

## R&D in Selected Agencies

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### HIGHLIGHTS

- **Department of Commerce** R&D would rise 0.3 percent to \$1.1 billion in FY 2003 (see Table II-14). National Institute of Standards and Technology (NIST) R&D would increase 5.0 percent to \$483 million. National Oceanic and Atmospheric Administration (NOAA) R&D would decrease by 1.1 percent to \$605 million, mostly due to the transfer of the National Sea Grants College Program from NOAA to the National Science Foundation (NSF).
- R&D in the **Department of the Interior** would fall 4.8 percent to \$628 million. Even steeper cuts would fall on Interior's lead science agency, the U.S. Geological Survey (USGS). USGS R&D would fall 7.0 percent to \$542 million, with cuts to all four USGS divisions (see Table II-16). A significant portion of the proposed decreases for USGS are in two water-quality programs, one of which—the Toxic Substances Hydrology Program—would be transferred to the National Science Foundation.
- The **Department of Transportation's** (DOT) R&D funding would drop 5.4 percent to \$736 million. These numbers, however, are provisional because the transfer of some R&D programs from the Federal Aviation Administration to the new Transportation Security Administration has not yet been finalized (see Table II-15).
- The **Environmental Protection Agency's** (EPA) R&D budget would rise 5.9 percent to \$627 million, mostly due to an increased focus on homeland security. However, EPA's overall funding level would fall by 5.5 percent to \$7.7 billion as many congressionally designated projects would be eliminated.

**DEPARTMENT OF COMMERCE**

The **National Institute of Standards and Technology (NIST)** would see its R&D funding level reach \$483 million, a 5.0 percent increase over FY 2002 (see Table II-14). In particular, Science & Technology Research and Services (STRS), which provides funding for NIST's laboratories in Maryland and Colorado, enjoys a 24.2 percent boost to \$348 million in R&D. Among the divisions receiving increases, Chemical Science & Technology would receive increased funds in order to produce measurements that will aid in cost reduction and improved quality of US healthcare. The Physics division would receive similar increases in order to provide measurements and data for use as private industries advance in nanotechnology. Additionally, funds would increase in the pursuit of better neutron measurements made at the NIST Center for Neutron Research (NCNR). Conversely, the extramural Industrial Technology Services (ITS) would see yet another dip in funding as Advanced Technology Program (ATP) R&D funding would be cut by 49 percent to \$81 million in FY 2003. While this program has managed to evade being discontinued altogether, Commerce Secretary Evans hopes to see this program improve as it is redesigned and restructured, while continuing to resource previously established endeavors.

Improved facilities and equipment play an instrumental role in acquiring the most accurate measurements available to the scientific community. Consequently, a large goal of NIST is to refurbish and improve its laboratories. In FY 2003, \$54.5 million would be set aside in the Construction of Research Facilities R&D account to improve the facilities in Boulder, CO, as well as to complete construction and provide instrumentation for the Advanced Measurements Laboratory in Gaithersburg, MD, which is scheduled to begin operations in October, 2003.

As with other agencies, NIST will take on a new role in response to the terrorist attacks of September 11<sup>th</sup>. The House Committee on Science, chaired by Sherwood Boehlert, proposed a bill addressing our nation's need for improved security in the cyber realm. Passed by the House on February 7, 2002, the Cyber Security Research and Development Act calls for a combined effort by NSF and NIST to participate in a 5 year program of research on this matter. NIST would receive \$275 million over the next 5 years to encourage researchers and universities to form

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partnerships to prevent and combat the effects of terrorism spilling over into the cyber domain. The bill currently awaits action in the Senate.

The **National Oceanic and Atmospheric Administration (NOAA)** is another research subsidiary of the Department of Commerce whose mission areas include the coastal and marine environments and the atmosphere. NOAA's FY 2003 overall budget is slated to be \$45 million below FY 2002, dropping to a level of \$3.3 billion. This large reduction will require NOAA to re-strategize and reorganize its departments and missions. In FY 2003, NOAA would see a 1.1 percent cut from FY 2002 to \$605 million in FY 2003 in its R&D spending (see Table II-14).

A significant change in NOAA's portfolio occurs due to the proposed transfer of the National Sea Grants College Program to NSF, resulting in a \$62.4 million loss. Begun in 1966, the National Sea Grants College Program incorporates more than 200 universities into its 30 programs which are located in coastal and Great Lakes states, Hawaii, and Puerto Rico. The goal of the National Sea Grants College Program is to gain a better understanding for marine life and its resources through research, education, outreach, and technology transfer. The budget proposes that NSF should acquire this program due to its proven capabilities for managing competitive grants, but the program would be funded at a reduced level of \$57 million. However, the proposed transfer has met more opposition than approval in Congress, signaling that the transfer may not take place.

NOAA would participate in President Bush's newly chartered multi-agency Climate Change Research Initiative (CCRI), acquiring \$18 million in R&D for FY 2003. The CCRI calls for NOAA to initiate programs for climate modeling, climate and ocean observation systems, carbon monitoring, and aerosol-climate interactions in order to make progress towards reducing greenhouse gas intensity by 18 percent within the next 10 years. This initiative is intended to foster economic growth while monitoring the level of greenhouse gases rather than implementing a rigid emissions cap, and is the administration's response to the Kyoto Protocol. (For more information on CCRI, please see Chapter 15; for more information on NOAA, please see Chapter 16.)

### **DEPARTMENT OF THE INTERIOR**

The Department of the Interior's R&D would fall 4.8 percent to \$628

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million in FY 2003 (see Table II-16). Interior's main science agency, the U.S. Geological Survey (USGS), would see its R&D budget fall by 7.0 percent to \$542 million, bringing its R&D funding down below the FY 2001 funding level after an increase in FY 2002.

The total USGS budget of \$905 million would represent a \$46 million or 4.8 percent cut. R&D makes up nearly three-fifths of the USGS budget, and would decline by an even steeper 7.0 percent. R&D in all four USGS divisions would decline, but hardest hit would be programs in Water Resources (down 18.5 percent to \$114 million). A significant portion of the proposed decreases in the Water Resources account falls on two water-quality programs: the National Water-Quality Assessment Program (NAWQA) and the Toxic Substances Hydrology Program (TSH). These programs provide data and research-based information to state and federal regulatory agencies such as the Environmental Protection Agency. The decrease in NAWQA funding assumes that the reduction can be offset through cost sharing from the program's partners and beneficiaries. TSH, on the other hand, would be reduced to \$10 million (from \$23.9 million) and be transferred to the National Science Foundation (NSF), to be revived in the form of a competitive-grants process to address water-quality issues. (Please see Chapters 17 and 18 for more information on USGS.)

Although the cuts would be less steep than the ones described above, funding for most other USGS programs would also decline in the FY 2003 budget. Among Interior's other bureaus, there would be decreases for R&D in the Minerals Management Service (down \$4 million to \$29 million) and the Bureau of Reclamation (down \$3 million to \$7 million). The Bureau of Land Management, however, would see a sharp rise in R&D (up \$16 million to \$50 million).

**DEPARTMENT OF TRANSPORTATION (DOT)**

DOT asks for a total budget in FY 2003 of \$63.1 billion (down 2.0 percent or \$1.3 billion), including appropriations, transportation trust funds, and mandatory programs. Nearly half of the DOT budget would go toward the Federal Highway Administration (FHWA), mostly for spending out of the highway trust funds for road projects. R&D is a relatively small part of the DOT budget and would total only \$736 million in FY 2003, a decrease of \$42 million, or 5.4 percent (see Table II-15).

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Transportation funding increased dramatically beginning in FY 1999 as a result of the six-year (FY 1998-2003) reauthorization of transportation programs known as the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21), which was signed into law in June 1998. The law specifies that transportation tax revenues will be devoted exclusively to transportation and specifies formulas for allocating these funds. In the past, a portion of these revenues was used to finance other federal programs. As a result, DOT's budget climbed from \$44 billion in FY 1998 all the way to \$67 billion in FY 2001 as a result of burgeoning revenues from transportation taxes. However, because these revenues dropped off significantly over the last year as a result of a stagnant economy, total FHWA funding would dip sharply in FY 2003, down \$4.5 billion to \$31.1 billion, or 12.6 percent. FHWA R&D would also be hurt, declining by \$10 million to \$266 million, a reduction of 3.5 percent.

Perhaps the most significant development with regard to the FY 2003 DOT R&D budget is the advent of the new Transportation Security Administration (TSA). In the wake of the airborne terrorist attacks of September 11, serious concerns arose over the caliber of the security systems and personnel in place at the nation's airports. To this end, President Bush signed into law the Aviation and Transportation Security Act (ATSA) on November 19 which, among other things, establishes the TSA as the lead agency in charge of airport security throughout the nation. The legislation also makes provisions for the TSA to take on many of the R&D functions related to aviation security technology previously performed by the Federal Aviation Administration (FAA). Because the final administrative structure of the TSA has yet to solidify, however, no detailed budgetary data for the TSA are currently available. Thus, the figures in Table II-15 assume that the aviation security R&D activities carried out by the FAA in FY 2002 will be performed by the TSA at the same funding level in FY 2003.

The ATSA also provides for the awarding of extramural grants to industry, academia and other government entities to carry out research, development, testing and evaluation on technologies that enhance aviation security. These include explosives detection technologies; screening technologies for carry-on items; screening technologies for cargo, catering and duty-free items; and technologies and techniques for reducing the vulnerability of aircraft to terrorist attack.

**ENVIRONMENTAL PROTECTION AGENCY (EPA)**

EPA would see a 5.5 percent budget decrease to \$7.7 billion in FY 2003 (see Table II-17). EPA would suffer some losses in order to emphasize Administration priorities while still pursuing its mission of protecting human health and safeguarding the natural environment. Much of the decrease, however, would be due to nearly \$500 million in FY 2002 congressionally designated projects that would not be renewed in FY 2003. Also contributing to the decrease is the \$176 million FY 2002 homeland security emergency supplemental; although some of these activities would continue in the FY 2003 budget, much of the supplemental covers one-time activities such as security upgrades and the Senate Hart Building anthrax cleanup. EPA works closely with local, state, and tribal governments to implement its goals and conduct research; nearly half of EPA's budget (\$3.5 billion in FY 2003) would be turned over to these governments in the form of grants.

R&D at EPA would increase by 5.9 percent from \$592 million to \$627 million (see Table II-17). The overall increase would come from new homeland security investments. As homeland security becomes a priority, EPA will play a role in ensuring reduced risks for citizens, and would receive a total of \$93 million for homeland security research in FY 2003. Of this, \$75 million in new funding from the Superfund program is to be used for research towards the cleanup of sites contaminated with biological or chemical agents; EPA's role in the clean-up of the Senate building following the anthrax outbreaks demonstrates its capabilities and serves as a stepping stone for improvement. An additional \$18 million (up from \$5 million) would be spent on other homeland security research. Other EPA R&D programs would mostly receive level or slightly increased funding, with increases balanced by the non-renewal of nearly \$50 million in FY 2002 congressional earmarks.

EPA would participate in President Bush's newly proposed Global Climate Change Initiative. This initiative would commit America to cutting greenhouse gas (GHG) intensity by 18 percent in the next 10 years, which coincides with one of the strategic goals enacted by the EPA in response to the Government Performance and Results Act (GPRA): to reduce global and cross-border environmental risks. Administrator Whitman announced in late February the Climate Leaders program, which makes use of voluntary industry-government

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partnerships to set long-term GHG reductions and reduced emissions targets, a key element in the new climate change policy. EPA's climate change research program would receive \$22 million in FY 2003, nearly even with FY 2002. This program represents EPA's contribution to the longstanding multi-agency U.S. Global Change Research Program (USGCRP; See Table I-10 and Chapter 15).

In order to ensure clean and safe water, EPA will conduct research on discovering new methods to assess the risks associated with chemical and microbial contaminants of drinking water, an area of research supporting the 1996 Safe Drinking Water Act. Additional research under this strategic goal will focus on aquatic ecosystems and the affect of suspended solids as a hindrance on quality improvement of our rivers. Safe drinking water research would increase from \$46 million to \$49 million in FY 2003.

President Bush proposed in February the Clear Skies Initiative, which would cut the emissions of nitrogen oxides, sulfur dioxide, and mercury by 70 percent from power plants. Research regarding the goal of "Clean Air" includes assessing health risks associated with pollutants and atmosphere and emissions modeling. In air research, EPA would provide \$67 million for particulate matter research (up slightly from FY 2002) and \$20 million for air toxics research (up from \$19 million).

EPA may embark on a new type of research that makes use of the human genome sequence to study to effects of substances on the human body. This program, the Computational Toxicology Program, may lead to a decrease in animal testing as computers become more acceptable substitutes for human models. EPA would start the program with an initial \$2.7 million investment. Another new start would be Biotechnology Research (\$4.9 million) to determine the potential adverse ecological and human-health effects of genetically engineered crops.

Included in EPA's Science and Technology account for FY 2003 is \$8 million for the Homestake Mine. Late last year, Congress approved \$10 million in FY 2002 in the Department of Housing and Urban Development (HUD) to maintain the closing Homestake Mine in South Dakota in preparation for possible construction of a National Underground Science Laboratory for particle physics research on the site. The final FY 2002 Defense bill transferred title of the mine from

the mine owners to the state of South Dakota in exchange for liability relief from environmental hazards on site. The FY 2003 maintenance costs would be covered by EPA, but the National Science Foundation (NSF) will review the laboratory proposal and would cover the laboratory construction and operating costs if the project is approved.

Although not an R&D program, the President's budget proposes to transfer EPA's Environmental Education Division (in the Environmental Programs and Management account) to NSF beginning in FY 2003. The program received \$9.2 million in FY 2002; Congress will decide the future home of this program along with two other programs proposed to be transferred to NSF.

#### **OTHER AGENCIES**

R&D in the **Department of Education** would increase by 16 percent to a level of \$311 million in FY 2003, illustrating the Bush administration's prioritization of educating our nation (see Table II-18). This increase is due to a 37 percent boost to \$185 million for R&D in the Office of Educational Research and Improvement. However, all other R&D divisions in the Department of Education would decline or receive flat funding in FY 2003. (Please refer to Chapter 5 for more information on the Department of Education.)

The **Smithsonian Institution**, which conducts both scientific-based and collections-based research, would acquire \$131 million in R&D federal funds for FY 2003. Smithsonian currently does not fund research projects through merit-based competition; as an outside group assesses this situation and future allocations begin to depend on merit-based competition, the Smithsonian research institutes may see some funds transferred to NSF as a result.

(For information on R&D in the Department of Justice, please see Chapter 24. For information on R&D in the Department of Veterans Affairs, please see Chapter 8.)