

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 →

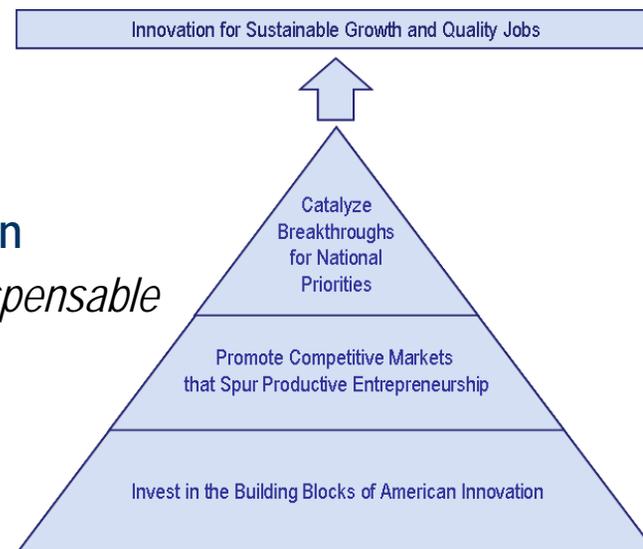


Strategic Planning
Activity →



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



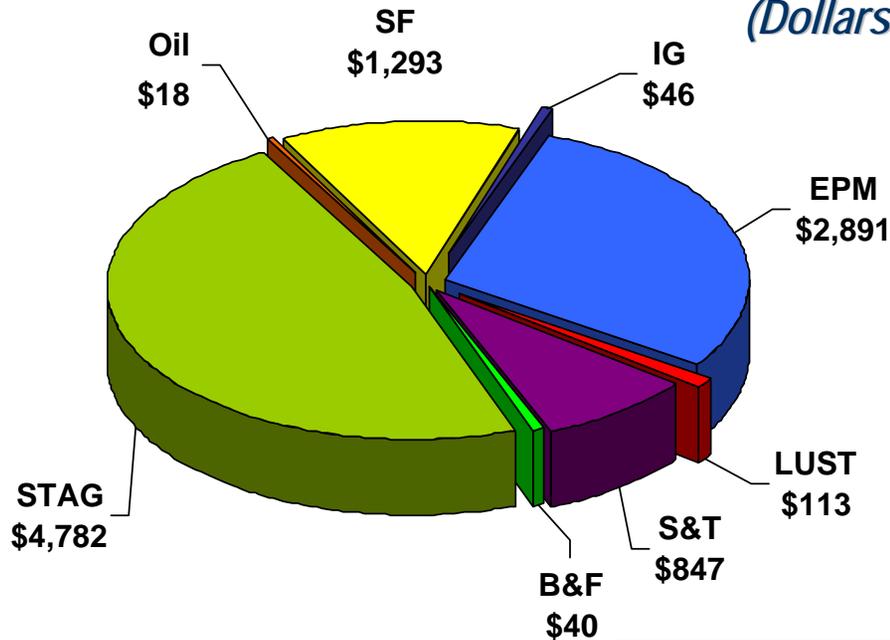
Adapted from Executive Office of the President. [A Strategy for American Innovation: Driving Towards Sustainable Growth and Quality Jobs.](#)

- 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 FY 2010 Enacted	ORD FY 2010 Enacted	ORD FY 2011 PresBud	ORD FY 2011 Pres Bud	10 EN to 2011 PB	ORD 10 EN to 2011 PB	10 EN to 2011 PB	ORD 10 EN to 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.

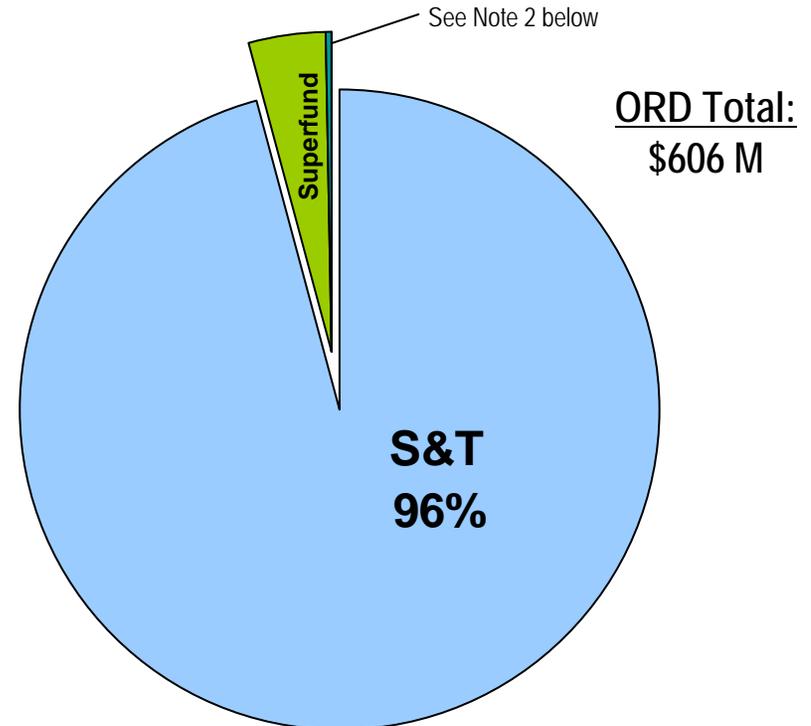
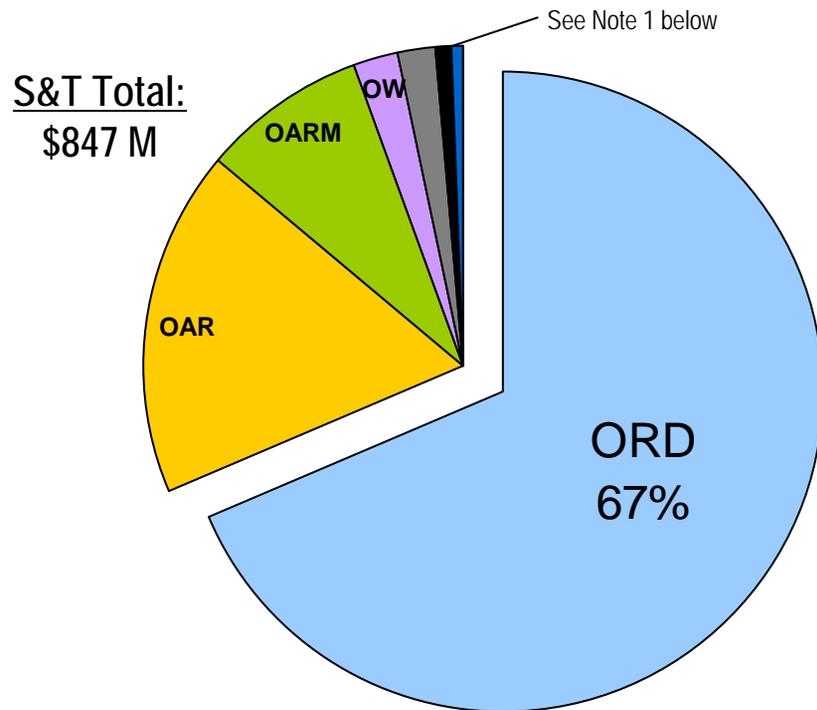
FY 2010 Enacted is exclusive of Hunter's Point and Tar Creek funding.

*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



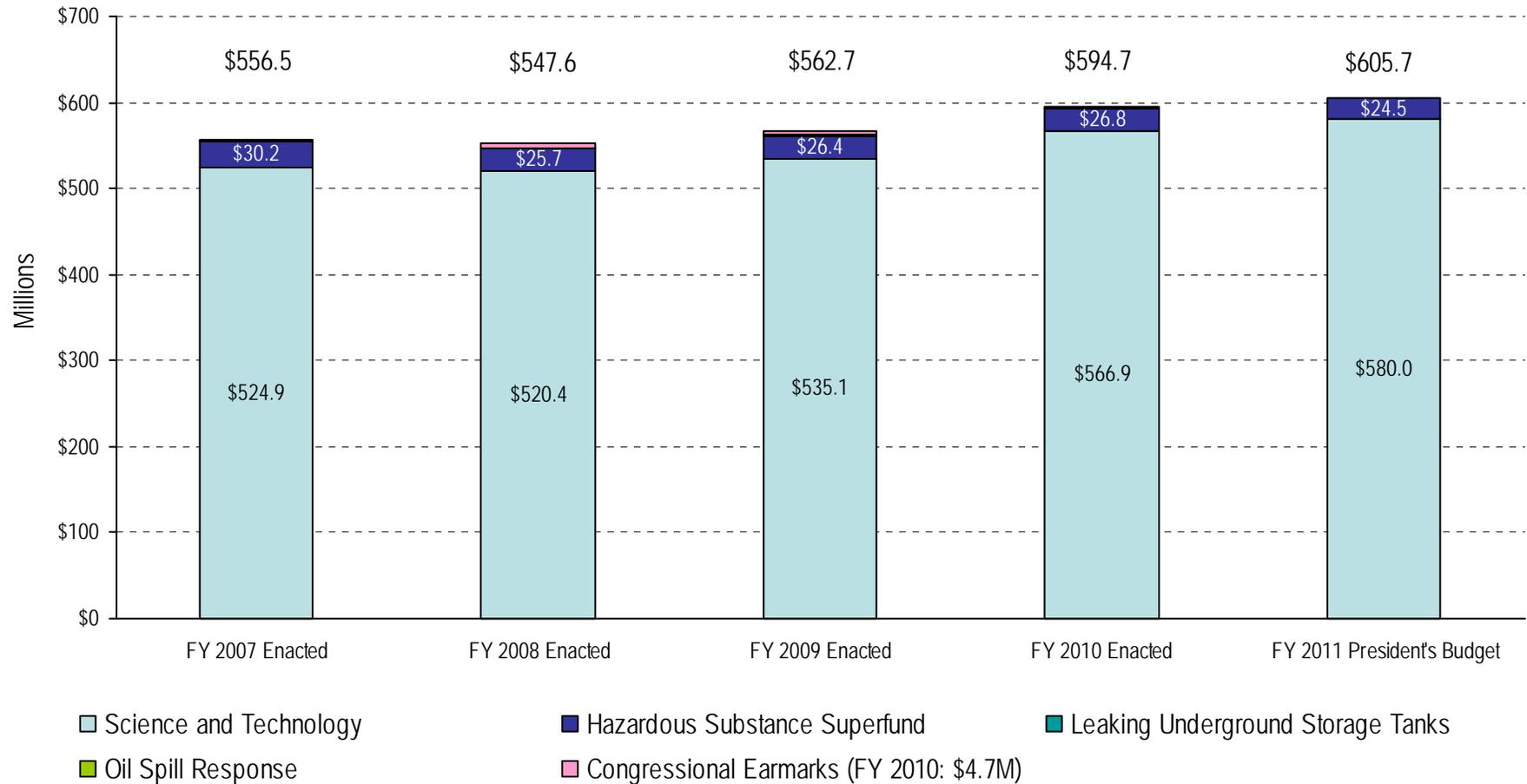
S&T Approp. by EPA Office

ORD by Approp.

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

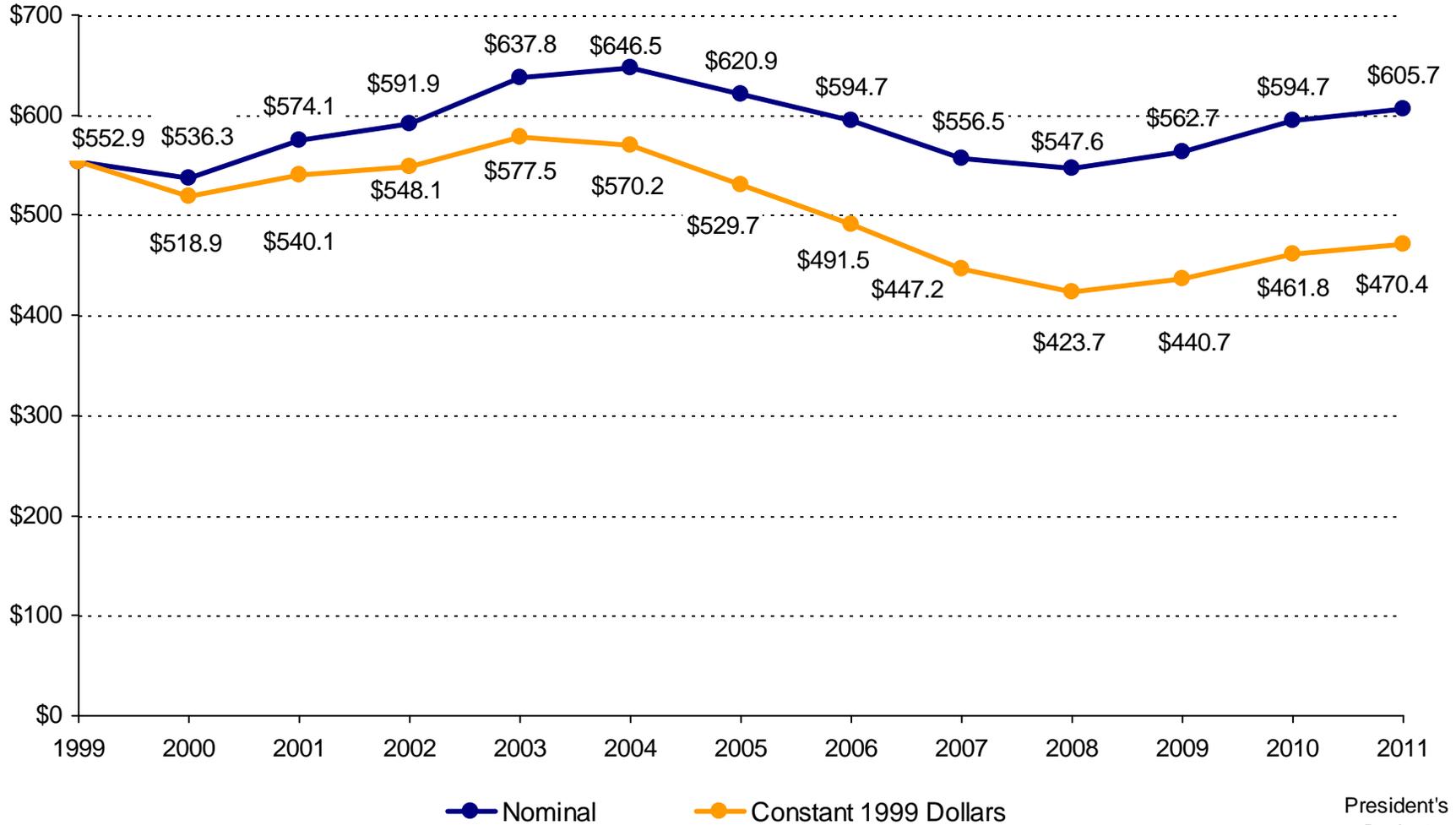
Note 2: Includes LUST (\$0.5M) and Oils Spills (\$0.7M)

ORD Budget by Appropriation Account (Dollars in Millions)



ORD Budget Trend

(enacted budget, includes earmarks, dollars in millions)

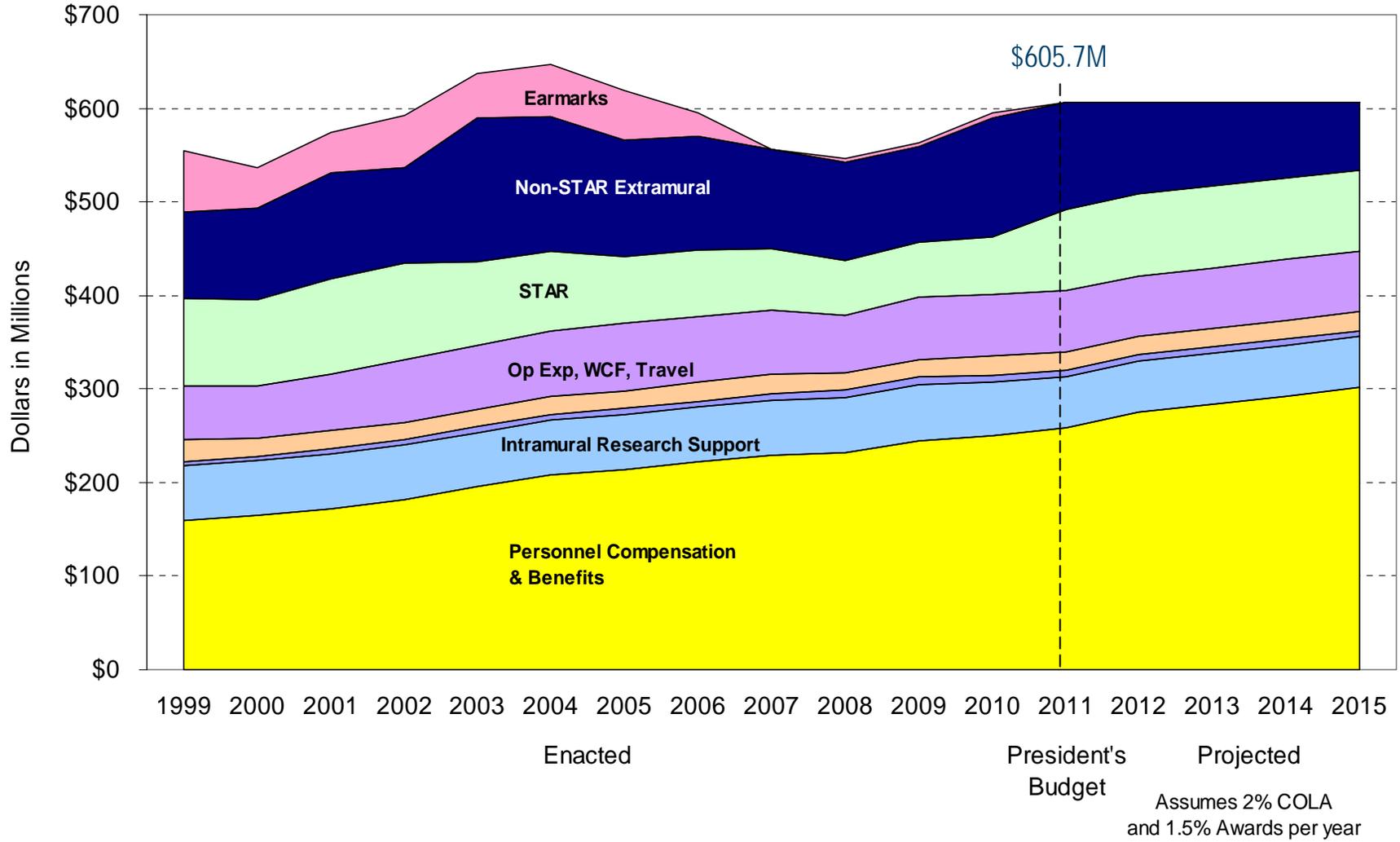


Source: Department of Labor, Bureau of Labor and Statistics Consumer Price Index

President's Budget

Resource Trends

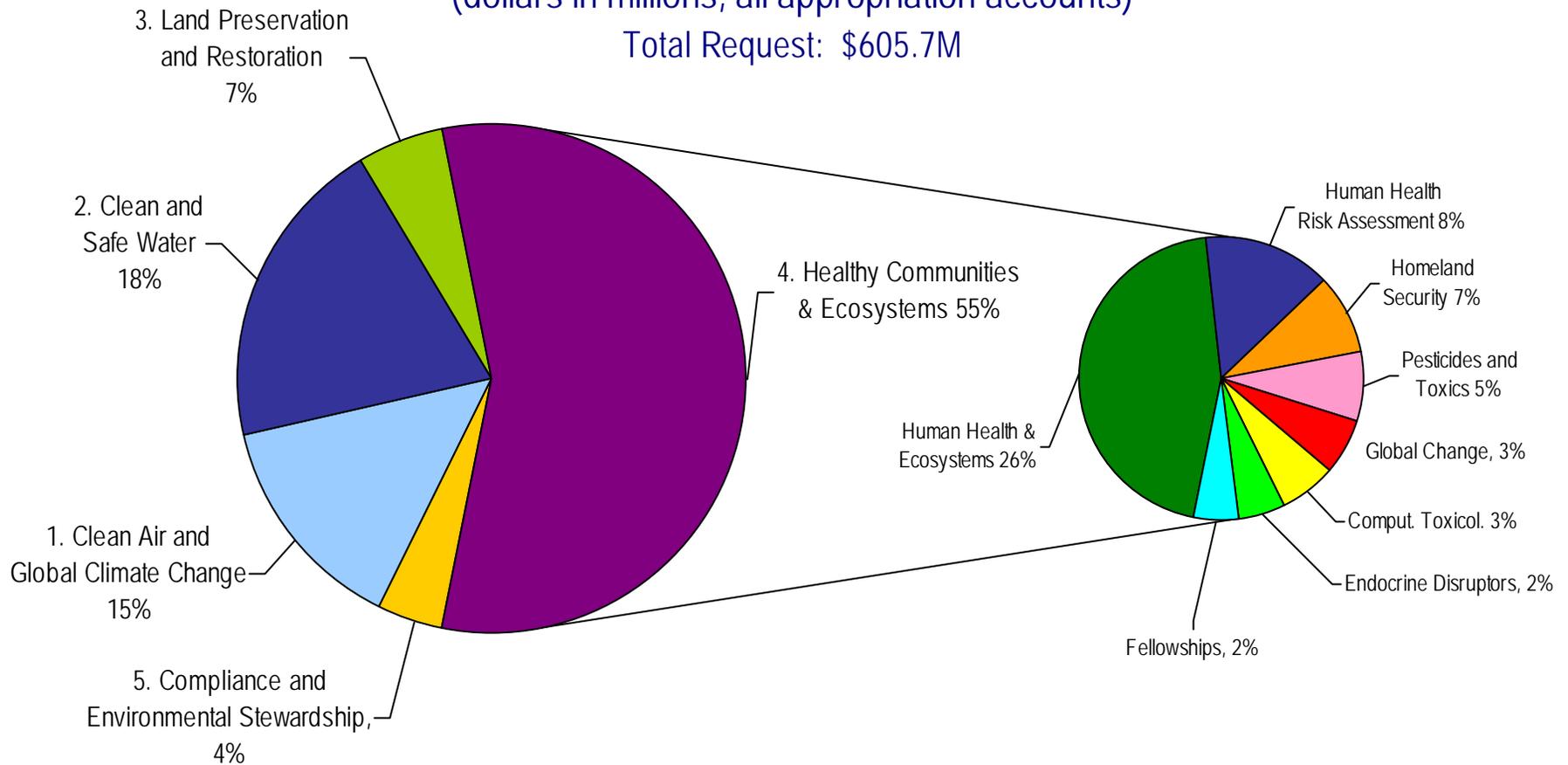
ORD Budget by Type of Spending



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

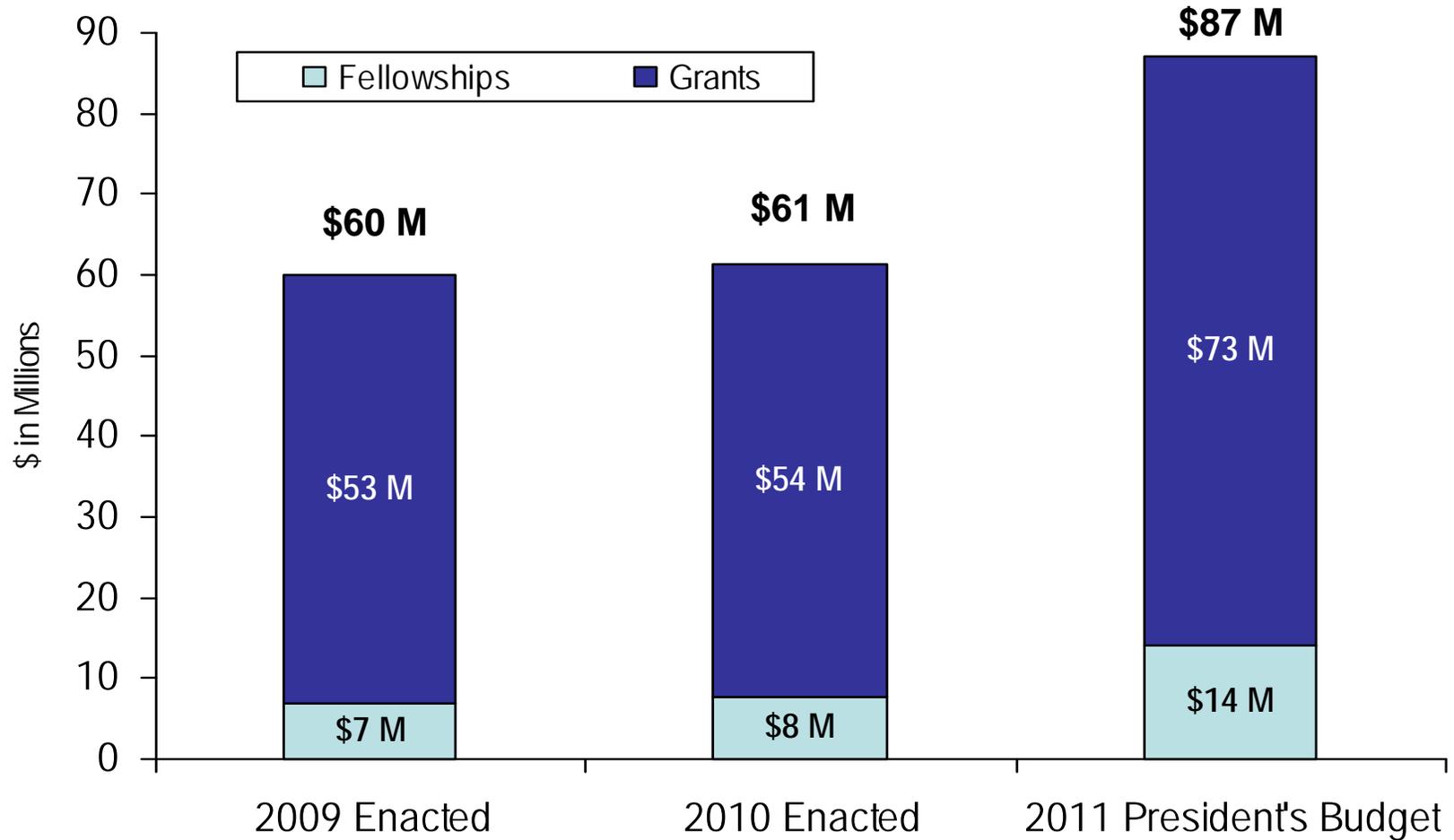
EPA/ORD Program/Project	FY 2009 Enacted ¹		FY 2010 Enacted ¹		FY 2011 President's Budget ¹		Change from FY 10 En. to FY 11 PB ²	
	\$M	FTE	\$M	FTE	\$M	FTE	\$M	FTE
Clean Air	\$80.5	269.5	\$81.9	269.5	\$85.3	265.6	+\$3.4	-3.9
Drinking Water	\$46.9	190.2	\$49.2	190.2	\$52.3	190.8	+\$3.1	+0.6
Water Quality	\$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.