



Plant sites shown in map are highlighted in news stories in this section

DOE BUDGET

Agency seeks 19 percent increase for R&D work

THE DEPARTMENT OF Energy's \$23.4 billion budget request for fiscal year 2004 includes \$127 million to support nuclear research and development initiatives, a 19 percent increase from the FY 2003 request. "Nuclear power today is an important element in our balanced portfolio of energy sources, supplying 20 percent of our nation's electricity, a contribution that we intend to maintain or increase in the years to come," said Energy Secretary Spencer Abraham in introducing the budget on February 3.

The budget includes \$38 million for the Nuclear Power 2010 initiative. That program is designed to pave the way for the near-term deployment of new power plants in the United States through cost-sharing demonstrations of untested regulatory processes and cost-shared development of advanced nuclear reactor technologies.

About \$10 million is allocated to the Generation IV Nuclear Energy Systems program that focuses on the development of advanced reactor technologies for the next generation of nuclear power plants.

The DOE also requested \$4 million to start up the new Nuclear Hydrogen Initiative. The program will address the need for greater utilization of the nation's energy resources by investigating the uses of nuclear power on an integrated basis as a heat source, an electricity source, and a source

The DOE's budget request for 2004 includes increases that secure nuclear's place in a balanced portfolio of energy sources.

of clean hydrogen that can supplant fossil fuels in America's transportation system. Abraham said hydrogen produced by nuclear energy can be developed into a practical source of energy that will reduce the environmental impacts of meeting the growing demand for hydrogen fuel. The program will study potential nuclear energy configurations, conduct research and development on enabling technologies, demonstrate nuclear-based hydrogen producing technologies, and evaluate deployment scenarios to meet future needs for increased hydrogen consumption.

In addition, \$63 million was requested for the Advanced Fuel Cycle Initiative, which focuses on efforts to create new proliferation-resistant technologies that the DOE said would stretch the energy potential of the world's nuclear fuel resources.

The budget also reflects the Bush administration's commitment to fusion by making funds available for rejoining ITER, the International Thermonuclear Experimental Reactor project. ITER is an international fusion energy R&D project designed to take the next major step in the

development of fusion energy (see Research section, this issue). ITER will take about 10 years to build, at a cost of approximately \$5 billion. It will operate for about 20 years. Abraham estimated the DOE's investment in ITER over the next 10 years at \$500 million, plus contingency and inflation.

Nuclear energy

Significant funding changes for nuclear energy programs under the DOE's Office of Nuclear Energy, Science and Technology's \$388 million budget include:

■ **University Reactor Fuel Assistance and Support Program:** \$18.5 million (\$1-million increase from FY 2003). This program supports the operation and upgrade of university research and training reactors. It provides fellowships and scholarships to outstanding students, brings nuclear technology education to small, minority-serving institutions, and provides nuclear engineering research grants.

In FY 2004, this program will expand efforts to assist universities in continuing the integration of academic and reactor re-

search under the Innovations in Nuclear Infrastructure and Education initiative.

■ **Nuclear Energy Research Initiative (NERI):** \$12 million (\$13-million decrease). This program funds innovative investigator-initiated, peer-reviewed R&D at U.S. universities, national laboratories, and industry to improve the performance of light-water reactor technology and develop concepts to solve issues inhibiting the long-term growth of nuclear power.

In FY 2004, no new research grants will be awarded, and research activities on 11 NERI projects initiated in FY 2000 and 2001 will be completed. Funding for projects initiated in 2002 also will be completed. The

DOE will continue the bilateral international projects initiated in FY 2002 and 2003.

■ **Nuclear Energy Technologies (NET):** \$48 million (\$1.5-million increase). The program is working to identify, assess, and develop cost-efficient technologies that further enhance nuclear safety, minimize the generation of nuclear waste, and further reduce the risk of proliferation. Programs under NET include Nuclear Power 2010, the Generation IV Nuclear Energy Systems Initiative, and the Generation IV Technology Roadmap.

The FY 2004 request will continue the Early Site Permit (ESP) demonstration project with resolution of site-specific issues arising from the Nuclear Regulatory

Commission's review of ESP applications submitted in FY 2003. The DOE also will finalize selection and award a cost-sharing project to a utility to demonstrate the Construction/Operating licensing process.

■ **Advanced Fuel Cycle Initiative:** \$63 million (\$44.8-million increase). This program, previously funded in the Spent Fuel Pyroprocessing and Transmutation program, will develop technologies that can reduce the volume of long-term toxicity of high-level waste from spent nuclear fuel, reduce the long-term proliferation threat posed by civilian inventories or plutonium in spent fuel, and provide for proliferation-resistant technologies to recover the energy content in spent nuclear fuel.

The FY 2004 request reflects an increase to enable the development of technologies to significantly reduce the volume of spent fuel requiring geologic disposal.

■ **Radiological Facilities Management:** \$62.7 million (\$8.5-million increase). The program provides funding that will maintain critical user facilities in a safe, secure, environmentally compliant and cost-effective manner to support national priorities. The FY 2004 request includes an increase to the Space and Defense Infrastructure program, previously called the Advanced Radioisotopes Power Systems program.

■ **Idaho Facilities Management:** \$65.6 million (\$2.8-million decrease). The program reflects the Energy Secretary's decision to transfer landlord activities associated with the Idaho National Engineering and Environmental Laboratory from the Office of Environmental Management (EM) to the Office of Nuclear Energy, Science and Technology. The FY 2004 request, although a decrease from the previous year, will reduce the Test Reactor Area maintenance backlog by 20 percent.

■ **Idaho Site-Wide Safeguards and Security:** \$56.6 million (\$13.4-million increase). The program reflects the transfer of the responsibility to manage safeguards and security activities from INEEL and Argonne National Laboratory–West from EM to the Office of Nuclear Energy, Science and Technology. The FY 2004 request includes increases in physical security to support heightened security requirements resulting in added posts, patrols, and other safeguard activities.

FY 2004 DOE BUDGET FOR OFFICE OF NUCLEAR ENERGY, SCIENCE AND TECHNOLOGY
(DOLLARS IN THOUSANDS)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Nuclear Energy, Science, and Technology					
University reactor fuel assistance and support	17 500	17 500	18 500	+1 000	+5.7%
Research and Development					
Nuclear energy plant optimization	6 293	—	—	—	—
Nuclear energy research initiative	31 081	25 000	12 000	-13 000	-52.0%
Nuclear energy technologies	11 867	46 500	48 000	+1 500	+3.2%
Nuclear hydrogen initiative	—	—	4 000	+4 000	n/a
Advanced fuel cycle initiative	77 219	18 221	63 025	+44 804	+245.9%
Total, Research and development	126 460	89 721	127 025	+37 304	+41.6%
Infrastructure					
Radiological facility management	58 933	54 180	62 655	+8 475	+15.6%
Idaho facilities management					
ANL-West operations	34 857	31 615	31 615	—	—
INEEL infrastructure	28 432	36 810	33 945	-2 865	-7.8%
Total, Idaho facilities management	63 289	68 425	65 560	-2 865	-4.2%
Idaho sitewide safeguards and security	43 759	43 218	56 654	+13 436	+31.1%
Total, Infrastructure	165 981	165 823	184 869	+19 046	+11.5%
Program direction	57 237	56 834	60 207	+3 373	+5.9%
Subtotal, Nuclear Energy, Science, and Technology	367 178	329 878	390 601	+60 723	+18.4%
Use of prior year balances and other adjustments	-4 282	-3 003	-3 003	—	—
Total, Nuclear Energy, Science, and Technology	362 896	326 875	387 598	+60 723	+18.6%

(Source: DOE)