

WASHINGTON REPORTS

Era of Good Feeling for Balanced-Budget Act Extends to FY 1998 Funding for R&D Agencies

On 5 August, a nearly perfect summer morning on the White House south lawn, with the sky almost cloudless, the Stars and Stripes fluttering and the Marine Band playing, President Clinton signed two bills (PL 105-33 and PL 105-34) designed to balance the Federal budget in five years and provide the biggest tax cut in nearly two decades. The occasion was attended by dozens of exuberant Democrats and Republicans, who celebrated what to all appearances marked the end of partisan rancor on Capitol Hill. Clinton hailed the balanced-budget deal as "an historic agreement that will benefit generations of Americans," and John Kasich, the Ohio Republican who leads the House Budget Committee, crooned of "a dream come true." Both sides appeared to have got what they wanted.

Once the ceremony was over, members of the 105th Congress set off on their traditional August recess. Back to work in September, they will begin negotiating the 13 appropriations bills that are needed to run the Federal government after 1 October, when fiscal 1998 begins. But in stunning contrast to the 104th Congress, which was marked by so much ideological warfare that the government shut down for nearly three weeks, the appropriations bills have advanced this year without hoopla or hostility.

With the Federal deficit this year dropping to less than \$40 billion (well below 1% of GDP, the lowest of any major country) and US industry basking in a period of sustained growth, Congress seems to have reached a consensus that the government should relax its grip on the economy and unleash the nation's entrepreneurial and intellectual strengths to produce more wizardry in science and technology. Accordingly, the Clinton Administration is emphasizing more and better education at all levels. And Congress, with bipartisan fervor, is investing larger sums in scientific research. Both credit the good times to the country's victories in head-to-head competition with the rest of the world.

The budgets passed by the House and Senate for the R&D agencies have reduced the fears in the science community that major research programs may be sacrificed to balance the

budget. When the Clinton Administration's R&D budget request was sent to Capitol Hill last February, the White House Office of Science and Technology (OSTP) worried that the modest 2.2% increase would be cut back by Congress (see PHYSICS TODAY, March, page 61). A coalition of about 35 professional societies, representing more than 1 million scientists, mathematicians and

engineers appealed to Congress for increases "in the range of 7%" above current levels for all ten major science and technology agencies in fiscal 1998 (PHYSICS TODAY, April, page 53).

The reaction was swifter than many expected. Key members of both political parties in the House and Senate spoke up for larger R&D budgets—and put their money where their mouths

The Physics-Related Accounts in the Fiscal 1998 Budgets So Far

	FY 97 estimate	FY 98 request	FY 98 House	FY 98 Senate
	(millions of dollars)			
National Science Foundation	3270	3367	3487	3377
Research and related activities	2432	2515	2538	2525
Mathematics and physical sciences	696	716	720	719
Engineering	348	360	360	362
Biological sciences	320	331	331	332
Geosciences	446	453	453	454
Computer information science and engineering	273	294	312	295
Social, behavioral and economic sciences	122	130	130	130
Critical Technologies Institute	3	3	3	3
US polar programs	224	229	229	229
Major research equipment	80	85	175	85
Education and human resources	619	625	633	625
Administration	139	142	142	142
Department of Energy	16 495	19 224	15 905	17 042
Basic energy sciences	640	672	668	668
Biological and environmental research	382	377	382	377
General science and research	986	1003	1001	991
High-energy physics	670	670	680	675
Nuclear physics	316	333	321	316
Magnetic fusion energy research	215	218	218	233
Solar and renewables energy	239	316	269	284
University and science education	0	0	0	10
Multiprogram laboratory support	21	40	21	21
Computational and technology research	158	176	148	151
Weapons activities, including inertial fusion	3911	5743	3943	4302
Defense environmental restoration	5619	6058	5263	5655
National Aeronautics and Space Administration	13 709	13 500	13 648	13 500
Human space flight, including space station	2180	2180	2280	2180
Science, aeronautics and technology	5453	5642	5690	5642
Space science	1969	2044	2044	2044
Academic programs	120	96	120	96
Space shuttle	3151	2978	2978	2978
National Institute of Standards and Technology	572	693	693	604
Core scientific and technological laboratory programs	265	277	283	277
Advanced Technology Program	225	276	185	200
Manufacturing Extension Partnership	95	123	114	111
Construction of research facilities	0	17	111	16
National Oceanographic and Atmospheric Administration (R&D)	562	572	541	634
Oceanic and atmospheric research and operations	535	525	514	581
Construction of research facilities	22	35	20	41
Other services, including data acquisition	6	12	7	12
Department of Defense				
Army basic research (6.1)	179	199	180	205
Navy basic research (6.1)	352	382	351	382
Air Force basic research (6.1)	211	227	183	222
Defense-wide basic research, including universities	338	356	314	365
Basic research total	1080	1164	1028	1174
Applied research total	2873	2814	3011	2976
Defense Advanced Research Projects Agency	2070	2206	2021	2083
Ballistic Missile Defense Organization	3312	2582	3299	3203

are. "Back in February, I hadn't expected this to happen," says an ebullient Jack Gibbons, the president's science adviser and director of OSTP. "All I can say is we've witnessed an extraordinary convergence of views and actions."

The R&D spending bills either approved or about to pass in each house still need to be negotiated by conference committees this month, but the directions for those accounts are clear: Nearly every major R&D agency would receive an increase above today's less than 2% inflation rate, and certain key research accounts would be funded above both the current levels and the President's request. The legislation passed so far shows the House providing \$75.3 billion for Federal R&D next year and the Senate putting up \$75.4 billion. These totals represent increases of 2.8% and 2.9% respectively, over this year's \$73.3 billion and are more than Clinton's request for \$74.8 billion. Large increases for most of the civilian agencies would result in non-defense R&D climbing to \$34.9 billion in the House bill, up 4.4%, and to \$35.0 billion in the Senate plan, up 4.6%. While these amounts are still slightly below the fiscal 1994 level in inflation-adjusted terms, both the House and Senate would begin to reverse the cuts of the past three years. Equally important, basic research would rise to \$15.4 billion in the House plan, a 3.4% boost, and to \$15.6 billion in the Senate bill, a 4.9% increase.

Following are some highlights for several agencies. (For more details, see accompanying table on page 53.)

National Science Foundation The House approved an 8.6% increase for research programs in fiscal 1998 to \$2.54 billion. The total NSF budget would be \$3.49 billion, 6.6% more than the current appropriation. The Senate bill recommends a total of \$3.38 billion, a 3.3% increase, but \$110 million below the House mark. For the NSF research account, the Senate would pro-

vide \$2.53 billion, some \$13 million below the House plan. The Senate recommendation for the major research equipment account is \$90 million below the House level, mainly because the House would provide up-front funding for the rehabilitation of the South Pole Station and would relocate the Polar Cap Observatory to a Defense Department facility for ionosphere research.

Department of Energy The Senate would provide \$6.3 billion for the department's R&D programs, which is 4% more than the current amount, but the House would trim R&D by 0.7%, to \$6.1 billion. The difference lies in the support proposed for the science-based stockpile stewardship and management account in DOE's defense program. Both the House and Senate would provide the requested amount to build the National Ignition Facility at Lawrence Livermore National Laboratory but not enough to cover the full cost of the project. The Senate also would boost funding for the program's Accelerated Strategic Computing Initiative from \$152 million to \$230 million. Appropriations for high-energy physics and nuclear physics would be virtually the same as this year's, with the Senate proposing \$991 million and the House \$1001 million. Both chambers express support for US participation in CERN's Large Hadron Collider, to be built under the border of Switzerland and France.

NASA Because most of the House cuts would be in the agency's non-R&D programs, including the space shuttle, the R&D activities, which account for two-thirds of NASA's budget, would receive an increase of 4.7%, or \$437 million, over the current year. Academic programs would get \$120 million, \$24 million more than the request. The Senate budget would cut \$148 million from the House numbers, but, as in the House, most reductions are in non-R&D accounts. Both chambers fully

endorse the International Space Station at \$2.1 billion. The Senate beat back the annual attempt to stop funding the station—the fifth year that opponents took a drubbing.

Department of Commerce The House and Senate differ on how to allocate funding for the National Institute of Standards and Technology. The Senate accepts the Clinton Administration's request for NIST's core R&D operations, but the House recommends an increase to \$283 million, which would include physics programs at \$30.4 million, materials at \$50.9 million and electronics at \$38.1 million. Neither the House nor the Senate would provide the full request for the controversial Advanced Technology Program, although the Senate's recommendation of \$200 million is closer. In contrast to the Senate's strong support of the budget for the National Oceanographic and Atmospheric Administration, the House would allocate \$541 million, down 3.8% from this year and far below the Senate's proposed \$634 million. The House cuts would affect NOAA's research in oceans, fisheries, global climate change, the atmosphere, air quality and weather forecasting. But the Senate's largesse would more than likely help NOAA overcome the cuts in conference committee negotiations.

Department of Defense The House would slash the Pentagon's basic research by 4.4%, to \$1 billion, in sharp contrast to the President's request and both the Senate and House authorization legislation, which each call for an 8% increase over fiscal 1997 to close to \$1.2 billion. In its report, the House Appropriations Committee called the requested funding level a "misallocation of resources" and raised "questions whether never-ending budget growth in basic research [in DOD] is wise." The Senate, by contrast, would give basic research an increase of 8.7% and applied research 3.6%.

IRWIN GOODWIN

Fallout of Atmospheric Nuclear Tests in 1950s and 1960s Exposed More People to Iodine-131 than Chernobyl Accident

In May 1953, three seemingly unrelated events occurred: A nuclear weapon was exploded in the atmosphere above the Nevada Test Site, a rainstorm pelted northern New York State, and Geiger counters began ticking in physics labs at Cornell University, Rensselaer Polytechnic Institute and some other universities in the region. "Scientists quickly assessed the singular events and concluded that the area had been subjected to intensive

radioactive fallout," recalls Barry Commoner, a biologist at Queens College, City University of New York. To test their theory, the scientists wiped their cars with paper towels, analyzed the towels and found traces of iodine-131 and strontium-90. "It was unmistakable," Commoner says. But at the time, the Atomic Energy Commission denied the toxicity of the fallout. And it persisted in denying the risk to the US population from nuclear tests.

On 1 August, the National Cancer Institute (NCI) reported that atmospheric nuclear tests in Nevada, which took place mainly in 1952, 1953, 1955 and 1957, exposed the entire US population to I-131. A nationwide study conducted by the NCI, a part of the National Institutes of Health in Bethesda, Maryland, found isolated "hot spots" in 12 states, including 39 counties in Kansas and 16 in Missouri where exposure levels were the high-