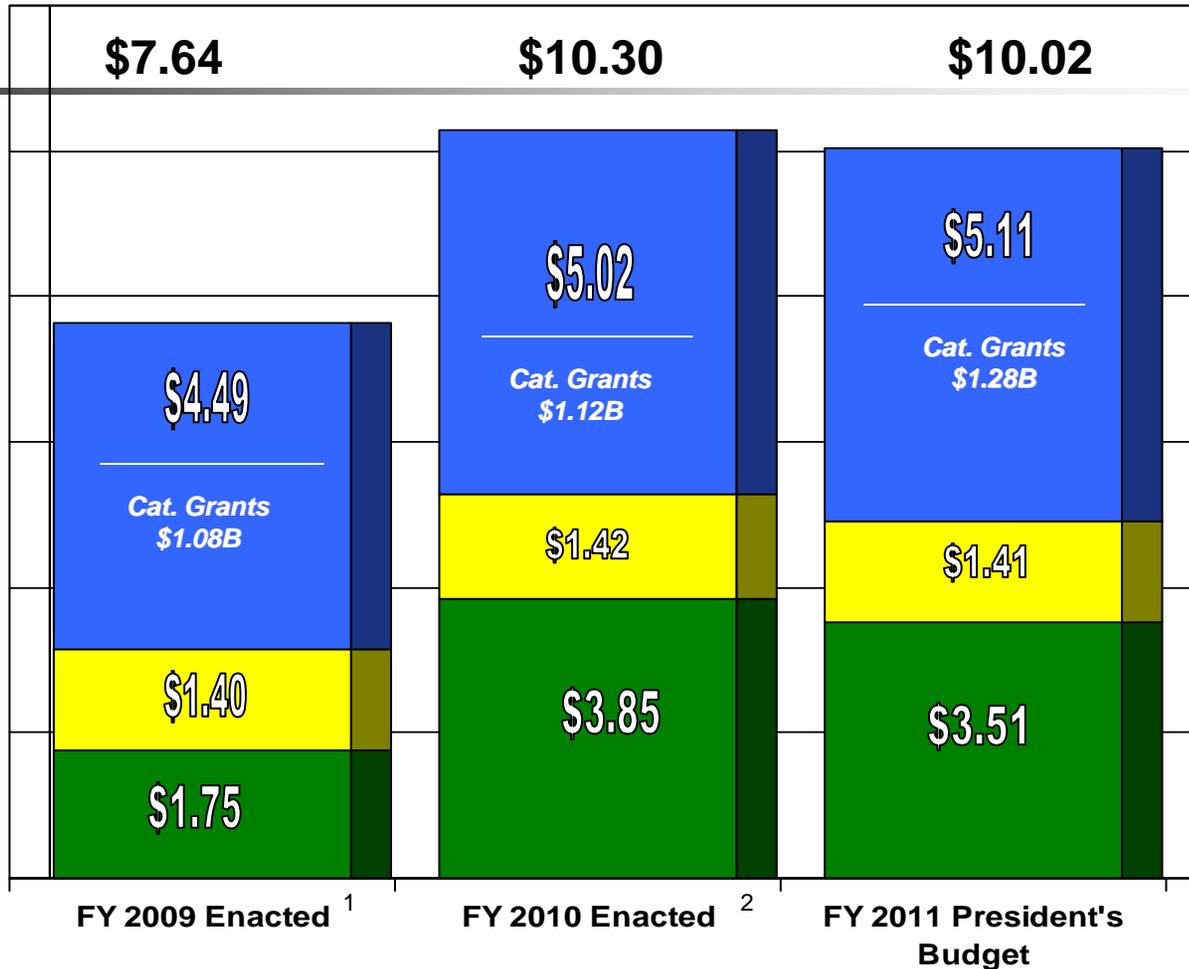
FY 2009- FY 2011 (Dollars in Billions)



Operating Programs (EPM, S&T, B&F, Oil, IG, and STAG) The Agency's core regulatory, research, enforcement activities and grants to States and other partners.

Trust Funds (Superfund and LUST) Support Superfund and LUST programs.

Infrastructure Financing (STAG) Includes Clean Water State Revolving Fund, Drinking Water State Revolving Fund, Diesel Grants and Special Projects.

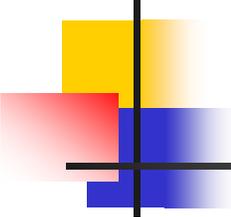


Notes:

Totals may not add because of rounding.

1 FY 2009 and FY 2011 include a \$10 M rescission to prior year funds.

2 FY 2010 includes a \$40 M rescission to prior year funds.

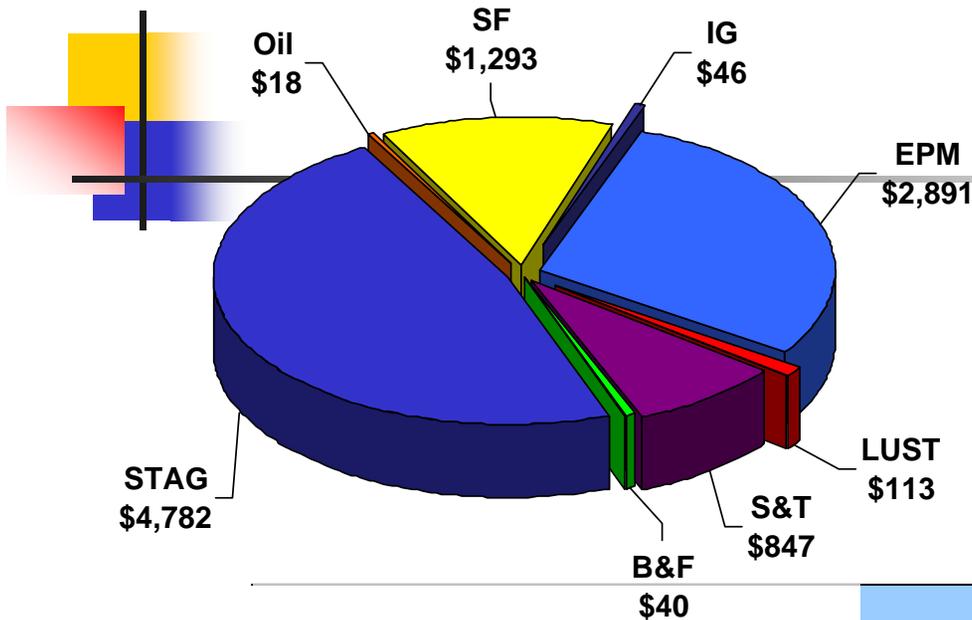


Big Picture – What Changed?

- Increased categorical grants to highest level ever
 - New regulations & new demands on states
 - Particular focus on Air & Water
- Focus on community-level implementation – bringing environmental protection to where people live, work, and play.
- Decreased some areas where 2009 Recovery Act and 2010 large increases are still being implemented
 - SRFs
 - Great Lakes

FY 2011 Appropriation Totals

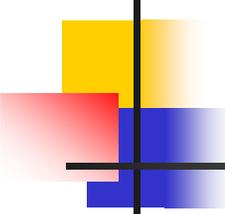
(Dollars in Millions)



**FY 2011 President's Budget
\$10.02 Billion**

	<i>FY 2009 Enacted</i>	<i>FY 2010 Enacted</i>	<i>FY 2011 PresBud</i>	<i>10 EN to 11 PB</i>
EPM	\$2,392	\$2,994	\$2,891	-\$103
S&T (excludes SF transfer)	\$790	\$846	\$847	\$1
B&F	\$35	\$37	\$40	\$3
STAG	\$2,976	\$4,978	\$4,782	-\$196
LUST	\$112	\$113	\$113	\$0
Oil	\$18	\$18	\$18	\$0
IG (excludes SF transfer)	\$44	\$45	\$46	\$1
SF (includes transfers to IG and S&T)	\$1,285	\$1,307	\$1,293	-\$14
Rescission to Prior Year Funding	(\$10)	(\$40)	(\$10)	\$30
TOTAL	\$7,642	\$10,298	\$10,020	\$2,656

Note: Numbers may not add because of rounding.

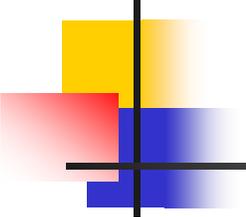


Budget Request Highlights

FY 2011 Request

- **Taking Action on Climate Change & Air Quality Management (+50 M)**
 - Implementing the GHG Registry and 2010 mobile source regulations
 - Preparing Clean Air Act regulations and analyses on GHGs based on the endangerment finding
 - Preparing assessments and analyses for other potential GHG limiting work
 - Continuing to build the scientific and legal foundation for Carbon Capture and Sequestration

- **Cleaning Up Our Communities (+68M)**
 - Brownfields
 - Clean, Green and Healthy Schools
 - Air Toxics in Communities
 - Sustainable Communities
 - Community Water Priorities
 - Maintaining a Strong Superfund Program



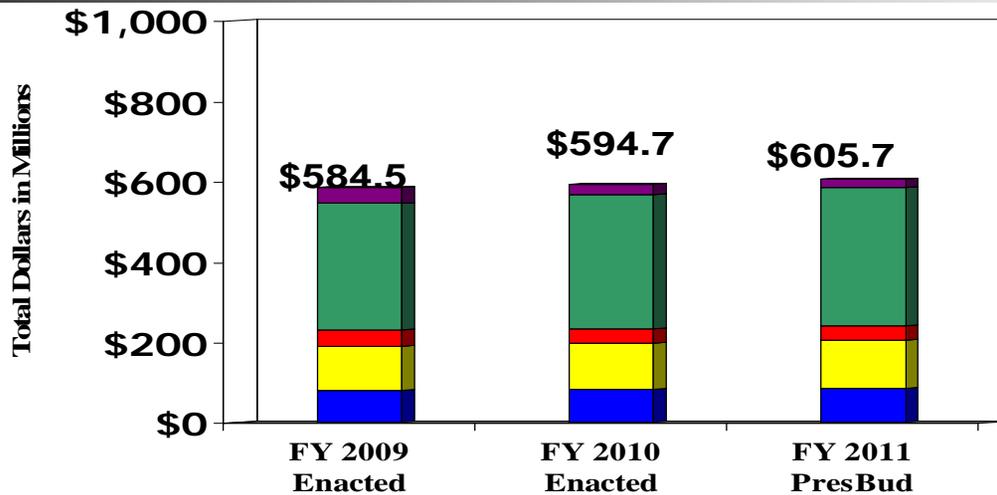
Budget Request Highlights

FY 2011 Request

- **Protecting America's Waters (+30M)**
 - Chesapeake Bay
 - Mississippi River Basin Initiative
 - Maintaining Strong Support for Water Infrastructure (\$3.3B total)
- **Building Strong State and Tribal Partnerships (+\$157M)**
 - State and Local Air Quality Management Grants (+\$82M)
 - State Water Pollution Control Grants (+\$45M)
 - Multi-Media Tribal Implementation Grants (+\$30M)
- **Strengthening Research (+\$11M, \$606M total)**

Enhance Science and Research Objective

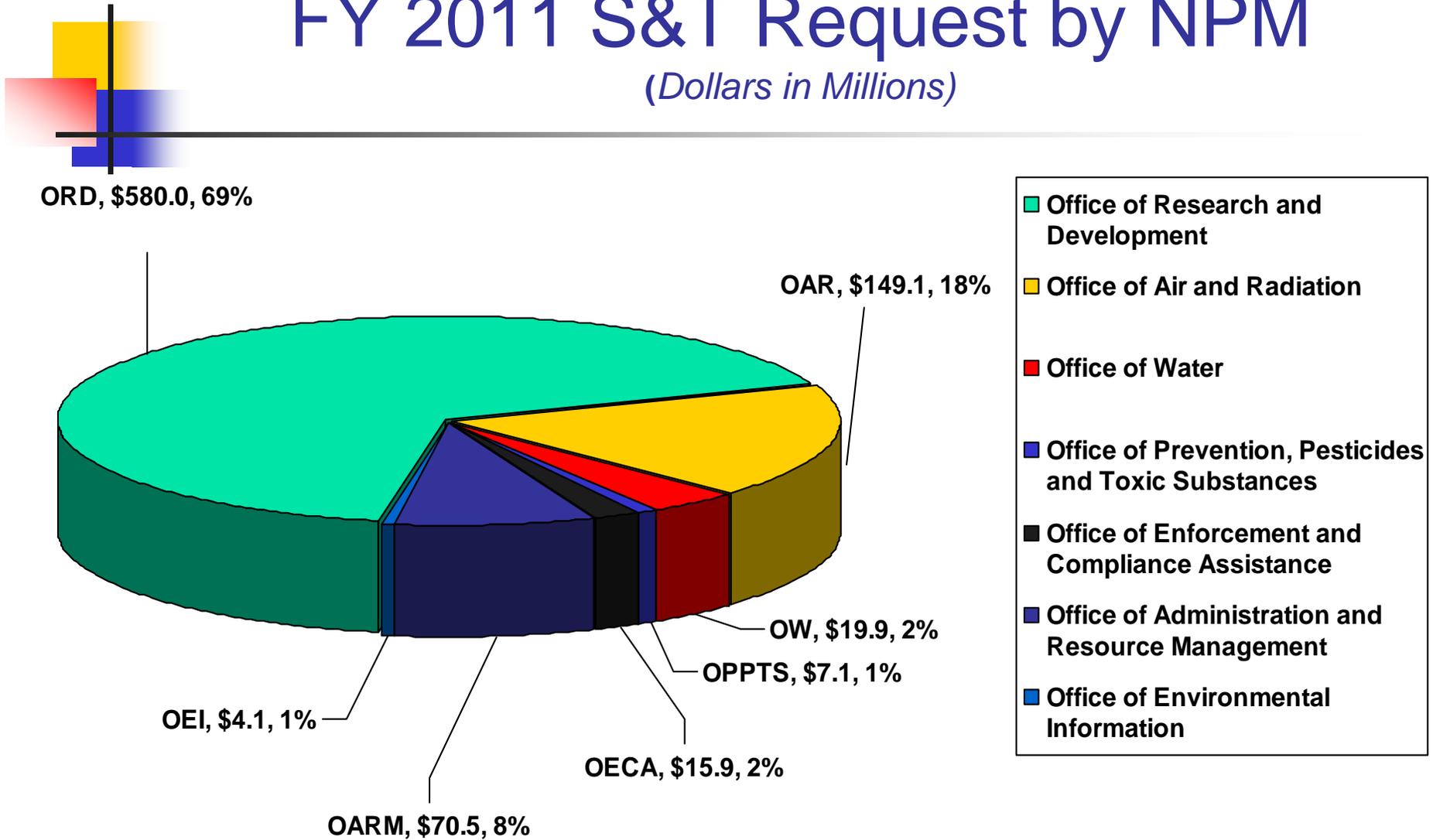
(Dollars in Millions)

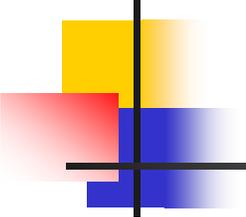


- Goal 5: Compliance & Environmental Stewardship
- Goal 4: Healthy Communities & Ecosystems
- Goal 3: Land Preservation & Restoration
- Goal 2: Clean and Safe Water
- Goal 1: Clean Air and Global Climate Change

FY 2011 S&T Request by NPM

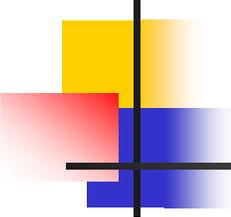
(Dollars in Millions)





Stepping Back: the Government-wide R & D Perspective

- FY 2011 R & D Budget is \$147.7B, \$59B of which is basic or applied research
- This is the third consecutive year of increases after 4 years of decline
- DOD has over half of the R & D pie with \$83B,
 - HHS \$33B,
 - DOE \$11B,
 - NSF \$7.4B,
 - USDA \$2.4B,
 - NASA \$1.8B,
 - DHS \$1.0B,
 - NOAA \$1.6B,
 - EPA \$606M (+1.8% over FY '10)

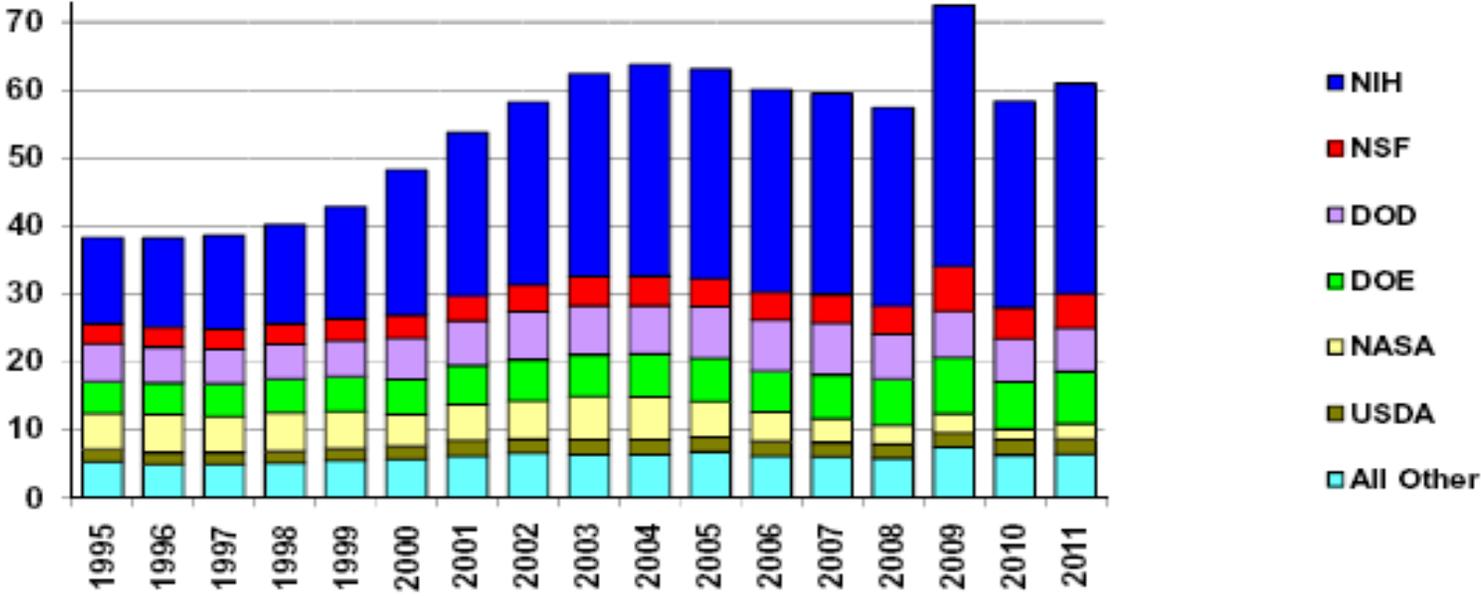


Stepping Back: the Government-wide R & D Perspective

- The Administration has committed to doubling funding in ten years for key S & T agencies NSF, NIST and DOE Office of Science; on pace to hit goal by FY 2016
- Public and private R & D funding is 2.6% of GDP today; another \$50B investment is needed to meet the President's goal of 3%
- One area of focus is building national science capacity for the future – supporting education and academic research opportunities
- Bottom line: Science budgets are on the rise

Government-wide Perspective

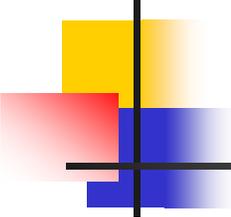
Trends in Research by Agency, FY 1995-2011
in billions of constant FY 2010 dollars



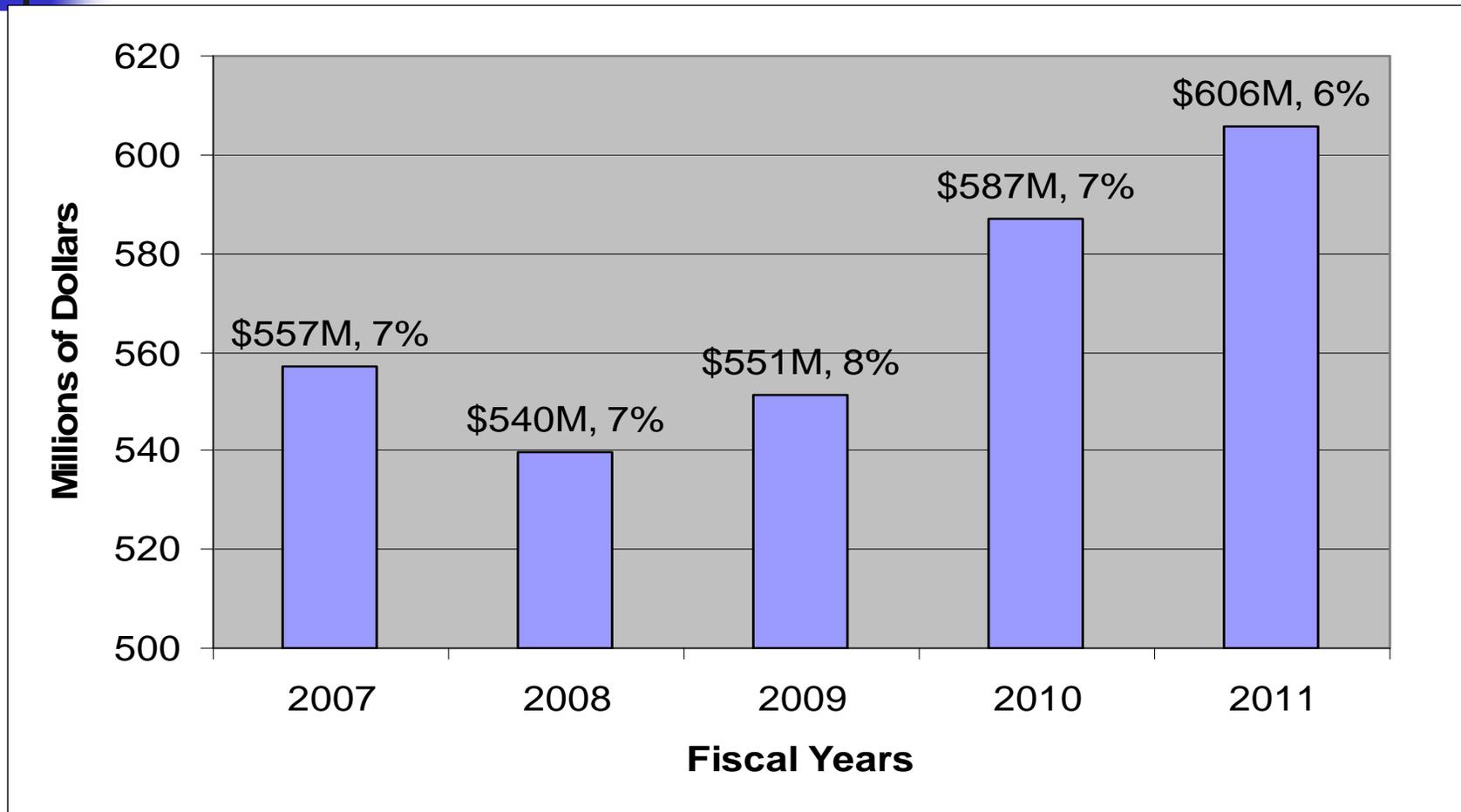
FY 2009 figures include Recovery Act appropriations. Research includes basic research and applied research.
FEB. '10 OSTP

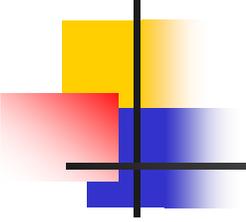
Figure 1.

EPA Research is Foundational

- 
- Science must be the compass guiding our environmental protection decisions.
 - The public health and environmental laws that Congress has enacted depend on rigorous adherence to the best available science.
 - Scientific findings should be arrived at independently using well-established scientific methods, including peer review, to assure rigor, accuracy and impartiality.
 - There should be transparency in the preparation, identification and use of scientific and technological information in policymaking.
 - The March 2009 Presidential Memo and June Administrator testimony at the SEPW Scientific Integrity hearing affirm these principles and commit to the highest standards of scientific integrity.

ORD President Budget Levels FY 2008-2011 and % of Agency Budget

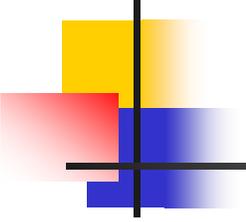




FY 2010 S&T Highlights- EPA

S&T Highlights outside of the Office of Research and Development:

- An \$8.8 million increase for Federal Vehicle and Fuels Standards and Certification to promote clean air efforts.
- A \$6.9 million decrease to reflect completion of funding for the establishment of five full-scale contamination warning system demonstration pilots in public water systems under the Water Security Initiative (WSI).

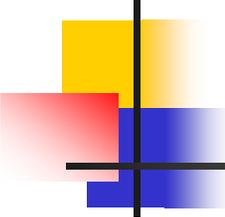


FY 2011 S&T Highlights- ORD

EPA continues to provide strong support for research addressing the Nation's most critical environmental issues which are becoming increasingly complex. ORD received a 1.8% increase in FY 2011 PB. Highlights include:

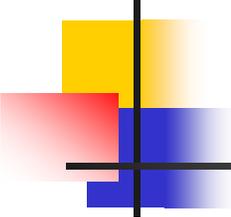
- **STAR grants (+\$25.8M)** Requests a total of \$87.2M for research in key areas of Administrator's priorities.
- **Computational Toxicology (+\$1.9M)** Requests a total of \$21.9M to speed development of next generation tools and facilitate implementation of the Agency's Endocrine Disruptor program.

(continued on next slide)



FY 2011 S&T Highlights- ORD

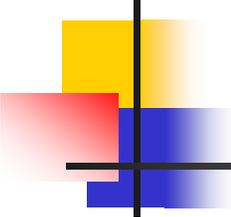
- **Green Water Infrastructure Research (+\$6.0M)** Provides a total of \$10.3M and expands research to assess, develop and compile scientifically rigorous tools to be used by Agency Offices, States and localities to help develop and deploy green infrastructure.
- **Hydraulic Fracturing Research (+\$2.5M)** Provides a total of \$4.3M to research the impact on drinking water.
- **Air Quality Research (+\$3.4M)** Provides a total of \$85.3M to develop and maintain a next generation monitoring network for ambient air pollutants.
- **Nanotechnology Research Fellowships (+6.2M)** Supports STAR fellowships and promotes the safe development, use and disposal/recycling of products containing nanomaterials. Increase supports the Agency's priority to ensure a large and well-trained scientific workforce.



ORD Components of FY 2010 Enacted Budget reduced or not sustained in FY 2011

- \$4.7M in Congressionally Mandated Projects were not sustained
- \$4.3M reduction for Homeland Security research
- \$2.5M reduction for mercury research to address higher priority research needs
- \$1.5M reduction in pesticides and toxics biotechnology to shift focus to assuring the safety of chemicals and expanding efforts in green chemistry and green engineering

Attachment F: Office of the Chief Financial Officer Errata Slides 16, 17, and 18



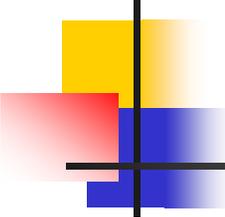
FY 2011 S&T Highlights- ORD

EPA continues to provide strong support for research addressing the Nation's most critical environmental issues which are becoming increasingly complex. ORD received a 1.8% increase in FY 2011 PB. Highlights include:

- **STAR grants and fellowships (+\$25.8M)** Requests a total of \$87.2M for research in key areas of Administrator's priorities.
- **Endocrine Disruptors (+\$6.0M)** Accelerate the application of the latest state of the art innovations to advance assessment and management of EDCs and other emerging contaminants.
- **Computational Toxicology (+\$1.8M)** Requests a total of \$21.9M to speed development of next generation tools and facilitate implementation of the Agency's Endocrine Disruptor program.

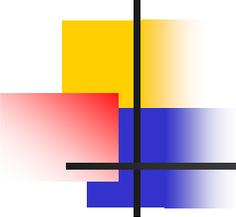
(continued on next slide)

corrected slide – p. 16



FY 2011 S&T Highlights- ORD

- **Green Water Infrastructure Research (+\$6.0M)** Provides a total of \$10.3M and expands research to assess, develop and compile scientifically rigorous tools to be used by Agency Offices, States and localities to help develop and deploy green infrastructure.
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- **Air Quality Research (+\$3.4M)** Provides a total of \$85.3M to develop and maintain a next generation monitoring network for ambient air pollutants.
- **STAR Fellowships (+6.2M)** Supports STAR fellowships to graduate students to study environmental issues to include nanomaterials. Increase supports the Agency's priority to ensure a large and well-trained scientific workforce.



ORD Components of FY 2010 Enacted Budget reduced or not sustained in FY 2011

- \$4.7M in Congressionally Mandated Projects were not sustained
- \$4.3M reduction for Homeland Security research
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Attachment G

**ORD Presentation - FY 2011 President's Budget Request for the
Office of Research and Development**

FY 2011 President's Budget Request for the Office of Research and Development

Presentation to the Science Advisory Board





Overview

- Exemplary Research Accomplishments
- FY 2011 President's Budget for ORD
- FY 2011 Research Program Highlights
- Conclusions



"At such a difficult moment, there are those who say we cannot afford to invest in science, that support for research is somehow a luxury at moments defined by necessities. I fundamentally disagree. Science is more essential for our prosperity, our security, our health, our environment, and our quality of life than it has ever been before."

President Barack Obama
April 27, 2009

"The best way to restore the standing of the EPA in the minds of the American people is by ensuring that we utilize the best science." "Science is one of the key factors that the President asked us to focus on when shaping our environmental agenda. Our decisions have to be guided by the most thorough research, the most accurate data, and the strongest evidence."

EPA Administrator Lisa P. Jackson
April 14, 2009

"The range of research programs and initiatives will both continue the work of better understanding the scientific basis of our environmental and human health problems as well as advance the design of sustainable solutions through approaches such as green chemistry and green engineering."

EPA's FY 2011 Annual Performance Plan and Congressional Justification (EPA's Proposed Budget)
February 1, 2010

Key Themes that Focus the Work of EPA

- Taking action on climate change
- Improving air quality
- Assuring the safety of chemicals
- Cleaning up our communities
- Protecting America's water
- Expanding the conversation on environmentalism and working for environmental justice
- Building strong state and tribal partnerships



Exemplary Research Accomplishments

Office of Research and Development



Exemplary Research Accomplishments

- Supported studies cited by Administrator Lisa Jackson in her finding that climate-change-driven changes in ozone air pollution endanger public health
- Found that smaller air particles affect the cardiovascular system, while larger air particles impact on the lungs—knowledge that will inform local and federal decisions on air quality
- Launched Phase II of ToxCast to screen 700 additional chemicals, including 100 chemicals provided by the pharmaceutical industry to EPA that were proven toxic in clinical trials
- Leveraging interagency and international research on the implications of nanomaterials (e.g., carbon nanotubes, silver, fullerenes, cerium oxide, iron, and titanium oxide)
- Initiated new Integrated Risk Information System (IRIS) process to ensure scientific quality, integrity, transparency, and timeliness of EPA's effort to manage chemical risks
- Published reports on the characterization of, and metal availability in, coal combustion residue



Exemplary Research Accomplishments (2)

- Developing tools to help the EPA Office of Water, States, and local communities select and apply green infrastructure options (e.g., rain gardens, permeable pavement, bioswales)
- Designed innovative strategies to assist in the recovery of Pacific salmon habitats and populations; consulted with the National Oceanic and Atmospheric Administration, the Department of the Interior, and state fish and wildlife agencies
- Working with the National Park Service, developed and tested a set of four science-based metrics useful for regional and community planning in the San Luis Basin of south-central Colorado; demonstrated how sustainability metrics can inform decisions
- Finalized a web-based tool to evaluate ecosystem services trade-offs related to land use and biofuels development in Midwest (Region 7 is major client)
- Chesapeake Bay "proof-of-concept" study for meeting phosphorus & nitrogen TMDLs: Preliminary results suggest significant cost savings by selectively using *green* rather than *gray* infrastructure, plus significant ecosystem services co-benefits for carbon storage, water storage, and hunting



Exemplary Research Accomplishments (3)

- Received a R&D Magazine Award for one of the most innovative ideas of the year for an EPA-developed device that rapidly concentrates microbes in drinking water samples, so they can be easily and safely transported to a laboratory for further analysis
- The Society of Toxicology cited EPA research on new, informatics-based methods to estimate the effects of human pharmaceutical residues in wastewater on aquatic life as among the top scientific papers in 2008 related to ecological risk assessment
- Collaborated closely with EPA Region 4 and the Office of Enforcement and Compliance Assurance (OECA) by conducting a preliminary assessment of water quality in low-income regions of central Appalachia near mountaintop-removal mining operations
- Strengthened our scientific workforce to ensure the quality and integrity of EPA science by leveraging and expanding innovative hiring authorities, including Title 42s, Post Docs, student contractors, and the Senior Leadership Development Program



FY 2011 President's Budget for ORD

Office of Research and Development

Planning and Budgeting Activities October 2009 - October 2010

FY 2011 Budget
Activities →



FY 2012 Budget
Activities →

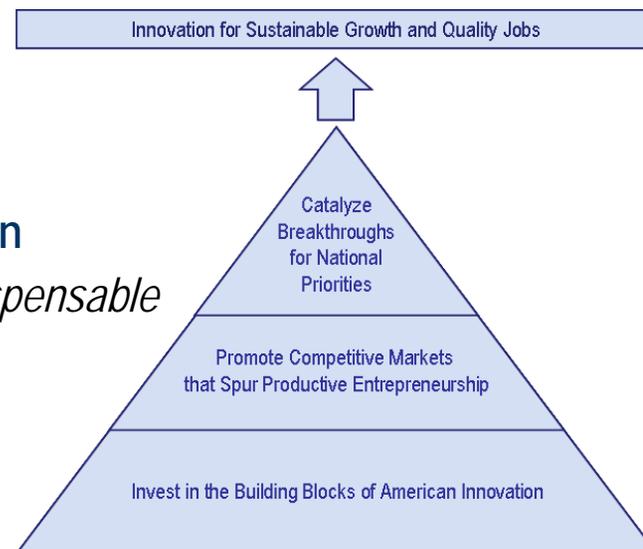


Strategic Planning
Activity →



FY 2011 President's Budget: Investing in the Building Blocks of American Innovation

"Scientific discovery and technological innovation are indispensable for promoting economic growth and jobs, protecting the environment, advancing toward a clean energy future, improving the health of the population and safeguarding our national security in the technologically-driven 21st century."¹



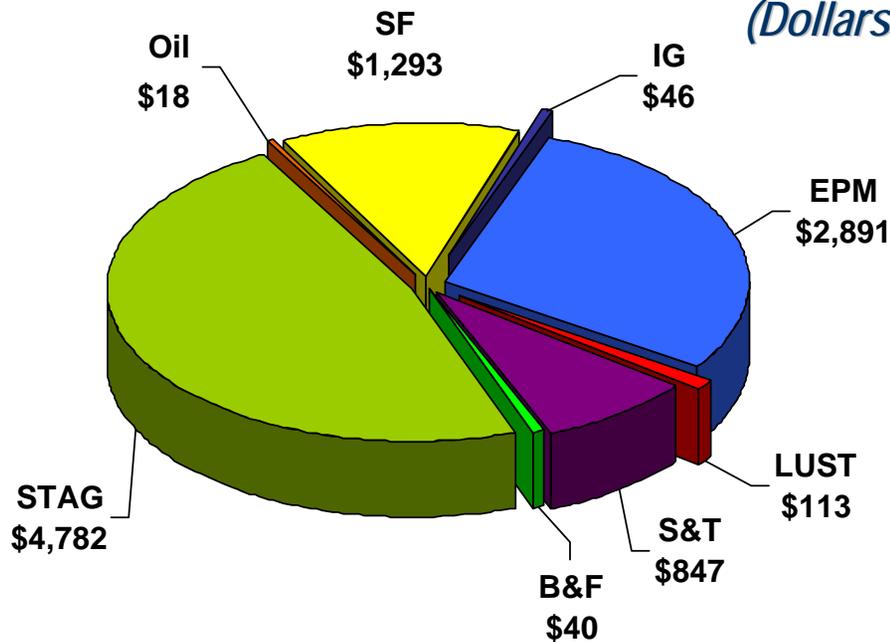
Adapted from Executive Office of the President. [A Strategy for American Innovation: Driving Towards Sustainable Growth and Quality Jobs.](#)

- EPA research is pursuing a better scientific understanding of our 21st century environmental and human health challenges as well as advancing the design of sustainable solutions.
- EPA is helping prepare the next generation of "highly skilled scientists and engineers who will tackle the grand challenges of the 21st century."¹
- EPA is directly contributing to the National Nanotechnology Initiative, Networking and Information Technology R&D, and the US Global Change Research Program.

¹Office of Science and Technology Policy, Executive Office of the President. [Investing in the Building Blocks of American Innovation. Federal R&D, Technology, and STEM Education in the 2011 Budget.](#)

FY 2011 Appropriation Totals

(Dollars in Millions)



**FY 2011 President's Budget
for EPA: \$10.020 Billion**

**FY 2011 President's Budget
for ORD: \$606 Million**

	ORD		ORD		ORD		ORD	
	FY 2010	FY 2010	FY 2011	FY 2011	10 EN to	10 EN to	10 EN to	10 EN to
	Enacted	Enacted	PresBud	Pres Bud	2011 PB	2011 PB	2011 PB	2011 PB
EPM	\$2,994	\$0	\$2,891	\$0	(\$103)	\$0	-3%	-
S&T (excludes SF transfer)	\$846	\$567	\$847	\$580	\$1	\$13	0%	2%
B&F	\$37	\$0	\$40	\$0	\$3	\$0	8%	-
STAG	\$4,978	\$0	\$4,782	\$0	(\$196)	\$0	-4%	-
LUST*	\$113	\$0	\$113	\$0	\$0	\$0	0%	0%
Oil	\$18	\$1	\$18	\$1	\$0	\$0	0%	0%
IG (excludes SF transfer)	\$45	\$0	\$46	\$0	\$1	\$0	2%	-
SF (includes Transfers to IG and S&T)	\$1,307	\$27	\$1,293	\$25	(\$13)	(\$2)	-1%	-7%
Rescission to Prior Year Funding	(\$40)	\$0	(\$10)	\$0	\$30	\$0	-	-
Total	\$10,298	\$595	\$10,020	\$606	(\$278)	\$11	-3%	-3%

Notes: Numbers may not add due to rounding; percentages are calculated on underlying non-rounded values.

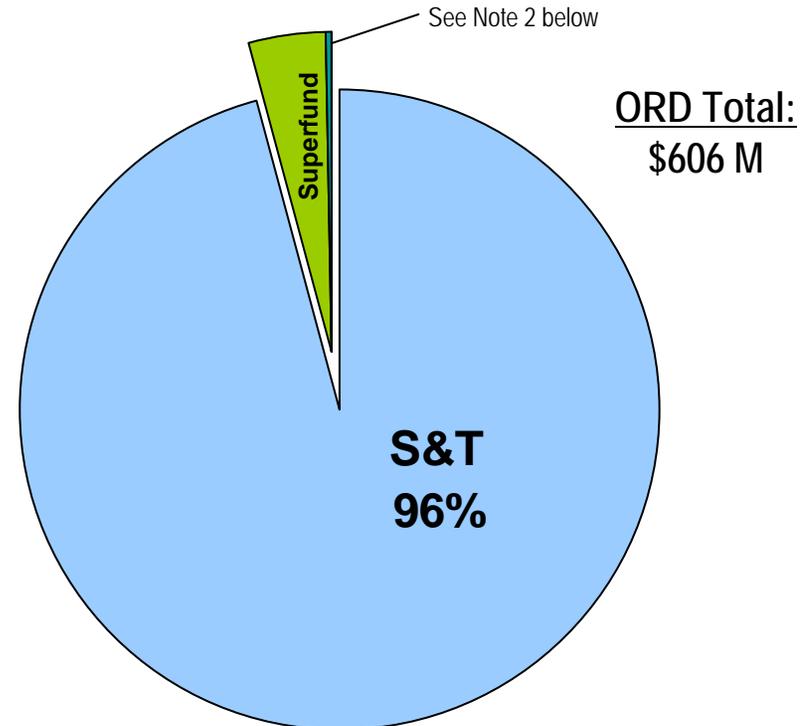
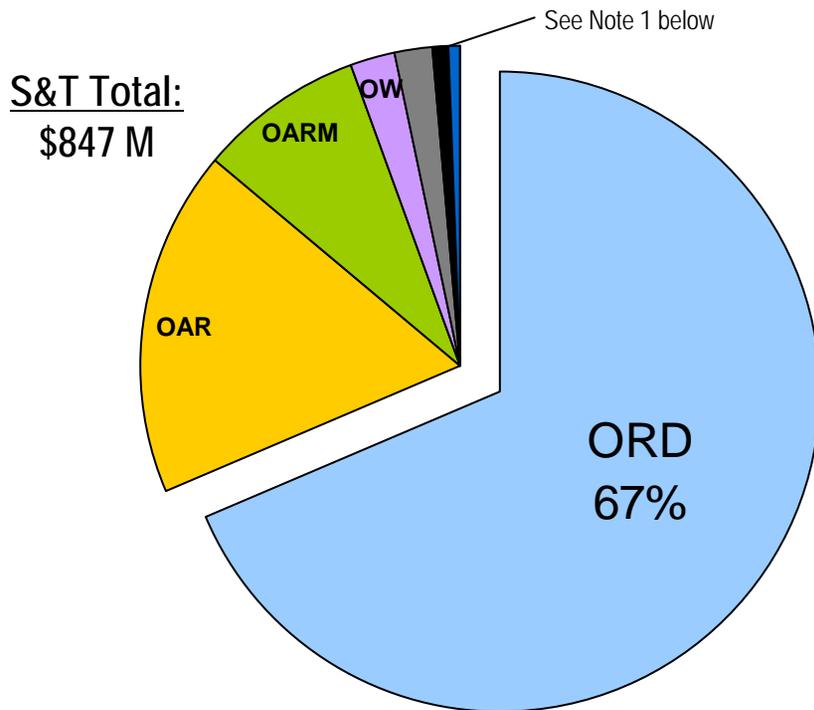
FY 2010 Enacted is exclusive of Hunter's Point and Tar Creek funding.

*ORD LUST funding includes \$345,000 in FY 2010 and \$457,000 in FY 2011.

Appropriation Accounts, FY 2011 President's Budget

S&T funds primarily ORD

ORD is funded primarily by S&T



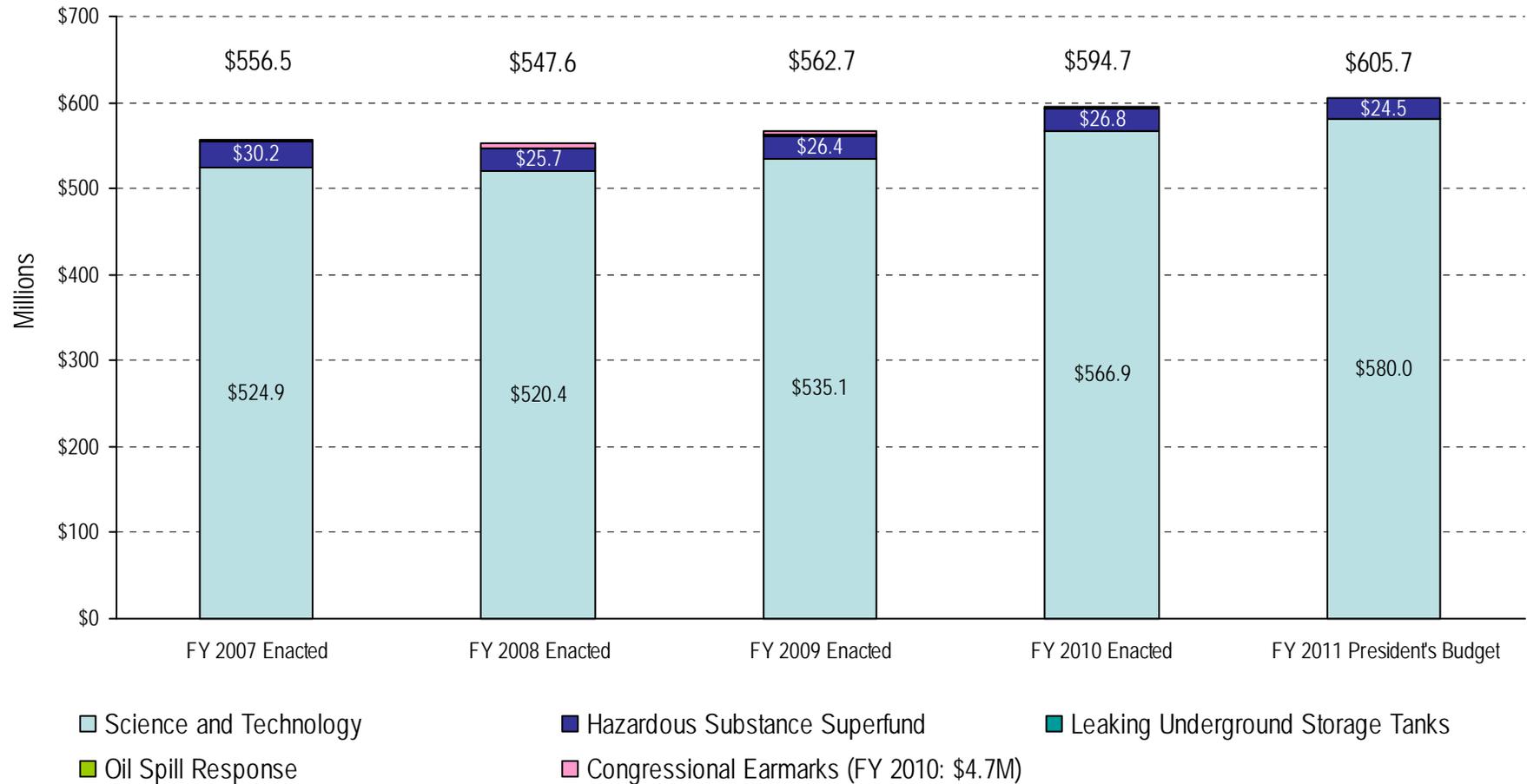
S&T Approp. by EPA Office

ORD by Approp.

Note 1: Includes OEI (\$4M), OPPTS (\$7M), and OECA (\$16M)

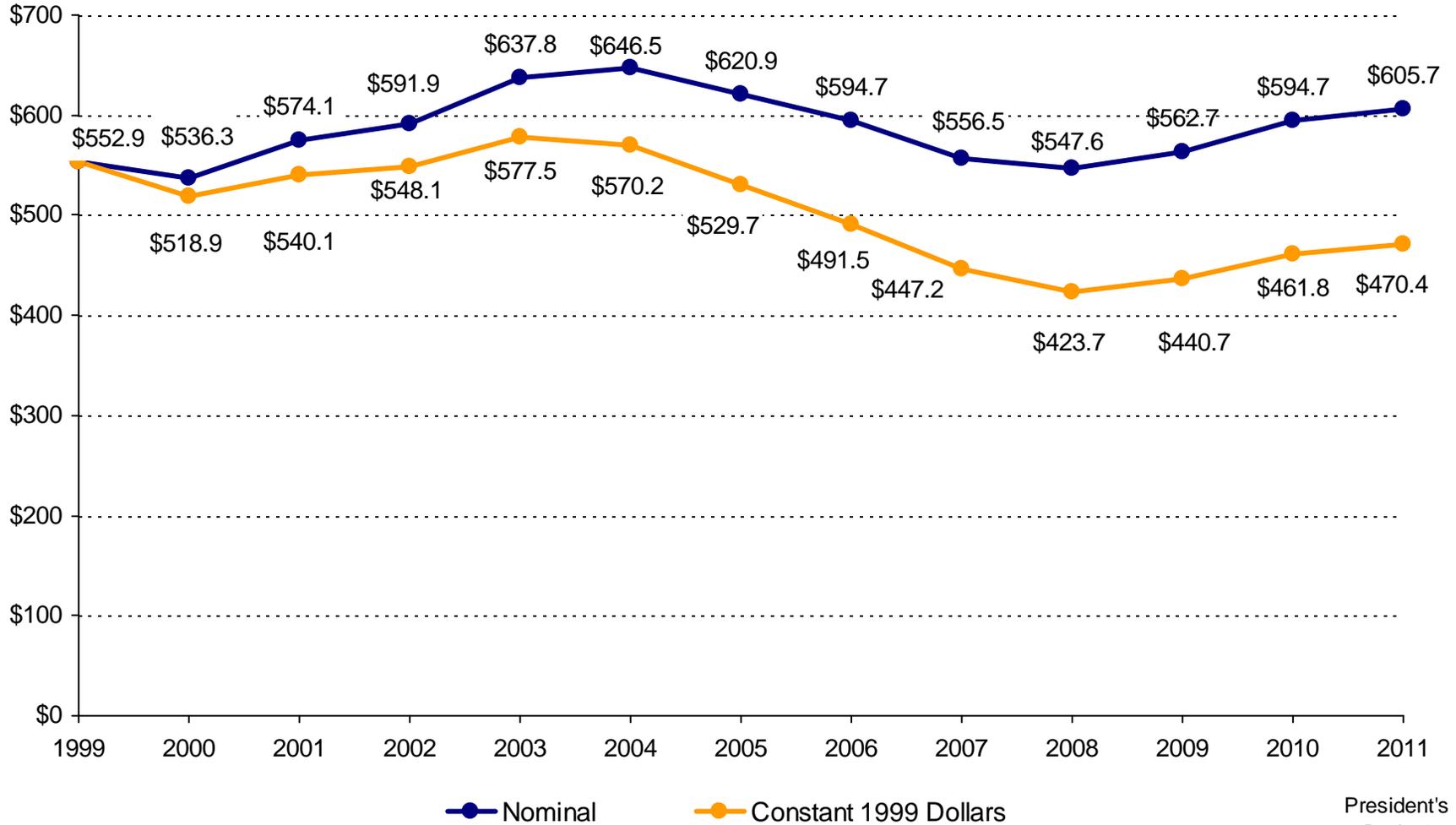
Note 2: Includes LUST (\$0.5M) and Oils Spills (\$0.7M)

ORD Budget by Appropriation Account (Dollars in Millions)



ORD Budget Trend

(enacted budget, includes earmarks, dollars in millions)

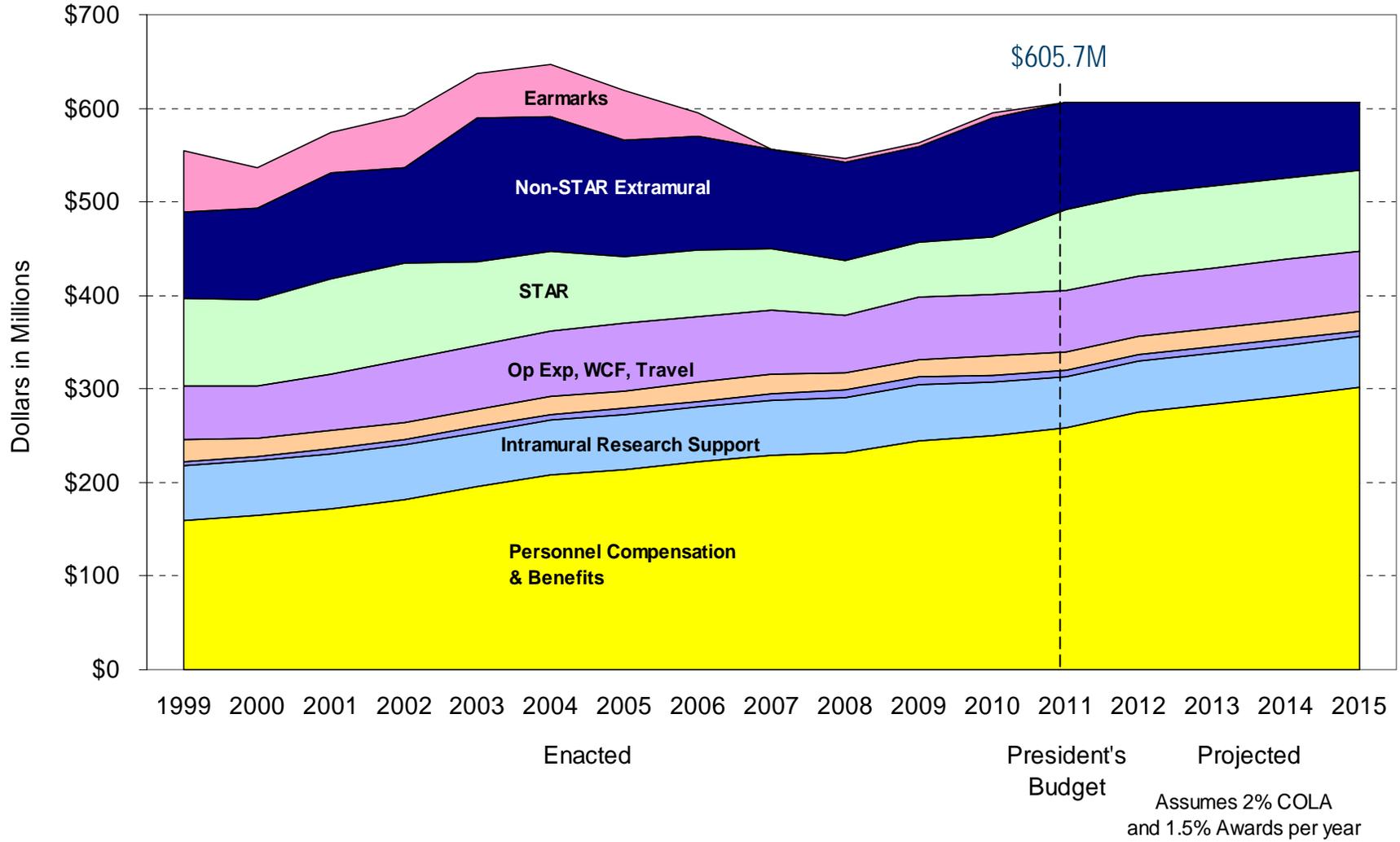


Source: Department of Labor, Bureau of Labor and Statistics Consumer Price Index

President's Budget

Resource Trends

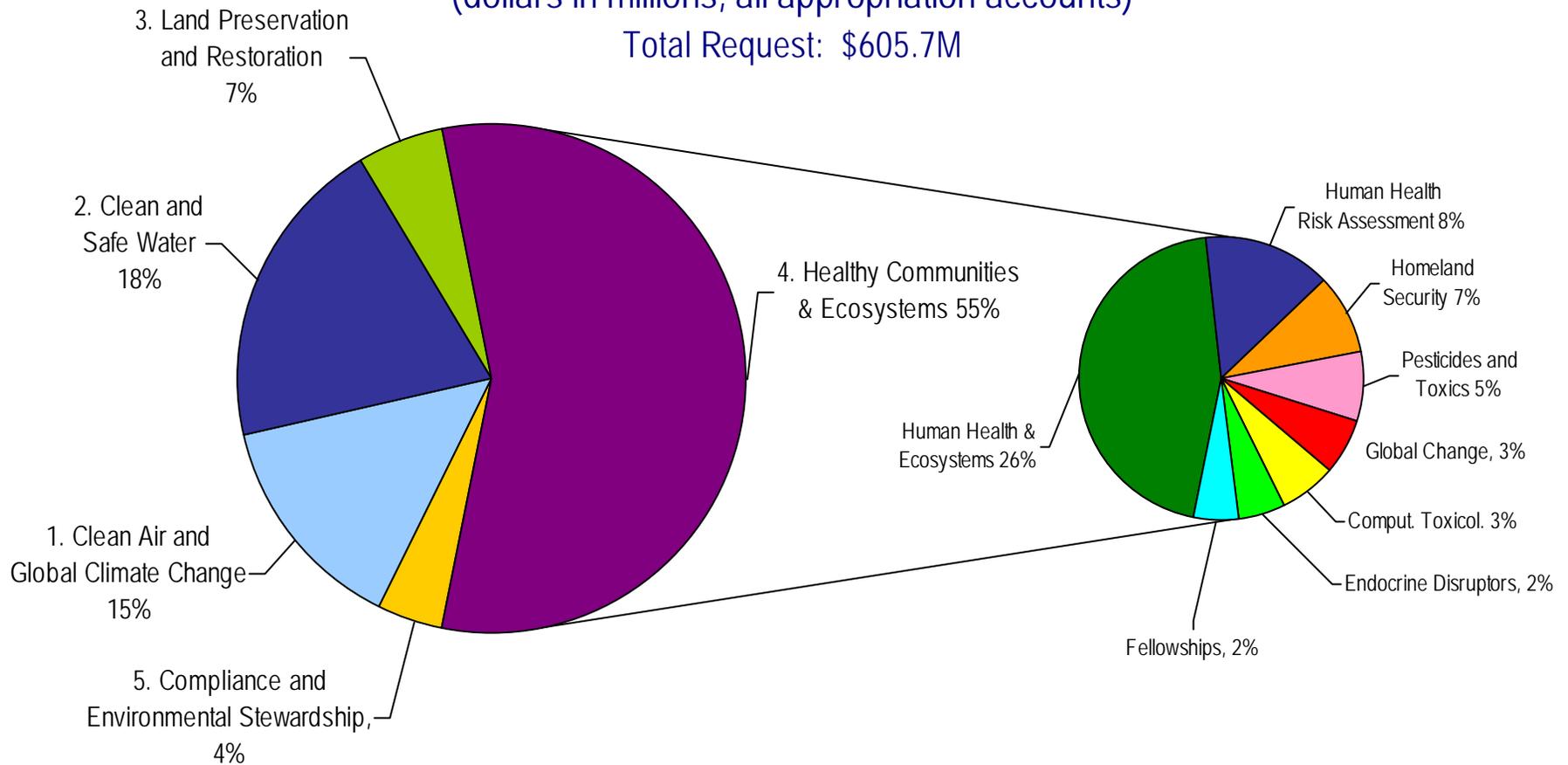
ORD Budget by Type of Spending



President's FY 2011 Budget for ORD by EPA Strategic Goal

(dollars in millions, all appropriation accounts)

Total Request: \$605.7M



Comparison of FY 2011 President's Request to FY 2010 Enacted Budget by EPA Office of Research and Development (ORD) Program/Project

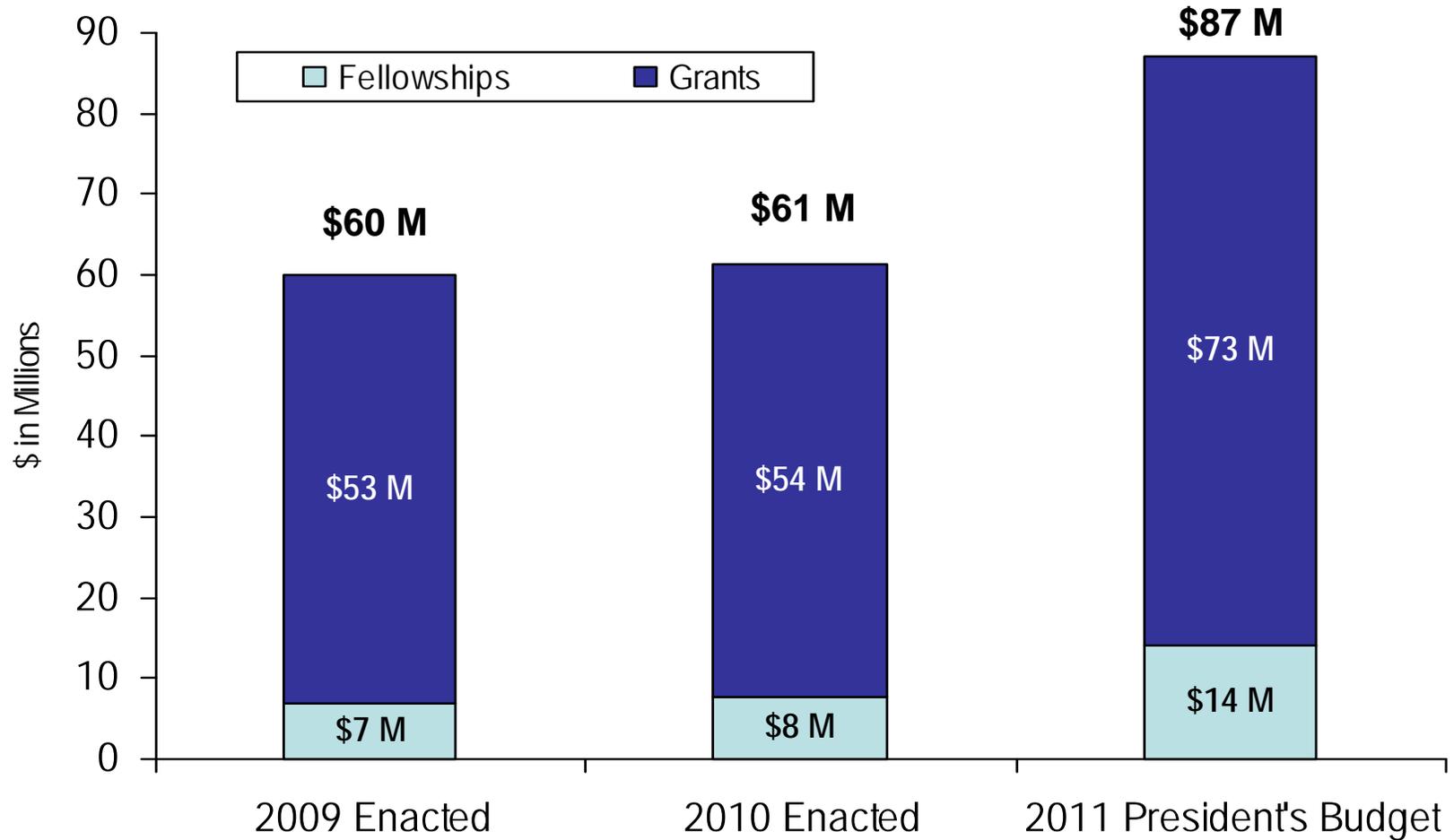
EPA/ORD Program/Project	FY 2009 Enacted ¹		FY 2010 Enacted ¹		FY 2011 President's Budget ¹		Change from FY 10 En. to FY 11 PB ²	
	\$M	FTE	\$M	FTE	\$M	FTE	\$M	FTE
Clean Air	\$80.5	269.5	\$81.9	269.5	\$85.3	265.6	+\$3.4	-3.9
Drinking Water	\$46.9	190.2	\$49.2	190.2	\$52.3	190.8	+\$3.1	+0.6
Water Quality	\$59.3	236.8	\$61.9	236.8	\$68.9	244.9	+\$6.9	+8.1
Land Preservation and Restoration	\$35.7	154.7	\$36.3	154.7	\$34.0	150.7	-\$2.3	-4.0
Homeland Security	\$37.0	57.5	\$35.0	57.5	\$30.7	64.3	-\$4.3	+6.8
Human Health Risk Assessment	\$42.7	178.6	\$48.2	188.6	\$49.0	202.8	+\$0.8	+14.2
Computational Toxicology	\$15.2	32.7	\$20.0	32.7	\$21.9	34.6	+\$1.8	+1.9
Endocrine Disruptors	\$11.5	50.1	\$11.4	50.1	\$17.4	44.2	+\$6.0	-5.9
Global Change	\$17.9	35.5	\$20.8	35.5	\$22.0	40.1	+\$1.2	+4.6
Human Health & Ecosystems	\$153.8	484.9	\$159.5	484.9	\$154.1	475.3	-\$5.4	-9.6
Pesticides and Toxics	\$26.9	137.4	\$27.3	137.4	\$27.6	136.3	+\$0.3	-1.1
Fellowships (including STAR)	\$9.7	2.6	\$11.1	2.6	\$17.3	5.0	+\$6.2	+2.4
Sustainability	\$21.2	70.8	\$27.4	70.8	\$25.3	70.7	-\$2.1	-0.1
Congressional Earmarks	\$4.5	0.0	\$4.7	0.0	N.A.	N.A.		
Total	\$562.7	1901.3	\$594.7	1911.3	\$605.7	1925.3	+\$11.0	+14.0

¹ Totals may not add due to rounding

² Net changes to the overall Program Project

Colors correspond to previous slide (16)

Historical Science to Achieve Results (STAR) Grants and Fellowships Funding





FY 2011 Research Program Highlights

Office of Research and Development



FY 2011 Program Highlights

Clean Air **+\$3.4M** (\$81.9M in 2010)

- In FY 2011, ORD will continue research to support the setting and implementation of the National Ambient Air Quality Standards (NAAQS).
- The program will continue:
 - research to measure and characterize source emissions, track and model the fate and transport of emissions, study exposure to air pollution; and
 - epidemiological, clinical, and toxicological studies of air pollution effects.
- ORD is continuing to evolve its air research activities to form an integrated, multi-pollutant "source to health outcome" air research approach to address ozone and other criteria pollutants as well as HAPs. The Near Road Impacts Study is a prototype for this approach. It will complete studies in Las Vegas, fully establish the "source-to-health-outcome" paradigm in Detroit and deploy the Raleigh-study campaign.
- Additional funding of \$3.0 million in FY 2011 will develop and validate next generation monitoring technologies for ambient air pollutants to help build the scientific backbone necessary to improve the knowledge underlying regulatory decisions.

FY 2011 Program Highlights

Drinking Water **+\$3.1M** (\$49.2M in 2010)

- In FY 2011, the program will continue its evolution towards conducting more integrated multidisciplinary research focused on characterizing and managing health risks associated with surface and underground sources of drinking water, treatment strategies, and distribution/storage systems and water infrastructure.
- The program will continue to address information gaps associated with chemicals and microorganisms that are on the recently released third Contaminant Candidate List (CCL3) and support the unregulated contaminant monitoring rule (UCMR3). Current policy-relevant research topics include the following:
 - research to address revisions to the Total Coliform Rule (TCR) and related research on distribution systems;
 - implementation of recent regulatory decisions including the Ground Water Rule, the Stage 2 Disinfection Byproduct Rule (DBP2), and the Long-Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR);
 - research support for simultaneous compliance challenges, particularly co-compliance with the Lead and Copper Rule (LCR), Microbial and Disinfectant Byproduct (M/DBP) rules, and National Primary Drinking Water Regulations (NPDWR); and
 - research related to underground sources of drinking water.
- In FY 2011, the program will double its investment in hydraulic fracturing research. The Agency is beginning a study to examine the potential consequences associated with hydraulic fracturing on drinking water.



FY 2011 Program Highlights

Water Quality **+\$6.9M** (\$61.9M in 2010)

- FY 2011 research will continue efforts to improve the protection and restoration of watershed conditions, including improvement of water infrastructure and managing wet weather flows in both urban and agricultural settings.
- Water Infrastructure research efforts will continue on the development of innovative solutions to manage the nation's aging wastewater infrastructure. Work will also demonstrate technologies and approaches for new and innovative condition assessment, rehabilitation, and design of wastewater collection systems and comprehensive asset management.
- In FY 2011, the program will increase green infrastructure research to help improve urban stormwater management practices and facilitate the nation's transition to more sustainable water systems. This research will focus on the benefits and costs of those green infrastructure practices.
- This research has the potential to spur innovative solutions to America's aging water infrastructure challenges through approaches that could have significant long term cost savings. These approaches will provide State and local planners and resource managers with the tools and information they need to reduce flooding and erosion, water quality degradation, and destruction of ecosystems due to stormwater runoff.



FY 2011 Program Highlights

Land Preservation and Restoration **-\$2.3M** (\$36.3M in 2010)

- In FY 2011, ORD will continue to support EPA's priority of cleaning up our communities through research to address material management, Superfund issues, and other emerging topics including:
 - research to support regulation of coal combustion residue (CCR);
 - synthesis and state-of-the-science documents will provide EPA Program Offices, Regional Offices, and States with remediation technologies for treatment of dense non-aqueous phase liquids, such as trichloroethylene, in ground water; and
 - providing critical information about arsenic bioavailability in soils, sediments and materials to inform reuse risk assessments.
- In FY 2011, the Land Research program will also continue collaboration with the Great Lakes National Program Office (GLNPO) by leveraging sediment remediation expertise to support Great Lakes restoration.
- The net reduction reflects a decrease in scope for planned research in groundwater remediation and contaminated sediments research and a shift of FTE for groundwater protection issues related to carbon sequestration.

FY 2011 Program Highlights

Homeland Security **-\$4.3M** (\$35.0M in 2010)

- In FY 2011, ORD will continue decontamination research to develop and improve decontamination and disposal techniques and technologies for chemical, biological, and radiological (CBR) agents.
- Research will continue to focus on:
 - developing and testing enhanced methods for detection, treatment, and containment of CBR agents intentionally introduced into drinking water and wastewater systems; and
 - developing provisional advisory levels as well as products and information to aid decision-makers in assessing risks to human health from CBR agents.
- The reduction in FY 2011 reflects a maturation of the safe buildings research program, which completed final products in 2009 and will complete others in 2010; completion of the modeling effort in support of Water Security Initiative; and completion of a 5-year, \$5 million grant to support the Center for Advanced Microbial Risk Assessment (CAMRA).

FY 2011 Program Highlights

Human Health Risk Assessment **+\$0.8M** (\$48.2M in 2010)

- In FY 2011, ORD will continue to support:

EPA's Integrated Risk Information System (IRIS)

- Implement the new IRIS process, increasing transparency and timeliness of assessments.
- Deliver a substantially increased number of IRIS assessments for interagency or external peer review and posting to IRIS database to support decision-making.

Development of risk assessment guidance, methods, and models

- Develop and apply next-generation tools and methods that integrate existing and new data sources into risk assessment, such as from computational toxicology.

Integrated Science Assessments (ISAs) of criteria air pollutants

- Implement new National Ambient Air Quality Standards (NAAQS) process, complete integrated science assessments (ISA) for criteria air pollutants, provide decision support to OAR and Administrator, and meet court ordered deadlines for NAAQS.

FY 2011 Program Highlights

Computational Toxicology **+\$1.8M** (\$20.0M in 2010)

- In FY 2011, the Computational Toxicology Research program (CTRP) will continue to focus on three key areas:
 - Chemical prioritization and categorization tools including continuing collaboration with the National Institutes of Health on Tox21, implementation of ToxCast™ Phase II and continued initiation of ExpoCast™;
 - Information technology including continued management and development of information systems such as the Aggregated Computational Toxicology Research project (ACToR); and
 - Systems biology models under a unified long term goal of providing high-throughput decisions support tools for chemical exposure, as well as hazard and risk assessment to EPA's regulatory Program Offices. Examples include the Virtual Liver and Virtual Embryo projects.
- The CTRP will apply increased FY 2011 funds towards research to develop next-generation tools to speed and facilitate implementation of the Agency's Endocrine Disruptor Screening Program (EDSP). The application of these tools will introduce a more efficient approach to identifying potential endocrine disruptors and apply this information across the life cycle of a chemical.



FY 2011 Program Highlights

Endocrine Disruptors **+\$6.0M** (\$11.4M in 2010)

- In FY 2011, ORD research will continue to assist EPA's Program and Regional Offices in reducing or preventing risks to humans and wildlife from exposures to chemicals that interfere with the function of the endocrine system (endocrine disrupting chemicals or EDCs).
- Efforts will also continue to develop next-generation screening protocols and to provide related support for implementation of the Congressionally mandated Endocrine Disruptor Screening Program (EDSP).
- EDC research will see a significant increase in FY 2011 to reinstate the extramural STAR grants program, complementing the intramural program. These grants will allow accelerated application of the latest state-of-the-art innovations to advance the assessment and management of EDCs and other emerging contaminants of concern.



FY 2011 Program Highlights

Global Change **+\$1.2M** (\$20.8M in 2010)

- In FY2011, ORD will continue to research the effects of global change on air and water quality, aquatic ecosystems, and human welfare to lay the foundation for EPA actions and policies.
- The program will also continue to:
 - develop decision support tools to help resource managers incorporate considerations of climate change into their day-to-day operations,
 - develop practical and effective adaptation solutions to support the Office of Water's Climate Change Adaptation Response Strategy, and
 - provide significant environmental and human health assessments to the EPA and the US Global Change Research Program.

FY 2011 Program Highlights

Human Health and Ecosystems **-\$5.4M** (\$159.5M in 2010)

- In FY 2011, ORD's Human Health Research Program will continue to develop 21st Century tools and models for predicting chemical risk; link exposures, susceptibility and health outcomes; and, support community based risk assessment, management and prevention.
- The program will continue to collaborate with NIEHS on the Children's Research Centers, conduct research to improve Agency exposure assessments and identify risk mitigation options to protect children, and support the NIH-led National Children's Study.
- In FY 2011, human health research will also:
 - provide a web-based Community-Focused Exposure and Risk Screening Tool (C-FERST) to EPA Regions and apply it in community-based programs;
 - provide guidance to EPA Program Offices on the use of 'omics, PB-PK models, cumulative exposure/effect models, and biomonitoring data in risk assessments; and
 - connect exposure data to toxicology and health data in collaboration with NCCT.
- The FY 2011 request does not include additional funding provided by Congress in FY 2010 for research on child care settings and effects on children from environmental chemicals and toxins.

FY 2011 Program Highlights

Human Health and Ecosystems (continued)

- ORD's Ecosystem Services Research Program (ESRP) will continue to work in partnership with OW, OAR, the EPA Regions, NCEE, USDA, Interior, and dozens of universities and NGOs to evaluate the usefulness and effectiveness of ecosystem services markets and incentives in protecting and restoring imperiled waters.
- In FY 2010, ESRP initiated a public-private partnership for ecosystem services. ESRP is one of about 40 currently engaged parties, including NGOs, business, academics, state resource agencies, local zoning boards. In FY 2011, ESRP will continue as an equal partner to contribute its research results to the partnership.
- ESRP will continue delivering national ecosystem service maps to The National Geographic Society and Nature Serve to develop and disseminate an online National Atlas of Ecosystem Services at Landscape.org.
- ESRP is refining methods for its place-based studies to better facilitate comparisons and meta-analyses across multiple place-based ecosystem service assessments. This is a high-priority need for advancing ecosystem services science.

FY 2011 Program Highlights

Human Health and Ecosystems (continued)

- In FY 2010 and 2011, ORD will improve the utility of the Report on the Environment (ROE) by fine-tuning indicators (revising, adding, deleting), integrating conceptual diagrams, and including supplemental information to fill identified data gaps. ORD will also explore the feasibility of adding energy and climate chapters.
- In FY 2011, the Advanced Monitoring Initiative (AMI) will support EPA's three-to-five year cross-agency science priorities, particularly in the areas of climate and energy, environmental contaminants, and modernization of infrastructure.
- In FY 2011, funding for mercury research will be reduced. The program will continue to focus on providing data and information to support development and implementation of regulations to reduce mercury and to evaluate regulation effectiveness. The reduction includes a scaling back of mercury research evaluating mercury emission measurement and control technologies.

FY 2011 Program Highlights

Pesticides and Toxics **+\$0.3M** (\$27.3M in 2010)

- In FY 2011, ORD will continue to provide OPPTS and other Program/Regional Offices scientific information to reduce or prevent unreasonable risks to humans, wildlife, and non-target plants associated with exposures to pesticides and toxic chemicals.
- The program will provide models and other tools to improve ecological assessment of risks to aquatic, avian, and plant species from chemical and non-chemical stressors.
- Research will continue to characterize the toxicity and pharmacokinetics, develop sampling and analytical methods, and evaluate the fate and transport of certain PFCs in soil and wastewater.
- In FY 2011, extramural funding for biotechnology research is being shifted to other Agency priorities. Remaining in-house resources will be used to continue to investigate the environmental impact of genetically engineered plant-incorporated protectants on non-target species.

FY 2011 Program Highlights

Fellowships **+\$6.2M** (\$11.1M in 2010)

- In FY 2011, EPA will continue funding for the STAR Graduate Fellowships program, the Greater Research Opportunities (GRO) program and the EPA/Marshall Scholarship program. EPA will also continue to host post-doctoral students through programs affiliated with the American Association for the Advancement of Science (AAAS) and the Association of Schools of Public Health (ASPH).
- ORD proposes a significant increase in FY 2011 funding for STAR fellowships to help prepare the next generation of “highly skilled scientists and engineers who will tackle the grand challenges of the 21st century.” New fellowships will be awarded through nationwide competition in academic areas that are top priorities for EPA, including nanotechnology, climate and clean air issues, and green infrastructure.
- The near doubling in funding for science and engineering fellowships under the Science to Achieve Results (STAR) Graduate Fellowship program will enable EPA to award approximately 240 new STAR fellowships, in addition to providing support for an estimated 120 continuing STAR fellows.

FY 2011 Program Highlights

Sustainability **-\$2.1M** (\$27.4M in 2010)

- In FY 2011, the ORD Sustainability Program will:
 - continue research for decision support tools, including efforts to further develop a streamlined in-house life cycle assessment methodology and to incorporate material flow concepts into existing tools;
 - continue biofuels research to help decision-makers understand the risks and trade-offs associated with biofuel use and production, and to complete the EISA Section 204 Report to Congress; and
 - conduct student competitions to identify sustainable technology solutions (P3) and support commercialization of new sustainable technologies (Small Business Innovation Research).
- ORD will invest \$1.0M to initiate a new research effort in FY 2011 on design methods and management strategies for electronic devices to mitigate human exposure and environmental releases from the recycling and disposal of electronic waste.
- The net reduction includes an adjustment for Small Business Innovation Research, which is not included in the President's Budget process, and will be transferred to the Sustainability program following FY 2011 budget enactment.

FY 2011 Program Highlights

Nanotechnology +\$2.3M (\$17.8M in 2010)

- In FY 2011, the program will continue to focus on nanomaterial types that are most likely to be found in products and, therefore, have the greatest potential to be present in the environment.
- The program will continue to:
 - conduct research to understand which nanoparticle properties may cause risk, and how green chemistry and other approaches can be used to develop safe nanomaterials;
 - emphasize cross-media coordination and investigation of processes that govern the environmental fate of nanomaterials; and
 - identify data needed and evaluate the application of traditional and new risk assessment methods to enable nanomaterial regulatory decisions.
- A \$2.0 million investment in STAR fellowships will fund graduate students studying in areas related to nanotechnology, creating work opportunities for the next generation of environmental scientists to tackle nanotechnology – a scientific challenge of the 21st century.

Conclusions

- EPA research continues to play a vital role in protecting human health and the environment.
- While inflationary pressures continue to affect the buying power of the research dollar, the President's FY 2011 budget clearly reflects the Administration's commitment to science through strategic investments in the Agency's Science to Achieve Results (STAR) program, which leverages the academic research community through grants and fellowships and complements intramural research conducted by our network of national laboratories.
- We look forward to continued collaboration with the SAB as we position our research program to anticipate and respond to increasingly complex environmental challenges.