

AAAS R&D Funding Update July 11, 2003 -

## Senate Proposes \$64.8 Billion for DOD R&D, 5 Percent Increase for S&T Programs

### Highlights

- **The Department of Defense (DOD) would receive a record-breaking \$64.8 billion for its R&D programs in FY 2004 under the latest Senate plan, a jump of 10.4 percent or \$6.1 billion over FY 2003 (see Table A).** The House would provide even more, for a total of \$66.0 billion.
- **The big winners in both the House and Senate plans would be the missile defense program and other development programs.** In the Senate, funding for missile defense development would jump 22 percent to \$8.3 billion in FY 2004, mostly in the Missile Defense Agency; funding for other big development projects would also climb, particularly a \$4.4 billion development appropriation for the Joint Strike Fighter (up 29 percent).
- **The Senate would add funds to the request for basic and applied research programs,** but funding would still remain below FY 2003 funding levels. The Senate would add \$48 million to the request for basic research (“6.1”), but this would still be \$60 million (4.3 percent) short of this year, while applied research (“6.2”) would fall 4.9 percent below FY 2003 despite the addition of \$409 million to the request (see Table B). The House would be more generous, and would boost “6.1” and “6.2” above this year’s funding levels.
- **DOD “Science and Technology” (S&T),** which includes research, medical research, and early technology development, **would increase 4.7 percent or \$532 million to \$11.8 billion** because of large increases for technology development (“6.3”) programs in the Senate bill. By contrast, the Administration proposed a nearly \$1 billion cut (see Table C), while the House would provide even more than the Senate.
- **Both the House and Senate would go along with DOD’s proposal to reorganize its basic research portfolio in FY 2004** by transferring many basic research programs funded in the Office of the Secretary of Defense (OSD) to the three services (Army, Navy, and Air Force; see Table C).

### R&D in FY 2004 DOD Appropriations

On July 9, the Senate Appropriations Committee approved its FY 2004 Defense appropriations bill (S 1382) providing nearly the entire budget for the Department of Defense (DOD). In the Senate bill, **total research and development (R&D) at DOD would rise to \$64.8 billion – an increase of 10.4 percent or \$6.1 billion from the FY 2003 level.** The FY 2004 Senate appropriation would bring DOD R&D to an all-time high in inflation-adjusted dollars, and would be \$2.0 billion more than the Administration’s request (see Table A).

Earlier this month, the full House approved its version of the Defense bill (HR 2658), which would provide even more money for DOD R&D. The House bill would provide \$66.0 billion, an increase of 12.3 percent. (For information on House appropriations for DOD R&D, see the House DOD R&D Funding Update of July 1. For information on the President’s FY 2004 request for DOD R&D and historical trends in DOD R&D, please see Chapter 6 of *AAAS Report XXVIII: R&D FY 2004*).

Nearly all (\$5.1 billion) of the enormous \$6.1 billion DOD R&D increase would go to weapons development activities (“6.4” through “6.7” plus other appropriations), which make up nearly all of the

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DOD R&D investment. These categories cover advanced development work, mostly performed by industrial firms as defense contractors, on specific weapons systems. Most of the “6.5” increase would come from the \$4.4 billion appropriation (up from \$3.4 billion in FY 2003), divided between the Navy and Air Force, for the Joint Strike Fighter (JSF), a next-generation fighter in development for future use by all the services and U.S. allies.

### **DOD S&T Programs**

**The Senate would add funds to the request for basic research programs (the “6.1” category), but “6.1” funding would still fall 4.3 percent compared to FY 2003, in contrast to a requested 8 percent cut.** The House’s version of the Defense bill, however, would add enough funds to provide a modest increase for “6.1”. Table C shows apparent substantial increases for basic research in the Army, Navy, and Air Force, but these increases reflect major proposed shifts in funding from the Office of the Secretary of Defense (OSD) to the three services. **DOD proposes to move funding for the University Research Initiatives program,** which funds competitively awarded basic research grants to university performers, from OSD to the three services. **Both the House and Senate would agree to these proposed transfers.** Overall, funding for University Research Initiatives would rise 13 percent to \$298 million. Funding for the Defense Research Sciences program, however, which funds basic research in DOD laboratories and universities, would fall 10 percent to \$856 million across the three services and DARPA in the Senate plan, similar to the requested \$853 million.

**Applied research funding (the “6.2” category) would also fall in the Senate plan, by 4.9 percent or \$210 million to \$4.1 billion in FY 2004,** though this would be an improvement over a requested 14 percent cut. Among the three services and the Defense Agencies, only the Army’s “6.2” portfolio would increase in the Senate proposal.

The “6.1,” “6.2,” and “6.3” categories are often grouped together as **“Science and Technology” (S&T).** This category includes basic research, applied research, and generic technology development. These programs contribute to a broad knowledge base with potential applications to a wide variety of military as well as civilian uses. Nearly all DOD support for R&D at colleges and universities comes from the S&T accounts. AAAS estimates of DOD S&T (see Table 3) also include applied medical research in the Defense Health Program, which was formerly funded in the Army “6.2” accounts.

**DOD funding of “S&T” (the “6.1” through “6.3” categories plus medical research) would climb \$532 million or 4.7 percent to \$11.8 billion in the Senate bill, a sharp reversal from a proposed cut of nearly \$1 billion in the Administration’s request** (see Table C). The House would go even further with a \$1.1 billion increase for S&T. For the past several years, Congress has tended to be more supportive of S&T funding than the Pentagon; in last year’s budget, DOD also requested a cut in S&T funding, but Congress ended up appropriating a nearly \$1 billion increase. In the past few years, there has been growing support inside and outside the Pentagon for setting 3 percent of the DOD budget as a goal for the proper level of S&T investment, and the last two DOD budgets have met that goal. Both the House and Senate bills would raise the S&T/budget ratio above 3 percent, in contrast to the request which would have lowered it to 2.7 percent. The Senate, however, would achieve an increase only because of increases to the “6.3” programs offsetting cuts in basic and applied research.

Both the House and Senate Defense bills contain separate \$410 million FY 2004 appropriations, outside the regular R&D accounts, for **medical research** (see Table C), down 11 percent from last year’s funding level. Included in this total is \$150 million for breast cancer research and \$85 million for prostate cancer research (same as the FY 2003 funding levels) to be awarded through peer-reviewed competitive grants. The bills also contain \$10 million for ovarian cancer research and miscellaneous amounts for medical research on other topics. These programs were congressionally initiated in the early 1990s and DOD has never requested funding for them, but Congress has annually provided funding. These programs are managed by the Army. The Senate and House Defense bills also contain numerous congressionally designated appropriations for medical research in DOD’s regular accounts; counting these appropriations,

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**the House would provide more than \$800 million for congressionally designated medical research projects, while the Senate would provide more than \$500 million.**

### **R&D in the Defense Agencies**

R&D in the Defense Agencies would increase \$1.3 billion or 7.4 percent to \$18.7 billion, due to a \$1.5 billion increase to \$8.2 billion for development in the Missile Defense Agency (MDA; see Table B). The missile defense program is a high priority for the Bush Administration, and also for Congress. Including some missile defense development funded by other DOD agencies, the total missile defense development effort would jump to \$8.3 billion in FY 2004, in preparation for deploying a test system as soon as possible. The MDA (formerly the Ballistic Missile Defense Organization) no longer funds research; nearly all missile defense funds go to advanced development, testing, manufacturing development, and evaluation of missile defense systems with an additional \$774 million elsewhere in the DOD budget for procurement of completed systems.

The Senate would provide the **Defense Advanced Research Projects Agency (DARPA) with \$2.7 billion** in FY 2004, \$223 million less than the request but just enough for a 1.5 percent increase over FY 2003 (see Table B). DARPA is mostly research-oriented, and its broad research portfolio is aimed at expanding the frontiers of knowledge and military technology to provide future solutions to DOD's technology needs. DARPA is the model for the new Department of Homeland Security's research agency, named the Homeland Security Advanced Research Projects Agency (HSARPA) in homage. In contrast to the House's generosity with DARPA to the tune of \$3.0 billion, the Senate would be relatively restrained, and criticizes DARPA's budget justification documents for providing insufficient information to make informed budget decisions.

### **Next Steps**

The full Senate may debate the Defense bill the week of July 14, and is expected to approve it with little controversy. The House has already approved its version of the bill, so a House-Senate conference may convene as early as mid-July.

(This analysis is one of a series of AAAS R&D Funding Updates on the FY 2004 congressional appropriations process. This analysis includes information on R&D in Senate appropriations for the Department of Defense. The complete series of AAAS R&D Funding Updates, including continually updated analyses of R&D by agency in FY 2004 appropriations, is available on the AAAS R&D Web Site (<http://www.aaas.org/spp/rd>) in the "FY 2004 R&D" or the "What's New" sections.)

- July 11, 2003  
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Table A. DOD R&amp;D by Program in FY 2003 Senate Appropriations

**Table A. Department of Defense by Program  
Senate Appropriations Committee Action on R&D in the FY 2004 Budget  
(budget authority in millions of dollars)**

|  | FY 2003<br>Estimate | FY 2004<br>Request | FY 2004<br>House | Action by Senate  |                             |         |                             |         |
|--|---------------------|--------------------|------------------|-------------------|-----------------------------|---------|-----------------------------|---------|
|  |                     |                    |                  | FY 2004<br>Senate | Chg. from Request<br>Amount | Percent | Chg. from FY 2003<br>Amount | Percent |
| Research, Development, Test, and Evaluation:     |                     |                    |                  |                   |                             |         |                             |         |
| Basic Research ("6.1")                           | 1,417               | 1,309              | 1,431            | <b>1,357</b>      | 48                          | 3.7%    | -60                         | -4.3%   |
| Applied Research ("6.2")                         | 4,289               | 3,670              | 4,383            | <b>4,079</b>      | 409                         | 11.1%   | -210                        | -4.9%   |
| Total Research, or Tech. Base                    | 5,706               | 4,979              | 5,814            | <b>5,436</b>      | 457                         | 9.2%    | -270                        | -4.7%   |
| Advanced Tech. Dev. ("6.3")                      | 5,067               | 5,253              | 6,092            | <b>5,918</b>      | 665                         | 12.7%   | 851                         | 16.8%   |
| Total Science and Technology                     | 10,773              | 10,231             | 11,906           | <b>11,353</b>     | 1,122                       | 11.0%   | 581                         | 5.4%    |
| Adv. Component Dev. ("6.4")                      | 10,754              | 12,921             | 12,900           | <b>13,047</b>     | 126                         | 1.0%    | 2,292                       | 21.3%   |
| System Dev. And Demon. ("6.5")                   | 14,503              | 16,189             | 16,227           | <b>16,312</b>     | 123                         | 0.8%    | 1,808                       | 12.5%   |
| Management Support ("6.6")                       | 3,106               | 3,028              | 3,315            | <b>3,124</b>      | 96                          | 3.2%    | 18                          | 0.6%    |
| Operational Systems Dev. ("6.7")                 | 18,656              | 19,458             | 20,266           | <b>19,649</b>     | 191                         | 1.0%    | 994                         | 5.3%    |
| BA Adjustment                                    | -227                | 0                  | 0                | <b>0</b>          | 0                           | --      | --                          | --      |
| TOTAL RDT&E                                      | 57,564              | 61,827             | 64,614           | <b>63,485</b>     | 1,658                       | 2.7%    | 5,920                       | 10.3%   |
| Other appropriations <sup>1</sup>                | 701                 | 928                | 928              | <b>928</b>        | 0                           | 0.0%    | 227                         | 32.4%   |
| Medical research <sup>2</sup>                    | 459                 | 66                 | 410              | <b>410</b>        | 345                         | 523.6%  | -49                         | -10.6%  |
| <b>Total DOD R&amp;D</b>                         | 58,724              | 62,821             | 65,953           | <b>64,823</b>     | 2,002                       | 3.2%    | 6,099                       | 10.4%   |
| <b>DOD S&amp;T ("6.1" - "6.3" &amp; medical)</b> | 11,232              | 10,297             | 12,316           | <b>11,764</b>     | 1,467                       | 14.2%   | 532                         | 4.7%    |

AAAS estimates based on FY 2004 appropriations bills. Includes conduct of R&D and R&D facilities.

FY 2003 and FY 2004 request figures based on OMB R&D data and supplemental agency budget data.

FY 2003 figures adjusted to reflect rescissions and supplementals enacted in Public Laws 108-2 and 108-11.

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

<sup>1</sup> R&D support in military personnel, military construction, and other DOD appropriations.

Includes chemical agents and munitions destruction R&D funded outside RDT&E.

<sup>2</sup> Medical research appropriated in Defense Health Programs, not RDT&E. These funds are not included in "6.2."

**July 11, 2003 - House and Senate Appropriations Committee-approved funding levels.**

**These figures may be amended or rejected by the full House or Senate.**

Table B. DOD R&amp;D by Agency in FY 2004 Senate Appropriations

**Table B. Department of Defense by Agency  
Senate Appropriations Committee Action on R&D in the FY 2004 Budget  
(budget authority in millions of dollars)**

|  | FY 2003<br>Estimate | FY 2004<br>Request | FY 2004<br>House | Action by Senate          |                             |             |                             |              |
|--|---------------------|--------------------|------------------|---------------------------|-----------------------------|-------------|-----------------------------|--------------|
|  |                     |                    |                  | <b>FY 2004<br/>Senate</b> | Chg. from Request<br>Amount | Percent     | Chg. from FY 2003<br>Amount | Percent      |
| Research, development, test, and evaluation: |                     |                    |                  |                           |                             |             |                             |              |
| Army *                                       | 7,519               | 8,672              | 9,736            | <b>9,513</b>              | 841                         | 9.7%        | 1,994                       | 26.5%        |
| Navy   | 13,597              | 14,107             | 14,666           | <b>14,846</b>             | 740                         | 5.2%        | 1,249                       | 9.2%         |
| Air Force **                                 | 18,763              | 20,151             | 20,513           | <b>20,086</b>             | -65                         | -0.3%       | 1,323                       | 7.1%         |
| Defense Agencies * **                        | 17,449              | 18,610             | 19,406           | <b>18,734</b>             | 124                         | 0.7%        | 1,286                       | 7.4%         |
| <i>Defense Adv. Res. Projects Agcy.</i>      | 2,690               | 2,954              | 3,019            | <b>2,731</b>              | -223                        | -7.6%       | 41                          | 1.5%         |
| <i>Missile Defense Agency *</i>              | 6,682               | 8,180              | 7,929            | <b>8,182</b>              | 3                           | 0.0%        | 1,501                       | 22.5%        |
| <i>Chem. And Bio. Defense Program</i>        | 634                 | 599                | 721              | <b>631</b>                | 32                          | 5.3%        | -3                          | -0.5%        |
| <i>Defense Threat Reduction Agency</i>       | 406                 | 382                | 390              | <b>416</b>                | 34                          | 8.9%        | 10                          | 2.5%         |
| <i>Office of Secretary of Defense **</i>     | 2,198               | 1,736              | 1,974            | <b>1,865</b>              | 129                         | 7.4%        | -333                        | -15.2%       |
| <i>Other ***</i>                             | 4,839               | 4,760              | 5,373            | <b>4,909</b>              | 149                         | 3.1%        | 70                          | 1.5%         |
| Director of Operational Test & Eval.         | 237                 | 287                | 294              | <b>305</b>                | 18                          | 6.3%        | 68                          | 28.6%        |
| <b>TOTAL RDT&amp;E</b>                       | <b>57,564</b>       | <b>61,827</b>      | <b>64,614</b>    | <b>63,485</b>             | <b>1,658</b>                | <b>2.7%</b> | <b>5,920</b>                | <b>10.3%</b> |
| Other appropriations <sup>1</sup>            | 701                 | 928                | 928              | <b>928</b>                | 0                           | 0.0%        | 227                         | 32.4%        |
| Medical research <sup>2</sup>                | 459                 | 66                 | 410              | <b>410</b>                | 345                         | 523.6%      | -49                         | -10.6%       |
| <b>Total DOD R&amp;D</b>                     | <b>58,724</b>       | <b>62,821</b>      | <b>65,953</b>    | <b>64,823</b>             | <b>2,002</b>                | <b>3.2%</b> | <b>6,099</b>                | <b>10.4%</b> |

AAAS estimates based on FY 2004 appropriations bills. Includes conduct of R&D and R&D facilities.

FY 2003 and FY 2004 request figures based on OMB R&D data and supplemental agency budget data.

FY 2003 figures adjusted to reflect rescissions and supplementals enacted in Public Laws 108-2 and 108-11.

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

\* FY 2004 request would transfer some missile defense programs from MDA to Army. FY 2004 Senate bill would reject this proposed transfer. FY 2004 Request and House figures adjusted to remove transfer.

\*\* FY 2004 request would transfer High Performance Computing from Defense Agencies to Air Force. FY 2004 Senate bill would reject this proposed transfer. FY 2004 Request and House figures adjusted to remove transfer.

\*\*\* Includes classified programs.

<sup>1</sup> R&D support in military personnel, military construction, and other DOD appropriations.

Includes chemical agents and munitions destruction R&D funded outside RDT&E.

<sup>2</sup> Medical research appropriated in Defense Health Programs, not RDT&E.

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Table C. DOD S&amp;T by Agency in FY 2004 Senate Appropriations

**Table C. Department of Defense S&T by Agency  
Senate Appropriations Committee Action on R&D in the FY 2004 Budget  
(budget authority in millions of dollars)**

|   | FY 2003<br>Estimate | FY 2004<br>Request | FY 2004<br>House | FY 2004<br>Senate | Action by Senate            |              |                             |             |
|---|---------------------|--------------------|------------------|-------------------|-----------------------------|--------------|-----------------------------|-------------|
|   |                     |                    |                  |                   | Chg. from Request<br>Amount | Percent      | Chg. from FY 2003<br>Amount | Percent     |
| "Science and Technology" (S&T; "6.1" through "6.3" plus medical research) |                     |                    |                  |                   |                             |              |                             |             |
| Army  | 2,143               | 1,790              | 2,536            | <b>2,311</b>      | 521                         | 29.1%        | 168                         | 7.8%        |
| - Basic Research ("6.1") *  | 244                 | 343                | 376              | <b>371</b>        | 28                          | 8.0%         | 126                         | 51.7%       |
| - Applied Research ("6.2")  | 858                 | 641                | 1,014            | <b>890</b>        | 248                         | 38.8%        | 32                          | 3.7%        |
| - Advanced Tech. Dev. ("6.3")   | 1,040               | 806                | 1,146            | <b>1,050</b>      | 245                         | 30.4%        | 10                          | 0.9%        |
| Navy  | 2,031               | 1,714              | 2,066            | <b>2,122</b>      | 408                         | 23.8%        | 91                          | 4.5%        |
| - Basic Research ("6.1") *  | 412                 | 457                | 478              | <b>492</b>        | 36                          | 7.8%         | 80                          | 19.4%       |
| - Applied Research ("6.2")  | 806                 | 536                | 664              | <b>694</b>        | 158                         | 29.5%        | -112                        | -13.9%      |
| - Advanced Tech. Dev. ("6.3")   | 813                 | 722                | 924              | <b>936</b>        | 214                         | 29.7%        | 123                         | 15.1%       |
| Air Force   | 1,751               | 2,041              | 2,537            | <b>2,155</b>      | 114                         | 5.6%         | 404                         | 23.1%       |
| - Basic Research ("6.1") *  | 218                 | 322                | 333              | <b>327</b>        | 5                           | 1.5%         | 109                         | 50.0%       |
| - Applied Research ("6.2")  | 829                 | 758                | 895              | <b>811</b>        | 53                          | 7.1%         | -18                         | -2.1%       |
| - Advanced Tech. Dev. ("6.3") **  | 704                 | 961                | 1,118            | <b>1,016</b>      | 56                          | 5.8%         | 313                         | 44.4%       |
| Defense Agencies  | 4,839               | 4,673              | 4,754            | <b>4,753</b>      | 80                          | 1.7%         | -86                         | -1.8%       |
| - Basic Research ("6.1") *  | 542                 | 187                | 244              | <b>167</b>        | -20                         | -10.6%       | -375                        | -69.2%      |
| - Applied Research ("6.2")  | 1,796               | 1,735              | 1,809            | <b>1,684</b>      | -51                         | -2.9%        | -112                        | -6.2%       |
| - Advanced Tech. Dev. ("6.3") **  | 2,501               | 2,752              | 2,892            | <b>2,902</b>      | 151                         | 5.5%         | 401                         | 16.1%       |
| Operational Test & Evaluation ("6.3")                                     | 9                   | 13                 | 13               | <b>13</b>         | 0                           | 0.0%         | 4                           | 49.4%       |
| TOTAL "6.1" through "6.3"   | 10,773              | 10,231             | 11,906           | <b>11,353</b>     | 1,122                       | 11.0%        | 581                         | 5.4%        |
| Medical research <sup>1</sup>   | 459                 | 66                 | 410              | <b>410</b>        | 345                         | 523.6%       | -49                         | -10.6%      |
| <b>DOD S&amp;T ("6.1" - "6.3" + medical)</b>                              | <b>11,232</b>       | <b>10,297</b>      | <b>12,316</b>    | <b>11,764</b>     | <b>1,467</b>                | <b>14.2%</b> | <b>532</b>                  | <b>4.7%</b> |

AAAS estimates based on FY 2004 appropriations bills. Includes conduct of R&D and R&D facilities.

FY 2003 and FY 2004 request figures based on OMB R&D data and supplemental agency budget data.

FY 2003 figures adjusted to reflect rescissions and supplementals enacted in Public Laws 108-2 and 108-11.

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

\* FY 2004 request proposes to transfer University Research Initiative and other program funds from Defense Agencies "6.1" to Army, Navy, and Air Force "6.1" accounts. FY 2004 House and Senate bills would follow this proposal.

FY 2004 Senate bill would keep DEPSCoR and HBCU programs in the Defense Agencies.

\*\* FY 2004 request would transfer High Performance Computing from Defense Agencies to Air Force. FY 2004 Senate bill would reject this proposed transfer. FY 2004 Request and House figures adjusted to remove transfer.

<sup>1</sup> Medical research appropriated in Defense Health Programs, not RDT&E.

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These figures may be amended or rejected by the full House or Senate.**