



## DEPARTMENT OF ENERGY

### **Since 2001, the Administration:**

- Launched the American Competitiveness Initiative, a program that will double key investments in the physical sciences, which includes the Department's Office of Science basic research programs;
- Began the Advanced Energy Initiative, accelerating technology breakthroughs to diversify the Nation's sources of energy for powering homes and businesses and to reduce dependence on foreign sources of oil by changing how the country fuels its automobiles. Developed international partnerships to accelerate research and the use of clean energy technologies, including the Asia-Pacific Partnership on Clean Development and Climate, the International Partnership for the Hydrogen Economy, FutureGen, the Carbon Sequestration Leadership Forum, and the International Thermonuclear Experimental Reactor fusion energy project;
- Advanced cleanup of 20 Department of Energy legacy nuclear waste sites, completing both Rocky Flats, Colorado, and Fernald, Ohio, ahead of schedule; and
- Took significant steps to prevent nuclear terrorism by securing weapons in the former Soviet Union; deploying radiation detection equipment in key overseas ports; and removing or securing high-risk, vulnerable nuclear and radiological materials around the world. On track to sustaining the smallest nuclear weapons stockpile in over 50 years, accelerated the dismantlement of retired nuclear warheads and restructured the remaining stockpile.

### **The President's 2008 Budget:**

- Provides sustained increases to advance the American Competitiveness Initiative and support basic research and world-leading facilities in the physical sciences to enable future breakthroughs and provide economic and security benefits;
- Continues advancing the Global Nuclear Energy Partnership, licensing of the Yucca Mountain nuclear waste repository, and other efforts to support expansion of nuclear power generation, while addressing nuclear waste and proliferation issues;
- Promotes the use of clean, alternative fuels and technologies for transportation and electricity that will improve energy security and air quality and reduce greenhouse gas emissions through research and development, loan guarantees, and other measures;
- Provides further insurance against oil supply disruptions that could harm the economy by proposing to double the protection provided by the Strategic Petroleum Reserve by expanding it to 1.5 billion barrels; and
- Promotes energy security while improving the environment by expanding the Nation's commitment to alternative fuels and increased automotive energy efficiency.

## FOCUSING ON THE NATION'S PRIORITIES

### *Moving Forward on the American Competitiveness Initiative*

The 2008 Budget proposes \$4.4 billion, a seven-percent increase over the 2007 Budget, for the contribution of the Department of Energy's (DOE's) Office of Science to the second year of the American Competitiveness Initiative (ACI). The 2008 Budget increases funding for cutting-edge basic research, helping to enhance American competitiveness through world-leading initiatives in supercomputing; bio-energy research centers; new materials investigation facilities, including the world's first x-ray free electron laser; and nanotechnology. Energy and environmental research will include basic research in support of the Advanced Energy Initiative, including \$160 million in equipment and personnel efforts for the United States' contribution to the International Thermonuclear Experimental Reactor fusion energy project.

### *Accelerating Breakthroughs with the Advanced Energy Initiative*



The President visits the laboratory of Johnson Controls, Inc. to see progress firsthand on their work developing batteries and control systems for hybrid and plug-in hybrid vehicles.

The Advanced Energy Initiative is accelerating breakthroughs to diversify the Nation's sources of energy for homes and businesses and to diversify the fuels used in automobiles to reduce dependence on foreign sources of oil. Accelerating research in clean coal technologies, clean and safe nuclear energy, and new solar and wind technologies could reduce demand for natural gas, lower energy costs, and reduce air pollution and greenhouse gas emissions. The Nation also must go beyond a petroleum-based economy by powering automobiles with fuel efficient technologies and domestic, renewable alternatives to gasoline and diesel fuels.

while meeting environmental objectives at reasonable cost, the President's Budget includes \$385 million for the Coal Research Initiative to develop advanced coal technologies. This funding completes the President's commitment to spend \$2 billion over 10 years on coal technology, three years ahead of schedule. Within the Coal Research Initiative, the Budget includes \$108 million for the FutureGen project to demonstrate coal power generation with carbon capture and sequestration, and also includes a series of new large-scale carbon sequestration field tests. Program experts will also work with the Department of the Treasury in the allocation of \$1.65 billion in tax credits, authorized under the Energy Policy Act of 2005, to foster more than \$9 billion in total investment to construct the most highly efficient and lowest emitting commercial-scale power facilities.

*Solar America Initiative.* The Budget provides \$148 million to continue this initiative toward the goal of making solar photovoltaic technology cost competitive with conventional electricity by 2015. If successful, the technology could help power the equivalent of one million homes by 2015.

*Biofuels Initiative.* The Administration continues its commitment to make ethanol practical and competitive by 2012 by providing \$179 million for research in producing ethanol not just from corn, but also from wood chips, dedicated energy crops like switchgrass, and other organic materials.

*More Efficient Vehicles.* Advanced battery technologies could reduce near-term oil consumption significantly with “plug-in” hybrid vehicles that can run on either electricity or gasoline; recharging their batteries at night. The 2008 Budget includes \$81 million to accelerate research on advanced hybrid and plug-in hybrid vehicles.

*Hydrogen Fuel Initiative.* The Budget provides \$309 million to complete the President’s five-year, \$1.2 billion commitment to support development by 2020 of commercially viable hydrogen infrastructure technologies and fuel cell vehicles that produce no air pollution or greenhouse gas emissions.

### ***Advancing Nuclear Power Development***

The Administration continues strong support for nuclear power, which offers an air emissions-free, safe, and reliable source of energy, in several areas, including the Nuclear Power 2010 (NP 2010) program and the Global Nuclear Energy Partnership (GNEP). NP 2010 will help private industry obtain licenses for new designs that could result in a new power plant ordered by 2009 and operating by 2014. GNEP can help expand the safe use of nuclear power around the world, promote nuclear nonproliferation, and resolve nuclear waste disposal issues through an international framework that will eliminate the need for foreign countries to build enrichment and recycling capabilities, as well as develop technologies with much less proliferation risk and waste production.

### ***Increasing Energy Security While Improving the Environment***

The President is extending the commitments he made in signing the Energy Policy Act of 2005 and the 2006 State of the Union address to increase the Nation’s energy security, improve air quality, and address greenhouse gas emissions. Specifically, the President is proposing to increase the current standards for alternative fuels use and for fuel economy in order to cut, by 2017, domestic gasoline consumption by 20 percent and substantially reduce vehicle air pollution and CO<sub>2</sub> emissions compared to projections.

To further insure against supply disruptions that could harm the economy, the President’s Budget also proposes to double the protection provided by the Strategic Petroleum Reserve by expanding it to 1.5 billion barrels. This process will begin immediately with filling the reserve to its existing 727 million barrel capacity, and then expanding capacity further with expansion at existing and new sites beginning in 2008.

### ***Advancing Cleanup***

The 2008 Budget proposes \$5.7 billion for the Environmental Management program that protects public health and safety by cleaning up vast amounts of hazardous waste and radioactive contamination at 108 of the 114 sites involved with nuclear research and weapons production. The Department’s accelerated cleanup initiative has resulted in completing cleanup of 10 sites over the past several years, including Rocky Flats, Colorado, and Fernald, Ohio.

### ***Promoting the Yucca Mountain Project***

The Budget provides \$494.5 million to continue progress toward opening a repository at Yucca Mountain, Nevada, for spent nuclear fuel and high-level radioactive waste from commercial reactors and atomic energy defense activities. In 2008, the program will emphasize submittal of a high-quality license application to the Nuclear Regulatory Commission by June 30, 2008. This could lead to a license that would allow the repository to open in 2017. In addition, the Administration plans to

send the Congress a legislative proposal to address regulatory, funding, and other issues to facilitate development of this critical project.

### ***Strengthening the Power Marketing Administrations***

The Power Marketing Administrations (PMAs)—Southeastern, Southwestern, Western, and Bonneville—sell electricity generated at 133 multipurpose Federal dams and related facilities. The Budget provides \$217 million for PMA activities, including construction and maintenance of Federal transmission system infrastructure. Beginning in 2007, the Administration is implementing an initiative to charge the Southeastern, Southwestern, and Western Area Power Administrations interest rates on new capital investments occurring after September 30, 2006, at levels similar to those charged to governmental corporations. The Budget repropose an initiative to allow the Bonneville Power Administration (BPA) to apply net secondary market revenues in excess of \$500 million toward the prepayment of its outstanding Treasury debt. The Administration encourages a continued ongoing dialogue in the Pacific Northwest to address the manner in which this proposal will improve BPA's ability to meet its long-term capital investment needs with minimal rate impact.

### ***Maintaining the Nation's Nuclear Weapons Stockpile***

DOE's National Nuclear Security Administration (NNSA) maintains and enhances the safety, security, reliability, and effectiveness of the nuclear weapons stockpile to ensure that the Nation's nuclear weapons serve their essential deterrence role; provides technical leadership to limit or prevent the spread of weapons of mass destruction; and provides the U.S. Navy with safe and capable nuclear propulsion plants for warships.

NNSA stewardship of the nuclear weapons stockpile, conducted with the Department of Defense, is critically important in the absence of underground nuclear weapon testing, banned since 1992. In 2006, NNSA improved its responsiveness to the Department of Defense and began planning for the modernization of the nuclear weapons complex, which will enable a more secure and responsive infrastructure suited to the requirements of the 21<sup>st</sup> Century. Transition to this new complex will be aided by the development of a Reliable Replacement Warhead that will improve safety, security, and reliability over the long term. The 2008 Budget provides \$6.5 billion for continuation of the successful nuclear weapons stewardship program and modernization of the weapons complex.

The Non-Proliferation budget of \$1.7 billion funds programs to detect, secure, or dispose of dangerous nuclear material, working with over a hundred countries. Thus, it will deny terrorists materials, technology, or expertise needed to develop or acquire nuclear weapons. Examples include: converting civil nuclear reactors from highly enriched uranium to low enriched uranium and returning the fuel for down-blending; securing radiological sources in the United States and abroad; securing Russian nuclear weapons sites; expanding the successful Megaports program and installing controls at border crossings and airports around the world to detect and deter nuclear smuggling; assisting in the shut-down of Russian plutonium production and the disposition of U.S. and Russian weapons plutonium and uranium; conducting international training courses and establishing best practices for controlling dangerous nuclear material; and advanced research to detect nuclear proliferation.

In 2006, the Naval Reactors program completed 75 percent of the next generation aircraft carrier reactor design (referred to as the CVN 21). Compared to today's aircraft carriers, the CVN 21 nuclear propulsion plant will have increased core energy, nearly three times the electricity generating capacity, and will require one-half as many sailors for its operation. The 2008 Budget contains \$808 million to support continuation of this important effort.

**Department of Energy**  
(In millions of dollars)

	2006 Actual	Estimate	
		2007	2008
<b>Spending</b>			
Discretionary Budget Authority:			
National Defense:			
National Nuclear Security Administration.....	9,100	9,156	9,387
Other Defense Activities .....	429	472	592
Energy Resources.....	3,064	2,917	3,429
Science.....	3,633	3,605	4,398
Environmental Management .....	6,589	5,965	5,655
Nuclear Waste Disposal.....	494	487	495
Corporate Management.....	249	238	295
Title XVII Innovative Technology Loan Guarantee Program .....	—	—	8
Total, Discretionary budget authority .....	23,560	22,841	24,260
<i>Memorandum: Additional funding requirements .....</i>	—	63	50
Mandatory Outlays:			
Existing law .....	-2,766	-822	-1,426
Legislative proposal .....	—	—	30
Total, Mandatory outlays .....	-2,766	-822	-1,396
Total, Outlays .....	20,385	23,092	23,043
<b>Credit activity</b>			
Guaranteed Loan Disbursements:			
Title XVII Innovative Technology Loan Guarantee Program.....	—	—	3,620
Total, Guaranteed loan disbursements .....	—	—	3,620