

## *Office of Science- President's FY 2006 Budget*

### **Program and Financing** (in millions of dollars)

Identification code 89-0222-0-1-251 2004 actual 2005 est. 2006 est.

#### **Obligations by program activity:**

	<b>2004 actual</b>	<b>2005 est.</b>	<b>2006 est.</b>
00.01 High energy physics .....	718	736	714
00.03 Nuclear physics .....	380	405	371
00.05 Biological and environmental research .....	625	582	456
00.06 Basic energy sciences .....	993	1,105	1,146
00.07 Advanced scientific computing research .....	197	233	207
00.09 Science laboratory infrastructure .....	56	44	40
00.11 Program direction .....	144	160	163
00.14 Fusion energy sciences .....	<b>257</b>	<b>274</b>	<b>290</b>
00.15 Safeguard and securities .....	47	67	69
00.17 Workforce development for teachers & scientists .....	6	8	7
00.18 Small business innovation research .....	103		
00.19 Small business technology transfer .....	12		
10.00 Total new obligations .....	<b>3,538</b>	<b>3,614</b>	<b>3,463</b>

***Fusion energy sciences.***—The fusion energy sciences program continues to implement the recommendations of the reports by the National Research Council, the Secretary of Energy Advisory Board, and recommendations of the Fusion Energy Science Advisory committee. The mission of the program is to advance plasma science, fusion science, and fusion technology. The program emphasizes the underlying basic research in plasma and fusion sciences, with the long-term goal of harnessing fusion as a viable energy source. The program centers on the following goals: understanding the physics of plasmas; identification and exploration of innovative and cost effective development paths to fusion energy; and exploration of the science and technology of energy producing plasmas, as a partner in an international effort.

The budget includes \$49.5 million for the U.S. contribution to the International Thermonuclear Experimental Reactor (ITER) program, a burning plasma physics experiment that is an essential next step toward eventually developing fusion as a commercially viable energy source. The budget request also provides for support of basic research in plasma science in partnership with NSF, and investigation of innovative confinement concepts, along with continued operation of DIII-D and Alcator C-Mod to develop a fuller understanding of the physics of magnetically confined plasma and to identify approaches that may improve the economical and environmental attractiveness of fusion in the long run. Fabrication of the National Compact Stellarator experiment will continue at Princeton Plasma Physics Laboratory in collaboration with Oak Ridge National Laboratory. Enabling technology research will also be conducted in support of the science experiments.

***Science laboratories infrastructure.***—The goal of this program is to provide funds for rehabilitating, replacing, or demolishing deficient common-use utilities, roads, and buildings and to correct environment, safety, and health deficiencies at the civilian science laboratories. The excess facilities disposition subprogram and the Oak Ridge Landlord activity are also funded here.

***Advanced scientific computing research.***—This program includes research in mathematical, information, and computational sciences. The purpose of this program is to support advanced computational research—applied mathematics, computer science, and networking—to enable the analysis, simulation, and prediction of complex physical phenomena. The program also supports the operation of large supercomputer user facilities and network facilities. The request includes research, integrated with other science programs, on application of computer simulation and modeling to science problems. The budget includes research funds to identify and address major architectural bottlenecks affecting the performance of existing and planned scientific applications for the next generation of high-end supercomputers.