



## Commerce Proposes Boost for NIST Labs, Zero for ATP, Cuts in NOAA R&D

### AAAS R&D Funding Update on R&D in the FY 2005 Commerce Budget

(This analysis is a preview of the Commerce section in the forthcoming *AAAS Report XXIX: Research and Development FY 2005*, a comprehensive look at the President's budget for R&D in FY 2005. This analysis contains revised AAAS estimates of R&D, different from figures presented in the AAAS Preliminary Analysis of February 5. More tables and continually updated supplemental materials on R&D in the FY 2005 budget can be found on the AAAS R&D Web site at <http://www.aaas.org/spp/rd>.)

#### Highlights

- **Once again, the Bush Administration in FY 2005 proposes to eliminate the Advanced Technology Program (ATP) at the Department of Commerce.** The ATP has a budget of \$171 million this year.
- The savings would allow for a 30 percent boost for intramural research at the National Institute of Standards and Technology (NIST) laboratories (see Table II-14) after a steep cut this year.
- The budget would keep funding for the non-R&D Manufacturing Extension Partnership (MEP) at NIST at \$39 million, well below the \$106 million level of last year and previous years.
- National Oceanic and Atmospheric Administration (NOAA) R&D would decline by 1.1 percent to \$610 million. R&D in the Oceanic and Atmospheric Research (OAR) account in NOAA would fall 10.1 percent in FY 2005 because of proposed eliminations of earmarks and reductions in core OAR programs.

#### Department of Commerce R&D in the FY 2005 Budget

The Department of Commerce's two major R&D agencies—the National Oceanic and Atmospheric Administration (NOAA) and the National Institute of Standards and Technology (NIST)—would both have declining R&D portfolios in the FY 2005 budget request. NOAA R&D would fall 1.1 percent or \$7 million to \$610 million while NIST R&D would fall 9.5 percent to \$426 million (see Table II-14).

**Once again, the FY 2005 budget proposes to eliminate the Advanced Technology Program (ATP).** Although the House has sided with the Bush Administration in voting to eliminate the program in previous budget bills, the program has been saved every year by the Senate. Last year, the Bush Administration proposed to eliminate ATP in FY 2004, but requested a total of \$27 million to fund already-awarded grants and also to pay close-out costs for the program. Congress ended up approving \$171 million for ATP this year, most (\$145 million) of which would be for R&D. The FY 2005 request proposes no funding for the program, meaning approximately \$30 million in close-out costs would presumably have to be found in other NIST accounts if Congress agrees to the request. Instead of arguing against ATP on the program's merits as in past years, the FY 2005 request simply states that scarce funds are needed for higher priorities.

The main NIST R&D activity—**Scientific and Technical Research and Services (STRS), which funds intramural research at the NIST laboratories**—would be the beneficiary of ATP savings with a **29.8 percent increase for its R&D to \$367 million. But the large requested increase could come at a high cost:** last year, the Administration requested a large increase for the NIST laboratories and the elimination of ATP. Congress saved the ATP but found the money by cutting deeply into NIST's intramural R&D, down nearly 10 percent this year from last year. In FY 2004, these cuts could mean early retirements or

layoffs of NIST scientists, and delays or cancellations of planned projects such as developing standards for voting machines. The FY 2005 budget could present Congress with similar difficult choices: saving the ATP could require further cuts in NIST laboratories, and even eliminating the ATP could require Congress to provide \$30 million or so in unrequested close-out costs out of the laboratory accounts.

With the intramural R&D increase, NIST plans to invest \$26 million for state-of-the-art instrumentation for the new Advanced Measurement Laboratory on NIST's Gaithersburg, MD campus; \$8 million for improvements at the NIST Center for Neutron Research; \$16 million for advanced measurement science and standards; \$19 million for measurements and standards work on homeland security; and \$16 million in advanced manufacturing R&D, including nanoscale manufacturing. These investments cut across the traditional laboratory program areas in Table II-14, and would result in large increases for most of them.

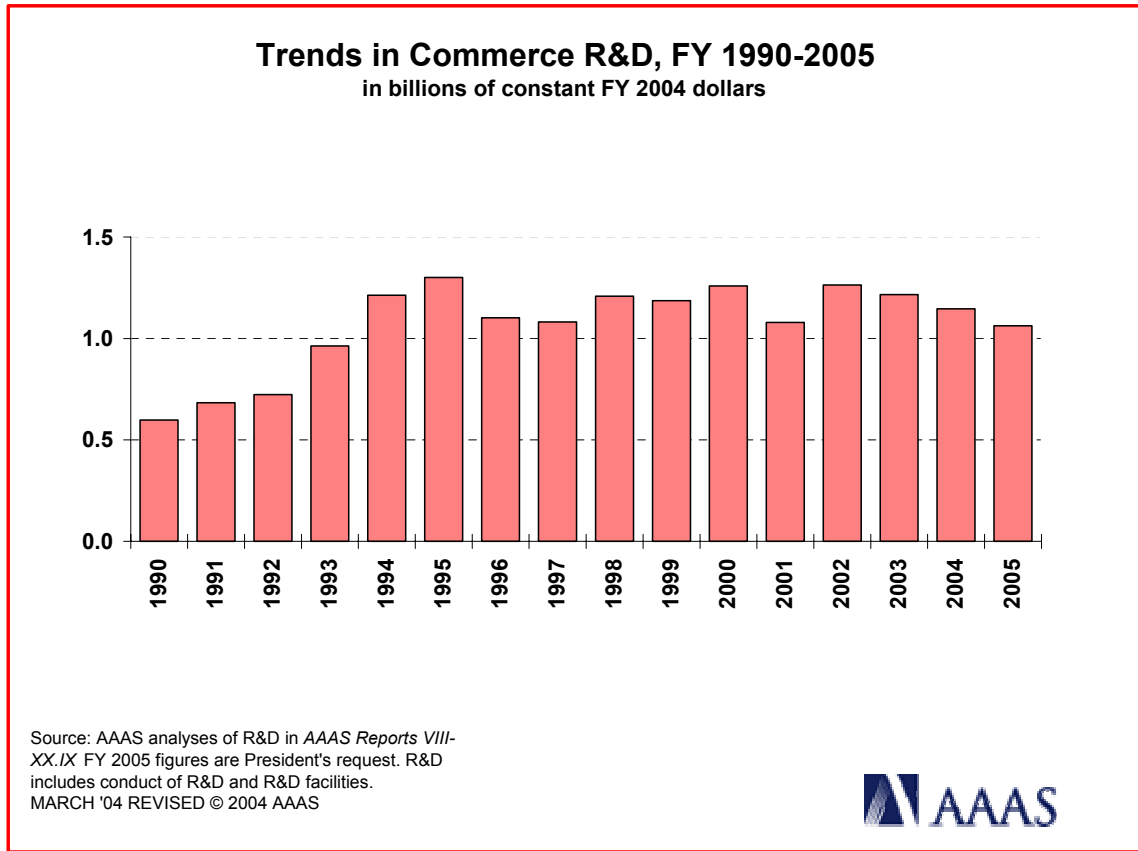


Figure 1. (click on the image to view or download a color, full-size PDF version of the chart)

Another NIST R&D program, Construction of Research Facilities, would increase \$16 million to \$59 million in FY 2005, after excluding \$21 million in congressionally designated projects inserted into the FY 2004 budget. The FY 2005 request would allow for construction and major renovations to NIST facilities in Maryland and Colorado, with an emphasis next year on aging facilities at the Boulder, CO, NIST labs. The non-R&D **Manufacturing Extension Partnership (MEP)**, a program to operate a nationwide network of extension centers to disseminate better manufacturing technologies to small- and medium-sized manufacturers, would receive only \$39 million, the same as this year but down nearly two-thirds from the \$106 million FY 2003 funding level and similar funding levels in previous years. The FY 2004 appropriation confirmed the Administration's plans to phase out the federal contribution to this federal-state partnership, and the FY 2005 request would leave MEP center funding heavily in state hands. As a result, many MEP centers will likely close as states continue to face tough budgetary times.

**NOAA R&D would fall by 1.1 percent down to \$610 million.** The FY 2005 request would keep most NOAA R&D programs level-funded or declining slightly. In Oceanic and Atmospheric Research, or NOAA Research, the total R&D portfolio would fall 10.1 percent down to \$293 million, mostly because of the proposed elimination of FY 2004 congressional earmarks. NOAA's climate research program would increase from \$170 million to \$183 million, composed of \$51 million in new funds to support the Administration's Climate Change Research Initiative (CCRI) offset partially by reductions in longstanding climate change programs. Weather and air quality research would fall steeply from \$55 million to \$35 million because of deleted earmarks and the proposed elimination of the US Weather Research Program. Funding for the National Sea Grant College Program would decline from \$62 million down to \$57 million. Begun in 1966, Sea Grant provides research grants to more than 200 universities to gain better understanding of marine life and marine resources through education, outreach, and technology transfer.

**Impacts of the Commerce R&D Portfolio**

The steep cut to Commerce's R&D portfolio in FY 2005 would represent the third year in a row of decline, as shown in Figure 1. Although Commerce R&D grew substantially in the first half of the 1990s as NIST's technology programs and NOAA's environmental programs gained in priority, Commerce R&D funding has stagnated since FY 1995, with large swings due to the up-and-down fortunes of the ATP and changing construction needs at the NIST laboratories.

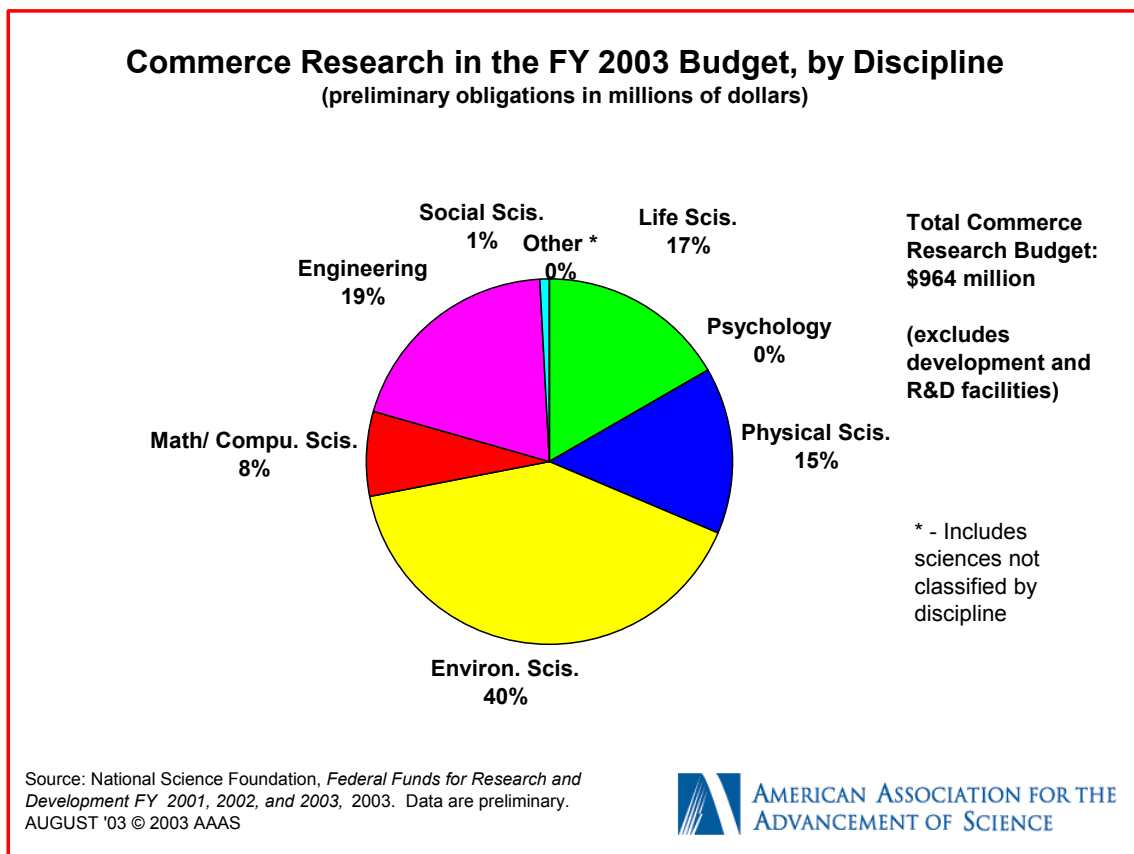


Figure 2. (click on the image to view or download a color, full-page PDF version of the chart)

The differing missions of NOAA and NIST mean that Commerce has a diverse research portfolio in terms of science and engineering disciplines, as shown in Figure 2. NOAA funds environmental sciences and life sciences research related to its oceanic and atmospheric missions, while NIST funds engineering, physical sciences, mathematics, and computer sciences research.

NOAA's research has increased at a more predictable rate than NIST research, resulting in mostly steady increases in Commerce support for research in the environmental sciences and the life sciences (see Figure 3), although life sciences research has leveled off in recent years. The proposed cuts to NOAA R&D would result in shrinking support for the environmental sciences. NIST research, however, has been subject to the ups and downs of key NIST programs. NIST support for the engineering sciences and the computer sciences has lagged since FY 1995, and the FY 2004 and FY 2005 budget cuts will most likely result in continuing cuts in NIST support. NIST support for the physical sciences, however, has mostly remained steady and has shown upward trends in most years.

The vast majority of Commerce R&D is performed internally in NOAA and NIST laboratories. 79 percent of Commerce R&D is performed in federal labs, both NOAA's network of laboratories throughout the country and NIST's large facilities in Maryland and Colorado. Only 8 percent of the Commerce R&D portfolio goes to universities, while 11 percent goes to industrial firms.

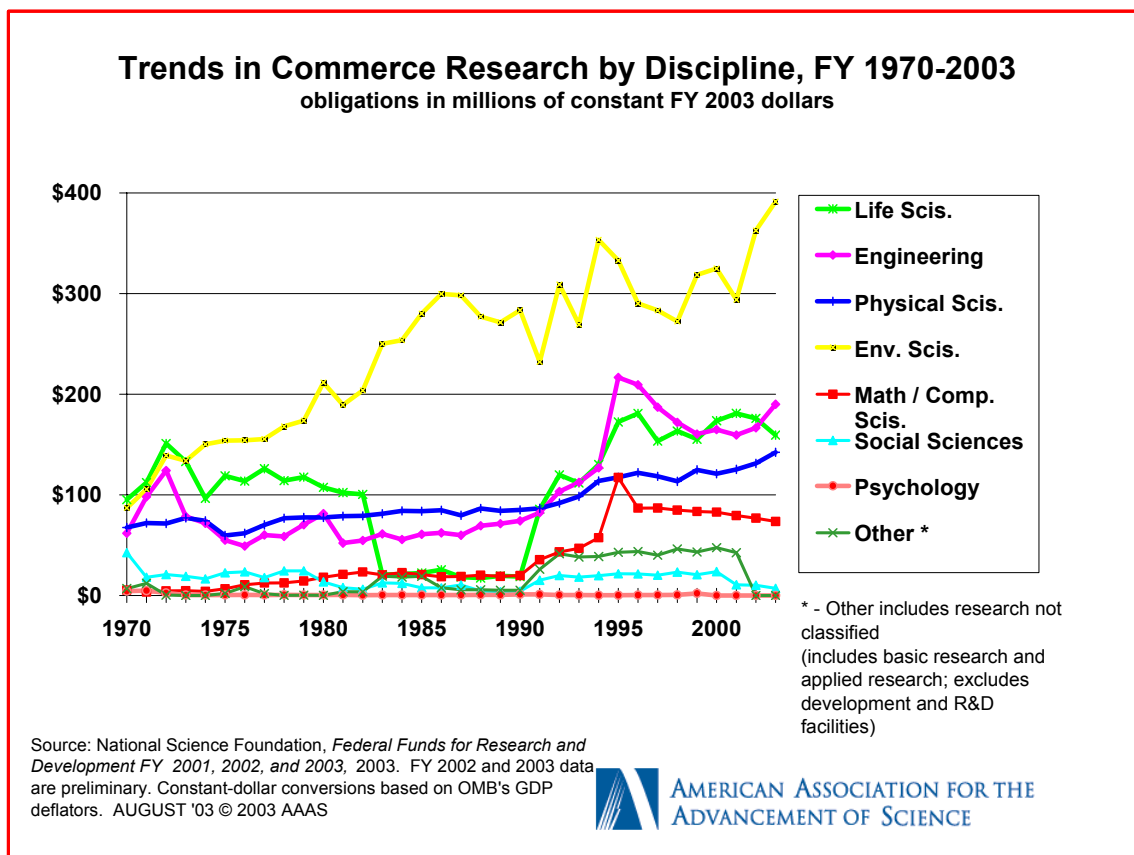


Figure 3. (click on the image to view or download a color, full-page PDF version of the chart)

- March 3, 2004 (revised March 16)

(More materials on R&D in the FY 2005 budget, historical data and charts, and more information on *AAAS Report XXIX: Research and Development FY 2005*, can be found on the AAAS R&D Web site at <http://www.aaas.org/spp/rd>.)

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Table II-14. Department of Commerce R&amp;D

**Table II-14.** R&D in the Department of Commerce  
(budget authority in millions of dollars)

|   | FY 2003<br>Actual | FY 2004<br>Estimate | FY 2005<br>Budget | Change FY 04-05 |                |
|---|-------------------|---------------------|-------------------|-----------------|----------------|
|   |                   |                     |                   | Amount          | Percent        |
| National Oceanic and Atmospheric Administration (NOAA - Non R&D excluded)<br>(NOAA - Non-R&D components excluded) |                   |                     |                   |                 |                |
| National Ocean Service  | 61                | 43                  | <b>45</b>         | 2               | 5.3%           |
| Nat'l Marine Fisheries Srv.   | 139               | 122                 | <b>133</b>        | 11              | 9.1%           |
| Oceanic and Atmos. Res.   | 313               | 326                 | <b>293</b>        | -33             | -10.1%         |
| National Weather Service  | 14                | 14                  | <b>29</b>         | 15              | 102.8%         |
| Other NOAA R&D  | 136               | 112                 | <b>110</b>        | -2              | -1.6%          |
| <b>Total NOAA R&amp;D</b>   | <b>663</b>        | <b>617</b>          | <b>610</b>        | <b>-7</b>       | <b>-1.1%</b>   |
| National Institute of Standards and Technology (NIST - Non-R&D components excluded)                               |                   |                     |                   |                 |                |
| 1. Scientific and Technical Research and Services (STRS)  |                   |                     |                   |                 |                |
| NIST Laboratories   |                   |                     |                   |                 |                |
| Electronics & Elec. Eng.  | 45                | 42                  | <b>52</b>         | 10              | 24.4%          |
| Manufacturing Engineering   | 21                | 20                  | <b>29</b>         | 9               | 42.2%          |
| Chemical Sci. and Tech.   | 40                | 41                  | <b>48</b>         | 6               | 15.6%          |
| Physics   | 34                | 35                  | <b>38</b>         | 3               | 8.1%           |
| Materials Science and Eng.  | 56                | 52                  | <b>61</b>         | 10              | 18.5%          |
| Building and Fire Research  | 21                | 21                  | <b>23</b>         | 2               | 11.0%          |
| Computer Sci./ Applied Math.  | 47                | 43                  | <b>51</b>         | 8               | 18.8%          |
| Technology Assistance   | 4                 | 3                   | <b>3</b>          | 0               | 2.2%           |
| Research Support Activities   | 33                | 25                  | <b>61</b>         | 36              | 143.7%         |
| <b>Total STRS R&amp;D</b>   | <b>301</b>        | <b>283</b>          | <b>367</b>        | <b>84</b>       | <b>29.8%</b>   |
| 2. Industrial Technology Services   |                   |                     |                   |                 |                |
| Advanced Tech. Program  | 148               | 145                 | <b>0</b>          | -145            | -100.0%        |
| <i>Manuf. Exten. Part. (Non-R&amp;D)</i>  | <i>106</i>        | <i>39</i>           | <i>39</i>         | <i>0</i>        | <i>1.2%</i>    |
| 3. Construction *   | 43                | 43                  | <b>59</b>         | 16              | 36.6%          |
| <b>Total NIST R&amp;D</b>   | <b>492</b>        | <b>471</b>          | <b>426</b>        | <b>-45</b>      | <b>-9.5%</b>   |
| Dept. Administration  | 1                 | 1                   | <b>1</b>          | 0               | 0.0%           |
| Nat'l Telecomm. & Info. Admin.  | 20                | 18                  | <b>10</b>         | -8              | -44.4%         |
| - <i>Telecommunication Sci. Res.</i>  | <i>6</i>          | <i>6</i>            | <i>10</i>         | <i>4</i>        | <i>66.7%</i>   |
| - <i>Tech. Opportunity Grants</i>   | <i>14</i>         | <i>12</i>           | <i>0</i>          | <i>-12</i>      | <i>-100.0%</i> |
| Bureau of the Census  | 21                | 23                  | <b>26</b>         | 3               | 13.0%          |
| Economic Development Admin.   | 1                 | 1                   | <b>1</b>          | 0               | 0.0%           |
| <b>Total Commerce R&amp;D</b>   | <b>1,197</b>      | <b>1,131</b>        | <b>1,075</b>      | <b>-57</b>      | <b>-5.0%</b>   |

Source: OMB data for R&amp;D, NOAA and NIST R&amp;D documents, and agency documents.

\* - Excludes congressional earmarks of \$28 mil. (2003) and \$21 mil. (2004).

All figures are rounded to the nearest million. Changes calculated from unrounded figures.

**Please see Chapter 13 for a discussion of Commerce R&D.**