

House Boosts DOE Defense R&D, Holds Science R&D Flat, and Cuts Energy R&D

(This analysis is part of a series of AAAS R&D Funding Updates on the FY 2001 congressional appropriations process. This analysis includes information on R&D in House appropriations for DOE. The complete series of AAAS R&D Funding Updates, including continually updated analyses of R&D by agency in FY 2001 appropriations, is available on the AAAS R&D Web Site (<http://www.aaas.org/spp/R&D>) in the “FY 2001 R&D” or the “What’s New” sections.)

On June 20, the House Appropriations Committee drafted an FY 2001 Energy-Water appropriations bill, which funds most of the Department of Energy (DOE). [The full House approved the bill with some amendments on June 27.] Earlier on June 14, the full House gave final approval to its version of the FY 2001 Interior appropriations bill (HR 4578), which funds the remainder of DOE. Together, the two bills would provide **\$7.2 billion for DOE’s R&D programs, [a slight \$51 million or 0.7 percent more than FY 2000 but \$471 million less than the request]** (see Table). The House would increase funding for DOE’s defense R&D programs, but would make steep cuts to DOE’s energy-related nondefense R&D and would hold science programs even with this year.

Both the Energy-Water and Interior bills would provide less overall for nondefense discretionary programs in FY 2001 than in FY 2000, and would provide much less than the substantial increases proposed for these programs in the Clinton Administration request. Earlier this year, Congress laid out a plan to spend \$17 billion less than the President’s request of \$622 billion for all discretionary programs in FY 2001 while at the same time increasing defense spending (which makes up half of all discretionary spending) well above the President’s request. As a result, the House Appropriations Committee received far less money for the nondefense portions of the Energy-Water bill and the Interior bill than the President requested, and as a result was forced to allocate cuts to domestic programs. The Energy-Water bill also funds DOE’s defense-related activities, which make up nearly two-thirds of the total DOE budget. Because of the planned increases for overall defense spending in the House budget plan, these programs would receive increases.

The total DOE budget would be \$18.2 billion in the House bill, an increase of 3.4 percent, but the entire increase would be due to DOE’s defense activities, which would increase [6.6 percent] to \$12.8 billion (see Table). DOE’s nondefense programs would decline compared to FY 2000, and would be nearly \$900 million below the President’s request. Within this mix, it is not surprising that the House would allocate increases to DOE’s defense R&D programs but cuts to DOE’s science and energy R&D programs. **[Total DOE R&D would be \$7.2 billion in the House plan, a slight 0.7 percent increase over FY 2000, but the total would be divided into an increase to \$3.5 billion for defense R&D (up 4.8 percent), flat funding for science R&D to \$2.7 billion (up 1.2 percent), and sharp cuts to \$1.0 billion for energy R&D (down 11.8 percent).]**

Only defense R&D would be above the President’s request. The request of \$7.6 billion for DOE’s R&D (up 7.3 percent over FY 2000) made DOE a high priority in the Clinton Administration’s effort to present a balanced federal research portfolio by requesting large increases for key R&D programs funding non-life sciences disciplines. DOE, as a major sponsor of the physical sciences and computing sciences, benefited from this effort. The request included a 12.6 percent increase for science R&D programs and a 7.4 percent increase for energy R&D programs, but the House appropriation would fall far short.

On the defense side, FY 2001 would be the first full year of operation for the **National Nuclear Security Administration (NNSA)**, which was created last year by Congress in response to national security concerns and allegations of espionage at DOE weapons laboratories. NNSA began operations on March 1, and is

designed to be a semi-autonomous agency within DOE with its own command structure separate from the rest of DOE. NNSA is responsible for \$5.7 billion, or roughly a third, of the total DOE budget in FY 2000, and the request for FY 2001 was \$6.2 billion, an increase of more than 8 percent. The House would provide nearly the same amount as the request.

NNSA funds almost half of DOE's total R&D, \$3.1 billion out of a \$7.1 billion portfolio in FY 2000. Maintaining the U.S. nuclear weapons stockpile is one of DOE's major defense responsibilities, and since the U.S. banned nuclear testing DOE has relied on science to ensure the continuing reliability and safety of U.S. nuclear weapons. DOE's major R&D program in that effort is in Weapons Activities. **[The House would provide \$2.3 billion for Weapons Activities R&D in FY 2001, a 4.2 percent increase over FY 2000 that would provide boosts to a variety of science programs.]** This program funds most of the R&D at the three weapons labs (Los Alamos and Sandia in New Mexico, Lawrence Livermore in California) which are responsible for the nation's nuclear weapons stockpile and which are at the heart of the DOE security controversy, including the most recent controversy over misplaced nuclear secrets at Los Alamos. Within the account, the **Accelerated Strategic Computing Initiative** (ASCI), an effort to develop the next generation of computer processing technologies to better model nuclear explosions, would receive \$457 million, an increase of 15.1 percent. ASCI is also a major part of the Clinton Administration's multi-agency Information Technology R&D initiative. Inertial Confinement Fusion (ICF) would receive \$291 million, nearly triple the FY 2000 funding level, but most of the increase would be due to transfers of responsibilities from other existing programs. DOE hopes to use ICF technologies to simulate nuclear explosions. The **National Ignition Facility**, the major facility for the ICF effort, would receive the requested \$74 million in the House plan, despite recent reports that the project's total cost has ballooned significantly and that its completion date has been pushed back by several years. The report accompanying the House bill states that the House may reexamine funding for the NIF as more detailed project plans become available in the next few months.

In the **Science** account, the House would provide \$2.7 billion for R&D, an increase of only 1.2 percent that contrasts sharply with a requested 12.6 percent increase. The House report accompanying the bill explains that these programs are a priority for Congress, but severe funding constraints in the overall Energy-Water bill make it impossible to award large increases, much less meet requested funding levels. **Fusion Energy Sciences** would receive \$247 million for R&D, a slight \$3 million increase. Both the **High Energy Physics** (up 1.7 percent to \$704 million) and **Nuclear Physics** (up 4.7 percent to \$364 million) programs would also receive increases. The **Advanced Scientific Computing Research** (ASCR) would increase by 7.1 percent to \$137 million, but this would be far below the \$182 million that DOE requested to expand the agency's participation in the multi-agency IT R&D initiative. Within the **Basic Energy Sciences** program, the House would hold funding for the **Spallation Neutron Source** (SNS) to \$130 million, the same as the FY 2000 level, instead of the \$281 million request. Last year's House bill criticized DOE for shoddy management of the project, but this year's bill indicates satisfaction with the progress of the SNS and denies the full request only because of a lack of available funds. The only major cut in the Science account would be to the **Biological and Environmental Research** (BER) program, which funds DOE's contribution to the Human Genome Project. BER would decline \$29 million or 6.7 percent to \$404 million.

Although much of the debate over the Energy-Water bill in committee focused on energy, specifically recent spikes in gasoline prices, DOE's energy R&D programs would face steep cuts in the House plan, from \$1.2 billion in FY 2000 to \$1.0 billion ([down 11.8 percent]). [Only **Solar and Renewable Energy** R&D would increase even slightly (up 15.7 percent to \$315 million), but the program would receive \$61 million less than the request.] The House bill criticizes DOE for requesting substantial increases across the board for solar and renewables programs without clear justifications for the additional investments. Other energy R&D programs would decline substantially. Nuclear energy R&D would fall \$12 million to \$80 million. In the House Interior bill, **Fossil Energy** R&D would decline 19.2 percent to \$265 million. The original proposed reduction in the House Appropriations Committee draft was smaller, but an amendment on the House floor transferred money out of the R&D accounts to give to weatherization assistance and state energy programs. The House would also slash spending for **Energy Conservation** R&D by 24.8 percent down to \$324 million. The program was originally slated for a small increase, but an amendment on the House floor eliminated the entire \$127 million appropriation for the Partnership for the Next Generation of Vehicles (PNGV), a

cooperative R&D program with the major U.S. automakers to develop more fuel-efficient vehicles, ironically just as gasoline prices surged above \$2 per gallon in many parts of the country.

[The Energy-Water bill was approved by the House on June 27 after approval of several amendments, including one transferring funds from the NNSA to Solar and Renewable Energy programs. The House approved the Interior bill on June 14 after making several amendments that cut energy R&D below the originally proposed levels. The Senate has drafted its Interior bill, but not the Energy-Water bill.]

These bills are unlikely to be signed into law in the near future; the House funding levels for domestic programs in these bills are so low that they will almost certainly draw a veto from President Clinton. Congressional Democrats are also likely to try to block any further action on the Interior bill; Republican members maneuvered to prevent approval of Democratic amendments to add funds to the bill, using tactics that angered many Democrats. Although the Senate bills are likely to be slightly more generous than the House, until congressional leaders find more money to boost the bills' funding levels it is unlikely that Congress will be able to move the bills to House-Senate conference. If the search for additional funding drags on into September, which is becoming increasingly likely, then both bills may end up in a year-end, omnibus appropriations bill. The delay may be good for DOE's R&D, however, in that the longer the delay, the more money the programs are likely to receive.

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**Table. Department of Energy
House Action on R&D in the FY 2001 Budget
(budget authority in millions of dollars)**

	FY 2000 Estimate	FY 2001 Request	FY 2001 House	Action by House			
				Chg. from Request		Chg. from FY 2000	
				Amount	Percent	Amount	Percent
DOE Appropriations Containing R&D:							
1. Energy Supply R&D	364	468	395	-73	-15.6%	31	8.4%
2. Fossil Energy R&D	328	293	265	-28	-9.6%	-63	-19.2%
3. Energy Conservation	431	465	324	-140	-30.2%	-107	-24.8%
4. Science	2,638	2,969	2,670	-299	-10.1%	33	1.2%
5. Atomic Energy Defense Activities	3,301	3,405	3,459	54	1.6%	158	4.8%
6. Clean Coal Technology ¹	0	0	0	0	--	0	--
7. Radioactive Waste Management	55	40	55	15	38.8%	0	0.0%
Total DOE R&D	7,117	7,639	7,168	-471	-6.2%	51	0.7%
Detail of selected appropriations:							
1. Energy Supply R&D							
Solar and Renewables	272	376	315	-61	-16.1%	43	15.7%
Nuclear Energy	92	92	80	-13	-13.6%	-12	-13.4%
TOTAL Energy Supply	364	468	395	-73	-15.6%	31	8.4%
4. Science							
High Energy Physics	693	704	704	0	0.0%	11	1.7%
<i>(Large Hadron Collider)</i>	70	70	59	-11	-15.7%	-11	-15.7%
Nuclear Physics	348	364	364	0	0.0%	16	4.7%
Fusion Energy Sciences	245	244	247	3	1.1%	2	0.9%
Basic Energy Sciences	772	1,008	791	-217	-21.5%	19	2.5%
<i>(Spallation Neutron Source)</i>	118	281	118	-163	-58.0%	0	0.0%
Adv. Scientific Computing Res.	128	182	137	-45	-24.7%	9	7.1%
Biological and Environmental Res.	433	444	404	-40	-9.0%	-29	-6.7%
Energy Research Analyses	1	1	1	0	0.0%	0	0.9%
Multiprogram Lab Support	19	22	22	0	0.0%	3	15.5%
	2,638	2,969	2,670	-299	-10.1%	33	1.2%
5. Atomic Energy Defense Activities							
National Nuclear Security Administration (NNSA) ⁴							
Naval Reactors	655	656	656	0	0.0%	2	0.3%
Weapons Activities	2,201	2,273	2,293	20	0.9%	92	4.2%
<i>Stockpile R&D</i>	236	243	243	0	0.0%	7	3.1%
<i>ASCI ²</i>	397	477	457	-20	-4.2%	60	15.1%
<i>Defense Appl. And Modeling</i>	228	249	249	0	0.0%	21	9.4%
<i>ICF Ignition and High Yield ³</i>	100	121	291	170	140.5%	191	191.3%
<i>Nat'l Ignition Facility Construction</i>	247	74	74	0	0.0%	-173	-70.0%
<i>All Other Weapons Acts. R&D</i>	993	1,108	979	-129	-11.7%	-14	-1.4%
Nonproliferation & Verification R&D	183	191	182	-9	-4.7%	-1	-0.6%
Fissile Materials Disposition	63	71	71	0	0.0%	9	13.7%
Total NNSA R&D ⁴	3,101	3,191	3,203	11	0.4%	101	3.3%

(continued)

AAAS R&D Funding Update - DOE R&D in FY 2001 House Appropriations

Environmental Management	167	182	225	43	23.4%	58	34.7%
Nuclear Safeguards & Security	27	26	26	0	0.0%	-2	-5.5%
Intelligence	5	5	5	0	0.0%	0	0.0%
TOTAL Atomic Defense R&D	3,301	3,405	3,459	54	1.6%	158	4.8%

DOE R&D by Budget Function:

Defense	3,301	3,405	3,459	54	1.6%	158	4.8%
General Science	2,638	2,969	2,670	-299	-10.1%	33	1.2%
Energy	1,178	1,265	1,039	-226	-17.9%	-140	-11.8%

AAAS estimates based on FY 2001 appropriations bills. Includes conduct of R&D and R&D facilities.

FY 2000 and FY 2001 request figures based on OMB R&D data and supplemental agency budget data.

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

¹ Budget authority is negative for some years because of enacted or proposed deferrals of previously appropriated funds.

Table does not reflect enacted or proposed deferrals.

² Accelerated Strategic Computing Initiative.

³ Inertial Confinement Fusion.

⁴ New semi-autonomous agency within DOE. FY 2000 figures adjusted for comparability with new account structure.

June 21, 2000 (revised June 28) - House-approved appropriations.

These appropriations reflect amendments approved on the House floor.

Department of Energy Budget (budget authority in millions of dollars)

	FY 2000 Estimate	FY 2001 Request	FY 2001 House	Action by House		Chg. from FY 2000 Amount	Chg. from FY 2000 Percent
				Chg. from Request Amount	Chg. from Request Percent		
Weapons Activities (NNSA)	4,321	4,594	4,586	-8	-0.2%	264	6.1%
Other NNSA Activities	1,375	1,584	1,539	-45	-2.8%	164	11.9%
Total NNSA	5,696	6,178	6,125	-53	-0.9%	428	7.5%
Defense Environmental Restoration	4,466	4,552	4,523	-29	-0.6%	57	1.3%
Nuclear Waste and Other Defense	1,827	2,196	2,134	-63	-2.9%	307	16.8%
Total DOE defense	11,988	12,926	12,781	-145	-1.1%	793	6.6%
Science	2,815	3,151	2,831	-320	-10.2%	16	0.6%
Energy Supply	643	765	616	-148	-19.4%	-26	-4.1%
Fossil Energy	404	376	365	-10	-2.7%	-38	-9.5%
Energy Conservation	759	851	648	-203	-23.8%	-111	-14.6%
Other Energy Programs	298	472	361	-111	-23.5%	63	21.2%
Nondefense Environmental Mngmt.	307	286	281	-5	-1.7%	-26	-8.5%
Power Marketing Administrations	230	200	196	-4	-2.0%	-35	-15.1%
Departmental Administration	110	118	74	-44	-37.0%	-35	-32.4%
Total DOE Budget	17,553	19,142	18,153	-989	-5.2%	600	3.4%

Source: Department of Energy budget justification and FY 2001 appropriations bills.

DOE appropriations only (does not include offsets and other mandatory).

Excludes deferrals of funds in Clean Coal Technology and other deferrals.

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