

SCIENCE

Appropriations, 2002	\$3,233,100,000
Budget estimate, 2003	3,279,456,000
Committee recommendation	3,329,456,000

Investment in the physical sciences and engineering plays a critical role in enabling U.S. technological innovation and global economic leadership. It is essential to the development of our energy resources and utilization as well as our defense, environment, communications and information technologies, health and much more. Over the past 50 years, half of U.S. economic growth has come from prior investment in science and technological innovation. Life expectancy has grown from 55 years in 1900 to nearly 80 years today.

The Department of Energy is the leading source of Federal investment for R&D facilities and fundamental research in the physical sciences. Yet investment in the Department's R&D has declined in constant dollars from \$11,200,000,000 in 1980 to \$7,700,000,000 in 2001. As a percentage of GDP, total Federal investment in the physical sciences and engineering has been cut roughly in half since 1970.

Shrinking investment in the physical sciences and engineering poses serious risks to DOE's ability to perform its mission. It also threatens the nation's science and technology enterprise. DOE faces a shortage of nearly 40 percent in its technical workforce over the next 5 years. To meet it needs, it must compete for a shrinking pool of skilled workers with industry, many of whose leaders also report serious shortages of scientists and engineers.

American educational institutions are failing to attract sufficient numbers of U.S. students, especially women and minorities, into undergraduate and graduate programs in the physical sciences and engineering. For these skills we now are more heavily dependent on foreign nations than ever before. The H1-B visa has become a main element of U.S. technology policy.

As fewer foreign students choose to pursue their education in the United States and too few U.S. students enter these fields, our vulnerability grows. NSF reports that between 1996 and 1999, the number of Ph.D.s in science and engineering awarded to foreign students declined by 15 percent. Only 5 percent of U.S. students now earn bachelors degrees in natural science or engineering. Since 1986 the total number of bachelors degrees in engineering is down 15 percent. Between 1994 and 2000, the number of Ph.D.s awarded in physics in the United States declined by 22 percent.

These trends must be reversed. Many DOE user facilities do not operate at their designed capacity. As a result, opportunities and momentum are lost as researchers and students encounter barriers to the pursuit of inquiry of national importance, including promising research opportunities at the boundaries of the life sciences, physical sciences, engineering and computer sciences. Future U.S. global leadership and technological leadership will rely upon today's investment in research in all the sciences and engineering.

The Committee strongly supports and encourages increased investment in the research and education initiatives of the DOE Office of Science.

HIGH ENERGY PHYSICS

Appropriations, 2002	\$716,100,000
Budget estimate, 2003	724,990,000
Committee recommendation	729,980,000

The Committee recommendation includes \$729,980,000 for high energy physics. The Committee has included an additional \$5,000,000 for the Stanford Linear Accelerator Center. The Committee recognizes that the High Energy Physics Advisory Panel has recommended that the Next Linear Collider (NLC) at the Stanford Linear Accelerator Center should proceed into design and construction.

NUCLEAR PHYSICS

Appropriations, 2002	\$360,510,000
Budget estimate, 2003	382,370,000
Committee recommendation	387,370,000

The Committee recommends \$387,370,000 for nuclear physics. The Committee recommends that the additional funds be used to enhance operation of the Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory and the Continuous Electron Beam Accelerator Facility at the Thomas Jefferson National Accelerator Facility in Virginia.

BIOLOGICAL AND ENVIRONMENTAL RESEARCH

Appropriations, 2002	\$527,405,000
Budget estimate, 2003	504,215,000
Committee recommendation	531,215,000

The Committee recommendation includes \$531,215,000 for biological and environmental research. The recommendation includes an additional \$10,000,000 above the requested level for the Genomes to Life program and \$25,000,000 in total funding for the low dose effects program. The recommendation also continues the free air carbon dioxide experiments at the current year level and \$3,000,000 in additional funding for the EMSL computer.

The Committee strongly encourages the Department to budget for additional resources for the Genomes to Life Program in fiscal year 2004. This program shows tremendous potential and deserves enhanced support.

Environmental Remediation.—The Committee recommendation includes an additional amount of \$6,000,000 for a program to evaluate improved technologies for removal of arsenic from municipal water supplies, with a focus on minimization of operating costs and reducing energy requirements. This program shall include peer-reviewed research projects as well as cost-shared demonstration projects conducted with municipal water systems. Demonstration programs shall focus on technologies applicable in the arid southwestern United States. The program shall be administered through contracts with the American Water Works Association Research Foundation, which shall utilize capabilities of WERC, A Consortium for Environmental Education and Technology Development, for evaluations of cost effectiveness of alternative treatment methodologies.

BASIC ENERGY SCIENCES

Appropriations, 2002	\$1,003,705,000
Budget estimate, 2003	1,019,600,000
Committee recommendation	1,044,600,000

The Committee recommendation includes \$1,044,600,000. For purposes of reprogramming in fiscal year 2002, the Department may allocate funding among all operating accounts within basic energy sciences upon written notice to the appropriate Congressional Committees.

The Committee recommendation includes \$12,000,000 for the Department's Experimental Program to Stimulate Competitive Research and \$4,500,000 in additional funding to complete preliminary engineering and design (PED) and move to construction at the Center for Integrated Nanotechnology. Within available funds the Committee recommendation includes full funding for the operation of the National Synchrotron Light Source, the Spallation Neutron Source, and the Nanoscale Science Centers Initiative, including \$24,000,000 for design and construction of the Center for Nanophase Materials Sciences and Oak Ridge National Laboratory. Construction projects are all funded at the level of the administration's request.

The Committee is pleased with the progress of the Department's Nanoscience Initiative. The Committee understands the Department has recently announced its intention to fund a Nanocenter at Brookhaven National Laboratory. The Committee has included \$1,000,000 to begin preliminary engineering and design in fiscal year 2003 for the Nanocenter at Brookhaven (Project 02-SC-2). The Committee strongly supports the nanoscale science research centers.

Additionally, the Committee recommends that the additional funds be used to support the following important activities: facility operations user support; completion of the Nanoscience Research Center project engineering and design; and additional work in computational sciences in materials and chemistry.

Advanced Scientific Computing Research.—The Committee recommendation provides \$169,625,000 for advanced scientific computing research.

SAFEGUARDS AND SECURITY

The Committee recommendation provides \$48,127,000 for safeguards and security.

SCIENCE PROGRAM DIRECTION

The Committee recommendation provides \$134,837,000 for science program direction.

SCIENCE LABORATORIES FACILITIES SUPPORT

The Committee recommends \$42,735,000, the amount of the request, for science energy laboratories facilities support. The program supports infrastructure activities at the five national labs under the direction of the Office of Science.

FUSION ENERGY SCIENCES

Appropriations, 2002	\$248,495,000
Budget estimate, 2003	257,310,000
Committee recommendation	259,310,000

The Committee recommendation for fusion energy sciences is \$259,310,000, an amount that is \$2,000,000 above the budget request. The Committee is aware of significantly increased neutron yields from compressed fuel elements heated by an extremely short pulse, high power laser beam. Such advances promise significant acceleration of the schedule for achieving ignition of compressed fusion pellets. Accordingly, the Committee adds \$2,000,000 to Fusion Energy Sciences for the purpose of evaluating this so-called "fast ignition" concept. The Department is directed to report back to the Committee no later than August 1, 2003 with the results of this evaluation along with any recommendations the Department would make regarding the schedule and milestones of the High Energy Density Physics Program.

DEPARTMENTAL ADMINISTRATION

(GROSS)

Appropriations, 2002	\$210,853,000
Budget estimate, 2003	299,220,000
Committee recommendation	235,000,000

(MISCELLANEOUS REVENUES)

Appropriations, 2002	\$137,810,000
Budget estimate, 2003	137,524,000
Committee recommendation	137,524,000

The Department recommends \$235,000,000 for departmental administration, a net appropriation of \$97,476,000.

The Committee has been underwhelmed by the timeliness and level of detail in the Department's responses to the Committee's requests for the additional budget information required to evaluate the administration's requests to Congress. The Department needs to focus on providing timely, detailed, and transparent budget information to Congress when making requests for appropriations.

International affairs.—The Committee strongly urges the Department of Energy, the Department of Commerce, U.S. AID, and other Federal agencies associated with the Clean Energy Technology Exports Program to finalize and implement the strategic plan and establish the advisory board. The strategic plan is a critical component of a broad range of international and domestic policy interests, including those promoting economic development, energy, trade, employment, environmental, and climate change policies.

INSPECTOR GENERAL

Appropriations, 2002	\$32,430,000
Budget estimate, 2003	37,671,000
Committee recommendation	37,671,000

The Committee has provided \$37,671,000 for the Office of the Inspector General.

DEPARTMENT OF ENERGY—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
General reduction .....	.....	.....
TOTAL, ENERGY SUPPLY	693,934	815,306
NON-DEFENSE ENVIRONMENTAL MANAGEMENT		
Site closure .....	.....	.....
Site/project completion	51,272	67,272
Post 2006 completion	112,887	123,887
Fast flux test facility (FFTF) .....	.....	.....
Long-term stewardship .....	.....	.....
Excess facilities	1,841	1,841
Subtotal, Non-Defense Environmental Management	166,000	193,000
Use of prior year balances .....	.....	- 17,000
TOTAL, NON-DEFENSE ENVIRONMENTAL MANAGEMENT	166,000	176,000
URANIUM FACILITIES MAINTENANCE AND REMEDIATION		
Uranium Enrichment Decontamination and Decommissioning Fund:		
Decontamination and decommissioning	234,523	333,523
Uranium/thorium reimbursement	1,000	1,000
Total, Uranium enrichment D&D fund	235,523	334,523
Other Uranium Activities:		
Maintenance and pre-existing liabilities	146,631	136,631
02-U-101 Depleted uranium hexafluoride conversion project, Paducah, KY and Portsmouth, OH .....	.....	.....
96-U-201 DUF6 cylinder storage yard, Paducah, KY .....	.....	.....
Total, Other uranium activities	146,631	136,631
Use of prior year balances .....	.....	.....
TOTAL, URANIUM FACILITIES MAINTENANCE AND REMEDIATION	382,154	471,154
SCIENCE		
High Energy Physics:		
Research & Technology	258,545	263,555
Facility operations	446,352	446,332
Construction: 98-G-304 Neutrinos at the main injector, Fermilab	20,093	20,093
Total, High energy physics	724,990	729,980
Nuclear physics	382,370	387,370
Biological and environmental research	504,215	531,215
Construction: 01-E-300 Laboratory for Comparative and Functional Genomics, ORNL .....	.....	.....
Total, Biological and environmental research	504,215	531,215
Basic energy sciences:		
Research:		
Materials sciences and engineering research	547,883	553,383
Chemical sciences, geosciences and energy biosciences	220,146	234,146
Engineering and geosciences .....	.....	.....
Energy biosciences .....	.....	.....
Subtotal, Research	768,029	787,529
Construction:		
03-SC-002 Project engineering & design (PED) SLAC	6,000	6,000
03-R-312 Center for nanophase materials sciences, ORNL	24,000	24,000
03-R-313 Center for Integrated Nanotechnology .....	.....	4,500

DEPARTMENT OF ENERGY—Continued

[In thousands of dollars]

Project title	Budget estimate	Committee recommendation
02-SC-002 Project engineering and design (VL)	11,000	12,000
99-E-334 Spallation neutron source (ORNL)	210,571	210,571
Subtotal, Construction	251,571	257,071
Total, Basic energy sciences	1,019,600	1,044,600
Advanced scientific computing research	169,625	169,625
Energy research analyses	1,020	1,020
Science laboratories infrastructure:		
Infrastructure support	1,020	1,020
Oak Ridge landlord	5,079	5,079
Excess facilities disposal	5,055	5,055
Construction:		
03-SC-001 Science laboratories infrastructure project engineering and design (PED), various loc.	3,355	3,355
MEL-001 Multiprogram energy laboratory infrastructure projects, various locations	28,226	28,226
02-SC-001 Multiprogram energy laboratories, project engineering design, various locations		
Subtotal, Construction	31,581	31,581
Total, Science laboratories infrastructure	42,735	42,735
Fusion energy sciences program	257,310	259,310
Safeguards and security	48,127	48,127
Science workforce development		
Science program direction:		
Field offices	70,163	65,000
Headquarters	58,224	64,377
Science education	5,460	5,460
Technical information management program		
Energy research analyses		
Total, Science program direction	133,847	134,837
Subtotal, Science	3,283,839	3,348,819
General reduction		-14,980
Less security charge for reimbursable work	-4,383	-4,383
TOTAL, SCIENCE	3,279,456	3,329,456
NUCLEAR WASTE DISPOSAL		
Repository program	146,713	
Program direction	62,989	56,000
TOTAL, NUCLEAR WASTE DISPOSAL	209,702	56,000
DEPARTMENTAL ADMINISTRATION		
Administrative operations:		
Salaries and expenses:		
Office of the Secretary	4,645	4,645
Board of contract appeals	743	743
Chief information officer	30,862	28,862
Congressional and intergovernmental affairs	4,953	4,953
Economic impact and diversity	5,121	5,121
General counsel	22,813	21,813
International affairs		
Office of Management, Budget and Evaluation	106,536	94,536
Policy office		