



PHYSICAL SCIENCES

Research and Development Funding in the President's 2007 Budget

Research in the physical sciences and engineering is at the heart of technological innovation for priority areas of nanotechnology, networking and information technologies, energy technologies, defense technologies, and space exploration. Physical science research leads to a better understanding of nature and the universe, and drives innovation in all fields of science, contributing significantly to the Nation's prosperity. The President's 2007 Budget, through the American Competitiveness Initiative, provides substantial increases in the Nation's investment in the physical sciences and engineering, particularly in the areas that stimulate innovation and contribute to the Nation's competitiveness in the global economy.

National Science Foundation. The President's 2007 Budget provides a landmark \$6.02 billion for NSF, an increase of 8 percent over 2006 funding. Included within this total is \$1.15 billion for Mathematical and Physical Sciences (MPS), an increase of 6 percent, and increases in Engineering of 8 percent, in Geosciences of 6 percent, and in Computer and Information Science and Engineering of 6 percent. Within MPS, the themes to be emphasized include the Physics of the Universe and elementary particle physics, Physical Sciences at the Nanoscale, and the Molecular Basis of Life Processes. Funding for the Office of Cyberinfrastructure increases by 44 percent to over \$182 million.

Department of Energy. The President's Budget provides \$4.1 billion for DOE's Office of Science. The Budget includes funding for priorities such as nanotechnology (\$257M), basic research in support of the hydrogen fuel initiative (\$50M), and high-end computing facilities (\$157M). The Budget also provides funding (\$45M) for project engineering and design and research and development for the National Synchrotron Light Source II-a new x-ray light source that will enable the study of material properties and functions, particularly materials at the nanoscale, at a level of detail and precision never before possible. The U.S. contribution to ITER is fully funded at \$60 million. Robust operations funding will enable peak scientific productivity of major particle physics facilities at Fermilab and Stanford, the nuclear physics facilities at Brookhaven National Laboratory and Thomas Jefferson National Laboratory, and the suite of light sources and neutron sources.

Department of Commerce. Also a high priority for 2007, the President's Budget provides \$535 million for the National Institute of Standards and Technology laboratory programs and facilities, an increase of 24 percent after accounting for unrequested earmarks. This includes \$104 million in new initiatives in research and measurements in high-leverage areas such as advanced manufacturing, nanofabrication, homeland security, biosystems and health, new energy sources including hydrogen, and quantum computing.

National Aeronautics and Space Administration. The President's Vision for Space Exploration was announced in 2004, focusing on human and robotic exploration of the solar system and it remains a high priority for the President's 2007 Budget by providing \$16.8 billion for NASA, an increase of 3.2 percent over the FY 2006 enacted level after accounting for one-time supplemental funding. The 2007 Budget makes some difficult choices, canceling some projects with high technical risk and whose cost estimates would have led to the certain cancellation and delay of several other important programs. The President's Budget provides \$5.33 billion for Science at NASA, a \$76 million increase over 2006 spending. This investment augments the Exploration Vision by supporting critical science programs that continue our exploration of the universe and help us improve our understanding of life on Earth.

These physical sciences-related programs total \$13.4 billion in the 2007 Budget, which exceeds the 2006 enacted level by \$700 million. It should be noted that the American Association for the Advancement of Science is estimating a new high of \$2.4 billion in R&D earmarks in 2006, which work against a merit-based competitive selection process that tends to fund the best science.

Selected Civilian Physical Science-Related Programs (\$ in millions)

Department/Agency	2001 Actual	2006 Enacted	2007 Request	Change: 2001 to 2007	% Change: 2001 to 2007
NASA Science	4,371 ¹	5,254	5,330	N/A*	N/A*
DOE Office of Science	3,190	3,596	4,102	912	29%
NSF (MPS, GEO, CISE, ENG)	2,322	2,866	3,050	728	31%
NIST "core" (not including ITS)	347	568 ²	535	188	54%
NOAA Oceanic & Atmospheric Research	315	370	338	23	7%
TOTAL	10,545	12,654	13,355	2,810	27%

¹NASA science funding before 2003 is not fully comparable to later years due to full cost accounting. A comparable number for 2001 cannot be derived, but would likely be several hundred million dollars more.

²2006 funding for NIST includes \$137 million for unrelated earmarks not consistent with the core research program.