

Department of Energy FY 2004 Congressional Budget Request

Budget Highlights



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INTRODUCTION

ADVANCING ENERGY AND NATIONAL SECURITY THROUGH SCIENCE, TECHNOLOGY AND ENVIRONMENTAL STEWARDSHIP

The President's FY 2004 budget of \$23.4 billion for the Department of Energy (DOE) continues the Administration's commitment to ensure national defense and safeguard the Nation's energy security through advances in science and technology, as well as fulfill our obligation as the environmental stewards to our communities. While DOE's national policy objectives have not changed, this budget reflects a new approach toward conducting business at the Department of Energy. Reengineering efforts that we began in FY 2002 have taken shape: programmatic activities are better focused to achieve primary mission objectives; budget priorities are set with improved measurable performance criteria; and corporate management initiatives reflect aggressive implementation of the President's Management Agenda.

A Vision: Planning for the Future

The President's FY 2004 budget proposals for the Department of Energy reflect and address the critical challenges we face today and will continue to face in the coming decades. Secretary Abraham has charted a course for the Department of Energy that emphasizes DOE's critical contributions to our Nation's national security and provides forward-reaching solutions to America's energy problems. These Secretarial priorities are to: meet our responsibilities to maintain the nuclear stockpile; expand and make more comprehensive our non-proliferation activities; accelerate the environmental cleanup program; develop 21st century cutting edge advanced fuel cell and alternative energy technologies; maintain coal as a major, low-cost, domestically produced, energy resource through the Coal Research initiative; build and maintain a stable and effective national defense program to respond to the guidance in the Nuclear Posture Review with special emphasis on revitalizing laboratory and production plant infrastructure; continue our leadership to ensure nuclear power remains a key energy resource; and maintain a world class scientific research capability. The FY 2004 budget request is focused to deliver on these priorities.

As part of the Department's Strategic Planning process these priorities translate into six overlapping Departmental goals that form our core mission of National Security. All of the Department's planning and budgeting for FY 2004 drives toward these six goals:

- Maintain a safe, secure and reliable nuclear deterrent
- Control nuclear proliferation
- Reduce dependence on energy imports
- Achieve a cleaner, healthier environment
- Improve our energy infrastructure to ensure the reliable delivery of energy, and
- Maintain a world class scientific research capability

Formulation of this year's budget reflects significant management changes occurring within the Department of Energy. Guided by the President's Management Agenda and Secretary Abraham's management reform started in FY 2003, this budget implements integrated, long-term program planning and performance accountability. The Department is implementing a 5-year programmatic and planning framework to provide an unprecedented opportunity to consider future impacts in determining this year's funding priorities. This budget was formulated to deliver measurable results to reach the Department's strategic goals. This achievement is a significant step toward in reaching

Secretary Abraham's key goal to focus DOE activities to adhere to the primary mission of national security. By streamlining program activities and management structures, the Department of Energy will more effectively and efficiently manage and produce the results expected by American taxpayers.

President's Management Agenda

Rising to the challenge of the President's Management Agenda, the Department is beginning to improve how it manages, budgets, and plans for all programs, projects and activities. By improving management, performance, and accountability, the Department is striving for a level of performance that keeps DOE programs safe, on track, and on budget. A system of scorecards is being used to evaluate the effectiveness of various programs and allocate resources to achieve this end. Performance measures are improving to ensure that they are specific, quantifiable, concise, comprehensive, and relevant to the American taxpayer. Also, in accordance with the President's commitment to an expanded and effective electronic government, DOE is centrally managing information technology investments to reduce waste, increase productivity and provide increased corporate services at lower cost.

Research and Development Investment Criteria. The President's Management Agenda calls for consistent and sufficient evaluation of future research and development (R&D) investments and past performance. In response, the Department has developed applied R&D investment criteria. The Department scores applied R&D programs on the basis of presidential priority, market justification, cost sharing, and performance outcomes. This approach focuses R&D dollars on long-term, potentially high-payoff activities that require Federal involvement to be both successful and achieve public benefit. The Department will continue to work to develop consistent scoring and benefits estimation methods, to permit comparison of applied R&D programs across the Department.

The applied R&D scorecard process is an important way the Department is integrating performance into the budget. The scorecard process is in its second year of development. The goal is to develop high-quality analytical justifications for applied research portfolios in future budgets. This will require the development and application of a uniform cost and benefit evaluation methodology across programs to allow meaningful program comparisons.

Program Assessment Rating Tool. In addition to the use of R&D investment criteria, the Department implemented a new tool to evaluate the management effectiveness of selected programs. The Program Assessment Rating Tool (PART) was developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the federal government's portfolio of programs. While OMB's objective for FY 2004 was to evaluate 20% of each government agency, the Department of Energy reviewed nearly 60% of its activities through the PART process. The Departmental elements that participated were: Environmental Management; Science; Fossil Energy; Nuclear Energy; Energy Efficiency & Renewable Energy; the Power Marketing Administrations; and the National Nuclear Security Administration.

The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. While some of the programs received less than favorable scores, the information exchange between the Department and OMB proved quite valuable. The current focus is to establish outcome- and output-oriented goals, the successful completion of which will lead to certain progress for the programs. The Department will incorporate feedback from OMB into the FY 2005 budget and planning process, and will take the necessary steps to continue to improve performance.

The results of the review are reflected in the Department's FY 2004 budget request. The refocusing of the Fossil Energy Oil and Gas program was supported by the results of the PART review. The results of EM's evaluation confirmed the reform strategy started in the FY 2003 budget. In general, PART facilitates the assessment of the past, the evaluation of the present, and the plan for the future.

Improved Project Management. DOE has improved its management and oversight of capital projects, such as improvements in tracking cost, schedule, and performance goals of capital assets. Progress has been made through the issuance of policy and a DOE order on project management. A new policy has been issued on the proper stewardship of real property assets to better meet mission, safety, and performance requirements. DOE's goal is to ensure that maintenance for facilities and infrastructure is funded no lower than the National Research Council-recommended industry minimum of 2 percent of replacement plant value in all programs beginning in FY 2006. Many DOE programs are on target to meet this standard in FY 2004.

Striving to Meet Our Goals

Maintaining a Safe, Secure, and Reliable Nuclear Deterrent

The Administration's Nuclear Posture Review (NPR) set the current national nuclear weapons policy reflected in the Department's FY 2004 budget request for the National Nuclear Security Administration (NNSA). The NPR calls for the NNSA to maintain the viability of the Nation's nuclear weapons capability without the use of underground testing; develop a stockpile surveillance and engineering base; refurbish and extend the lives of selected warheads; and maintain a science and technology base, including responsive facilities and infrastructure, needed to ensure the safety and reliability of the Nation's nuclear weapon stockpile.

The FY 2004 budget request of \$6.4 billion for the Weapons Activities program under NNSA continues to pursue these goals. The Department, through the NNSA, is implementing the Administration's Nuclear Posture Review guidance to assure that the nuclear stockpile remains safe, secure and reliable. The Department of Energy and the Department of Defense have agreed that the refurbishment of four weapon types is needed to support our future nuclear deterrence posture. The near term investment in the basic capacity and capability of our production complex to carry out these refurbishments is largely independent of the total number of warheads to be refurbished. Maintaining current nuclear weapons capabilities, and restoring lost capabilities, will require substantial additional investment in R&D and production infrastructure and, most importantly, people. The increased FY 2004 funding of \$532 million, 9 percent over the FY 2003 request, and the accompanying outyear estimates reflect the Administration's commitment to these national security investments. There are currently four weapon refurbishment efforts underway to meet the Directed Stockpile Work requirements in accordance with Department of Defense needs. The Pit Manufacturing and Certification Campaign is also well underway, and increases by \$84 million in FY 2004 to restore the capability and capacity to manufacture pits of all types required by the nuclear weapons stockpile. The Department will also continue planning for the design and construction of a modern pit facility to support long-term pit manufacturing.

The President's budget request also funds scientific campaigns to provide the technology base to enable stockpile stewardship without underground nuclear testing. The FY 2004 budget request of \$751 million for the Advanced Simulation and Computing Campaign will provide computing platforms and simulation capabilities needed to model and understand weapon processes, components and systems in the stockpile. The National Ignition Facility at the Lawrence Livermore National Laboratory, part of the Inertial Confinement Fusion and High Yield Campaign, achieved a major milestone in December

2002, activating the first 4 of 192 laser beams in the new facility ahead of schedule. The facility is one of the major tools to help model and simulate nuclear explosions to ensure the safety and reliability of the weapons in the stockpile.

Safeguards and Security. Safeguarding and securing DOE's nuclear facilities, materials and information, and protection of our employees remains one of the Administration's top priorities. As such, the Department's safeguards and security funding in the FY 2004 request is \$1.2 billion, an increase of \$179 million over the FY 2003 request. Within the amount requested, \$586 million will support activities to safeguard DOE's NNSA nuclear weapon facilities, \$357 million will support activities that protect the Cold War nuclear waste material being cleaned up at our environmental cleanup sites, \$238 million will fund the security of the Department complex-wide, and \$48.1 million will support continued safeguards and security activities at our scientific laboratories and facilities. A portion of these expenses will be recovered through charges to non-DOE customers performing work at DOE laboratories. Secretary Abraham continues to work closely with the President to ensure our homeland security and fulfill our obligation to protect the American people. With the Administration's strong will and commitment to national security, the funding request for safeguards and security will translate into measurable results.

Infrastructure. DOE supports about \$1 billion annually for ongoing operation of NNSA facilities at the government-owned, contractor operated national laboratories, production plants, and test site. In addition, \$273 million is requested in FY 2004 for 8 new construction starts and 12 ongoing construction projects. The Facilities and Infrastructure Recapitalization program (\$265 million) is responsive to the Nuclear Posture Review infrastructure guidance, and is in its third year to restore, rebuild and revitalize the physical infrastructure of the nuclear weapons complex that has deteriorated and is in immediate need of attention. This program is tightly structured to address highest priority needs, to eliminate deferred maintenance requirements, and eliminate excess space in all nuclear weapons complex facilities.

NNSA of the Future. The Department's NNSA has recently implemented a major reorganization that follows the principles of the President's Management Agenda, to improve government through performance and results. The new organizational structure eliminates a layer of management, consolidates offices and administrative functions, and sets NNSA on a course to achieve an almost 20 percent reduction in federal personnel by the end of FY 2004.

NNSA Program Performance. The national security programs provided Performance Assessment Rating Tool (PART) analyses for the Administration's fall budget review, encompassing four programs and about 20 percent of NNSA's annual funding. The PART assessment noted that the NNSA programs were well managed and that NNSA management was proactively working to make additional improvements to program effectiveness and efficiency. Two of the four programs, Advanced Simulation and Computing and International Nuclear Materials Protection and Cooperation received the highest PART ratings of "Effective," and the NNSA ratings overall were among the highest in DOE.

Controlling Nuclear Proliferation

America's safety must be our paramount concern. Presidents Bush and Putin have agreed to an unprecedented level of bilateral cooperation to control the proliferation of nuclear materials. The President's FY 2004 budget request of \$1.3 billion for defense nuclear nonproliferation reflects the Administration's full commitment to reducing the global nuclear danger and participating in the Global Partnership to sustain nuclear nonproliferation initiatives in the former Soviet Union. This request supports

Departmental programs to (1) enhance U.S. capability to detect nuclear weapons proliferation, (2) prevent and reverse proliferation of weapons of mass destruction (WMD), (3) protect or eliminate weapons and weapons-usable nuclear material and/or infrastructure, and redirect excess foreign weapons expertise to civilian enterprises, and (4) reduce the risk of accidents in nuclear fuel cycle facilities worldwide.

The FY 2004 funding level for Defense Nuclear Nonproliferation reflects a 30-percent increase over the FY 2003 request of \$1.0 billion. The increase provides for the start of construction of a mixed oxide (MOX) fuel fabrication facility in the United States and U.S. efforts to assist Russia with the start of construction of an industrial scale MOX fuel fabrication facility. In addition to MOX construction activities, the request of \$657 million for Fissile Material Disposition supports completion of design activities for the pit disassembly and conversion facility and continuation of the U.S. "off-spec" HEU blend-down project. Additionally, the request includes \$30 million to implement a new program to accelerate nuclear materials disposition efforts in support of the 2002 G8 Summit initiatives to purchase Russian highly enriched uranium (HEU) above the amounts in the 1993 U.S./Russia HEU Purchase Agreement.

The FY 2004 request also provides \$40 million for Russian transition assistance to reduce the migration risk of nuclear and WMD expertise in the Former Soviet Union. The budget also supports Russian efforts to downsize their nuclear complex, and includes \$50 million to assist the Russian Federation to cease its production of weapons-grade plutonium by providing replacement power production capacity.

The request includes \$204 million to support the research, development, testing, and evaluation of nuclear proliferation detection technologies for agencies responsible for monitoring proliferation and combating terrorism. A request of \$226 million for the International Nuclear Materials Protection and Cooperation program will continue to improve the security of weapons-usable nuclear material and weapons in Russia and secure materials which could be used in radiological dispersion devices (dirty bombs). In FY 2004, cooperation will expand to include Russian strategic rocket forces.

The Nonproliferation and International Security request of \$102 million supports U.S. efforts to control exports of items and technology that aid in the development of WMD, implement international safeguards in conjunction with the International Atomic Energy Agency, and explore and implement innovative approaches to improve regional security. In addition, the FY 2004 request includes an increase for development and delivery of tools to meet requirements to detect, understand, and verify dismantlement of clandestine nuclear programs.

The **Naval Reactors** program is responsible for all naval nuclear propulsion work and is embarking on a long-term effort to develop and deploy a new reactor core design to meet the demands of longer, harder ship deployments. A total budget request of \$768 million, an increase of \$62 million from last year's request, allows Naval Reactors to meet ongoing requirements and fund this transitional technology.

Reducing Dependence on Energy Imports

This budget request implements many of the recommendations of the President's National Energy Policy (NEP) that focus federal investment on future energy solutions. This budget was formulated using a rigorous performance evaluation process as directed in the President's Management Agenda, to focus research and development resources where they make the most difference. As a result, the FY 2004 request for energy programs maintains high performing energy programs focused on the Nation's energy future. Hydrogen as a source of energy supply holds the promise of an ultra-clean and sustainable energy option for America's future. Another longer-term potential energy

solution still at the level of basic scientific pursuit is fusion energy, which if successful, could solve the Nation's reliance on energy imports.

Hydrogen Fuel and FreedomCAR. The Department will begin a major new initiative to accelerate the availability and affordability of hydrogen-powered fuel cells. The new Hydrogen Fuel initiative will focus on research to advance hydrogen production, storage, and infrastructure. It complements the FreedomCAR Partnership announced last year which is aimed at developing viable hydrogen fuel cell vehicle technology as well as supporting a suite of nearer term technologies. The Hydrogen Fuel initiative will facilitate a decision by industry to commercialize hydrogen-powered fuel cell vehicles by 2015. The FY 2004 budget proposes \$169 million to continue to implement FreedomCAR to bring a full range of emissions-free, sustainably powered, affordable cars and light trucks closer into being. The companion initiative, Hydrogen Fuel, focuses on the supply side of hydrogen power — establishing a delivery infrastructure and resolving storage issues. With the proposed total funding of \$272 million for Hydrogen Fuel and FreedomCAR initiatives in FY 2004, DOE will lead in the design and development of the technologies and infrastructure needed to create a new energy future.

Coal Research. The FY 2004 budget recognizes the abundance of domestic supplies of coal and the enormous contribution coal promises to improve America's energy security. At \$367.5 million, the Department's coal budget focuses resources on advanced research in areas such as carbon sequestration, hydrogen and production, and fuel cell power systems. This President's budget includes \$130 million for a Clean Coal Power Initiative that supports a new round of solicitations in coal-fired power generation. The refocused coal portfolio reflects the PART and R&D Investment Criteria assessments recommending the Department focus more on research and development of new technologies.

Weatherization Assistance Program. The budget includes \$288 million to fulfill the President's 10-year commitment to the Weatherization Assistance Program as a way to cut energy costs for 1.2 million low-income families, while at the same time conserving energy. This method of implementing conservation through proven energy savings measures is another technical approach to help solve our increased reliance on energy imports. The PART assessment of this program showed it to be generally effective. The budget would weatherize 126,000 homes in 2004, a 2-4-percent increase over 2003 (123,000 homes) and a 17-percent increase over 2002 (105,000 homes).

Nuclear Energy. Nuclear energy is a critical component of the nation's energy portfolio and will remain a significant part of the American energy future. The total FY 2004 request for the Nuclear Energy program is \$388 million, an increase of \$61 million over the FY 2003 request. To lead the way for new power plants in the United States by the end of the decade, DOE will continue **Nuclear Power 2010** (\$35 million), a cost-shared program with industry to demonstrate key regulatory processes and complete research on advanced reactor technologies. For the longer term, DOE will proceed with **Generation IV Nuclear Energy Systems** (\$9.7 million) to develop advanced energy systems that are more proliferation resistant and have reduced life cycle costs. As part of the Department's Hydrogen Fuel initiative, the new **Nuclear Hydrogen Initiative** (\$4 million) will explore the use of nuclear energy to provide clean and abundant hydrogen. The **Advanced Fuel Cycle Initiative** (\$63 million) will continue development of proliferation-resistant fuel treatment technology to reduce the volume and toxicity of high-level waste to optimize the first U.S. repository and reduce the need for additional repositories. Finally, this nuclear energy budget request supports revitalization of the Idaho National Engineering and Environmental Laboratory as the command center for nuclear R&D and provides funds for transition of the site's infrastructure and security and safeguards to the nuclear energy program.

International Thermonuclear Experimental Reactor (ITER). The budget proposes investment in another promising long-term energy option, fusion energy. The budget includes \$257 million for Fusion Science research including \$12 million associated with U.S. participation in the ITER program. ITER is an international collaborative effort to demonstrate the scientific and technological feasibility of fusion energy through the creation of a sustained fusion reaction. ITER would be the last major step toward a demonstration power plant that would usher in commercial fusion energy applications. The President has decided that the United States should enter negotiations on the construction and operation of ITER as a cost-effective way to proceed with fusion research. The Department believes that fusion is a key element in our long-term energy plans because fusion offers the potential for a plentiful, safe, and environmentally benign energy source.

Achieve a Cleaner, Healthier Environment

Protecting the environment is compatible with increasing the supply of dependable, sustainable energy. President Bush said, "Sustained economic growth is the solution, not the problem, because a nation that grows its economy is a nation that can afford investments and new technologies." By harnessing the power of American science and technology, we can achieve both energy independence and a cleaner, healthier environment. The FY 2004 budget request embodies a commitment to current and future generations of Americans to accelerate the cleanup of environmental damage resulting from Cold War nuclear programs, reduce the polluting effects of energy sources, and develop sustainable technology options for the future.

Accelerating Environmental Cleanup. The Department is firmly committed to accelerating the cleanup of nuclear weapons production legacy waste in FY 2004. The health of surrounding communities and the environment is dependent on our ability to quickly and efficiently clean up the hazardous materials left behind from the Cold War. However, in 2002, DOE's Top-to-Bottom review of the Environmental Management program (EM) found that the program was focused on managing risk rather than reducing it. The EM PART evaluations confirm the findings of the review that billions of taxpayer dollars had been spent, with too little to show in the form of results. To improve program performance, the 2003 budget request proposed to set aside \$1.1 billion as an incentive for DOE, the states, and Federal regulators to revise cleanup plans and accelerate the reduction of real risks to the public and the environment. Over the past year DOE has worked very closely with these partners and the public to establish strategies and prepare detailed performance management plans for 18 of the 39 remaining DOE cleanup sites. These accelerated cleanup plans are expected to produce significant near-term risk reduction for the communities around the DOE sites, while saving billions of dollars through accelerated closure over the life of the program.

Accelerating comprehensive cleanup completion from the previous target date of 2070 to 2035 will save taxpayers an estimated \$50 billion in total program costs. The FY 2004 budget request of \$7.2 billion, an increase of \$361 million over the FY 2003 request, will enable DOE to keep the cleanup reforms begun in FY 2003 on course. One example of a change in the Performance Management Plans (PMP) is at the Idaho National Engineering and Environmental Laboratory where liquid radioactive waste at the laboratory has been converted to dry granular material. The plan has been to solidify this material in glass for final disposal by 2070 at a cost of \$7 billion. Under the PMP, this material would be dispositioned without costly additional treatment or increased threat to public health and safety. This would accelerate disposition of this material by 35 years and save about \$6 billion. A similar example of accelerated cleanup is at Hanford, Washington. The plan has been to solidify the cesium and strontium capsules in glass beginning in 2018, with final disposition completed by 2042. Under the PMP, DOE would

move the capsules to dry storage by 2008, with ultimate disposition by 2021, 21 years ahead of schedule.

To complete the implementation of the Top-to-Bottom Review, DOE has restructured the EM budget this year to better support the accelerated cleanup program. The new budget structure will showcase the progress being made to accelerate cleanup and reduce risk while also providing the needed flexibility to address areas where cleanup may be slowing due to some unforeseen circumstance. The new budget structure clearly identifies three end points to cleanup, the years 2006, 2012, and 2035, and other activities that support those closure dates. The new structure also allows EM to track progress on the construction for the two new facilities for the conversion and disposition of depleted uranium hexafluoride (DUF₆) (in accordance with P.L. 107-206) at the two existing gaseous diffusion plants (one at the Paducah, Kentucky, site and one at the Portsmouth, Ohio, site). The FY 2004 budget requests \$90 million to begin design, construction and operation of the two facilities. These two plants, once operational, will process the DUF₆ stored at the two sites.

The FY 2004 budget request of \$47.5 million realigns program activities that will better support the Department's long-term mission by creating the **Office of Legacy Management** to manage post cleanup activities. Legacy Management will monitor and maintain the integrity of cleanup remedies and administer the Department's post-closure obligations at closed sites. Legacy Management will be the steward of sites cleaned up and closed by DOE and the Army Corps of Engineers, administer activities for post-retirement benefits for former contractor employees and manage long-term contractor liabilities. This restructuring supports the Department's efforts to focus the Environmental Management program, which used to carry these responsibilities, to achieve more cleanup and risk reduction for the American taxpayer. The Secretary cannot stress strongly enough that even with the completed remediation and closure of EM sites, the Department will never abandon its responsibilities to the communities. Establishing an Office of Legacy Management will ensure that those concerns and responsibilities are represented by a dedicated office, measured only by their success in meeting the defined needs of those communities and their constituents.

The President's February 2002 recommendation and Congress's July 2002 approval of **Yucca Mountain**, Nevada as the Nation's high level nuclear waste repository was a seminal step in advancing the Department's goal to ensure the safe and secure disposition of dangerous nuclear materials away from the hands of terrorists. The budget request maintains the FY 2003 level of \$591 million for the Department's repository program. This funding will enable DOE to complete work needed for a license application to the Nuclear Regulatory Commission in 2004 and develop transportation capabilities needed to initiate repository operations by 2010. To accommodate future budgetary requirements for this significant construction project, the Administration proposes a unique Yucca Mountain annual discretionary spending cap adjustment. This budget adjustment will help ensure that sufficient funds are provided every year to complete construction of the repository on schedule.

National Climate Change Technology Initiative (NCCTI). The FY 2004 budget request of \$40 million continues to support the competitive solicitation program under the NCCTI proposed in the FY 2003 amended budget. This unique program will spur innovation through competition based on their potential to reduce, avoid, or capture greenhouse gas emissions. Because of the diverse energy technologies involved, the expanded competitive solicitation program will cut across three programs in the Department in the FY 2004 request: \$24.5 million is proposed within the portfolio of the Energy Efficiency and Renewable Energy activities (\$15 million in renewable energy and \$9.5 million in energy conservation), \$13.2 million is proposed for the Fossil Energy program, and \$2.3 million is proposed for the Nuclear Energy, Science and Technology program. These

collaborative programs will focus climate change research and development investments on high-priority areas, where breakthrough technologies can slow the growth in greenhouse gas emissions, and selecting projects based on their ability to contribute to greenhouse gas mitigation.

Clear Skies. Also consistent with the direction of the NEP, the Administration's broader climate change policy, and the Secretary's vision for a secure energy future, the Fossil Energy program fundamentally shifts its focus to Carbon Management through its Vision 21 programs and other programs. The President's Clear Skies program proposal, if enacted by Congress, would cut power plant emissions of the three worst air pollutants – nitrogen oxides, sulfur dioxide, and mercury – by 70 percent. This initiative would improve air quality using a proven, market-based approach. Benefits of this program would include:

- Saving as much as \$1 billion annually in compliance costs that otherwise will be passed along to American consumers, improving air quality, and enhancing the reliability and affordability of electricity;
- Cutting pollution further, faster, and more cheaply, and with more certainty, using a 'cap and trade' program, replacing a cycle of endless litigation with rapid and certain improvements in air quality;
- Preventing respiratory and cardiovascular diseases and protecting the health of our wildlife habitats and ecosystem by dramatically reducing smog, acid rain, fine particles, regional haze, nitrogen, and mercury deposition;
- Using the model of our most successful clean air law – the 1990 Clean Air Act's acid rain program – and encouraging use of new and cleaner pollution control technologies.

To support the President's Clear Skies program and to support DOE's efforts to improve energy security, DOE requests funding of \$22 million, which will be used on research and development projects focused on reducing power plant emissions of mercury and other pollutants.

The **Sequestration R&D** program (\$62 million) is another priority that will help foster economic growth in ways that protect our environment. This request is an increase of 41 percent from last year's request. Fossil Energy's National Climate Change Technology initiative of \$13.2 million is included in the Sequestration program. This promising area of research aims to develop, by 2015, a technology that will capture and permanently store carbon dioxide. This year's funding request will further expand the research and will have state and local governments, as well as industry and environmental organizations, join with DOE in forming several regional sequestration partnerships. These partnerships will help DOE determine the technologies, regulations, and infrastructure that are best suited for specific regions of the country.

Improving Our Energy Infrastructure

Failure to meet increasing energy demand with increased energy supplies and vulnerability to disruptions from natural or malevolent causes could threaten our Nation's economic prosperity, alter the way we live our lives, and threaten our national security.

DOE will continue to support the homeland security mission. To that end, the FY 2004 budget proposal maintains an analytical capability to support the Department's energy security responsibilities. Included in the budget proposal is \$4.3 million for Energy Assurance activities to continue to support energy security activities led by the Department of Homeland Security. This is a key concern underlying the President's NEP recommendations.

The FY 2004 budget proposal includes a breadth of activities that will help improve the Nation's energy infrastructure. The Distributed Energy and Electric Reliability Program responds to recommendations in the NEP and the National Transmission Grid Study to support research, development, and deployment of electric reliability technologies that will upgrade America's aging electric power infrastructure during the transition to competitive electricity markets. The FY 2004 budget request is \$76.9 million for Electric Reliability to develop technologies that will relieve congestion on transmission and distribution systems, reduce consumption and increase energy supplies during periods of peak demand, accelerate the introduction of advanced systems to improve the efficiency of market operations, and reduce environmental emissions, including greenhouse gases. In FY 2004, the Electric Reliability activity will complete a national interest transmission bottleneck assessment to identify congestion on the transmission system and work with regions, states and localities to remove bottlenecks where benefits outweigh the costs. In addition, the activity will work with transmission operators to deploy real time monitoring and control technologies to operate the existing grid more reliably and electricity markets more efficiently. The Department also proposes \$47.8 million for the High Temperature Superconductivity (HTS) activity to improve the reliability of transmission system components through the development and testing of the 100-MW prototype HTS generator, new designs of HTS power cables, and the 10-MW prototype HTS transformer.

As directed by the NEP, DOE will continue to work to remove constraints on the interstate transmission grid to help ensure that our Nation's electricity can flow more freely. In FY 2004, DOE and its Power Marketing Administrations (PMAs) will continue efforts to help ease the West Coast energy problems and help meet the region's long-term power and infrastructure needs. Last fiscal year, the Department's Western Area Power Administration participated in negotiations with two private companies to secure private sector financing for construction of "Path 15" transmission facilities that will relieve the critical transmission bottleneck between northern and southern California. This project, scheduled to be operational in late 2004, will reduce the likelihood of blackouts in Northern California. In addition, the budget proposes \$700 million in additional borrowing authority for the Bonneville Power Administration to meet the Pacific Northwest's long-term power and transmission infrastructure needs. The investment will support Federal hydro generation efficiencies and enhancements, additional renewable resource generation and conservation efforts, long and short-term power purchases, and construction of transmission projects that reinforce the grid and integrate new generation. Finally, each PMA continues to work directly in the development of regional transmission organizations in response to the Federal Energy Regulatory Commission's Order 2000. This activity is consistent with the Administration's support for competitive wholesale electric energy markets.

The Power Marketing Administrations have made big strides in contributing to the President's Management Agenda, improving their financial management and continue to make progress on integrating budget and performance initiatives. Each Power Marketing Administration is being evaluated by OMB as part of the PART analyses. The PMAs plan and carry out their programs effectively and meet their dual goals of providing safe and reliable service to customers. The Department, working with OMB, will continue to develop efficiency measures and improve the way the PMAs market and deliver power to customers.

Maintaining a World Class Scientific Research Capacity

All of the programs and activities highlighted above, so heavily dependent upon advanced research and development, would not be possible were it not for the ready pool of scientific and engineering capability available in the Department's national laboratories and at the universities. The Department's Office of Science, in particular, holds the

responsibility for providing that scientific knowledge and technological capabilities and is the final common thread that binds the Department together. With a proposed funding of \$3.3 billion, the Department's Science program is the largest federal supporter of basic research in high energy and nuclear physics, materials and chemical sciences, and fusion energy sciences. DOE operates a variety of unique scientific facilities to support DOE's energy and national security mission. The Science laboratories, along with the defense laboratories, continue to be a success because they are able to provide advanced research, development, and deployment resources on short notice to meet emergent national energy requirements.

Nanoscience. The Department's Science program budget proposal includes \$197 million, an increase of \$64 million over the FY 2003 request, to support the revolution of nanoscience research, the study of matter at the atomic and molecular level, which will benefit every aspect of society. The United States through this effort will lead the world in the area of nanoscale science. Within this amount, DOE is proceeding with design and construction of four Nanoscale Science Research Centers (\$87.8 million), and is also fabricating equipment for a fifth Center (\$10.0 million). Establishing these centers will help produce research resulting in significant mid - to long-term benefits for the American people. For instance the development of the carbon nanotubes, which are 1,000 times thinner than a human hair, may allow engineers to provide storage for tiny fuel cells to power consumer electronics devices or develop "artificial noses" for sniffing out individual molecules of dangerous chemicals.

In this budget, DOE also gives priority to increasing operations of user facilities to a high operating capacity. Operating these facilities at a very high capacity will maximize the scientific return by ensuring that they are available to the scientists who depend upon them to carry out their cutting-edge research. The research done at these DOE facilities over the past decade has resulted in nine Nobel Prizes in physics and chemistry and has promise to result in future successes with the activities funded in FY 2004, such as the **Advanced Scientific Computing Research** program (ASCR) and the **Genomes to Life** program. The budget proposal of \$173.5 million for the ASCR program maintains the United States leadership in high performance computing and network systems. This program's goal is to provide the high performance computational and networking tools that enable DOE to succeed in its science, energy environmental quality, and national security missions. The FY 2004 budget request includes \$14 million for the Next Generation Computing Architecture (NGA) initiative to optimize computer architectures to meet the special requirements of scientific problems. Research on microbes through the Genomes to Life program, addressing DOE energy, environmental, and national security needs, continues to expand from \$42.3 million in FY 2003 to \$66.8 million in FY 2004, as a research program on the leading edge of biology.

International Collaboration. While DOE has the state of the art technology and facilities available to its scientists, international collaboration is also essential to the success of the Department's mission. A budget request of \$48.8 million continues to support DOE's participation in the Large Hadron Collider (LHC) project in Geneva, Switzerland. The LHC will become the foremost high energy physics research facility in the world when it begins operations in 2007. This research could potentially answer the question of the origin of mass. In addition to the LHC, as described earlier DOE will also reinvest in the International Thermonuclear Experimental Reactor program to develop fusion as an alternative energy source.

The Department's science program is one of a kind. It continues to build a scientific research capacity to enable advances and discoveries in DOE science through world-class research.

National Laboratories. The FY 2004 budget request invests in the future of our nation's security through our national laboratories. Our national laboratories have and will continue to play a central role to ensure the physical security and scientific and technological leadership for our Nation. They provide the unique expertise to support the Department's responsibility as the stewards of the Nation's nuclear weapon's stockpile, underpin the new technological advances needed to combat emerging threats to national security, help the Department develop new sources of energy, and explore new ideas to address the nation's aging energy infrastructure. The Department's investment in the nation's laboratories has contributed enormously to the Department's efforts to meet the new security challenges and continues to inspire innovation and leadership needed to fight the war on terrorism.

Activities Transferred to the Homeland Security Department

This budget request reflects the transfer of several activities to the newly established Homeland Security Department. The transfer includes activities relating to chemical/biological R&D, nuclear smuggling, national security, energy security and assurance, and nuclear threat assessment capability. The transfer of these highly important activities will not impact our mission but rather further enhance our National Strategy for Homeland Security. Other related homeland security activities will continue to exist at the Department to ensure the continued security provided by the Department to the Nation. Funding for activities to be transferred to the Department of Homeland Security has been removed from the DOE totals in all 3 years in the following tables.

Department of Energy Budget by Organization

(discretionary dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
National Nuclear Security Administration					
Weapons.....	5,542,178	5,845,843	6,378,000	+532,157	+9.1%
Defense Nuclear Nonproliferation.....	1,058,430	1,028,030	1,340,195	+312,165	+30.4%
Naval Reactors.....	687,571	706,790	768,400	+61,610	+8.7%
Office of the Administrator.....	307,418	328,726	347,980	+19,254	+5.9%
Other Defense Activities.....	-269	—	—	—	—
Total, National Nuclear Security Administration.....	7,595,328	7,909,389	8,834,575	+925,186	+11.7%
Energy, Science and Environment					
Energy					
Energy Efficiency and Renewable Energy.....	1,279,153	1,318,651	1,320,000	+1,349	+0.1%
Fossil Energy.....	850,009	799,992	746,886	-53,106	-6.6%
Nuclear Energy, Science and Technology.....	362,896	326,875	387,598	+60,723	+18.6%
Total, Energy.....	2,492,058	2,445,518	2,454,484	+8,966	+0.4%
Science.....	3,309,424	3,263,876	3,310,935	+47,059	+1.4%
Environment					
Environmental Management.....	6,534,051	6,877,796	7,238,934	+361,138	+5.3%
Civilian Radioactive Waste Management.....	374,711	590,802	591,000	+198	+0.0%
Environment, Safety and Health.....	137,880	137,239	137,686	+447	+0.3%
Worker and Community Transition.....	19,731	25,683	15,000	-10,683	-41.6%
Office of Legacy Management.....	54,433	44,752	47,525	+2,773	+6.2%
Total, Environment.....	7,120,806	7,676,272	8,030,145	+353,873	+4.6%
Total, Energy, Science and Environment.....	12,922,288	13,385,666	13,795,564	+409,898	+3.1%
Corporate management					
Office of the Secretary.....	4,679	4,624	4,624	—	—
Management, Budget and Evaluation.....	103,678	106,056	104,210	-1,846	-1.7%
Cost of work and revenues.....	-57,331	-67,608	-71,573	-3,965	-5.9%
Chief Information Officer.....	71,688	80,427	106,278	+25,851	+32.1%
Board of Contract Appeals.....	907	740	653	-87	-11.8%
Hearings and Appeals.....	4,853	4,420	4,844	+424	+9.6%
Congressional and Intergovernmental Affairs.....	4,823	4,931	4,724	-207	-4.2%
Public Affairs.....	3,875	4,510	4,465	-45	-1.0%
General Counsel.....	22,453	22,713	22,879	+166	+0.7%
Policy and International Affairs.....	15,339	20,752	22,277	+1,525	+7.3%
Economic Impact and Diversity.....	5,932	6,493	6,101	-392	-6.0%
Inspector General.....	32,405	37,671	39,462	+1,791	+4.8%
Security.....	183,169	195,988	211,045	+15,057	+7.7%
Energy Security and Assurance.....	7,275	4,275	4,272	-3	-0.1%
Independent Oversight and Performance Assurance.....	22,026	22,430	22,575	+145	+0.6%
Energy Information Administration.....	78,437	80,111	80,111	—	—
Power Marketing Administrations.....	207,409	197,404	207,340	+9,936	+5.0%
Colorado River Basins.....	—	-22,000	-22,000	—	—
Total, Corporate management.....	799,639	786,883	838,065	+51,182	+6.5%
Cerro Grande Fire Activities.....	—	—	-75,000	-75,000	n/a
Federal Energy Regulatory Commission.....	—	-18,000	-18,000	—	—
Total, Discretionary Funding.....	21,317,255	22,063,938	23,375,204	+1,311,266	+5.9%

Department of Energy

Budget by Appropriation

(discretionary dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Energy And Water Development					
Energy Programs					
Energy supply.....	775,264	763,086	861,805	+98,719	+12.9%
Non-Defense site acceleration completion.....	194,522	167,581	170,875	+3,294	+2.0%
Uranium enrichment D&D fund.....	305,517	298,489	418,124	+119,635	+40.1%
Non-Defense environmental services.....	148,240	172,970	292,121	+119,151	+68.9%
Science.....	3,309,452	3,263,876	3,310,935	+47,059	+1.4%
Nuclear waste disposal.....	94,916	275,802	161,000	-114,802	-41.6%
Departmental administration.....	154,601	158,051	179,638	+21,587	+13.7%
Inspector general.....	32,405	37,671	39,462	+1,791	+4.8%
Total, Energy Programs.....	5,014,917	5,137,526	5,433,960	+296,434	+5.8%
National nuclear security administration:					
Weapons activities.....	5,542,178	5,845,843	6,378,000	+532,157	+9.1%
Defense nuclear nonproliferation.....	1,058,430	1,028,030	1,340,195	+312,165	+30.4%
Naval reactors.....	687,571	706,790	768,400	+61,610	+8.7%
Office of the administrator.....	307,418	328,726	347,980	+19,254	+5.9%
Total, National nuclear security administration.....	7,595,597	7,909,389	8,834,575	+925,186	+11.7%
Environmental and other defense activities:					
Defense site acceleration completion.....	5,280,645	5,620,343	5,814,635	+194,292	+3.5%
Defense environmental services.....	1,025,127	1,060,413	995,179	-65,234	-6.2%
Other defense activities.....	506,859	512,622	522,678	+10,056	+2.0%
Defense nuclear waste disposal.....	279,795	315,000	430,000	+115,000	+36.5%
Total, Environmental & other defense activities.....	7,092,426	7,508,378	7,762,492	+254,114	+3.4%
Cerro grande fire activities.....	—	—	-75,000	-75,000	n/a
Power marketing administrations:					
Southeastern power administration.....	4,887	4,534	5,100	+566	+12.5%
Southwestern power administration.....	28,019	27,378	28,600	+1,222	+4.5%
Western area power administration.....	171,840	162,758	171,000	+8,242	+5.1%
Falcon & Amistad operating & maintenance fund.....	2,663	2,734	2,640	-94	-3.4%
Total, Power marketing administrations.....	207,409	197,404	207,340	+9,936	+5.0%
Federal energy regulatory commission.....	—	—	—	—	—
Subtotal, Energy And Water Development.....	19,910,349	20,752,697	22,163,367	+1,410,670	+6.8%
Uranium enrichment D&D fund discretionary payments.....	-420,000	-442,000	-452,000	-10,000	-2.3%
Excess fees and recoveries, FERC.....	—	-18,000	-18,000	—	—
Colorado River Basins.....	—	-22,000	-22,000	—	—
Total, Energy and Water Development.....	19,490,349	20,270,697	21,671,367	+1,400,670	+6.9%
Interior and Related Agencies					
Fossil energy research and development.....	577,784	479,305	519,305	+40,000	+8.3%
Alternative fuels production.....	-2,000	—	—	—	—
Naval petroleum and oil shale reserves.....	17,355	20,831	16,500	-4,331	-20.8%
Elk Hills school lands fund.....	36,000	72,000	36,000	-36,000	-50.0%
Energy conservation.....	896,464	911,651	875,793	-35,858	-3.9%
Economic regulation.....	1,996	1,487	1,047	-440	-29.6%
Strategic petroleum reserve.....	170,880	168,856	175,081	+6,225	+3.7%
Strategic petroleum account.....	—	11,000	-5,000	-16,000	-145.5%
Northeast home heating oil reserve.....	8,000	8,000	5,000	-3,000	-37.5%
Energy information administration.....	78,437	80,111	80,111	—	—
Clean coal technology.....	41,990	40,000	—	-40,000	-100.0%
Total, Interior and Related Agencies.....	1,826,906	1,793,241	1,703,837	-89,404	-5.0%
Total, Discretionary Funding.....	21,317,255	22,063,938	23,375,204	+1,311,266	+5.9%

Department of Energy
Appropriation/Organization Crosswalk
FY 2004 Budget
(discretionary dollars in thousands)

	FY 2004 Request to Congress	National Nuclear Security Administration	Energy	Science	Environment	Other
Energy And Water Development						
Energy Programs						
Energy supply.....	861,805	—	831,805	—	30,000	—
Non-Defense site acceleration completion.....	170,875	—	—	—	170,875	—
Uranium enrichment D&D fund.....	418,124	—	—	—	418,124	—
Non-Defense environmental services.....	292,121	—	—	—	292,121	—
Science.....	3,310,935	—	—	3,310,935	—	—
Nuclear waste disposal.....	161,000	—	—	—	161,000	—
Departmental administration.....	179,638	—	—	—	—	179,638
Inspector general.....	39,462	—	—	—	—	39,462
Total, Energy Programs.....	5,433,960	—	831,805	3,310,935	1,072,120	219,100
National nuclear security administration:						
Weapons activities.....	6,378,000	6,378,000	—	—	—	—
Defense nuclear nonproliferation.....	1,340,195	1,340,195	—	—	—	—
Naval reactors.....	768,400	768,400	—	—	—	—
Office of the administrator.....	347,980	347,980	—	—	—	—
Total, National nuclear security administration.....	8,834,575	8,834,575	—	—	—	—
Environmental and other defense activities:						
Defense site acceleration completion.....	5,814,635	—	—	—	5,814,635	—
Defense environmental services.....	995,179	—	—	—	995,179	—
Other defense activities.....	522,678	—	—	—	170,211	352,467
Defense nuclear waste disposal.....	430,000	—	—	—	430,000	—
Total, Environmental & other defense activities.....	7,762,492	—	—	—	7,410,025	352,467
Cerro grande fire activities.....	-75,000	—	—	—	—	-75,000
Power marketing administrations:						
Southeastern power administration.....	5,100	—	—	—	—	5,100
Southwestern power administration.....	28,600	—	—	—	—	28,600
Western area power administration.....	171,000	—	—	—	—	171,000
Falcon & Amistad operating & maintenance fund.....	2,640	—	—	—	—	2,640
Total, Power marketing administrations.....	207,340	—	—	—	—	207,340
Federal energy regulatory commission.....	—	—	—	—	—	—
Subtotal, Energy And Water Development	22,163,367	8,834,575	831,805	3,310,935	8,482,145	703,907
Uranium enrichment D&D fund discretionary payments.....	-452,000	—	—	—	-452,000	—
Excess fees and recoveries, FERC.....	-18,000	—	—	—	—	-18,000
Colorado River Basins.....	-22,000	—	—	—	—	-22,000
Total, Energy and Water Development.....	21,671,367	8,834,575	831,805	3,310,935	8,030,145	663,907
Interior and Related Agencies						
Fossil energy research and development.....	519,305	—	519,305	—	—	—
Naval petroleum and oil shale reserves.....	16,500	—	16,500	—	—	—
Elk Hills school lands fund.....	36,000	—	36,000	—	—	—
Energy conservation.....	875,793	—	875,793	—	—	—
Economic regulation.....	1,047	—	—	—	—	1,047
Strategic petroleum reserve.....	175,081	—	175,081	—	—	—
Strategic petroleum account.....	-5,000	—	-5,000	—	—	—
Northeast home heating oil reserve.....	5,000	—	5,000	—	—	—
Energy information administration.....	80,111	—	—	—	—	80,111
Total, Interior and Related Agencies.....	1,703,837	—	1,622,679	—	—	81,158
Total, Discretionary Funding.....	23,375,204	8,834,575	2,454,484	3,310,935	8,030,145	745,065

NATIONAL NUCLEAR SECURITY ADMINISTRATION

(dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
National Nuclear Security Administration (NNSA)					
Weapons Activities.....	5,584,550	5,874,828	6,406,985	+532,157	+9.1%
Defense Nuclear Nonproliferation.....	1,105,963	1,092,030	1,340,195	+248,165	+22.7%
Naval Reactors.....	687,571	706,790	768,400	+61,610	+8.7%
Office of the Administrator.....	307,418	328,726	347,980	+19,254	+5.9%
Subtotal, National Nuclear Security Administration.....	7,685,502	8,002,374	8,863,560	+861,186	+10.8%
Use of prior year balances and other adjustments.....	-90,174	-92,985	-28,985	+64,000	+68.8%
Total, National Nuclear Security Administration.....	7,595,328	7,909,389	8,834,575	+925,186	+11.7%

The Department of Energy (DOE) is required by various laws to enhance U.S. national security through the military application of nuclear technology and to reduce the global danger from the proliferation of weapons of mass destruction. Consistent with DOE's missions, the National Nuclear Security Administration (NNSA) was established as a semi-autonomous agency within DOE to carry out programs in nuclear weapons, defense nuclear nonproliferation, and naval reactors.

Weapons Activities -- National Nuclear Security Administration

(dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Weapons Activities					
Directed stockpile work.....	1,108,787	1,300,948	1,364,786	+63,838	+4.9%
Campaigns.....	2,189,256	2,166,146	2,395,455	+229,309	+10.6%
Readiness in technical base and facilities.....	1,376,814	1,502,279	1,613,471	+111,192	+7.4%
Facilities and infrastructure recapitalization program.....	196,550	242,512	265,123	+22,611	+9.3%
Secure transportation asset.....	158,707	152,989	182,400	+29,411	+19.2%
Safeguards and security.....	554,436	509,954	585,750	+75,796	+14.9%
Subtotal, Weapons Activities.....	5,584,550	5,874,828	6,406,985	+532,157	+9.1%
Use of prior year balances and other adjustments.....	-42,372	-28,985	-28,985	—	—
Total, Weapons Activities.....	5,542,178	5,845,843	6,378,000	+532,157	+9.1%

PROGRAM DESCRIPTION

One of the statutory missions of the National Nuclear Security Administration (NNSA) is to maintain and enhance the safety, security, and reliability of the U.S. nuclear weapons stockpile to meet national security requirements. The mission is carried out in partnership with the Department of Defense, with NNSA providing research, development, and production activities supporting the U.S. nuclear weapons stockpile. The program also supports national assets for the secure transportation of weapons, components and materials, assets to respond to incidents involving nuclear weapons and materials, and safeguards and security for NNSA facilities. Federal employees provide direction, management, and oversight of about 28,000 contractor employees who carry out program activities at a nationwide complex of government-owned, contractor-operated national security laboratories and nuclear weapons production facilities. Locations include Lawrence Livermore National Laboratory in California; Los Alamos National Laboratory in New Mexico; Sandia National Laboratories in California and New Mexico; Kansas City Plant in Kansas City, Missouri; Pantex Plant in Amarillo, Texas; Y-12 National Security Complex in Oak Ridge, Tennessee; Savannah River Site in Aiken, South Carolina; and the Nevada Test Site near Las Vegas, Nevada.

The NNSA is committed to the President's emphasis on performance-based budgeting, and the strategic objective for programs funded in this account are included in the February 2002 NNSA strategic plan: Maintaining and enhancing the safety, security, and reliability of the Nation's nuclear weapons stockpile to counter the threats of the 21st Century and ensuring the vitality and readiness of the NNSA's nuclear security enterprise.

The main components of the **Weapons Activities** budget request are Directed Stockpile Work, Campaigns, Readiness in Technical Base and Facilities, the Facilities and Infrastructure Recapitalization Program, Secure Transportation Asset, and Safeguards and Security. The funding for Program Direction activities, except for Secure Transportation Asset, was transferred in FY 2002 to the Office of the Administrator appropriation account.

Directed Stockpile Work (DSW) activities ensure the operational readiness of the nuclear weapons in the Nation's stockpile through maintenance, evaluation, refurbishment, reliability assessment, weapon dismantlement and disposal, research, development, and certification activities. In the past year, the Administration's **Nuclear Posture Review** reaffirmed that future weapons refurbishment and life extension for the stockpile are consistent with overall national security policy. The FY 2004 request places a high priority on accomplishing the near-term

workload and supporting technologies for the stockpile along with the long-term science and technology investments to ensure the capability and capacity to support ongoing missions.

Campaigns are focused scientific and technical efforts essential for certification and life extension of the stockpile. They are designed to allow NNSA to move to "science-based" judgments for stewardship by relying on experiments, computations, simulation, and surveillance information rather than underground nuclear testing. The science and engineering campaigns are focused to provide technologies for the directed stockpile workload and the completion of new scientific and experimental facilities. In the **Inertial Confinement Fusion Ignition and High Yield Campaign**, the **National Ignition Facility** continues to meet all milestones on or ahead of schedule, and is on track for completion at the end of FY 2008. The **Advanced Simulation and Computing** campaign will continue to improve capabilities through development of faster computer platforms in partnership with private industry, and with state of the art techniques for calculations, modeling and simulation, and analysis of highly complex weapons physics information. The **Pit Manufacturing and Certification** campaign continues work on reestablishing the ability to manufacture the W88 pit and planning for a modern pit facility. The readiness campaigns are technology-based efforts to reestablish and enhance manufacturing and other capabilities needed for the future production of weapon components.

Readiness in Technical Base and Facilities (RTBF) supports the underlying physical infrastructure and operational readiness required to conduct weapons activities at the eight NNSA sites: three national weapons laboratories, four production sites, and the Nevada Test Site. Over \$1.5 billion annually is allocated to ensure that principal facilities are operational, safe, secure, compliant with regulatory requirements, and able to sustain a defined level of readiness to execute tasks identified in the Campaigns and Directed Stockpile Work.

Facilities and Infrastructure Recapitalization Program (FIRP) is designed to restore, rebuild, and revitalize the physical infrastructure of the nuclear weapons complex. The FIRP addresses an integrated, prioritized list of maintenance and infrastructure projects, separate from base maintenance and infrastructure efforts under RTBF, which will significantly increase the operational efficiency and effectiveness of the NNSA sites. It preferentially targets deferred maintenance and footprint reduction. The program is supported by the **Nuclear Posture Review**, which calls for a modernized responsive infrastructure by upgrading key facilities with a dedicated refurbishment program.

Secure Transportation Asset provides for the safe, secure movement of nuclear weapons, special nuclear materials, and weapon components between military locations and nuclear complex facilities within the United States. Program direction funds are also included within this activity.

Safeguards and Security provides funding for all physical security, personnel security, and cyber security activities at the NNSA landlord sites; specifically, the three national weapons laboratories, the Nevada Test Site, and the four production plant sites. Funding for security investigations of M&O contractors at NNSA landlord sites is included in the Security Operations request.

PROGRAM HIGHLIGHTS

The FY 2004 request supports the requirements of the Stockpile Stewardship program as defined by Presidential Directives, Department of Defense requirements, and the Nuclear Posture Reviews and will:

- Complete the Annual Stockpile Certification and Report to the President and, subsequently, to the Congress by March 2004;

- Support the scheduled refurbishment workload, including the ongoing B61, W76, W80, W87 refurbishments, as reaffirmed by the Nuclear Posture Review;

Support all directive scheduled activities for alterations, modifications, and limited-life component replacements for the current stockpile; and scheduled surveillance, evaluation and dismantlement activities;

Support preconceptual and concept definition studies and feasibility and cost studies for the Advanced Concepts Initiative, including the Robust Nuclear Earth Penetrator study, approved by the Nuclear Weapons Council (and in accordance with P.L. 107-314);

Support planned schedules for development of experimental and computational tools and related facilities and technologies necessary to support continued certification of the refurbished weapons and aging weapons components without underground nuclear testing, including final system delivery and checkout of 200-teraOPS class computer by FY 2008; completion of the Microsystem and Engineering Sciences Applications Complex in FY 2010 and the Dual-Axis Radiographic Hydrotest Facility in FY 2004;

Support construction of the National Ignition Facility according to the September 2000 project baseline and initiate experimental activities;

Resume studies and technology development for a multi-axis, multi-time radiographic facility;

Support subcritical experiments schedule;

Maintain the ability to conduct underground nuclear testing, if necessary, and begin the transition to an 18-month readiness posture;

Support manufacture of a certifiable W88 pit in 2003, and continue to develop the capability to certify a pit by 2007 and complete conceptual design for a modern pit facility;

Produce and deliver tritium by FY 2007;

Maintain warm standby readiness for all necessary infrastructure at all current facilities and sites;

Revitalize the complex consistent with the NPR, including an integrated complex-wide construction effort;

Renew and sustain facilities and infrastructure through a recapitalization program to address issues that are not included in base maintenance and infrastructure efforts;

Provide safe transportation of nuclear warheads, weapons components, and other DOE materials and support Nuclear Weapons Incident Response national assets;

Continue safeguard and security of our nuclear facilities, materials, and information; protection of our employees in a post-9/11 environment; continue the cyber security program; and initiate a modest safeguards and security research and development effort.

SIGNIFICANT FUNDING CHANGES – FY 2003 to FY 2004 Request (\$ in millions)

Weapons Activities (FY 2003 \$5,845.8; FY 2004 \$6,378.0)+\$532.2

FY 2004 request is 9.1 percent above the FY 2003 request. Increase will support scheduled R&D, maintenance and evaluation, and certification for the stockpile as supported by the Nuclear Posture Review. The funding increase is consistent with planned program funding levels in the NNSA's Future Years Nuclear Security Program.

Directed Stockpile Work (FY 2003 \$1,300.9; FY 2004 \$1,364.8)+\$63.9

FY 2004 request is 4.9 percent above the FY 2003 request and includes:

Stockpile Research and Development (FY 2003 \$425.7; FY 2004 \$433.2).....	+\$7.5
Funds the laboratory efforts needed in the development engineering stages and to assess the safety and reliability of the stockpile as a basis for the Annual Certification to the President. Increase is for development and engineering associated with W80, W76, and B61 life extension programs.	
Stockpile Maintenance (FY 2003 \$411.2; FY 2004 \$405.7)	-\$5.5
Supports production and installation of limited-life components, refurbishment, and replacement of aging components and major refurbishment activities to extend the lifetimes of the W87, W76, W80, and B61. Decrease is the result of changes in limited-life component support and funding reductions due to completion of the W87 refurbishment.	
Stockpile Evaluation (FY 2003 \$186.1; FY 2004 \$202.9)	+\$16.8
Increases are required at the Y-12 National Security Complex to eliminate the canned sub-assembly backlogs and to support the production of additional high fidelity flight test hardware for the W87.	
Dismantlement/Disposal (FY 2003 \$24.8; FY 2004 \$37.7)	+\$12.9
Includes safety analysis, disassembly, component characterization and disposal, and reclamation of materials and components; and enables the engineering, development, testing, certification, procurement, and refurbishment of containers. Increase is for additional dismantlement activities for the W56 and W70 and additional support for the Integrated Weapons Activity Plan.	
Production Support (FY 2003 \$246.3; FY 2004 \$278.1).....	+\$31.8
Activities are part of the manufacturing efforts to refurbish the nuclear weapons stockpile. Increase is for equipment purchase of critical spare parts associated with key production streams and activities at the Y-12 National Security Complex and upgrades for advanced machining operations at Pantex. Also supported is the expansion of quality control services for engineering support and analytical laboratories and measure standards.	
Field Engineering, Training and Manuals (FY 2003 \$6.9; FY 2004 \$7.2)	+\$0.3
Provides for technical training, weapons manuals, and technical publications. Increase supports weapons modification and alteration activities in the field.	
Campaigns (FY 2003 \$2,166.1; FY 2004 \$2,395.4)	+\$229.3
FY 2004 request is 10.6 percent above FY 2003 request and includes:	

Science Campaigns:

Primary Certification (FY 2003 \$47.2; FY 2004 \$65.9)	+\$18.7
Supports experimental activities to develop and implement the ability to certify, without nuclear testing, rebuilt aged primaries to within a stated yield level. Increase supports the subcritical experiment schedule, diagnostic development, radiography capability, and an increased emphasis on funding primary certification work for the stockpile.	
Dynamic Materials Properties (FY 2003 \$87.6; FY 2004 \$82.3)	-\$5.3
Supports the development of experimentally validated, predictive material models and physical data of all materials required to assess the safety, security, and reliability of the stockpile. The decrease reflects a reduction in the number of experiments of JASPER, Z accelerator, and Atlas and a deferral in the characterization of some high explosive properties.	
Advanced Radiography (FY 2003 \$52.9; FY 2004 \$66.0).....	+\$13.1
Supports research and development technologies for radiography images of imploding surrogate primaries. R&D effort is focused on defining the requirements of advanced	

radiography capabilities to support certification of refurbished and replaced primaries. Increase supports a long-term goal to develop multi-axis, multi-time radiography and studies and technology development in support of a proton-based Advanced Hydrotest Facility.

Secondary Certification and Nuclear Systems Margins

(FY 2003 \$46.8; FY 2004 \$55.5) +\$8.7

Provides modern computational baselines for stockpiled weapon systems (including radiation sources and dynamics and radiation flow) and for determining performance of nominal aged and rebuilt secondaries. Increase supports a ramp-up of the research program to reduce risk in the life extension programs and for high energy density weapons experimentation and model development. Experiments use the Z accelerator, the Omega laser, and National Ignition Facility as it becomes available.

Engineering Campaigns:

Enhanced Surety (FY 2003 \$37.7; FY 2004 \$38.0) +\$0.3

Campaign pursues a multi-technology approach to demonstrate enhanced use-denial and advanced concepts development for scheduled life extension programs. Planned for FY 2004 is the demonstration of advanced initiation options for W80 and B61 and advanced use-denial elements for the W76.

Weapons Systems Engineering Certification (FY 2003 \$27.0; FY 2004 \$28.2) +\$1.2

Increase provides support for the refurbishments of the W76 and W80 First Production Units, including validation experiments and initiating assessment of computational tools needed to support design and qualification of earth-penetrating weapons and microsystems to be used in future years life extension programs.

Nuclear Survivability (FY 2003 \$23.4; FY 2004 \$24.0) +\$0.6

Demonstrates the capability to support the nuclear survivability of the enduring stockpile. Increase accelerates development of radiation-hardened microelectronics for the W76 and sustains development and validation of systems level modeling tools required to qualify the W76 to the nuclear survivability requirement.

Enhanced Surveillance (FY 2003 \$77.2; FY 2004 \$94.8) +\$17.6

Provides validated component lifetime assessments to support weapons refurbishment decisions and annual assessment of the nuclear stockpile. Increase provides for the assessment of aging effects on the primary performance for W76, W78, W80, and W88 systems; aging stockpile materials characterization for the B61 life extension program; additional critical experiments and modeling for the lifetime assessment of high explosives in the W76 and W80 LEPs; and the development of new diagnostics to predict aging impacts on weapon performance.

Advanced Design and Production Technologies (ADAPT)

(FY 2003 \$74.1; FY 2004 \$79.9) +\$5.8

Funding reflects increased activities to support aggressive Directed Stockpile Work timelines for development of qualified manufacturing processes and capabilities that will be required for production of new and replacement parts for three weapons refurbishments. ADAPT also deploys the tools, systems and procedures necessary to use model based engineering and manufacturing approaches.

Engineering Campaigns Construction Activities

(FY 2003 \$79.2; FY 2004 \$66.3) -\$12.9

Construction of the **Microsystems and Engineering Sciences Applications (MESA)** Complex (FY 2003 \$75.0; FY 2004 \$61.8) and the other project costs associated with this project are transferred in FY 2004 from Readiness and Technical Base and Facilities,

because the project directly supports activities in the Engineering Campaigns. MESA complex at Sandia National Laboratories will provide for the design, integration, prototyping, fabrication, and qualification of microsystems into weapons components, subsystems, and systems within the stockpile. Decrease is consistent with MESA performance baseline.

Individually Named Campaigns:

Inertial Confinement Fusion Ignition and High Yield

(FY 2003 \$452.9; FY 2004 \$466.8) +\$13.9

Funding for **National Ignition Facility** (NIF) construction is consistent with the approved project baseline and decreases by \$64.0 (FY 2003 \$214.0; FY 2004 \$150.0). FY 2004 funding provides full support for the NIF demonstration program necessary to meet full operation date of FY 2010 and support accelerated construction of NIF diagnostics and cryogenic target systems; provides for ignition target design and fabrication; supports full single-shift operations at the Z accelerator at Sandia; the Omega Facility at the University of Rochester/LLE; supports high-energy petawatt laser technology development, university grants and short-pulse high-intensity laser activities. Due to higher priorities to meet NNSA mission requirements, the High-Average-Power Laser program is not funded.

Advanced Simulation and Computing (FY 2003 \$724.8; FY 2004 \$750.6)..... +\$25.8

Funding is consistent with the Future Years Nuclear Security Program and supports life extension schedules in DSW. The increase is a result of higher computer maintenance costs associated with the current operating platforms, including Red, Blue Pacific, Blue Mountain, White, and Q; continuing development, production, and validation of 3D codes; and support of the goal of delivering a 100-teraOPS platform in FY 2005 and check out of a 200-teraOPS class computer by FY 2008.

Pit Manufacturing and Certification (FY 2003 \$235.9; FY 2004 \$320.2)..... +\$84.3

Funding increases focus on the manufacturing and certification of W88 pits, including preparations for integral experiments in FY 2005 to support the acceleration of W88 pit certification from a goal of FY 2009 to FY 2007 and the **Modern Pit Facility** (MPF) where site selection will be made in FY 2004. MPF conceptual design, technology development, planning, and NEPA activities are on schedule to support a CD-1 decision for the facility in FY 2006. In FY 2004, funding for Nevada Test Site subcritical experiments supporting the certification of the W88 pit is moved from DSW Research and Development into this campaign and accounts for \$42.0 of the increase.

Readiness Campaigns:

Stockpile Readiness (FY 2003 \$38.7; FY 2004 \$55.2)..... +\$16.5

Campaign goal is to restore full production manufacturing capability at the Y-12 National Security Complex. The increase in funding is primarily for procuring and installing equipment to meet multiple DSW requirements.

High Explosives Manufacturing and Weapons Assembly/ Disassembly

(FY 2003 \$12.1; FY 2004 \$29.7) +\$17.6

Ensures long-term manufacturing capabilities for high explosive fabrication, component requalification and weapon assembly/disassembly operations at the Pantex Plant. Increase supports DSW workload requirements.

Non-Nuclear Readiness (FY 2003 \$22.4; FY 2004 \$37.4)..... +\$15.0

Ensures manufacturing capabilities for non-nuclear production. Increase supports modernization and readiness of capabilities including equipment purchases that support materials engineering and environmental testing related to W76 and W80 components.

Tritium Readiness (FY 2003 \$126.3; FY 2004 \$134.9) +\$8.6
 Establishes a capability to produce tritium to meet nuclear weapon requirements. Increase will cover irradiation costs at the Watts Bar Reactor and the revised funding profile for the Tritium Extraction Facility (FY 2003 \$70.1; FY 2004 \$75.0). In January 2003, the project baseline was revised, increasing the total project costs from \$401 to \$506 and delaying facility completion to FY 2007.

Readiness in Technical Base and Facilities (RTBF)
(FY 2003 \$1,502.3; FY 2004 \$1,613.5)..... +\$111.2
 FY 2004 request is 7.4 percent above the FY 2003 request and includes:

Operations of Facilities (FY 2003 \$933.9; FY 2004 \$972.8)..... +\$38.9
 Provides funds for the operation, physical infrastructure, and on-going maintenance of facilities for activities conducted in the Campaigns and Directed Stockpile Work. Increase supports prioritized emerging concerns across the nuclear weapons complex: monitoring wells, TRU waste acceleration, general plant projects, and capital equipment. At the Y-12 National Security Complex, the scope to accelerate the deactivation of 9206 facility will increase, container refurbishment in area Beta 2E will be established, and the unfunded FY 2003 scope in the 10 CFR 830 Implementation Plan and Corrective Action Plan will be funded.

Program Readiness (FY 2003 \$120.4; FY 2004 \$131.1) +\$10.7
 Includes select activities that support more than one NNSA facility, Campaign or Directed Stockpile Work activity, and unique test readiness activities. Increase is for the Borehole Management Program accelerated closure (plugging) of unutilized Nevada Test Site legacy boreholes and an increase to meet additional requirements to maintain the 2 to 3-year test readiness posture and move toward an 18-month test readiness posture.

Special Projects (FY 2003 \$37.7; FY 2004 \$43.0) +\$5.3
 Supports a variety of activities including **Laboratory Critical Skills Development** to implement Chiles Commission recommendations (FY 2003 \$5.4; FY 2004 \$5.3); the **Los Alamos School District** (FY 2003 \$8.0; FY 2004 \$8.0); **LANL land transfer activities** (FY 2003 \$3.9; FY 2004 \$3.9); and **Nuclear Criticality Safety Program** (FY 2003 \$3.8; FY 2004 \$9.9). Increase in the Nuclear Criticality Safety Program is necessary to fully fund DNFSB Recommendation 97-2.

Nuclear Weapons Incident Response (FY 2003 \$83.8; FY 2004 \$89.7)..... +\$5.9
 Funding provides for emergency management and response activities that ensure a central point of contact and integrated response to emergencies requiring DOE assistance, including the **Accident Response Group** (FY 2003 \$12.4; FY 2004 \$12.4), which responds to potential U.S. nuclear accidents; and the **Nuclear Emergency Support Team** (FY 2003 \$44.0; FY 2004 \$50.0), which responds to nuclear terrorist threats.

Material Recycle and Recovery (FY 2003 \$98.8; FY 2004 \$76.2) -\$22.6
 Decrease reflects the deferred resumption of non-critical HEU facilities and upgrade of associated equipment due to higher priority needs in RTBF activities.

Containers (FY 2003 \$17.7; FY 2004 \$16.0) and **Storage** (FY 2003 \$14.6; FY 2004 \$11.4)..... -\$4.9
 Decreases result from a decline in package certification activities and higher priority needs for other RTBF activities.

Construction (FY 2003 \$195.4; FY 2004 \$274.4)..... +\$78.0
 Supports project construction and project engineering design activities. Funding provides for the mortgages for all ongoing projects. In FY 2004, there is one project engineering

and design line item (\$2.0) and seven new start construction projects, including TA-18 Mission Relocation Project at LANL (\$8.8), National Security Sciences Building at LANL (\$50.0), Test Capabilities Revitalization Phase 1 at SNL (\$36.5), and Chemistry and Metallurgy Research Facility Replacement at LANL (\$20.5).

Facilities & Infrastructure Recapitalization Program

(FY 2003 \$242.5; FY 2004 \$265.1) +\$22.6

Increase supports recapitalization, facility disposition, and infrastructure planning of the nuclear weapons complex consistent with approved FY 2003 Ten-Year Comprehensive Site Plans. PED construction project initiated in FY 2004 (+\$3.7) for selected utility projects that will provide significant reductions in deferred maintenance.

Secure Transportation Asset (FY 2003 \$153.0; FY 2004 \$182.4)..... +\$29.4

Funding provides personnel, equipment, and training for the scheduling and secure transport services for the nuclear weapons complex needed to meet the Secretary's Environmental Management commitments for closing former sites. Increase supports the hiring of federal agents/couriers, specialized training for personnel, production of fleet replacement vehicles, and the purchase of an aircraft for replacement purposes.

Safeguards and Security (FY 2003 \$510.0; FY 2004 \$585.8)..... +\$75.8

NNSA employs a comprehensive and robust security posture designed to protect national security assets at NNSA sites and facilities. Funding supports the hiring and training of additional protective force personnel, initiation of physical security upgrades, and cyber security infrastructure upgrades. Increase supports heightened physical security levels at NNSA sites and a modest research and development effort (\$10.0) to pursue emerging technologies.

Defense Nuclear Nonproliferation – National Nuclear Security Administration

(dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Defense Nuclear Nonproliferation					
Nonproliferation and verification R&D.....	259,407	203,807	203,873	+66	+0.0%
Nonproliferation and international security.....	90,646	92,668	101,734	+9,066	+9.8%
Nonproliferation programs with Russia					
International nuclear materials protection and cooperation.....	314,592	227,077	226,000	-1,077	-0.5%
Russian transition initiatives.....	57,000	39,334	40,000	+666	+1.7%
HEU transparency implementation.....	13,950	17,229	18,000	+771	+4.5%
International nuclear safety and cooperation.....	53,961	14,576	14,083	-493	-3.4%
Elimination of weapons-grade plutonium production program.....	14,200	49,339	50,000	+661	+1.3%
Accelerated materials disposition.....	—	—	30,000	+30,000	n/a
Fissile materials disposition.....	302,207	448,000	656,505	+208,505	+46.5%
Total, Nonproliferation programs with Russia.....	755,910	795,555	1,034,588	+239,033	+30.0%
Subtotal, Defense Nuclear Nonproliferation.....	1,105,963	1,092,030	1,340,195	+248,165	+22.7%
Use of prior year balances.....	-57,833	-64,000	—	+64,000	+100.0%
Return of domestic sealed sources (EM).....	10,000	—	—	—	—
International renewable energy program (EE).....	300	—	—	—	—
Total, Defense Nuclear Nonproliferation.....	1,058,430	1,028,030	1,340,195	+312,165	+30.4%

PROGRAM DESCRIPTION

NNSA's **Defense Nuclear Nonproliferation (NN)** program prevents the spread of materials, technology, and expertise relating to weapons of mass destruction; detects the proliferation of weapons of mass destruction worldwide; provides for international nuclear safety; and eliminates inventories of surplus fissile materials usable for nuclear weapons. It addresses the danger that hostile nations or terrorist groups may acquire weapons of mass destruction or weapons-usable material, dual-use production technology, or weapons of mass destruction expertise. Work will be done in the following major areas:

Nonproliferation and Verification Research and Development advances proliferation detection, nuclear explosion monitoring, and conducts demonstrations to find the means for timely detection of potential threats to national security.

Nonproliferation and International Security will continue efforts to detect, prevent, and reverse proliferation by securing weapons of mass destruction materials, technology, and expertise including strengthening international nonproliferation regimes, promoting transparent nuclear reduction, limiting the production and use of weapon-usable fissile materials around the world, reducing the size of the Russian nuclear weapons complex, and controlling sensitive exports.

Nonproliferation Programs with Russia includes the following programs:

International Nuclear Materials Protection and Cooperation installs physical security and accounting upgrades to secure Russian nuclear weapons and weapons-usable material against theft; locates, secures, and consolidates radiological materials which could be used for dirty bombs; consolidates Russian nuclear material into fewer sites where enhanced security systems have already been installed; converts weapons grade Highly Enriched Uranium (HEU) to Low Enriched Uranium (LEU); and helps to secure borders against smuggling of nuclear materials.

Russian Transition Initiatives combines the Initiatives for Proliferation Prevention and Nuclear Cities Initiatives Programs that together work to redirect Russian nuclear weapons expertise through engaging former weapons scientists in non-military research and commercial ventures.

Highly Enriched Uranium Transparency Implementation monitors the conversion and blend-down of Russian weapons-usable HEU to LEU product delivered to the United States for sale by the U.S. Enrichment Corporation. This program implements the nonproliferation aspects of a February 1993 agreement between the United States and the Russian Federation covering the U.S. purchase, over 20 years, of LEU derived from at least 500 metric tons of highly enriched uranium removed from dismantled Russian nuclear weapons.

International Nuclear Safety and Cooperation strengthens national security by helping to prevent nuclear incidents and accidents at foreign nuclear facilities, mitigating the consequences of accidents should they occur.

Elimination of Weapons-Grade Plutonium Production will assist the Russian Federation to cease its production of weapons-grade plutonium by replacing plutonium-producing nuclear reactors with fossil-fueled power plants to provide alternative supplies of heat and electricity, and to provide needed safety upgrades that facilitate shutdown of the reactors.

Accelerated Materials Disposition will implement the highest priority elements of the Bush-Putin initiatives, including the purchase of additional amounts of Russian HEU, the purchase of additional amounts of LEU down-blended from HEU, the acceleration of the conversion of HEU to LEU for storage in Russia, and the acceleration of new technologies for the use of research and test reactor fuel without proliferation risk.

Fissile Materials Disposition conducts activities in the United States and Russia to dispose of surplus weapons-grade fissile materials that pose a threat to the United States if acquired by hostile nations or terrorist groups for the manufacture of bombs. It includes the MOX Fuel Fabrication Facility that is central to the disposition of plutonium by conversion into nuclear reactor fuel. The U.S. and Russian Federation efforts proceed in parallel as specified in the September 2000 Plutonium Management and Disposition Agreement. Disposing of this surplus fissile material in the United States also helps meet compliance requirements associated with the cleanup and closure of former DOE nuclear weapons complex sites and honors commitments made to the state of South Carolina for removal of the surplus materials brought to the Savannah River Site for disposition.

The NN program is committed to the President's emphasis on performance-based budgeting. The following is their strategic objective:

Detect, prevent, and reverse the proliferation of weapons of mass destruction while promoting nuclear safety worldwide.

PROGRAM HIGHLIGHTS

The FY 2004 request of \$1.34 billion is \$312 million above the FY 2003 request. Funding of plutonium disposition in the United States will be sharply increased as emphasis is placed on the construction of facilities to convert weapons-grade plutonium into fuel for commercial reactors in the United States and in the Russian Federation. Substantial progress achieved in FY 2003 in the International Materials Protection and Cooperation program will allow new initiatives in materials protection and control at no increase in funding over the FY 2003 level; protecting strategic rocket force sites in Russia and securing radiological materials in partner countries against diversion for radiological dispersion devices. Accelerated materials disposition in Russia will be initiated as a direct result of the Bush-Putin agreements reached at the Moscow summit meeting. Construction of fossil-fueled power plants located in Seversk and Zheleznogorsk will commence, so that heat and electricity from plutonium-producing reactors can be replaced and plutonium production halted. The Nonproliferation and International Security program request has been increased over FY 2003 levels for restructuring of the program to account for recent events in the Democratic Peoples Republic of Korea (DPRK) and take steps to bring a "toolkit" of verification technologies to bear on the clear and present danger of the DPRK nuclear program.

The Global Partnership Against the Spread of Weapons and Materials of Mass Destruction, formed at the Kananaskis Summit in June has recommitted the G8 nations (United States, Canada, France, Germany, Italy, Japan, Russia, and the United Kingdom) to address nonproliferation, disarmament, counter-terrorism, and nuclear safety issues. The G8 leaders have pledged to devote up to \$20 billion over 10 years to support cooperative efforts (initially in Russia) and have invited other similarly motivated countries to participate in this partnership. President Bush has committed the United States to provide \$10 billion over 10 years to be matched by \$10 billion from the other members, attesting to the belief that nonproliferation concerns are of the highest government priority; and, therefore, that this program's work is of paramount importance for the security of the Nation and the world. While progress in these programs has proven to be more than a matter of devoting resources to the problems, the results achieved by Presidents Bush and Putin in their summit discussions are hopeful and contain positive signs of future full and complete cooperation in these critical matters.

SIGNIFICANT FUNDING CHANGES – FY 2003 to 2004 Request (\$ in millions)

Nonproliferation and Verification R&D (FY 2003 \$203.8; FY 2004 \$203.9) +\$0.1
 FY 2004 request is level with the FY 2003 request and includes continued efforts in Proliferation Detection, Nuclear Explosion Monitoring, and Supporting Activities, as follows:

Proliferation Detection (FY 2003 \$108.5; FY 2004 \$108.3)..... -\$0.2
 FY 2004 activities include demonstrating portal and long-range detection concepts to track and monitor nuclear materials transit, documenting threat signatures for priority nonproliferation problems, and researching detection technologies that are requisite for detection of weapons of mass destruction. Decrease is attributed to the completion of licensing activities to support commercialization of a radiation detection algorithm.

Nuclear Explosion Monitoring and Supporting activities
 (FY 2003 \$95.3; FY 2004 \$95.6) +\$0.3
 Increase will complete geophysical and reference data sets for five previously uncalibrated seismic monitoring stations.

Nonproliferation and International Security (FY 2003 \$92.7; FY 2004 \$101.7)..... +\$9.0

FY 2004 request includes:

Nonproliferation Policy (FY 2003 \$55.0; FY 2004 \$53.9)..... -\$1.1

Decrease in funds allocated to Fuel Cycle Activities, primarily DPRK Spent Fuel. DOE will maintain the capability to resume this activity, if needed. Offsetting increases for certification of the second Chemical Weapons Convention laboratory, cooperative monitoring, and regional engagement.

Export Control Operations (FY 2003 \$15.5; FY 2004 \$15.8) +0.3

Funding level supports initiatives to improve foreign nuclear export controls as an element in a broader campaign against nuclear terrorism. Increase will help satisfy statutory and policy-mandated responsibilities to review U.S. exports and related transfers for proliferation concern, as well as to provide technical support to U.S. export control diplomacy.

International Safeguards (FY 2003 \$18.8; FY 2004 \$29.3) +\$10.5

Increase in funding for Nuclear Noncompliance Verification to deliver tools to meet ongoing and longstanding requirements to detect, understand, and verify dismantlement of foreign clandestine nuclear programs; and for preparations to implement the Additional Protocol at DOE/NNSA sites.

Treaties and Agreements (FY 2003 \$3.4; FY 2004 \$2.8) -\$0.6

Continue to respond to unanticipated requirements arising from nonproliferation regimes or arms control obligations.

Nonproliferation Programs with Russia (FY 2003 \$795.6; FY 2004 \$1,034.6)..... +\$239.0

Increase reflects the Administration's decision to proceed with construction of the MOX Fuel Fabrication Facility and for implementation of a new program to accelerate nuclear materials disposition efforts in support of the 2002 G8 Summit initiatives by purchasing Russian HEU above the amounts in the 1993 U.S./Russia HEU Purchase Agreement. FY 2004 request includes funding for the following programs and their components:

International Nuclear Materials Protection and Cooperation**(FY 2003 \$227.1; FY 2004 \$226.0)..... -\$1.1**

FY 2002 Supplemental funding of \$150.0 accelerated these program activities, permits completion of major activities in FY 2003, and enables increases for Strategic Rocket Force work and Radiological Dispersion Devices in FY 2004. By the end of FY 2004, MPC&A upgrades will have begun on all of the estimated 600 MTs of weapons attractive materials in the Russian Federation. FY 2004 funding shifts reflect the following:

Navy Complex (FY 2003 \$55.8; FY 2004 \$38.0)..... -\$17.8

Decrease reflects completion of the last weapons-usable material site in FY 2003 and initiation of MPC&A comprehensive upgrades on all of the estimated remaining 42 nuclear warhead sites in FY 2003.

Strategic Rocket Forces (FY 2003 \$0; FY 2004 \$24.0) +\$24.0

Increase to ramp-up new program to provide security of Russian Federation warheads by installing improved MPC&A systems at a total of 2 out of approximately 10 nuclear warhead sites.

MinAtom Weapons Complex (FY 2003 \$48.0; FY 2004 \$34.0)..... -\$14.0

Decrease due to the completion of MPC&A comprehensive upgrades at Krasnoyarsk-45 in FY 2003 and ramp-down of MPC&A comprehensive upgrades at Sverdlovsk-44, which will be completed in FY 2004.

Material Consolidation and Conversion and Civilian Nuclear Sites (FY 2003 \$48.7; FY 2004 \$42.0)	-\$6.7
Increase in Materials Consolidation and Conversion due to an increase in the annual percentage of HEU converted to LEU from 4 to 11 and an increased percentage of buildings cleared of all weapons-usable material from 4 to 11, decrease in Civilian Nuclear Sites due to the completion of MPC&A comprehensive upgrades at the Institute of Physics and Power Engineering and Novosibirsk in FY 2003, and the completion of nearly all rapid and comprehensive upgrades on 40 MTs of nuclear material in FY 2003.	
Radiological Dispersion Devices (FY 2003 \$16.3; FY 2004 \$36.0)	+\$19.7
Increase to secure radiological materials in cooperation with partner countries. An additional 18 RDD sites will be secured, and an additional 225 orphan or surplus radioactive sources will be located, consolidated, and secured.	
National Programs and Sustainability (FY 2003 \$34.3; FY 2004 \$28.0)	-\$6.3
Decrease due to the completion of the construction of the first material protection control and accounting technical support and training facility in the Kola region in FY 2003.	
Second Line of Defense (FY 2003 \$24.0, FY 2004 \$24.0)	\$0
Helps to detect the illicit trafficking of special nuclear and radiological materials across Russian and other international borders through installation of radiation detection equipment. In FY 2004, an additional 46 radiation detection equipment systems will be installed at 11 additional strategic transit and border sites in Russia, Ukraine, and Kazakhstan.	
Russian Transition Initiatives (FY 2003 \$39.3; FY 2004 \$40.0)	\$0.7
Increase will enable the program to expand engagement in Russian chemical weapons institutes.	
HEU Transparency Implementation (FY 2003 \$17.2; FY 2004 \$18.0)	\$0.8
Increase reflects the cost to complete the fabrication of a blend-down monitoring system to provide continuous and independent measurements of uranium hexafluoride at Siberian Chemical Enterprise and an increase in Special Monitoring Visits to the four Russian HEU processing facilities.	
International Nuclear Safety and Cooperation (FY 2003 \$14.6; FY 2004 \$14.1).....	-\$0.5
Program has shifted to Corrective Measures and Technical Cooperation with the completion of DOE-funded, Soviet-Designed Reactor Safety in FY 2003.	
Soviet-designed Reactor Safety and Nuclear Safety Analyses (FY 2003 \$4.8; FY 2004 \$0)	-\$4.8
Decrease reflects the ramp-down for successful completion and close out of activities in this program through the use of Supplemental FY 2002 funding and completion of nuclear safety analyses.	
Corrective Measures and Technical Cooperation (FY 2003 \$5.2; FY 2004 \$11.0)	+\$5.8
Increase provides for research reactor shutdown, technical support for the Kazakhstan BN-350 breeder reactor shutdown, methods of threat vulnerability analyses, focused safety cooperation efforts in Asia, and providing expertise to international nuclear safety organizations.	

International Emergency Management and Cooperation and Technical Support Activities (FY 2003 \$4.6; FY 2004 \$3.1) -\$1.5
 Decrease reflects reduced technical and contracting support for new projects and completion of the Soviet-Design Reactor Safety program.

Elimination of Weapons-Grade Plutonium Production
 (FY 2003 \$49.3; FY 2004 \$50.0) +\$0.7
 Increase will be applied to design and equipment purchases at Seversk. FY 2004 activities will include design activities at Zheleznogorsk and interim safety upgrades to the three plutonium-production reactors. Additional funding for program activities is expected through the transfer of \$74.0 in prior-year balances from the Department of Defense Cooperative Threat Reduction program.

Accelerated Materials Disposition (FY 2003 \$0; FY 2004 \$30.0) +\$30.0
 Will implement the highest priority elements of the Bush-Putin initiatives including purchase of additional amounts of Russian HEU, purchase of additional amounts of LEU down-blended from HEU, acceleration of Russian conversion of HEU to LEU for storage in Russia, and acceleration of new technologies for the use of research and test reactor fuel without proliferation risk.

Fissile Materials Disposition (FY 2003 \$448.0; FY 2004 \$656.5)..... +\$208.5
 Increase will fund construction activities for U.S. plutonium disposition via conversion to mixed oxide fuel for consumption in commercial reactors and increased work scope in the U.S. uranium disposition program.

U.S. Surplus Fissile Materials Disposition
 (FY 2003 \$194.0; FY 2004 \$193.8)..... -\$0.2
 Decrease in Reactor-Based Technologies for lead assembly fabrication due to placement of the contract with FY 2003 funding, offset by increased plutonium storage costs and increased scope of work in the HEU Blend-Down Project including TVA off-specification project integration activities, additional Y-12 shipments, increased SRS down-blending, and LEU and HEU shipment operations, laboratory analyses of product material, payments to TVA for Uranium/Aluminum ingot processing, and vendor waste returns.

Construction (FY 2003 \$156.0; FY 2004 \$415.6) +\$259.6
 Increase is to begin construction of the U.S. MOX Fuel Fabrication Facility (FFF) (FY 2003 \$93.0; FY 2004 \$402.0) at the Savannah River Site in South Carolina and complete the Pit Disassembly and Conversion Facility (PDCF) design (FY 2003 \$33.0; FY 2004 \$13.6) in concert with the decision to focus on the MOX method of plutonium disposition. PDCF decrease reflects staging of construction with the MOX FFF to reduce peak construction costs at no overall delay to the program. Reduction in the Highly Enriched Uranium Blend-Down Project (FY 2003 \$30.0; FY 2004 \$0) is a result of the completion of that facility in FY 2003.

Russian Plutonium Disposition (FY 2003 \$98.0; FY 2004 \$47.1) -\$50.9
 Russian portion of this program will transition from research and development to facility construction in Russia, and support and oversight in the United States will decrease. Apparent decrease is from the expected use of prior-year balances within the FY 2003 request. These prior-year balances available from the FY 1999 Emergency Supplemental Appropriation are not currently being used, pending resolution of implementation details with the Russian Federation and delivery to Congress of a revised detailed program execution plan. Excluding these balances, the funding levels show an increase of \$13.1. Russian acceptance of the MOX method will accelerate this program in Russia and holds the possibility of maintaining parallelism with the U.S. program as required. When

the United States and Russia have finalized implementation details of this technical path forward and the revised detailed program execution plan is delivered to Congress, the available prior-year balances of \$151.0 mandated for work in Russia will be obligated.

Prior-Year Balances (FY 2003 -\$64.0; FY 2004 \$0) +\$64.0

Fissile Materials disposition funding shown above is inclusive of the use of prior-year balances from the Omnibus Consolidated and Emergency Supplemental Appropriation Act, 1999 (P.L. 105-277), for expenditures in the Russian Federation for plutonium disposition.

Naval Reactors – National Nuclear Security Administration

(dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Naval Reactors					
Naval reactors development.....	665,445	682,590	743,200	+60,610	+8.9%
Program direction.....	22,126	24,200	25,200	+1,000	+4.1%
Total, Naval Reactors.....	687,571	706,790	768,400	+61,610	+8.7%

PROGRAM DESCRIPTION

The **Naval Reactors** (NR) program has responsibility for all naval nuclear propulsion work, beginning with technology development, continuing through reactor operation, and, ultimately, reactor plant disposal.

The program’s efforts ensure the safe operation of reactor plants in operating nuclear powered submarines and aircraft carriers, which comprise 40 percent of the Navy’s total combatants. The program’s long-term development work ensures that nuclear propulsion technology can meet requirements to maintain and upgrade current capabilities, as well as meet future threats to U.S. security.

The NR program also fulfills the Navy’s needs for new reactors to meet evolving national defense requirements. This includes the development and delivery of the next-generation reactor for the Navy’s new VIRGINIA-class submarine and the design and development of an overall new reactor for the CVNX-class aircraft carrier. These new plants will be more affordable and have improved power capabilities, increased endurance, and added dependability compared to current plants.

The NR program is committed to the President’s emphasis on performance-based budgeting. The following is their strategic objective:

Provide the Navy with safe, militarily effective nuclear propulsion plants and ensure their continued safe and reliable operation.

PROGRAM HIGHLIGHTS

The FY 2004 request provides \$768.4 million to continue naval reactor plant operations, an increase of \$61.6 million above the FY 2003 funding level of \$706.8 million. The FY 2004 budget supports continuing efforts to ensure the safety and reliability of 102 operating naval reactor plants, upgrade and improve existing reactor plants, and develop new reactor plants for the VIRGINIA-class submarine and CVNX-class aircraft carrier programs.

SIGNIFICANT FUNDING CHANGES – FY 2003 to 2004 Request (\$ in millions)

Naval Reactors (FY 2003 \$706.8; FY 2004 \$768.4)..... +\$61.6
 Adjustment for inflation (+\$12.6) for core program activities and program direction. Reflects an increase after inflation to begin designing a new Transformational Technology Core (+\$33) and accelerate remediation efforts (+\$10) and accomplish major maintenance and replacement work (+\$6) at program sites in New York, Pennsylvania, and Idaho.

Office of the Administrator – National Nuclear Security Administration

(dollars in thousands)

FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
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Office Of The Administrator

Office of the administrator.....	307,418	328,726	347,980	+19,254	+5.9%
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PROGRAM DESCRIPTION

The **NNSA Office of the Administrator** provides the corporate direction, federal personnel, and resources necessary to plan, manage, and oversee the operation of the National Nuclear Security Administration (NNSA) under the direction of the Under Secretary for Nuclear Security. The office coordinates NNSA activities with other DOE programs and acts as the liaison to other federal agencies; state, tribal, and local governments; and the public. The Naval Reactors and the Secure Transportation Asset programs retain separately funded program direction accounts.

The NNSA Office of the Administrator is committed to the President's emphasis on performance-based budgeting. The following is their strategic objective:

Create a well-managed, responsive, and accountable NNSA organization.

PROGRAM HIGHLIGHTS

The NNSA re-engineering efforts announced in December 2002 are designed to implement the **President's Management Agenda** and create a more effective NNSA organization. The FY 2004 Office of the Administrator budget request reflects the re-engineering efforts to decrease staffing levels and continues support for corporate management and oversight of the expanding programs administered by the office. Re-engineering of the NNSA federal workforce has set the agency on a course to achieve a 20-percent reduction in personnel by the end of FY 2004. The Defense Nuclear Nonproliferation and Emergency Operations programs are excluded from staff reductions due to increased program requirements in those areas.

The new organizational structure eliminates the field operations office system and creates eight site offices reporting directly to the NNSA Administrator through the principal deputy. The site offices that oversee NNSA contractor operations are located at Lawrence Livermore, Los Alamos, and Sandia National Laboratories; Kansas City; Y-12 National Security Complex; Savannah River; Pantex; and Nevada. A NNSA service center in Albuquerque will provide procurement, human resources, and other support services to site offices based on the expertise of the former operations offices. Consolidation of personnel will be completed by the end of FY 2004.

SIGNIFICANT FUNDING CHANGES – FY 2003 to 2004 Request (\$ in millions)

Office of the Administrator (FY 2003 \$328.7; FY 2004 \$348.0)..... +\$19.3
 Increase in FY 2004 request is \$19.3 million, or 5.9 percent. Request includes \$15.8 million for re-engineering initiatives such as employee buyouts, severance costs, permanent change of station moves, and other vital investments in NNSA's future. These costs are necessary to achieve the accelerated attrition assumed for staffing levels by the end of FY 2004. Remainder of increase provides for escalation and program support for federal staff.

ENERGY SUPPLY

(dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Energy Supply					
Energy Efficiency and Renewable Energy.....	382,689	407,000	444,207	+37,207	+9.1%
Nuclear Energy, Science, and Technology.....	367,178	329,878	390,601	+60,723	+18.4%
Environment, Safety and Health.....	29,679	29,211	30,000	+789	+2.7%
Subtotal, Energy Supply.....	779,546	766,089	864,808	+98,719	+12.9%
Use of prior year balances and other adjustments.....	-4,282	-3,003	-3,003	—	—
Total, Energy Supply.....	775,264	763,086	861,805	+98,719	+12.9%

The **Energy Supply** appropriation account supports a variety of applied energy research and development programs as well as programs providing environmental oversight and mitigation. Organizations with activities supported by this appropriation include: Energy Efficiency and Renewable Energy; Nuclear Energy, Science and Technology; and Environment, Safety and Health.

Energy Efficiency and Renewable Energy – Energy Supply

(dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Energy Efficiency and Renewable Energy					
Hydrogen technology.....	28,892	39,881	87,982	+48,101	+120.6%
Solar energy.....	87,107	79,625	79,693	+68	+0.1%
Zero energy buildings.....	1,367	8,000	4,000	-4,000	-50.0%
Wind energy.....	38,211	44,000	41,600	-2,400	-5.5%
Hydropower.....	4,986	7,489	7,489	—	—
Geothermal technology.....	27,035	26,500	25,500	-1,000	-3.8%
Biomass and biorefinery systems R&D.....	87,683	86,005	69,750	-16,255	-18.9%
Intergovernmental activities.....	5,680	14,807	12,500	-2,307	-15.6%
Electricity reliability.....	76,764	76,506	76,866	+360	+0.5%
Departmental energy management program.....	1,421	3,000	2,300	-700	-23.3%
National climate change technology initiative.....	—	—	15,000	+15,000	n/a
Facilities and infrastructure.....	4,870	5,000	4,950	-50	-1.0%
Program direction.....	18,673	16,187	16,577	+390	+2.4%
Total, Energy Efficiency and Renewable Energy.....	382,689	407,000	444,207	+37,207	+9.1%

PROGRAM DESCRIPTION

The **Energy Efficiency and Renewable Energy (EE)** program conducts research and development (R&D) and assists with deployment efforts to advance energy efficiency and clean power technologies and practices. EE's **Energy Supply** activities promote the development and use of clean power technologies to meet growing national energy needs, to reduce dependence on foreign energy sources, and to enhance energy security. Also supported is R&D on technologies to improve the reliability and performance of the national electric grid and to make it easier to connect renewable and distributed power sources.

The FY 2004 **Hydrogen Technology** program request increases funding for technology development in support of the Administration's **Hydrogen Fuel** and **FreedomCAR** initiatives. This enhanced program will facilitate an industry decision in 2015 on the feasibility of commercializing hydrogen-powered fuel cell vehicles, and allow rapid market penetration to achieve significant oil displacement and environmental benefits for the year 2020 and beyond. The newly proposed Hydrogen Fuel initiative will help accelerate research and development of hydrogen fuel production, storage, infrastructure, codes, and standards. The Administration is committing over \$1.2 billion towards the Hydrogen Fuel initiative over the next 5 years (FY 2004 through 2008).

The **Solar Energy** program pursues ways to help meet America's energy needs through the development of efficient, reliable, and affordable solar energy systems that convert sunlight into electrical power, space heat, hot water, and lighting. The **Zero-Energy Buildings** activity develops technologies and techniques required for the integration of photovoltaic, solar thermal, and other distributed energy supply technologies into highly efficient buildings.

The **Wind Energy** program focuses on low-wind speed technology through research and development of large wind systems that are integrated into the electric power grid and smaller turbines deployed in relatively close proximity to the point of use. The **Hydropower** program conducts R&D to develop new environmental-friendly turbines to maintain U.S. hydropower generation capacity. The **Geothermal Technology** program conducts research and develops advanced technologies to establish geothermal energy as an economically

competitive contributor to the U.S. energy supply by capturing heat from the earth and converting it into electricity and usable thermal energy. The program develops innovative technologies to find, access, and use the Nation's geothermal resources. These efforts include R&D on geophysical and geochemical exploration technologies, improved drilling systems, and more efficient heat exchangers and condensers.

The **Biomass and Biorefinery Systems R&D** program is expanding the use of biomass for fuels, power, and industrial products (chemicals and materials) by developing integrated biorefinery technologies that convert various renewable biomass feedstocks into multiple products such as ethanol for transportation fuel; bio-oils or gases for power generation; and products such as plastics, coatings, and lubricating oils.

Funding for **Intergovernmental Activities** supports bilateral and multilateral agreements related to renewable energy. The program also builds partnerships with international energy organizations and Native American tribal governments to expand the development of energy efficiency and renewable energy technology choices for consumers and businesses.

Electricity Reliability consists of High Temperature Superconductivity (HTS) R&D, Transmission Reliability R&D, Energy Storage, and Distribution and Interconnection activities. The **HTS R&D** activities are conducted in partnership with industry to bring the advantages of superconductivity—the ability of certain materials to carry large currents without energy losses due to electrical resistance—to a new generation of grid equipment that has higher capacity, lower losses, and significant environmental advantages. **Transmission Reliability R&D** focuses on developing technology to improve grid operation and provide grid operators information on potential problems. The **Energy Storage** activities focus on developing advanced energy storage systems for applications ranging from improved power reliability for digital facilities to voltage support for transmission lines. **Distribution and Interconnection** efforts focus on developing interconnection standards for deployment of distributed energy resources, developing communication and control systems to integrate distributed energy devices and enhance customer electric service, and modeling and testing advanced grids with aggregated distributed resources. In FY 2003, DOE plans to create the Office of Electric Transmission and Distribution that will report directly to the Under Secretary for Energy, Science and Environment.

The **Departmental Energy Management** activity supports and provides technical assistance to DOE sites to accomplish energy management projects and expand the use of private sector financing for energy management. The **National Climate Change Technology Initiative Competitive Solicitation** program is part of a government-wide effort to develop innovative applied research aimed at reducing greenhouse gas emissions. The **Facilities and Infrastructure** activity supports capital investments essential to support a world-class research and development program at major EE related DOE laboratory sites.

PROGRAM HIGHLIGHTS

The FY 2004 request proposes several program shifts to more efficiently and effectively meet national energy needs. In March of 2002, EE began a complete reorganization of its programmatic and business functions into 11 program offices and a centralized administration office. The FY 2004 request presents a new budget structure that mirrors the new organizational structure. In addition, the budget shifts reflect application of the R&D Investment Criteria and the Program Assessment Rating Tool developed as part of the President's Management Agenda.

The FY 2004 budget request for EE funded activities exceeds the FY 2003 budget request by \$37.2 million (+9.1 percent). The budget request reflects programmatic choices to refocus activities toward longer term, higher risk activities that the private sector is less likely to undertake without federal support.

For instance, the request for the **Hydrogen Technology** program includes a significant funding increase (\$48.0 million) to support the newly proposed **Hydrogen Fuel** Initiative. The additional funding will go towards lowering the cost to produce and deliver hydrogen, developing more compact and lighter weight hydrogen storage, validating hydrogen and fuel cell infrastructure technologies, and developing safety protocols, codes, and standards.

In FY 2004, the **National Climate Change Technology Initiative Competitive Solicitation** will be supported within the Energy Supply Fossil Energy R&D and Energy Conservation accounts, for a combined funding request of \$40.0 million. This unique program will spur innovation of technologies based on their potential to reduce, avoid, or capture greenhouse gas emissions. This will be done through an expanded competitive solicitation program that will cut across three program offices: \$24.5 million for Energy Efficiency and Renewable Energy (\$15.0 million in Renewable Energy and \$9.5 million in Energy Conservation); \$13.2 million for Fossil Energy; and \$2.3 million for Nuclear Energy, Science and Technology. These program offices will collaborate and focus climate change R&D investments on high-priority areas where breakthrough technologies can slow the growth of greenhouse gas emissions.

Funding for **Biomass and Biorefinery Systems R&D** activities is reduced by \$16.3 million relative to the FY 2003 level. The reduced request reflects the integration of the EE biomass activities to focus resources on a limited and more coherent set of goals and objectives, and reduced funding for the Small Modular Biopower activity that will be completed in FY 2004. The DOE request also recognizes that the Department of Agriculture (USDA) will receive \$14.0 million dollars in mandatory biomass R&D funding in FY 2004, and that the Biomass Research and Development Board (established by the Biomass R&D Act of 2000) will provide overall direction for using these funds to complement other DOE investments in biomass research. A competitive solicitation will be issued to ensure maximum taxpayer value for this joint DOE/USDA work, which started in FY 2003.

SIGNIFICANT FUNDING CHANGES – FY 2003 to 2004 Request (\$ in millions)

Hydrogen Research (FY 2003 \$39.9; FY 2004 \$88.0) +\$48.1

Increase supports the new Hydrogen Fuel Initiative as indicated in the following changes: accelerates and expands research on hydrogen production from renewable resources (+\$11.2); expands current storage R&D and initiates advanced storage concepts research (+\$18.7); increases expenditure on hydrogen refueling stations for new fuel cell vehicle/infrastructure validation demonstration (+\$3.2); increases focus on codes and standards and hydrogen safety (+\$11.2); and initiates a national education campaign to communicate the benefits of and barriers to hydrogen technology (+\$3.8).

Biomass and Biorefinery Systems R&D (FY 2003 \$86.0; FY 2004 \$69.7).-\$16.3

Begins the planned phase-out of the small modular biopower activity (-\$1.0). Reductions in other activities, including biomass conversion technologies R&D, systems integration, and production efforts, reflect the program receiving broader leverage with industry through focused competitive solicitations and the selection of six new well-integrated biorefinery projects (-\$15.3).

Zero Energy Buildings (FY 2003 \$8.0; FY 2004 \$4.0).-\$4.0

Program will evaluate its activities to ensure no duplications or overlaps with Interior-funded efforts in the Building Technologies program.

National Climate Change Technology Initiative (FY 2003 \$0; FY 2004 \$15.0)..... +\$15.0

Funding supports the competitive solicitation program under the President's National Climate Change Technology Initiative.

Nuclear Energy, Science and Technology – Energy Supply

(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%

PROGRAM DESCRIPTION

The **Nuclear Energy, Science and Technology (NE)** program promotes secure, competitive, and environmentally responsible nuclear technologies to serve the present and future energy needs of the country. As we become more conscious of the significant energy and environmental challenges facing the United States and the world in this new century, the benefits of nuclear fission as a key energy source for both the near- and long-term energy future of America are increasingly apparent. A key mission of DOE's nuclear energy research and development program is to help enhance that basic technology and, through some of the most advanced civilian technology research conducted today, chart the way toward the next leap in technology. With these efforts and those of industry and our overseas partners, nuclear energy will fulfill its promise as a safe, advanced, inexpensive, and environmentally benign approach to providing reliable energy to all the world's people.

The programs within NE fully support **National Energy Policy** recommendations to expand the use of nuclear energy in the United States. Specifically, the new **Nuclear Hydrogen Initiative** will develop advanced technologies that can be used in tandem with next-generation nuclear energy plants to generate economic, commercial quantities of hydrogen to support a sustainable, clean energy future for the United States. The **Generation IV Nuclear Energy Systems Initiative** establishes a basis for expansive cooperation with our international partners to develop next-generation reactor and fuel cycle systems that represent a significant leap in economic performance, safety, and proliferation-resistance. The **Advanced Fuel Cycle Initiative** program

will focus technologies enabling the reduction of spent fuel volume, the separation of long-lived, highly toxic elements in spent fuel, and reclaiming spent fuel's valuable energy.

PROGRAM HIGHLIGHTS

The FY 2004 request supports innovative applications of nuclear technology to deploy new nuclear generation to meet energy and climate goals, maximize energy from nuclear fuel, protect existing nuclear generation to support the National Energy Policy objectives, and maintain and enhance national nuclear capabilities to meet future challenges. In addition, the FY 2004 request reflects the decision to transfer landlord responsibility of the Idaho National Engineering and Environmental Laboratory (INEEL) from the Office of Environmental Management to NE.

The **University Reactor Fuel Assistance and Support** program supports the operation and upgrade of university research and training reactors; provides fellowships and scholarships to outstanding students, brings nuclear technology education to small, minority-serving institutions, and provides nuclear engineering research grants. The program helps to maintain domestic capabilities to conduct research and the critical infrastructure necessary to attract, educate, and train the next generation of scientists and engineers with expertise in nuclear energy technologies. The Nuclear Engineering Education Research program stimulates innovative research at U.S. universities. This program continues to support four university consortiums and provides funding for additional university consortium in FY 2004 within the Innovations in Nuclear Infrastructure and Education initiative. DOE also provides the supply of fresh fuel to and transport of spent fuel from university research reactors and supports reactor equipment upgrades at universities.

The **Nuclear Energy Research Initiative** program funds innovative investigator-initiated, peer-reviewed R&D at U.S. universities, national laboratories, and industry to improve the performance of U.S. light water reactor technology and develop concepts to solve issues inhibiting the long-term growth of nuclear power.

The **Nuclear Energy Technologies** 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. In FY 2004, the **Nuclear Power 2010** program, a secretarial initiative, will continue to aggressively pursue demonstration of key regulatory approval processes, foster the completion of cost-effective, advanced nuclear plant designs and develop gas-cooled reactor technologies in order to pave the way for the deployment of new, advanced nuclear plants in the United States by 2010. Developing the next-generation nuclear systems will be an essential aspect of the **Generation IV Nuclear Energy Systems Initiative**. Through this effort, the United States will lead multi-national research and development projects to usher forth next-generation nuclear reactors and fuel cycles based on the results of the internationally endorsed **Generation IV Technology Roadmap**. This international approach allows for the development of technologies that are widely acceptable, enables DOE to access the best expertise in the world to develop complex new technologies, and allows us to leverage our scarce nuclear R&D resources.

With its new **Nuclear Hydrogen Initiative**, DOE will develop new technologies to generate hydrogen on a commercial scale in an economic and environmentally benign manner. DOE's Offices of Nuclear Energy, Fossil Energy, and Energy Efficiency and Renewable Energy are working in coordination to provide the technological underpinnings of the Administration's **Hydrogen Fuel** initiative. In the case of nuclear energy, DOE will conduct research and development into advanced thermochemical technologies which may, when used in tandem with next-generation nuclear energy systems, enable the United States to generate hydrogen at a scale and cost that would support a future, hydrogen-based economy. Current fossil-fuel-based methods emit greenhouse gases and are roughly four times more costly than the market will support.

The **Advanced Fuel Cycle Initiative** (previously funded in the Spent Fuel Pyroprocessing and Transmutation program) will develop technologies that can reduce the volume and long-term toxicity of high-level waste from spent nuclear fuel, reduce the long-term proliferation threat posed by civilian inventories of plutonium in spent fuel, and provide for proliferation-resistant technologies to recover the energy content in spent nuclear fuel. This research is integral to the Generation IV Nuclear Energy Systems effort.

The **Radiological Facilities Management** program provides funding that will maintain critical user facilities in a safe, secure, environmentally-compliant and cost-effective manner to support national priorities. The facilities and infrastructure activities previously funded in the Advanced Radioisotope Power Systems and Medical Isotope programs are included in this program. The titles of these programs have been changed to **Space and Defense Infrastructure** and **Medical Isotope Infrastructure** to more accurately reflect the activities being performed at NE managed research and production user facilities. In addition, this program includes funding to transfer heat source and power systems assembly and testing operations for radioisotope power systems from the Mound Plant in Ohio to Argonne National Laboratory–West in Idaho.

On July 15, 2002, Secretary of Energy Spencer Abraham announced a major mission realignment for the INEEL, establishing the laboratory as the Nation’s leading center for nuclear energy research and development. The INEEL will become the “command center” for NE nuclear energy research and development enterprise, including the lead role in the development of DOE’s next-generation nuclear reactor and fuel cycle systems and space nuclear power and propulsion systems.

The **Idaho Facilities Management** program reflects the Secretary’s decision to transfer landlord activities associated with INEEL from EM to NE, as well as merging activities associated with the Test Reactor Area Landlord previously funded in NE’s Radiological Facilities Management program. In addition, the program includes funding for operational activities associated with the ANL-W facilities that were previously funded under the Radiological Facilities Management program.

The **Idaho Sitewide Safeguards and Security** program reflects the transfer of the responsibility to manage safeguards and security activities for INEEL and ANL-W from EM to NE. This program protects DOE interests from theft, diversion, sabotage, espionage, unauthorized access, compromise, and other hostile acts, which may cause unacceptable adverse impacts on national security, program continuity, the health and safety of employees, the public, or the environment at the INEEL and the ANL-W.

SIGNIFICANT FUNDING CHANGES – FY 2003 to 2004 Request (\$ in millions)

University Reactor Fuel Assistance and Support (FY 2003 \$17.5; FY 2004 \$18.5)..... +\$1.0
 In FY 2004, DOE is expanding efforts to assist universities in continuing the integration of academic and reactor research in the Innovations in Nuclear Infrastructure and Education initiative.

Nuclear Energy Research Initiative (NERI) (FY 2003 \$25.0; FY 2004 \$12.0)..... -\$13.0
 In FY 2004, research activities on 11 NERI projects initiated in FY 2000 and 2001 will be completed. Program will also complete the funding of the projects initiated in FY 2002. In addition, DOE will continue the bilateral international projects initiated in FY 2002 and 2003. No new research grants will be awarded in FY 2004.

Nuclear Energy Technologies (FY 2003 \$46.5; FY 2004 \$48.0) +\$1.5
 FY 2004 request will continue the competitively selected cooperative Early Site Permit (ESP) demonstration project with resolution of site-specific issues arising from the Nuclear Regulatory Commission review of the ESP applications submitted in FY 2003. DOE will also finalize selection and award a utility cost-shared project to demonstrate the Construction/Operating licensing

process. Further, the program will complete the nuclear construction technology assessment initiated in FY 2003; initiate the design of the gas-cooled fuel irradiation test fixture; develop new coating technology for gas reactor fuel; and initiate fuel characterization methods. (Nuclear Power 2010, FY 2003 \$35.3; FY 2004 \$35.0). The Generation IV Nuclear Energy Systems research and development will focus on concept specific activities for the Very High Temperature Reactor, Supercritical Water Cooled Reactor, Gas-Cooled Fast Reactor, and the Lead-Cooled Fast Reactor. In addition, crosscutting activities will be conducted such as initiating mechanical tests and irradiation tests on commercially-available materials and advanced materials and validating computer models for use in design and safety analysis applications. (Generation IV, FY 2003 \$7.8; FY 2004 \$9.7). Request also includes \$2.3 for National Climate Change Initiative.

Nuclear Hydrogen Initiative (FY 2003 \$0; FY 2004 \$4.0)..... +\$4.0

In FY 2004 as part of the Hydrogen Fuel Initiative, DOE is proposing a new program focused on producing nuclear-based hydrogen in an environmentally friendly and economic manner. The request provides funds to develop a Nuclear Hydrogen Technology Roadmap and initiate work on a facility concept that integrates a nuclear hydrogen production system with an advanced reactor design.

Advanced Fuel Cycle Initiative (FY 2003 \$18.2; FY 2004 \$63.0) +\$44.8

FY 2004 request reflects an increase to enable the development of technologies to significantly reduce the volume of spent fuel requiring geologic disposal and reduce inventories of civilian plutonium contained in spent fuel (+\$32.2). Request reflects an increase to enable the development of advanced fuels and fuel recycle technologies, demonstration of toxicity reduction through irradiation testing, and evaluation of long-term waste forms (+\$5.1). In addition, the request includes an increase to provide fellowships to expand the number of Master and Ph.D. graduate engineers and scientists within the Transmutation Science Education initiative (+\$7.5).

Radiological Facilities Management (FY 2003 \$54.2; FY 2004 \$62.7)..... +\$8.5

FY 2004 request includes an increase to the **Space and Defense Infrastructure** program, previously called the Advanced Radioisotope Power Systems program. This increase includes funding for the transfer of the radioisotope power system operations from the Mound facility in Ohio to the Argonne National Laboratory–West facility in Idaho (+\$8.3). Request includes increases to operate the full-scale scrap recovery line and purchase a DC arc analyzer required to analyze the purity of Pu-238 at Los Alamos National Laboratory (+\$1.2), to refine iridium scrap so the iridium material can be reused, and to replace aging equipment at the iridium fabrication facility at Oak Ridge National Laboratory (+\$0.3). In addition, the request includes a decrease in the **Medical Isotopes Infrastructure** program previously called the Medical Isotopes program. This decrease is due to the completion of the Los Alamos Isotope Production Facility in FY 2003 (-\$1.7), offset by small increases to permit needed minor repairs and support on-time maintenance requirements (+\$0.4).

Idaho Facilities Management (FY 2003 \$68.4; FY 2004 \$65.6)..... -\$2.8

FY 2004 request will reduce the Test Reactor Area maintenance backlog by 20 percent (+\$1.6). This increase is offset by delaying some general plant projects and the purchasing of some capital equipment to future years (-\$4.4).

Idaho Site-Wide Safeguards and Security (FY 2003 \$43.2; FY 2004 \$56.6)..... +\$13.4

FY 2004 request includes increases in physical security to support heightened security requirements resulting in increased posts, patrols, and other safeguards and security activities (+\$11.6). In addition, the request provides an increase for the continuation of current cyber security initiatives (+\$1.8).

Program Direction (FY 2003 \$56.8; FY 2004 \$60.2) +\$3.4

FY 2004 request includes funding to support 225 FTEs at the Idaho Operations Office and 20 FTEs at DOE headquarters that transferred from EM to NE. Request also provides funding for new hires that will strengthen our project management and provide junior staff to support succession planning. This new staff will also help manage expanding research and development in areas such as the Advanced Fuel Cycle Initiative, Nuclear Hydrogen Initiative, and Generation IV initiative (+\$1.2). In addition, the request includes increases for cost of living and promotions (+\$2.0), travel due to expanding research and development programs (+\$0.2), other related expenses due to Working Capital Fund increases (+\$0.9), offset by a decrease in the use of support service contractors (-\$0.9).

Environment, Safety and Health (non-defense) – Energy Supply

(dollars in thousands)

FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003
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Environment, Safety and Health

Office of environment, safety and health (non-defense)..	9,391	10,340	10,000	-340	-3.3%
Program direction.....	20,288	18,871	20,000	+1,129	+6.0%
Total, Environment, Safety and Health.....	29,679	29,211	30,000	+789	+2.7%

PROGRAM DESCRIPTION

The **Environment, Safety and Health (ES&H)** program advises the Secretary of Energy on the status of the health and safety of DOE workers, the public, and the environment near DOE facilities. By statute, DOE assumes direct regulatory authority for safety and health, and the ES&H program plays a critical role in conducting independent reviews of environment, safety, and health performance and providing technical services, resources, and information sharing. DOE is externally regulated for compliance with applicable environmental laws administered by other federal agencies. The ES&H program serves as DOE’s advocate to assure that their interests are reflected in the formulation of environmental regulations and standards. The ES&H program develops environment, safety, and health directives and policies, performs Price-Anderson enforcement, and funds radiation health studies. The ES&H program also assists workers in obtaining information and medical records when applying for benefits under the **Federal Energy Employees Occupational Illness Compensation Program Act**.

The ES&H program is funded under two accounts within the Energy and Water Development Appropriations Bill. Defense-related activities are funded in the Other Defense Activities account and discussed in another section of this document. Non-defense ES&H activities, discussed here, are funded in the Energy Supply account and support Policy, Standards and Guidance, DOE-Wide Environment, Safety, and Program Direction.

The ES&H program is committed to the President’s emphasis on performance-based budgeting. The following is their strategic objective:

Reduce the number of deaths, injuries, and illnesses; environmental releases from environment cleanup; and other operational activities such that DOE organization activities remain below their DOE average for the last 5 years of data for: (1) Total Recordable Case Rate, (2) Occupational Safety Cost Index, (3) Hypothetical Radiation Dose to the Public, (4) Average measurable dose to DOE workers, and (5) Reportable Occurrences of Releases to the Environment.

PROGRAM HIGHLIGHTS

In FY 2004, the **Policy, Standards and Guidance** activities will continue to develop and update current DOE environment, safety, and health policies; standards; and guidance by adopting non-government consensus standards that are appropriate for DOE work. Regulatory liaison activities with other government agencies to support DOE’s interests will also continue.

SIGNIFICANT FUNDING CHANGES – FY 2003 to FY 2004 Request (\$ in millions)

DOE-Wide ES&H Programs (FY 2003 \$6.8; FY 2004 \$6.5)..... -\$0.3

Decrease in funding for DOE Laboratory Accreditation program in this account reflects the functional transfer of the program to the Other Defense Activities account along with Radiological and Environmental Sciences Laboratory funding.

Program Direction (FY 2003 \$18.9; FY 2004 \$20.0) +\$1.1

Increases for salaries and benefits, travel, and other related expenses are due to inflation and to providing funding for cost-of-living adjustments, locality pay, within-grade increase, lump sum payments, and awards.

Science

(dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Science					
High energy physics.....	697,383	724,990	737,978	+12,988	+1.8%
Nuclear physics.....	350,589	382,370	389,430	+7,060	+1.8%
Biological and environmental research.....	554,125	484,215	499,535	+15,320	+3.2%
Basic energy sciences.....	979,560	1,019,163	1,008,575	-10,588	-1.0%
Advanced scientific computing research.....	150,205	166,557	173,490	+6,933	+4.2%
Science laboratories infrastructure.....	37,125	42,735	43,590	+855	+2.0%
Fusion energy sciences program.....	241,100	257,310	257,310	—	—
Safeguards and security.....	50,230	48,127	48,127	—	—
Program direction.....	149,467	137,332	150,813	+13,481	+9.8%
Workforce development for teachers and scientists.....	4,460	5,460	6,470	+1,010	+18.5%
Small business innovation research (SBIR).....	99,668	—	—	—	—
Subtotal, Science.....	3,313,912	3,268,259	3,315,318	+47,059	+1.4%
Less security charge for reimbursable work.....	-4,460	-4,383	-4,383	—	—
Total, Science.....	3,309,452	3,263,876	3,310,935	+47,059	+1.4%

PROGRAM DESCRIPTION

The **Science** program funds energy related basic research in the following areas: health and environmental consequences of energy production and development; fundamental science that supports the foundations for new energy technologies and environmental mitigation; a science base for fusion as a potential future energy source; fundamental research in energy, matter, and the basic forces of nature; and advanced computational and networking tools critical to research.

In support of its mission, the Science program has responsibilities in three main areas: selection and management of research; the operation of world-class, state-of-the-art scientific facilities; and the design and construction of new facilities. Further, Science activities support the **President's Management Agenda** by integrating budgeting and performance evaluation, expanding electronic government, and the development and use of new investment criteria for evaluating basic research in the FY 2004 budget cycle.

The **High Energy Physics** (HEP) program conducts basic research on the nature of matter and energy at its most fundamental level. Particle physics seeks to understand the universe by investigating the basic constituents of matter and the forces binding them together. The research program is primarily carried out at the two major scientific facilities: **Tevatron at Fermilab** in Batavia, Illinois, and **Stanford Linear Accelerator Center** in California. The DOE is participating in the construction of the **Large Hadron Collider** in Switzerland. The HEP program also funds a program of non-accelerator physics that investigates dark energy, supernovae, solar neutrinos, black holes, and other topics.

The **Nuclear Physics** (NP) program conducts research to understand the structure and interactions of atomic nuclei and the fundamental forces and particles of nature in nuclear matter. The NP program seeks to explain the structure and properties of nuclei and nuclear matter in terms of their fundamental constituents. The program funds two large flagship national user accelerator facilities, the Continuous Electron Beam Accelerator Facility at **Thomas Jefferson National Accelerator Facility** in Newport News, Virginia, and the **Relativistic Heavy Ion Collider** at

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Brookhaven National Laboratory in New York. It also supports several other laboratory and university facilities and a program of non-accelerator physics.

The **Biological and Environmental Research** (BER) program develops the knowledge needed to identify, understand and mitigate the adverse health and environmental consequences of energy production, development, and use. The BER program is structured into four subprograms. The **Life Sciences** program focuses on understanding and mitigating the health and environmental consequences of energy production, use, and waste cleanup; it manages the DOE Human Genome and Genomes to Life programs. The **Climate Change Research** program funds DOE participation in the U.S. Global Change Research Program and the Climate Change Research Initiative. The **Environmental Remediation** program researches remediation and restoration of the Nation's nuclear weapons production sites. Using DOE research and technologies, the **Medical Applications and Measurement Science** program develops new medical diagnostic and therapeutic tools for disease diagnosis and treatment, non-invasive medical imaging, and biomedical engineering.

The **Basic Energy Sciences** (BES) program conducts research and operates facilities to provide the foundation for new and improved energy technologies and for understanding and mitigating the environmental impacts of energy use. There are two BES subprograms. The **Materials Sciences and Engineering** program performs research to make materials perform more efficiently and at a lower cost. Applications include electric motors and generators, solar conversion, batteries and fuel cells, vehicles, and industrial applications. The **Chemical Sciences, Geosciences and Energy Biosciences** program seeks to understand fundamental interactions of atoms, molecules, and ions with photons and electrons. This knowledge is crucial for improving combustion systems, solar photoconversion processes, and nanoscale science. The program also aims to improve our understanding of earth processes that affect energy production and environmental quality. Investigations into the formation, storage, and interconversion of energy by plants and microorganisms have application for renewable fuel resources, environmental remediation, and photosynthesis. The BES program is currently constructing a major new scientific user facility, the \$1.4 billion (total project cost) **Spallation Neutron Source**, which will be the world's most powerful neutron scattering facility when completed. The BES program is also constructing several **Nanoscale Science Research Centers** as part of its nanoscale science initiative.

The **Advanced Scientific Computing Research** (ASCR) program provides world leadership in areas of scientific computing research relevant to the DOE missions and supports the goal of providing extraordinary tools for extraordinary science. Applications include simulating the flow of oil and gas in reservoirs, modeling the chemistry of heavy elements for managing highly radioactive mixed wastes from DOE weapons production facilities, climate modeling, and simulation of diesel combustion. The ASCR program funds the **National Energy Research Scientific Computing Center** at Lawrence Berkeley National Laboratory (supports over 2,000 users) and the **Energy Sciences Network** that links Science researchers and facilities.

The **Fusion Energy Sciences** (FES) program seeks to study plasmas, the fourth state of matter, and understand and control the process of fusion that can produce an enormous release of energy. The FES facilities include the **DIII-D** at General Atomics in San Diego, **the Alcator C-Mod** at MIT, and the **National Spherical Tokamak Experiment** at Princeton. Starting in FY 2004, DOE will participate in negotiations to construct an international burning plasma experiment, the International Thermonuclear Experimental Reactor.

The Science program is committed to the President's emphasis on performance-based budgeting. The following are their strategic goals:

Energy Supplies: Through public-private partnerships, DOE's policy and research will provide the technology capable of developing abundant, reliable, affordable, and environmentally sound energy supplies.

Scientific Advancement: DOE-sponsored research leads the world in scientific advances in energy-related basic sciences.

Medical Applications: DOE is the recognized leader in the integration of the physical sciences, biology, and engineering, providing innovative interdisciplinary approaches and technologies that improve human health.

Scientific Facilities: DOE is the provider of the Nation's research facilities for the physical sciences and computation, and contributes unique, vital facilities to the biological and environmental sciences.

PROGRAM HIGHLIGHTS

The FY 2004 request totals \$3.3 billion and is essentially level with the FY 2003 request. Within this budget, several modest program increases are possible due to project completions and ramp-downs, terminations, and adjustments in funding priorities.

The **High Energy Physics** (HEP) program gives priority to two "windows of opportunity." First is the search for the elusive Higgs Boson, the expected source of mass; this will be the primary emphasis at Fermilab for the next several years. The second priority is research on **charge-parity violation** at the **Stanford Linear Accelerator Center**, which may explain the preponderance of matter over antimatter in the universe. DOE continues participation with the European Center for Nuclear Research on construction of the **Large Hadron Collider** (LHC). The LHC funding profile has changed, and DOE will now fund the project through FY 2007 and then become a partner in its research program. The HEP program has enhanced its program of non-accelerator physics, including \$6.9 million for the **SuperNova Acceleration Probe** that will investigate "dark energy," which is thought to be critical to the exciting discovery that the universe is expanding at an accelerating rate. Construction of the Neutrinos at the Main injector (NuMI) project is continued.

The **Nuclear Physics** program will focus its FY 2004 resources on research and operations of its three largest facilities. The **Bates** facility will operate 27 weeks in FY 2003 and 26 weeks in FY 2004. The **Thomas Jefferson National Accelerator Facility** operates 28 weeks in FY 2003 and 27 weeks in FY 2004. The **Relativistic Heavy Ion Collider** increases from 22 weeks to 29 weeks. In order to support other facility operations, the 88-Inch Cyclotron at LBNL will shut down in FY 2004. Funding for R&D on a proposed new facility, the **Rare Isotope Accelerator**, is maintained at \$3.5 million.

The **Biological and Environmental Research** program has several high visibility initiatives. The **Genomes to Life** program increases by \$24.5 million for additional research on function and control of molecular machines for energy and environmental applications. This is partly offset by a reduction of \$12.2 million in the **Human Genome Project**, representing completion of human DNA sequencing. The **Climate Change Research** program is increased by \$5.0 million to study the response of ecosystems to environmental change. Funding for the **Savannah River Ecology Laboratory** increases by \$2.0 million for research on lowering the cost of environmental cleanup activities.

The **Basic Energy Sciences** program funding for the **Spallation Neutron Source** decreases by \$82 million in FY 2004 (construction -\$86 million, research +\$4 million), as the project moves to completion in FY 2006. This savings makes funding available for a \$64-million increase in the **Nanoscale Science** program, including funding for five **Nanoscale Science Research Centers**. Funding is also increased for operation of the scientific user facilities and design of the next-generation **Linac Coherent Light Source**.

The **Advanced Scientific Computing Research** program provides new funding for **Next Generation Computer Architecture**, an initiative to optimize computer architectures to meet the special requirements of scientific problems.

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Starting in FY 2004, the **Fusion Energy Sciences** (FES) program will participate in negotiations to construct an international burning plasma experiment, **ITER**. The FES program has identified \$12 million within its existing programs that support preparations for ITER. The program will maintain operation of its three primary facilities at the proposed FY 2003 levels and will continue with design and fabrication of the **National Compact Stellerator Experiment** at Princeton. Within available funding in FY 2004, the FES program will establish up to two Centers of Excellence in Theory and General Plasma Science.

Funding for the **Science Laboratories Infrastructure** and for the **Safeguards and Security** programs is mostly unchanged from FY 2003. The **Program Direction** budget has been restructured in FY 2004 to include both the Technical Information Management and the Energy Research Analysis subprograms; funding has been increased to fully support all FTEs. To give added emphasis to education activities, the Science Education subprogram of Program Direction has become the new **Workforce Development for Teachers and Scientists** program, and funding has been increased to support a new pilot program for teachers.

SIGNIFICANT FUNDING CHANGES – FY 2003 to 2004 Request (\$ in millions)

High Energy Physics (FY 2003 \$725.0; FY 2004 \$738.0)..... +\$13.0
 In FY 2004, the focus continues to be on the two “windows of opportunity.” **Fermilab** will operate for 36 weeks at higher luminosities in its search for the Higgs Boson (FY 2003 \$233.2; FY 2004 \$248.2). The **B-Factory at SLAC** will operate for 39 weeks, also at higher luminosities, in its study of CP Violation (FY 2003 \$117.1; FY 2004 \$125.8)..... +\$23.7

DOE funding for the **Large Hadron Collider** (LHC) has been adjusted to the new project funding profile. Funding will continue through FY 2007, but the DOE total contribution will remain at \$450.0 (FY 2003 \$60.0; FY 2004 \$48.8). Funding for U.S. participation in the LHC research program increases (FY 2003 \$6.7; FY 2004 \$15.4)..... -\$2.5

Funding for non-accelerator experiments using underground, land-based, or space-based facilities is increased by \$5.6. The primary change in funding is for the **SuperNova Acceleration Probe** project (FY 2003 \$1.4; FY 2004 \$8.3)..... +\$5.6

Theory program remains near the FY 2003 level (-\$0.2) and Advanced Technology R&D is reduced (-\$5.8) to redirect funds to facility operations. Funding for construction of the **NuMI** project is nearly complete (FY 2003 \$20.1; FY 2004 \$12.5). Other changes in research, operations and equipment total -\$0.2 -\$13.8

Nuclear Physics (FY 2003 \$382.4; FY 2004 \$389.4)..... +\$7.0
 Operation and research in the three large facilities continues to dominate funding. In FY 2004, **Bates** operates for 26 weeks (FY 2003 \$16.1; FY 2004 \$15.0); as planned, FY 2004 is the final year of operation of Bates. **Thomas Jefferson National Accelerator Facility** operates for 27 weeks (FY 2003 \$78.5; FY 2004 \$80.5); funding includes \$0.5 for research on a facility upgrade to 12 GeV. The **Relativistic Heavy Ion Collider** operates 29 weeks (FY 2003 \$126.7; FY 2004 \$129.8)..... +\$4.0

Low Energy Nuclear Physics increases funding for research, accelerator facilities, and non-accelerator experiments (+\$6.4). The increase is offset partially by shut down of the **88-Inch Cyclotron** (FY 2003 \$6.3; FY 2004 \$3.0) +\$3.1

Nuclear Theory increases (+\$3.5), primarily for National Laboratory high priority research and computing. Other changes in research, operations, and equipment total -\$3.6..... -\$0.1

Biological and Environmental Research (FY 2003 \$484.2; FY 2004 \$499.5).....+\$15.3

Life Sciences increases **Genomes to Life** (FY 2003 \$34.5; FY 2004 \$59.0) to meet DOE energy and environment needs. Funding for **Human Genome** decreases as funds are shifted to meet broader needs (FY 2003 \$76.8; FY 2004 \$64.6). Other changes in Life Sciences total -\$1.8.....+\$10.5

In Climate Change Research (FY 2003 \$138.0; FY 2004 \$143.0) funding for the USGCRP is decreased (-\$18.2) and CCRI is increased (+\$22.4). Program increase is for studying the response of complex ecosystems to environmental change.....+\$5.0

Within the near steady budget (-\$0.2) for Environmental Remediation, funding is redirected to the **Savannah River Ecology Laboratory** (FY 2003 \$5.8; FY 2004 \$7.8) for studies on reducing the cost of cleanup activities. Medical Applications is funded at the FY 2003 level (\$45.8)-\$0.2

Basic Energy Sciences (FY 2003 \$1,019.2; FY 2004 \$1,008.6).....-\$10.6

Funding for **Nanoscale Science** is substantially increased in FY 2004. Research activities increase by \$1.2, and there is an increase of \$10.0 for a Major Item of Equipment to instrument the Center for Nanophase Materials at Argonne National Laboratory. In addition, construction activities (FY 2003 \$35.0; FY 2004 \$87.8) are proceeding for four other Nanoscale Science Research Centers (NSRCs) at Brookhaven, Oak Ridge, Lawrence Berkeley, and Sandia/Los Alamos National Laboratories.....+\$64.0

Excluding increases for Nanoscale Science, changes to BES research programs are modest. The increase in Materials Sciences and Engineering (+\$10.0) is primarily for continued support of nine scientific user facilities at near 100% maximum operating levels. This includes \$9.3 redirected to research and operations from completion of the SPEAR 3 project. Chemical Sciences, Geosciences and Energy Biosciences have a net change of -\$0.1 after adjusting for Nanoscale Science.....+\$9.9

Construction of the NSRCs is included in the above bullet for Nanoscale Sciences. In other construction, funding for the **Spallation Neutron Source** continues to ramp down as the project nears completion in FY 2006 (FY 2003 \$210.6; FY 2004 \$124.6). Plant Engineering and Design (FY 2003 \$6.0; FY 2004 \$7.5) for the new **Linac Coherent Light Source** increases.....-\$84.5

Advanced Scientific Computing Research (ASCR) (FY 2003 \$166.6; FY 2004 \$173.5).....+\$6.9

The increase in funding is for the **Next Generation Computer Architecture** initiative. This initiative will optimize computer architectures to meet the special requirements of scientific problems. The initiative totals \$14.0, part of which is redirected within the ASCR budget.

Fusion Energy Sciences (FY 2003 \$257.3; FY 2004 \$257.3).....\$0

Operation and research in the three main facilities is maintained at the FY 2003 level of 21 weeks each: DIII-D (FY 2003 \$55.6; FY 2004 \$56.7), Alcator C-Mod (FY 2003 \$22.3; FY 2004 \$22.7), and NSTX (FY 2003 \$33.1; FY 2004 \$35.2).....+\$3.6

Fabrication of the **National Compact Stellerator Experiment** at Princeton is continuing on schedule (FY 2003 \$11.0; FY 2004 \$15.9).....+\$4.9

Within the FY 2004 Fusion budget, a total of \$12.0 is identified to support preparations for **ITER**. That total includes a new line item called "ITER" (\$2.0) in the Facilities Operations subprogram.....+\$2.0

Enabling R&D subprogram has been reduced (FY 2003 \$36.1; FY 2004 \$24.9) to better support facilities operations and the new ITER initiative. Within the Science subprogram, up to two new Centers of Excellence will be initiated. Other changes total +\$0.7.....-\$10.5

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Science Laboratories Infrastructure (FY 2003 \$42.7; FY 2004 \$43.6)..... +\$0.9

This program continues at near the FY 2003 level of activity. The Laboratory Facilities Support subprogram funds six on-going projects and one new start. The Excess Facilities Disposition subprogram cleans up 13 facilities with a reduction of approximately 92,000 square feet. Oak Ridge Landlord activities are maintained at the FY 2003 level.

Safeguards and Security (FY 2003 \$48.1; FY 2004 \$48.1).....\$0

Provision of protective forces, security systems, information and cyber security, personnel security, material control, and program management is conducted at the FY 2003 level.

Program Direction (FY 2003 \$137.3; FY 2004 \$150.8) +\$13.5

Funding fully supports 965 FTEs in Headquarters, Field Operations, and the Technical Information Management (TIM) program. In addition, contract support is provided for the TIM and Energy Research Analysis programs.

Workforce Development for Teachers and Scientists (FY 2003 \$5.5; FY 2004 \$6.5)..... +\$1.0

Increase is for a new initiative "Laboratory Science Teacher Professional Development," which will be a pilot for 60 teachers; it will provide a mentor-intensive scientific professional development activity at the national laboratories to improve teacher classroom performance and student achievement.

Environmental Management

(dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Environmental Management — by Appropriation					
Defense Site Acceleration Completion.....	5,354,871	5,621,687	5,815,979	+194,292	+3.5%
Defense Environmental Services.....	1,025,127	1,060,413	995,179	-65,234	-6.2%
Non-Defense Site Acceleration Completion.....	194,522	167,581	170,875	+3,294	+2.0%
Non-Defense Environmental Services.....	148,240	172,970	292,121	+119,151	+68.9%
Uranium Enrichment Decontamination and Decommissioning Fund.....	308,517	298,489	418,124	+119,635	+40.1%
Subtotal, Environmental Management.....	7,031,277	7,321,140	7,692,278	+371,138	+5.1%
Uranium Enrichment D&D Fund payment offset.....	-420,000	-442,000	-452,000	-10,000	-2.3%
Use of prior year balances and other adjustments.....	-77,226	-1,344	-1,344	—	—
Total, Environmental Management.....	6,534,051	6,877,796	7,238,934	+361,138	+5.3%

PROGRAM DESCRIPTION

The **Environmental Management (EM)** program was created in 1989 to safely manage the cleanup of the environmental legacy from 50 years of nuclear weapons production and nuclear energy research at 114 sites around the country. The program manages the remediation of sites contaminated by defense and civilian activities and receives appropriations in separate defense and non-defense accounts. Since issuance of the Top-to-Bottom Review, a top priority for the EM program has been to reform and refocus the nuclear weapons cleanup program to deliver risk reduction faster and cleanup more efficiently and cost effectively. As a result of this focus, the various sites have developed Letters of Intent and Performance Management Plans that establish accelerated risk reduction and cleanup goals between DOE and its regulators. The sites are aggressively working with affected states and regulators to translate these strategies and initiatives into work plans and baselines. To continue these initiatives, DOE is requesting a total of \$7.2 billion, a 5-percent increase above the comparable FY 2003 request.

In order to support accelerated risk reduction and closure strategies, several initiatives have been implemented that fundamentally change the way that EM's managers, contractors, and regulators do business. The Assistant Secretary has undertaken several major reforms to: (1) redefine and align acquisition strategies, (2) revitalize the human capital aspects of the program, (3) develop and implement a new budget structure that focuses on the program's core mission activities and separately identifies non-cleanup activities for added visibility and management control, and (4) transition program activities to other DOE elements that are not contributing to the program's core mission of risk reduction and closure.

The FY 2004 budget request has been structured to support these reforms and is key to clearly demonstrating that the cleanup program is making considerable progress in delivering accelerated risk reduction and closure. An integral aspect of this reform is DOE's commitment to the President's emphasis on performance-based budgeting. The reform builds on the program's strategic objective to:

Safely and expeditiously manage waste, clean up facilities and the environment, and stabilize and store nuclear material and spent nuclear fuel with the intent to complete

cleanup at 89 of the 114 sites by the end of 2006 and complete cleanup at the remaining sites, including the five largest sites, by 2035.

EM is requesting program funds in five new appropriation accounts. These proposed appropriation accounts will provide the flexibility necessary to formulate, execute, and track accelerated risk reduction and closure activities by consolidating all defense and non-defense related risk reduction and closure activities into two appropriations. In addition, the proposed appropriations will separately identify non-cleanup activities for added visibility and management control.

The proposed appropriation accounts include: **Defense Site Acceleration Completion** (FY 2003 \$5.6 billion; FY 2004 \$5.8 billion); **Defense Environmental Services** (FY 2003 \$1.1 billion; FY 2004 \$995 million); **Non-Defense Site Acceleration Completion** (FY 2003 \$168 million; FY 2004 \$171 million); **Non-Defense Environmental Services** (FY 2003 \$173 million; FY 2004 \$292 million); **Uranium Enrichment Decontamination and Decommissioning Fund** (FY 2003 \$298 million; FY 2004 \$418 million).

PROGRAM HIGHLIGHTS

The FY 2004 budget request totals \$7.2 billion, an increase of 5 percent from the comparable FY 2003 budget request. This budget request is the first budget that fully reflects the initiatives undertaken by this Administration to transform and revitalize the cleanup program.

The budget request will allow the program to continue to protect workers, public health and safety, and the environment; continue surveillance, maintenance, and support activities needed to maintain waste, materials, facilities, and sites in a safe and stable condition; protect nuclear materials from unauthorized activities. It will also accelerate cleanup and closure of the Rocky Flats Environmental Technology Site in Colorado, the Fernald Site in Ohio, the Mound Site in Ohio, and the River Corridor Project in Washington; increase the number of shipments to the Waste Isolation Pilot Plant, critical to meeting cleanup and closure goals; and continue to make progress in completing cleanup projects in accordance with applicable laws and regulatory agreements.

Consistent with the reforms undertaken by the program, the EM budget reflects the transition of program activities that are not part of the core risk reduction and closure mission to other DOE elements. This includes the transition of management responsibility (Lead Program Secretarial Office) for the Idaho Operations Office to the Director for Nuclear Energy, Science and Technology.

Defense Site Acceleration Completion

(dollars in thousands)

FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003
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Defense Site Acceleration Completion (was Defense Facilities Closure Projects)

2006 Accelerated completions.....	1,207,401	1,231,911	1,245,171	+13,260	+1.1%
2012 Accelerated completions.....	2,075,289	2,192,088	2,228,314	+36,226	+1.7%
2035 Accelerated completions.....	1,627,631	1,884,074	1,978,597	+94,523	+5.0%
Safeguards and security.....	244,361	221,614	299,977	+78,363	+35.4%
Technology development and deployment.....	200,189	92,000	63,920	-28,080	-30.5%
Subtotal, Defense site acceleration completion.....	5,354,871	5,621,687	5,815,979	+194,292	+3.5%
Use of prior year balances.....	-67,580	—	—	—	—
Dupont pension refund.....	-5,099	—	—	—	—
Less security charge for reimbursable work.....	-1,547	-1,344	-1,344	—	—
Total, Defense Site Acceleration Completion.....	5,280,645	5,620,343	5,814,635	+194,292	+3.5%

PROGRAM DESCRIPTION

The **Defense Site Acceleration Completion** appropriation account supports the largest portion of the EM mission with the goal to complete cleanup of the legacy from defense weapons production or research activities. Upon completion, sites or portions of sites will be turned over to other DOE program landlords or to the new Office of Legacy Management for long-term surveillance and maintenance. Defense Site Acceleration Completion provides funding in several accounts: 2006 Accelerated Completions, 2012 Accelerated Completions, 2035 Accelerated Completions, Safeguards and Security, and Technology Development and Deployment. This appropriation includes funding for projects at the Waste Isolation Pilot Plant (WIPP), Idaho National Engineering and Environmental Laboratory, Oak Ridge Reservation, Ohio Operations Office (Mound, Ashtabula, Battelle Columbus Laboratory, Fernald), the Hanford Site, the Rocky Flats Environmental Technology Site, the Savannah River Site, and various other locations.

SIGNIFICANT FUNDING CHANGES – FY 2003 to FY 2004 Request (\$ in millions)

2006 Accelerated Completions (FY 2003 \$1,231.9; 2004 \$1,245.2).....	+\$13.3
Activities include defense sites and projects that will conclude in or before FY 2006. All of the defense-funded activities at Ohio and Rocky Flats sites are included, as well as projects in Idaho, Oak Ridge, Savannah River, and various other locations (Kansas City, Sandia National Laboratory, and Lawrence Livermore National Laboratory).	
Idaho (FY 2003 \$4.3; FY 2004 \$0)	-\$4.3
Five Idaho National Engineering and Environmental Laboratory (INEEL) infrastructure activities completed in FY 2002 and 2003.	
Oak Ridge (FY 2003 \$98.9; FY 2004 \$121.6).....	+\$22.7
Funds treatment and disposal of legacy waste at the Oak Ridge Reservation and restoration activities. Key activities this year are accelerated remediation in Melton Valley and disposal of legacy waste in order to clear buildings in Melton Valley and the East Tennessee Technology Park to allow decommissioning activities to commence sooner and completion of spent nuclear fuel shipments to INEEL.	

<p>Ohio (FY 2003 \$451.3; FY 2004 \$451.7).....</p> <p>Cleanup activities in Ohio comprise four sites: Mound, Ashtabula, Battelle Columbus Laboratory, and Fernald. These sites, managed by the Ohio Field Office, have the goal to complete environmental restoration and waste management projects to conditions requiring a minimal level of long-term stewardship or allowing for transfer of real property to the state and local communities. FY 2004 request continues progress at all four sites. Activities include: safe facility shutdown, decontamination and decommissioning of buildings, disposition of contaminated soil and debris, and disposal of waste material. Net increase at Columbus enables accelerated decommissioning.</p> <p>Rocky Flats (FY 2003 \$627.5; FY 2004 \$629.7)</p> <p>Rocky Flats Plant was established by the Atomic Energy Commission in 1951 as one of seven production plants in the U.S. Weapons Complex. Rocky Flats Plant played an integral part in the Nation's nuclear defense manufacturing of nuclear weapons components from plutonium, beryllium, and uranium. Current Rocky Flats' mission encompasses the management of the site waste and special nuclear materials and their removal from the site. This mission also includes deactivation, decommissioning, and demolition of the site facilities; and cleanup, closure, and conversion of the site for beneficial use in a manner that is safe, responsible, physically secure, and cost-effective. FY 2004 request continues D&D activities and maintains site closure in 2006. Net increase reflects additional remediation efforts and increased D&D activities in order to close the Building 371 Material Access Area.</p> <p>Savannah River (FY 2003 \$3.1; FY2004 \$0.2).....</p> <p>Provides funds to close out construction activities on the FB-Line upgrades at Savannah River. Upgrades were made to stabilize special nuclear materials addressed in recommendations by the Defense Nuclear Safety Board.</p> <p>Various Locations (FY 2003 \$46.7; FY 2004 \$42.0)</p> <p>Primarily funds remediation activities at Kansas City Plant, Lawrence Livermore National Laboratory, and Sandia National Laboratory. Provides for continued monitoring, treatment, and remediation. Decrease in funding required as activities are winding down to anticipated FY 2006 completions.</p> <p>2012 Accelerated Completions (FY 2003 \$2,192.1; FY 2004 \$2,228.3)</p> <p>Activities include defense cleanup sites and projects that will conclude in or before FY 2012. Includes activities at the Idaho National Engineering and Environmental Laboratory, Los Alamos National Laboratory, Pantex, Oak Ridge Reservation, Hanford Site, Savannah River Site, Nevada Test Site, and Lawrence Livermore National Laboratory.</p> <p>Idaho (FY 2003 \$514.3; FY 2004 \$524.4)</p> <p>INEEL safely manages the disposal of on-site mixed low-level, hazardous, and other wastes. In addition, INEEL manages and disposes of high-level radioactive waste, transuranic waste, and spent nuclear fuel. FY 2004 request continues remediation activities, groundwater monitoring, surveillance, and maintenance. Request also accelerates characterization, treatment, and disposal of transuranic waste at WIPP; and remediation, waste management, and completion of conceptual design for sodium-bearing waste treatment. Increase primarily reflects funding of the final increment for the Advanced Mixed Waste Treatment Project Facility and the startup of full-scale operations.</p>	<p>+\$0.4</p> <p>+\$2.2</p> <p>-\$2.9</p> <p>-\$4.7</p> <p>+\$36.2</p> <p>+\$10.1</p>
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Nevada (FY 2003 \$8.1; FY 2004 \$10.4) +\$2.3
 Nevada Test Site manages on-site transuranic and mixed-transuranic material, including storage, treatment, and disposition. FY 2004 funding increase reflects the increased volumes of transuranic waste processed and shipped to **WIPP** for disposal.

Oak Ridge (FY 2003 \$85.4; FY 2004 \$60.0) -\$25.4
 Activities managed by the Oak Ridge Operations Office include environmental restoration, defense-funded decommissioning and waste management activities at the **East Tennessee Technology Park (ETTP)**, and operation of the **Toxic Substances Control Act Incinerator**. In addition, the office conducts cleanup at several off-site locations that were contaminated by DOE materials sold to private companies. FY 2004 request supports continued disposition of legacy waste; management and disposal of low-level waste and mixed, low-level waste at commercial facilities; continued cleanup at off-site locations; and decommissioning at the ETTP. Decrease in funding reflects transition from construction to operations at the **Transuranic Waste Treatment Facility** and decreased landlord costs at ETTP.

Richland (FY 2003 \$469.7; FY 2004 \$500.5) +\$30.8
 Richland Operations Office, Hanford Site, manages cleanup activities at facilities associated with the production of nuclear materials during the Cold War. FY 2004 request focuses on cleanup outcomes and includes completion of packaging and stabilization of plutonium oxides and mixed oxides, continued surveillance and maintenance activities to ensure safe operation of associated facilities for stored special nuclear materials, and compliance with International Atomic Energy Agency non-proliferation inspections at the **Plutonium Finishing Plant**. Request also funds completion of activities to remove spent nuclear fuel from the **K-Basins** and transport it to dry storage away from the Columbia River. The other major activity funded is the **Hanford River Corridor** project to decontaminate and decommission surface facilities; and monitor, mitigate, and remediate chemical and radioactive contaminants in soils and groundwater along the Columbia River by 2012. Part of the River Corridor initiative is completion of the **H-Reactor** cocooning, continued safe storage of 825 metric tons of irradiated uranium as well as other waste management, and decommissioning and remediation activities. FY 2004 increase reflects more resources applied to high risk and priority work associated with the Plutonium Finishing Plant stabilization and deactivation, plus additional funding for accelerated site remediation in the 100 Area associated with the River Corridor project.

River Protection (FY 2003 \$690.0; FY 2004 \$690.0) \$0
 Office of River Protection's primary goal is the stabilization and immobilization of the waste in the storage tanks at Hanford. FY 2004 request funds continued design and construction of the vitrification plant.

Savannah River (FY 2003 \$367.6; FY2004 \$367.4) -\$0.2
 Savannah River Site treats and disposes of legacy materials and wastes resulting from nuclear materials produced during the Cold War. FY 2004 request continues management and stabilization of "at risk" spent nuclear fuel and nuclear materials in the **F and H Areas** in support of Defense Nuclear Facilities Safety Board Recommendations 94-1 and 2000-1, 221-H exhaust upgrade project, and activities for a plutonium stabilization and packaging capability in the **FB-Line Facility**. Request also includes activities associated with the **Receiving Basin for Off-site Fuels** project, which are being deinventoried in FY 2004 in preparation for deactivation.

Various Locations (FY 2003 \$57.0; FY 2004 \$75.7) +\$18.7
 Albuquerque Operations Office manages cleanup activities at **Los Alamos National Laboratory (LANL)** and the **Pantex Plant**. FY 2004 request continues storage,

sorting, segregation, and repackaging of transuranic waste; characterization and storage of mixed low-level waste; and transuranic disposal shipments to WIPP from LANL. At Pantex, the request accelerates operation of the perched groundwater treatment system, other remedial activities, and completes the investigation of the **Zone 10 Ruins**. Primary activities managed through the Oakland Operations Office include planning and implementation of remediation and waste treatment, storage, and disposal activities at the **Lawrence Livermore National Laboratory (LLNL)** in California. FY 2004 request supports acceleration of ongoing cleanup projects at LLNL, including continued operation and maintenance of groundwater treatment; commercial disposition of mixed low-level waste and low-level waste; and continued transuranic waste shipments to WIPP. Increases in funding for LANL accelerate disposition of legacy wastes and accelerate site cleanup completion at Pantex.

2035 Accelerated Completions (FY 2003 \$1,884.1; FY 2004 \$1,978.6) +\$94.5
 Provides funding for projects at sites where cleanup is expected to be completed by FY 2035. Includes activities at the Waste Isolation Pilot Plant, Nevada Test Site, Oak Ridge Reservation, Hanford Site, Savannah River Site, Los Alamos, and the Separations Process Research Unit.

Carlsbad (FY 2003 \$183.3; FY 2004 \$188.2) +\$4.9
 Carlsbad Field Office manages the **Waste Isolation Pilot Plant (WIPP)** for safe disposal and transportation of transuranic waste. FY 2004 request for the WIPP will fully support contact-handled mixed transuranic waste shipments and continues work to begin remote-handled shipments in FY 2005. WIPP plans to increase its efficiency to a maximum receipt rate of 34 contact-handled transuranic waste shipments per week during FY 2004 with 84 TRUPACTS available for transports.

Nevada (FY 2003 \$81.1; FY 2004 \$76.4) -\$4.7
Nevada Test Site manages cleanup of contaminated areas of the site and off-site test areas, including operation of the low-level waste disposal facility. FY 2004 request supports closure of 55 industrial release sites and completion of the **Rio Blanco** surface remediation, which reduces chances of exposure to workers and the public. Reduction primarily reflects the completion of drilling for five deep groundwater wells in FY 2003.

Oak Ridge (FY 2003 \$68.0; FY 2004 \$88.5) +\$20.5
 Activities managed by the Oak Ridge Operations Office include decontamination and decommissioning of contaminated facilities at the **Oak Ridge National Laboratory and Y-12 Plant**. In addition, it manages and operates the **Environmental Management Waste Management Facility (EMWMF)** at Y-12, which disposes of on-site waste related to cleanup activities. FY 2004 request supports continued disposal of on-site waste and expansion of the disposal facility by adding another modular cell, completes construction and begins operation of the **Building 9201-2 water treatment system**, and keeps all decontaminated facilities in a safe condition. Increase reflects processing and disposal of greater volumes of waste at the EMWMF.

Richland (FY 2003 \$277.0; FY 2004 \$332.2) +\$55.2
 Richland Operations Office manages cleanup activities at facilities associated with the production of nuclear materials during the Cold War. Activities funded include managing legacy and newly generated waste streams from the Hanford Site in the **200 Area**, integrating groundwater monitoring and cleanup activities for the site, and disposition of contaminated facilities concentrated in the central portion of the site (not included in the Hanford River Corridor project). FY 2004 increase reflects acceleration of transuranic waste retrieval and increased disposal shipments to **WIPP**, procurement of casks for dry storage of cesium/strontium capsules (addresses

high-risk priority), increased treatment and management of groundwater plumes, and acceleration of **U Plant** and other 200 Area decommissioning activities.

River Protection (FY 2003 \$436.9; FY 2004 \$389.3)-\$47.6

Office of River Protection manages the safe operation of the underground high-level waste storage tanks in Hanford, Washington, and construction and operation of the tank waste complex to complete the cleanup of Hanford's highly radioactive tank waste. FY 2004 request will complete construction of various tank farm upgrades and the retrieval system for the high-level waste tank providing the initial feed for the vitrification plant, complete detailed design and begin construction of the **Canister Storage Building modification**, and close six single-shell tanks. The reduction reflects completion of the single-shell tank interim stabilization activities and tank farm operational efficiencies.

Savannah River (FY 2003 \$763.8; FY2004 \$825.5) +\$61.7

Savannah River Site treats and disposes of legacy materials and wastes resulting from nuclear materials produced during the Cold War. FY 2004 request continues management of stable nuclear materials in the **K-Area Material Storage** and **235-F** facilities. The site is in the process of consolidating all its special nuclear materials in these locations, and these facilities will continue their storage missions until disposition occurs on-site (e.g., MOX Facility) or materials are shipped off-site for disposal. In addition, the site continues other important missions such as stabilizing spent nuclear fuel in the **H Canyon**; management and disposition of all waste types, including transuranic waste shipped to WIPP for disposal; vitrification of high-level tank waste at the **Defense Waste Processing Facility** (250 canisters in FY 2004); cleanup of contaminated soil and groundwater; and decommissioning of contaminated nuclear facilities. Increase in requested funding supports initiation of construction of the second **Glass Waste Storage Building** and other acceleration priorities, including complex-wide consolidation of excess plutonium at the Savannah River Site, spent nuclear fuel stabilization, and disposition of stored legacy wastes. In order to finance all these increases in higher risk activities, some lesser risk activities have been deferred; consequently, the request for soil and water restoration activities is lower (-\$38.6).

Various Locations (FY 2003 \$74.1; FY 2004 \$78.4) +\$4.3

Albuquerque Operations Office manages cleanup activities at **Los Alamos National Laboratory** (LANL). FY 2004 request continues remediation activities, groundwater investigations, and deep well installations at LANL. Oakland Operations Office manages planning and implementation of decommissioning activities at the **Separations Process Research Unit**, which is part of Schenectady Naval Reactors and owned by Knolls Atomic Power Laboratory. FY 2004 request supports sampling and characterization work at the site. Increase reflects accelerated cleanup schedules.

Safeguards and Security (FY 2003 \$221.6; FY 2003 \$300.0) +\$78.4

Ensures appropriate levels of protection for EM facilities and cleanup sites. FY 2004 request provides for protection of DOE security concerns, anticipates evolving threats, and maintains a balance of the security mission with the operation of the Waste Isolation Pilot Plant, East Tennessee Technology Park, Fernald, Mound, Rocky Flats, West Valley, Paducah, Portsmouth, Hanford, and Savannah River sites. Increase reflects need to maintain security posture at most sites. Slight decrease is requested for Rocky Flats due to elimination of the Material Access Area and Reduced Protected Area as special nuclear materials are shipped off-site.

Technology Development and Deployment (FY 2003 \$92.0; FY 2004 \$63.9)-\$28.1

Provides technical solutions and alternative technologies to enable accelerated cleanup. Areas of investment are now limited in number and limited to critical high-return activities. Funding is provided in three areas: Closure Site Projects, which jointly fund applied engineering and development with closure sites to solve high-risk solutions; Technology Solutions, assembling technical teams on an as needed basis to provide recommendations for sites with cleanup issues; and Alternative Projects, providing improvements to current high risk or cost baseline activities to yield cost savings and schedule acceleration. FY 2004 decrease in funding reflects increased focus on only activities that will have high payback for additional development investment, considering the sites accelerated schedules and end-states.

Defense Environmental Services

(dollars in thousands)

FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003
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Defense Environmental Services

(was Defense Environmental Management Privatization)

Non-closure environmental activities.....	237,483	259,771	189,698	-70,073	-27.0%
Community and regulatory support.....	66,222	66,151	61,337	-4,814	-7.3%
Federal contribution to the uranium enrichment.....	420,000	442,000	452,000	+10,000	+2.3%
Program direction.....	301,422	292,491	292,144	-347	-0.1%
Total, Defense Environmental Services.....	1,025,127	1,060,413	995,179	-65,234	-6.2%

PROGRAM DESCRIPTION

The **Defense Environmental Services** appropriation funds activities that indirectly support the core cleanup mission, including national program coordination and policy development, community and regulatory support activities at various sites, program direction (federal salaries and support), and the government payment to the Uranium Enrichment Decontamination and Decommissioning Fund. In addition, this account funds to support other DOE program missions. Those activities include management of newly generated waste for the Office of Science and the NNSA, acceptance and disposal of radioactive sealed sources, and storage of non-legacy spent nuclear fuel. This appropriation is comprised of Non-Closure Environmental Activities, Community and Regulatory Support, Program Direction, and the Defense UED&D Fund Contribution. Defense Environmental Service activities are funded at all defense sites across the complex.

SIGNIFICANT FUNDING CHANGES – FY 2003 to FY 2004 Request (\$ in millions)

Non-Closure Environmental Activities (FY 2003 \$259.8; FY 2004 \$189.7).....-\$70.1
Activities funded indirectly support the EM core mission of risk reduction and closure or support other DOE missions.

Headquarters (FY 2003 \$35.3; FY 2004 \$35.5)+\$0.2
FY 2004 request supports continued policy, management, and technical support of the EM program, including efforts to enhance state, tribal, and local government participation in programmatic decisions; accomplish workforce planning; conduct crosscutting program analysis; and provide a central information database for the program. The funding request is essentially level.

Idaho (FY 2003 \$63.5; FY 2004 \$58.6)-\$4.9
FY 2004 request continues safe storage of non-legacy spent nuclear fuels at the **INEEL** and **Ft. St. Vrain**. These fuels will ultimately be sent to the geologic repository for final disposition. In FY 2004, the INEEL will continue to accept spent nuclear fuel from foreign and domestic research reactors. Request also supports the final increment of funding for the **Spent Nuclear Fuel Dry Storage Project**, which will provide a process for non-legacy and legacy fuels to be moved from wet storage in pools to safer dry storage. The reduction in funding reflects the ramp down in funding associated with the Spent Nuclear Dry Storage Project.

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<p>Oak Ridge (FY 2003 \$45.9; FY 2004 \$38.5)</p> <p>Oak Ridge Operations Office provides administration for EM activities on the reservation, including post-contract benefits to former and disabled employees. In addition, waste management of newly-generated waste is provided to the Office Science and defense program activities performed on site at the Oak Ridge National Laboratory and the Y-12 Plant. Decrease reflects primarily a decline in newly-generated waste requiring treatment and disposition at the Y-12 Plant.</p> <p>Savannah River (FY 2003 \$35.7; FY 2004 \$32.2).....</p> <p>Savannah River Site manages significant amounts of non-legacy spent nuclear fuel, including foreign and domestic research reactor fuel, fuels from the Nuclear Energy program's isotope production and the Advanced Test Reactor. FY 2004 request supports safe storage of those fuels, new receipts, and consolidation of non-legacy fuels at the L-Basin on the site.</p> <p>Various Locations (FY 2003 \$79.4; FY 2004 \$24.9)</p> <p>EM program provides management of newly-generated waste at the Lawrence Livermore National Laboratory in support of other DOE missions at the laboratory. Requested funds also support transition activities for establishment of the Rocky Flats Wildlife Refuge and Museum, litigation support and post-closure contract costs at Rocky Flats, and the acceptance and disposition of defense off-site sealed radioactive sources managed by Los Alamos. Reduced funding reflects FY 2003 activities which are not continuing: Cleanup Reform account funds unallocated in FY 2003 (-\$36.0), curtailment of funding for the Nuclear Stewardship Project Office at Los Alamos (-\$10.2), and transfer of responsibility for South Valley Superfund Site remediation cost to the Department of Justice for administration (-\$1.7).</p> <p>Community and Regulatory Support (FY 2003 \$66.1; FY 2004 \$61.3)</p> <p>FY 2004 request for Community and Regulatory Support funds activities to promote involvement in EM planning and decision-making by state, tribal, and local governments, as well as other stakeholders. This goal is accomplished through the site-specific advisory boards and agreements in principle with regulatory agencies responsible for oversight of cleanup activities at the various sites. In addition, grants and cooperative agreements are maintained with organizations such as the National Governors' Association and the National Association of Attorneys General. The request reflects a decrease in funds for resolved litigation at Hanford, lower inflation adjustments, elimination of funds for the Waste Management Education and Research Consortium, and some decrease in Agreements-in-Principle.</p> <p>Program Direction (FY 2003 \$292.5; FY 2004 \$292.1).....</p> <p>Request supports the federal workforce responsible for the overall direction and administrative support of the EM program, including both headquarters and field personnel. Provides funding for salaries, benefits, travel, training, support services, and other related expenses for 1,972 FTEs; 1,608 of these FTEs are located in field offices. Reduced funding reflects a reduction of 41 FTEs and a decrease in support service funding.</p> <p>D&D Fund Deposit (FY 2003 \$442.0; FY 2004 \$452.0).....</p> <p>These funds provide the EM program's contribution to the Uranium Enrichment Decontamination and Decommissioning Fund.</p>	<p>- \$7.4</p> <p>- \$3.5</p> <p>- \$54.5</p> <p>- \$4.8</p> <p>- \$0.4</p> <p>+ \$10.0</p>
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Non-Defense Site Acceleration Completion

(dollars in thousands)

FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003
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Non-Defense Site Acceleration Completion

(was Non-Defense Environmental Management)

2006 Accelerated completions.....	110,430	53,979	48,677	-5,302	-9.8%
2012 Accelerated completions.....	80,692	111,826	119,750	+7,924	+7.1%
2035 Accelerated completions.....	3,400	1,776	2,448	+672	+37.8%
Total, Non-Defense Site Acceleration Completion.....	194,522	167,581	170,875	+3,294	+2.0%

PROGRAM DESCRIPTION

Non-Defense Site Acceleration Completion manages and addresses the environmental legacy resulting from civilian nuclear energy research, the nuclear energy research and development of DOE, and its predecessor's generated waste, pollution, and contamination which pose unique problems, including unprecedented volumes of contaminated soil and water and a vast number of contaminated structures. Upon completion of cleanup activities these sites or portions of a site will be turned over to other DOE program landlords or to the new Office of Legacy Management for long-term surveillance and maintenance. Non-Defense Site Acceleration Completion provides funding in several accounts: 2006 Accelerated Completions, 2012 Accelerated Completions, and 2035 Accelerated Completions. Funding for projects in these accounts include projects at the Chicago Operations Office (Argonne National Laboratory-East, Brookhaven National Laboratory, and Princeton Plasma Physics Laboratory), Grand Junction, the West Valley Demonstration Project, and various other locations.

SIGNIFICANT FUNDING CHANGES – FY 2003 to FY 2004 Request (\$ in millions)

2006 Accelerated Completions (FY 2003 \$54.0; 2004 \$48.7).....-\$5.3

Activities include non-defense sites and projects that will be completed in or before FY 2006. Includes project and sites at the Chicago Operations Office and various locations and projects, such as the cleanup of the Laboratory for Energy-Related Health Research and the Stanford Linear Accelerator Center.

West Valley Demonstration Project (FY 2003 \$3.6; FY 2004 \$0).....-\$3.6

West Valley spent fuel is expected to be shipped to **INEEL** by 2004; no additional funds for this activity are needed in FY 2004.

Chicago (FY 2003 \$38.1; FY 2004 \$39.2).....+\$1.1

FY 2004 request funds soil and water remediation at **Argonne National Laboratory-East, Brookhaven National Laboratory, and Princeton Plasma Physics Laboratory** and decontamination and decommissioning of the **Brookhaven** Graphite Research Reactor. Key activities this year are accelerated remediation of soil and water at Brookhaven to support risk reduction and closure strategies.

Various Locations (FY 2003 \$12.3; FY 2004 \$9.5).....-\$2.8

FY 2004 request primarily funds soil and water remediation activities at **Lawrence Berkeley National Laboratory, the Stanford Linear Accelerator Center, the Laboratory for Energy-Related Health Research, and the Inhalation Toxicology**

Laboratory. Decrease in funding reflects the winding down of activities in anticipation of FY 2006 completions.

2012 Accelerated Completions (FY 2003 \$111.8; FY 2004 \$119.7) +\$7.9

Includes non-defense sites and projects that will be completed on or before FY 2012. Includes projects and sites at the **Chicago Operations Office, Ohio Operations Office (West Valley Demonstration Project)**, and various locations such as the cleanup of the Energy Technology Engineering Center.

Chicago (FY 2003 \$1.7; FY 2004 \$1.7)..... \$0

Primarily funds decontamination and decommissioning activities for the **High Flux Beam Reactor** at the **Brookhaven National Laboratory**. FY 2004 request includes engineering design for facility decommissioning and continued surveillance and maintenance.

West Valley Demonstration Project (FY 2003 \$91.4; FY 2004 \$99.6) +\$8.2

Funds solid waste stabilization and disposition activities and nuclear facility decontamination and decommissioning activities at West Valley. FY 2004 increase reflects funding associated with the transition from construction to operations of the **Remote Handled Waste Facility**. This facility is scheduled to be operational in FY 2005.

Various Locations (FY 2003 \$18.7; FY 2004 \$18.5)..... -\$0.2

Request primarily continues decontamination and decommissioning activities at **Energy Technology Engineering Center** and waste management functions for the **Oakland Operations Office** sites. No significant change in FY 2004 funding levels for these activities.

2035 Accelerated Completions (FY 2003 \$1.7; FY 2004 \$2.4) +\$0.7

Activities include non-defense sites and projects that will be completed after FY 2012. EM has established a goal of completing cleanup at all its sites by 2035. This account includes the former Atlas Mill site at **Moab, Utah**, and projects at **Los Alamos National Laboratory**. The **Idaho Grand Junction Project Office** manages the remediation of the former Atlas Mill site. Site-specific remediation will be determined by the results of the Environmental Impact Statement that will be completed in FY 2004. In addition, the request also provides funding for the deactivation and decommissioning of the **Tritium System Test Assembly Facility** at the **Los Alamos National Laboratory**.

Non-Defense Environmental Services

FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003
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Non-Defense Environmental Services

(was Uranium Facilities Maintenance and Remediation)

Non-closure environmental activities.....	106,359	133,791	247,245	+113,454	+84.8%
Community and regulatory support.....	5,442	3,079	1,034	-2,045	-66.4%
Environmental cleanup projects.....	36,439	36,100	43,842	+7,742	+21.4%
Total, Non-Defense Environmental Services.....	148,240	172,970	292,121	+119,151	+68.9%

PROGRAM DESCRIPTION

The **Non-Defense Environmental Services** appropriation separately identifies non-defense related cleanup activities that do not directly support EM's core mission of accelerated risk reduction and closure of the DOE's environmental legacy from civilian nuclear research (primarily reactors for energy generation). Consolidation into a single appropriation provides added visibility and management control of these activities. The majority of Non-Defense Environmental Services activities are carried out by the Oak Ridge (Paducah and Portsmouth) and Richland Operations Offices. Non-Defense Environmental Services activities are also conducted out of the Oakland and Albuquerque Operations Office.

SIGNIFICANT FUNDING CHANGES – FY 2003 to FY 2004 Request (\$ in millions)

Non-Closure Environmental Activities (FY 2003 \$133.8; FY 2004 \$247.2)..... +\$113.4

The EM program manages the maintenance, decontamination, decommissioning, and remediation of uranium processing facilities. These are the Nation's three gaseous diffusion plants at Paducah, Kentucky; Portsmouth, Ohio; and the East Tennessee Technology Park in Oak Ridge, Tennessee. Other uranium activities supported include maintenance of facilities and inventories; pre-existing liabilities; and maintenance of the Portsmouth Gaseous Diffusion Plant in cold standby. Increase in funding results from award of the contract for the design and construction of two depleted uranium hexafluoride conversion facilities at Portsmouth and Paducah, and acceleration of decontamination and decommissioning of the Gaseous Centrifuge Experimental Process (GCEP) at Portsmouth to support the Advanced Enrichment Technology Demonstration.

East Tennessee Technology Park (ETTP) (formerly K-25)

(FY 2003 \$16.4; FY 2004 \$12.4)..... -\$4.0

East Tennessee Technology Park was built as part of the World War II Manhattan Project and used to enrich uranium for national defense purposes. Enrichment of weapons-grade uranium ceased in 1964. The plant continued to produce low-enriched uranium for commercial nuclear power purposes until 1985, when it was shut down. Uranium hexafluoride cylinder shipments started in FY 2003 to support closure of ETTP. FY 2004 request continues to support these shipments along with the management, maintenance, and storage of the remaining uranium hexafluoride cylinders.

Paducah (FY 2003 \$18.2; FY 2004 \$49.7)..... +\$31.5

Paducah Gaseous Diffusion Plant began operation in 1952 to produce low-assay enriched uranium for use as commercial nuclear reactor fuel. In 1993, uranium enrichment operations were leased to the U.S. Enrichment Corporation (USEC) in

accordance with the Energy Policy Act of 1992. FY 2004 request supports the design and construction of a **Depleted Uranium Hexafluoride (DUF6) Conversion Facility**, along with the management, maintenance, and storage of uranium hexafluoride cylinders awaiting conversion.

Portsmouth (FY 2002 \$97.3; FY 2003 \$183.6) +\$86.3
 Portsmouth Gaseous Diffusion Plant began operation in 1952. In 1993, uranium enrichment operations were leased to the U.S. Enrichment Corporation (USEC) in accordance with the Energy Policy Act of 1992. DOE decided in March 2001 to place the Portsmouth Gaseous Diffusion Plant in cold standby after USEC decided to cease the production of enriched uranium at the plant. FY 2004 request maintains Portsmouth in cold standby and assumes the government funding for **shipping and transport operations** for cleanup of technetium contaminated uranium upon USEC commitment expiration; enables the design and construction of a **Depleted Uranium Hexafluoride (DUF6) Conversion Facility**; accelerates the decontamination and decommissioning of the **GCEP** to support the USEC **Advanced Enrichment Technology Demonstration**; and continues the storage and maintenance of uranium hexafluoride cylinders awaiting conversion.

Various Locations (FY 2003 \$1.8; FY 2004 \$1.5) -\$0.3
 Funds activities at the **Los Alamos National Laboratory** to remove and store excess domestic radioactive sealed sources. Activities are underway to accelerate the recovery of the existing backlog. FY 2004 request continues to support the storage of recovered radioactive sealed sources.

Community and Regulatory Support (FY 2003 \$3.1; FY 2004 \$1.0) -\$2.1
 Includes non-defense activities that are indirectly related to on-the-ground cleanup results but are integral to EM's ability to conduct cleanup. These activities should be maintained at a level that allows maximum funding to be directed to actual cleanup while also supporting meaningful stakeholder participation. This account includes community and regulatory funding for the Brookhaven National Laboratory, the Paducah Gaseous Diffusion Plant and the Oakland Operations Office. FY 2004 request continues to fund interagency agreements with the **State of New York** and the **Commonwealth of Kentucky** to provide oversight of the Department's remediation activities at **Brookhaven National Laboratory** and **Paducah Gaseous Diffusion Plant**, respectively. In addition, the request fund grants to the regional **Water Quality Control Board** and **California Department of Toxic Substance Control Board** to provide oversight of environmental laws and regulations to the Oakland sites. In addition, grants are provided to Indian nations, which are used at tribal universities and colleges to support activities related to environmental cleanup.

Environmental Cleanup Projects (FY 2003 \$36.1; FY 2004 \$43.8) +\$7.7
 Includes non-defense environmental cleanup projects at contaminated facilities that are excess to the Department's mission. These projects constitute new cleanup scope for the EM program. Currently, this account funds the deactivation and decommissioning of the **Fast Flux Test Reactor** at the **Richland Operations Office**. A record of decision issued in January 2001 established that the Fast Flux Test Reactor would be permanently deactivated, and a subsequent decision by the Secretary of Energy was made to permanently close the facility. In November 2002, a legal action was taken to halt the sodium drain activity. A subsequent court order directed DOE to stop deactivation until March 12, 2003. The facility was transferred to EM for deactivation and decommissioning. FY 2004 request supports ongoing surveillance and maintenance activities at the Fast Flux Test Reactor. Several key deactivation and decommissioning activities will be conducted in FY 2004, assuming the resolution of pending legal challenges.

Uranium Enrichment Decontamination and Decommissioning Fund

(dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Uranium Enrichment Decontamination and Decommissioning Fund					
Decontamination and decommissioning.....	307,517	297,489	367,124	+69,635	+23.4%
Uranium/thorium reimbursement.....	1,000	1,000	51,000	+50,000	+5,000%
Use of prior year balances.....	-3,000	—	—	—	—
Total, Uranium Enrichment D&D Fund.....	305,517	298,489	418,124	+119,635	+40.1%

PROGRAM DESCRIPTION

The Energy Policy Act of 1992 established the **Uranium Enrichment Decontamination and Decommissioning Fund** (UED&D Fund) to carry out environmental management responsibilities at the Nation's three gaseous diffusion plants. These responsibilities include decontamination and decommissioning, remedial actions, waste management, landlord requirements, surveillance, and operation and maintenance activities associated with conditions at the plants prior to the presence of the U.S. Enrichment Corporation. The UED&D Fund receives receipts from commercial utilities based on their historic purchases of uranium enrichment services, measured in separative work units. The remainder of the annual deposit to the UED&D Fund is made by DOE and is authorized to come from annual appropriations. The law also requires DOE to develop and administer a reimbursement program for remediation activities at active uranium and thorium processing sites which sold purchased ore to the U.S. Government.

SIGNIFICANT FUNDING CHANGES – FY 2003 to FY 2004 Request (\$ in millions)

Uranium Enrichment Decontamination and Decommissioning Fund (FY 2003 \$298.5; FY 2004 \$418.1).....+\$119.6
EM program manages the maintenance, decontamination, decommissioning, and remediation of uranium processing facilities and the gaseous diffusion plants at Paducah, Kentucky, Portsmouth, Ohio, and the East Tennessee Technology Park in Oak Ridge, Tennessee. Increased funding for Uranium Enrichment Decontamination and Decommissioning Fund activities reflects acceleration of activities at the diffusion plants, and additional resources to support uranium/thorium reimbursements.

Oak Ridge East Tennessee Technology Park (ETTP) (formerly K-25) (FY 2003 \$155.9; FY 2004 \$167.4).....+\$11.5
East Tennessee Technology Park was built as part of the World War II Manhattan Project and used to enrich uranium for national defense purposes. Enrichment of weapons-grade uranium ceased in 1964. The plant continued to produce low-enriched uranium for commercial nuclear power purposes until 1985, when it was shut down. FY 2004 request supports acceleration of remedial actions for contaminated areas, completion of the **Three-Building Decontamination and Decommissioning and Recycling Project**, continued decommissioning of the **K-25** and **K-27**, and continued surveillance and maintenance. Increase supports new

ENVIRONMENTAL MANAGEMENT

equipment removal actions, additional costs for post-retirement benefits, and agreements-in-principle.

Paducah (FY 2003 \$73.5; FY 2003 \$118.9)..... +\$45.4

Paducah Gaseous Diffusion Plant began operation in 1952 to produce low-assay enriched uranium for use as commercial nuclear reactor fuel. In 1993, uranium enrichment operations were leased to the U.S. Enrichment Corporation in accordance with the Energy Policy Act of 1992. FY 2004 request supports completion of the **North/South Diversion Ditch** excavation; continuation of scrap metal removal action and characterization of **DOE Material Storage Areas**; and package, treatment, and disposition of newly generated, legacy mixed low-level and low-level wastes, and post-retirement medical and life insurance benefits.

Portsmouth (FY 2003 \$68.1; FY 2004 \$80.9)..... +\$12.8

Portsmouth Gaseous Diffusion Plant began operation in 1952. In 1993, uranium enrichment operations were leased to the U.S. Enrichment Corporation in accordance with the Energy Policy Act of 1992. FY 2004 request supports corrective actions at the **X-701 holding pond** and groundwater area; complete modifications to the **X-622T** and **X-624** groundwater treatment facilities; continued safe storage of legacy mixed low-level and low-level waste; disposal of sanitary and hazardous waste; and accelerated disposition of stored legacy wastes on site.

Uranium/Thorium Reimbursements (FY 2003 \$1.0; FY 2004 \$51.0) +\$50.0

Title X of the Energy Policy Act of 1992 authorizes reimbursement of uranium and thorium processing site licensees for a portion of their cost of cleanup (federal-related byproduct material). Request provides payment of approved uranium/thorium licensee claims for completed cleanup.

Nuclear Waste Disposal (including defense)

(dollars in thousands)

FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
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Civilian Radioactive Waste Management — by Appropriation

Nuclear Waste Disposal					
Repository program.....	39,000	212,813	85,830	-126,983	-59.7%
Program direction.....	55,916	62,989	75,170	+12,181	+19.3%
Total, Nuclear Waste Disposal.....	94,916	275,802	161,000	-114,802	-41.6%
Defense Nuclear Waste Disposal.....	279,795	315,000	430,000	+115,000	+36.5%
Total, Civilian Radioactive Waste Management.....	374,711	590,802	591,000	+198	+0.0%

Civilian Radioactive Waste Management — by Activity

Yucca Mountain site characterization (phase 1).....	296,681	—	—	—	—
Repository design & licensing (phase 2A).....	—	477,922	419,027	-58,895	-12.3%
Waste acceptance, storage, and transportation.....	4,103	30,200	73,100	+42,900	+142.1%
Program management and integration.....	18,011	19,691	23,703	+4,012	+20.4%
Program direction and support services.....	55,916	62,989	75,170	+12,181	+19.3%
Total, Civilian Radioactive Waste Management.....	374,711	590,802	591,000	198	+0.0%

Note: Phase 1 (Site Characterization) of the Yucca Mountain Project was completed in FY 2002, when the Department's Acquisition Executive closed the Site Characterization Project and granted permission to start Phase 2A (Repository Design and Licensing).

PROGRAM DESCRIPTION

The **Civilian Radioactive Waste Management (OCRWM)** program fulfills the U.S. Government's responsibility for permanent geologic disposal of spent nuclear fuel and high-level radioactive waste resulting from the Nation's atomic energy defense activities. The program provides leadership in developing and implementing strategies to accomplish this mission to ensure public health and safety and protect the environment in ways that are economically viable.

Congress makes two separate appropriations for the program, one from the Nuclear Waste Fund (Civilian) and the other through a Defense Nuclear Waste Disposal appropriation. These appropriations are recorded in separate internal accounts. Although the Nuclear Waste Fund is composed of a user fee that is dedicated utility money, funding to conduct the waste management program is appropriated and subject to the total spending limits imposed on all discretionary programs.

Nuclear Waste Fund (Civilian). The Nuclear Waste Policy Act provides for two types of fees to be levied on the owners and generators of civilian spent nuclear fuel: an ongoing fee of one-tenth of one cent per kilowatt-hour of nuclear electricity generated and sold after April 7, 1983, and a one-time fee for all nuclear electricity generated and sold prior to that date. As of October 31, 2002, there is a total of \$19.5 billion in fees and interest collected in the Nuclear Waste Fund, of which \$5.9 billion has been disbursed for a balance of \$13.6 billion.

Defense Nuclear Waste Disposal. Congress provides appropriations for the disposal of high-level waste generated from atomic energy defense activities. The primary focus of this appropriation is to fund the national defense programs' share of a long-term geological repository for defense nuclear waste.

NUCLEAR WASTE DISPOSAL (INCLUDING DEFENSE)

The OCWRM program is committed to the President's emphasis on performance-based budgeting. The following is their strategic objective:

Obtain requisite licenses, construct, and begin acceptance of spent nuclear fuel and high-level radioactive wastes at the repository in 2010.

PROGRAM HIGHLIGHTS

After 20 years of scientific study, the President notified Congress in February 2002 that Yucca Mountain, Nevada, is qualified to take the next steps required under the Nuclear Waste Policy Act – the start of a rigorous scientific and technical review through the formal licensing procedures of the Nuclear Regulatory Commission (NRC).

With the U.S. Congress' approval of the Yucca Mountain site in July 2002, the program will now focus on licensing, building, and operating the repository facilities and the transportation system needed to accept, ship, and dispose of waste. The program is shifting its near-term approach by focusing resources to meet the NRC's licensing expectations provided within 10 CFR 63: "Disposal of High-level Radioactive Waste in a Proposed Repository at Yucca Mountain, Nevada."

The Administration is recommending that the amounts of budget authority and associated outlays in FY 2004 and 2005 that exceed the FY 2003 enacted level be scored as an adjustment to the proposed discretionary spending caps for those years.

SIGNIFICANT FUNDING CHANGES – FY 2003 to FY 2004 Request (\$ in millions)

Yucca Mountain Phase 1 & Phase 2 (FY 2003 \$477.9; FY 2004 \$419.0).....-\$58.9

Decrease in funding is due to redirection in work effort toward the end of FY 2004 resulting from license application finalization; completing the license application chapters; and completing work on the performance assessment for submittal of the license application in early FY 2005. The remaining resources will be necessary to complete development of the license application and conduct prelicensing regulatory interactions.

Waste Acceptance, Storage and Transportation (FY 2003 \$30.2; FY 2004 \$73.1)+\$42.9

Increase in funds provides for the initial procurement of transportation casks and auxiliary equipment, and accelerating operational capability. Full funding for the acquisition of long-lead cask systems is necessary in FY 2004 to allow the initiation of cask fleet procurement, which will facilitate waste acceptance in the post-2010 time frame. Purchase of transportation cask systems including buffer and escort cars and site-specific service equipment will permit the program to meet waste acceptance rates currently planned for 2010 and will also permit the program to initiate the acquisition of transportation services and logistics services in FY 2004 and increase interaction with State, local Tribal governments, other federal agencies, and the transportation professional organizations. In FY 2004, the program will initiate conceptual design activities, conduct geotechnical field surveys, and conduct public involvement for NEPA process for Nevada Transportation.

Program Direction (FY 2003 \$63.0; FY2004 \$75.2).....+\$12.2

Nevada Transportation support services effort was transferred from the Yucca Mountain Site to Waste Acceptance, Storage and Transportation in FY 2004. Increase is due to additional management and technical support for transportation activities as the program moves toward license application. Increased funding will support additional FTEs to maintain activities related to the license application.

Departmental Administration

(dollars in thousands)

FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
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Departmental Administration

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Administrative operations:					
Office of the Secretary.....	4,679	4,624	4,624	—	—
Board of contract appeals.....	907	740	653	-87	-11.8%
Chief information officer.....	72,624	80,427	106,278	+25,851	+32.1%
Congressional and intergovernmental affairs.....	4,823	4,931	4,724	-207	-4.2%
Economic impact and diversity.....	6,167	6,493	6,101	-392	-6.0%
General counsel.....	22,603	22,713	22,879	+166	+0.7%
Management, budget and evaluation	107,223	106,056	104,210	-1,846	-1.7%
Policy and international affairs.....	15,979	20,752	22,277	+1,525	+7.3%
Public affairs.....	3,875	4,510	4,465	-45	-1.0%
Total, Administrative operations.....	238,880	251,246	276,211	+24,965	+9.9%
Cost of work for others.....	71,837	69,916	75,095	+5,179	+7.4%
Subtotal, Departmental Administration (gross).....	310,717	321,162	351,306	+30,144	+9.4%
Use of prior year balances.....	-11,286	—	—	—	—
Funding from other defense activities.....	-22,000	-25,587	-25,000	+587	+2.3%
Total, Departmental Administration (gross).....	277,431	295,575	326,306	+30,731	+10.4%
Miscellaneous revenues.....	-122,830	-137,524	-146,668	-9,144	-6.6%
Total, Departmental Administration (net).....	154,601	158,051	179,638	+21,587	+13.7%

PROGRAM DESCRIPTION

The **Departmental Administration** (DA) appropriation account funds eight DOE-wide management organizations under **Administrative Operations**. These organizations support headquarters in human resources, administration, accounting, budgeting, program analysis, project management, information management, legal services, life-cycle asset management, workforce diversity, minority economic impact, policy, international affairs, Congressional and intergovernmental liaison, and public affairs. Funding for the **Office of the Secretary** is provided separately from the other administrative functions within the DA account. The DA account also budgets for **Cost of Work for Others** and receives miscellaneous **Revenues** from other sources.

DOE also operates a **Working Capital Fund** (WCF) as a financial tool to improve management of common administration services. The objectives of the WCF are to fairly allocate costs to mission programs; to offer better choices on amount, quality, and sources of services; and to provide flexibility for service providers to respond to customer needs.

**Working Capital Fund
Budget by Function**
(dollars in thousands)

	<u>FY 2002 Actual</u>	<u>FY 2003 Estimate</u>	<u>FY 2004 Estimate</u>
Business Line Activities			
Supplies	3,298	3,298	3,298
Mail Services	2,034	2,601	2,732
Photocopying	2,026	2,026	2,026
Printing and Graphics	3,186	3,186	3,186
Building Occupancy	56,656	57,975	62,340
Telephones	6,776	6,766	6,926
Desktop	1,167	1,167	1,167
Networking	6,204	6,204	6,308
Contract Closeout	761	754	754
Payroll and Personnel	5,270	5,270	5,270
Online Learning Center	<u>318</u>	<u>318</u>	<u>318</u>
Total, Working Capital Fund	87,696	89,565	94,326

The organizations funded by the DA account are committed to the President's emphasis on performance-based budgeting. The DA account's strategic objectives are:

Achieve effective and efficient management of DOE by implementing the President's Management Agenda initiatives on strategic management of human capital; competitive sourcing; improved financial performance; and budget and performance integration.

Implement the President's E-government initiatives by developing a framework for existing information technology and building a roadmap for corporate direction.

Ensure secure, efficient, effective and economical operations of the DOE's Information Technology Systems and Infrastructure.

Provide analysis of domestic and international energy policy; develop implementation strategies; ensure policies are consistent across DOE and within the Administration; communicate analyses and priorities to the Congress, public, industry, foreign governments, and domestic and international organizations; and enhance the export and deployment of energy technologies internationally.

PROGRAM HIGHLIGHTS

The FY 2004 request provides \$4.6 million for 34 full-time equivalent employees within the Office of the Secretary. This request also provides \$271.6 million for salary and benefits, travel, contractual services, and program support expenses for 1,109 full-time equivalent employees for the other organizations within the DA account. The Cost of Work for Others and Revenues are budgeted at \$75.1 million and -\$146.7 million, respectively. Cost of Work for Others includes \$40 million for safeguards and security in FY 2004.

SIGNIFICANT FUNDING CHANGES – FY 2003 to 2004 Request (\$ in millions)

Office of Management, Budget and Evaluation (FY 2003 \$106.1; FY 2004 \$104.2)..... -\$1.9
Reduction of 21 full-time equivalent employees which is offset by an increase for pay raise and benefit cost increases.

Office of Policy and International Affairs (FY 2003 \$20.8; FY 2004 \$22.3)..... +\$1.5
Supports 10 additional full-time equivalent employees that are required to support the further development and implementation of National Energy Policy, particularly implementation of the

DEPARTMENTAL ADMINISTRATION

President's Climate Change Initiatives, development of integrated energy markets in the Western Hemisphere, and improvements in electricity markets. +\$1.0

Provide support for implementing the Powering Sustainable Development initiative and the Energy Efficiency for Sustainable Development partnership. Provide support, including workshops and follow-up work, to address ways to enhance international climate change cooperation on research, development and deployment of clean energy technologies +\$0.5

Office of the Chief Information Officer (FY 2003 \$80.4; FY 2004 \$106.2) +\$25.8

Increase in program direction is a result of escalating mission support services due to technology needs in the network and common information technology services infrastructure, business transformation initiatives, and support to enterprise-wide initiatives. Increase also supports new initiatives such as Gov-Benefits and an Oracle annual maintenance requirement for an enterprise-wide license. +\$12.6

Decrease in cyber security is a result of the reduction of the technical capability function. Public Key Infrastructure architecture will continued to be supported but at a reduced level -\$4.0

Increase in Corporate Management Information program is to support the Integrated Management Navigation System initiative, the cornerstone of DOE's efforts to achieve improved financial performance and integration of budget and work performance, directly supporting e-government mandates. Major activities supported will be the implementation of the Standard Accounting and Reporting System nationwide and the development of a data warehouse. Further, funds will be directed to strengthening DOE's unified capital planning and investment control program and continued development of the modernization projects that support DOE's successful Enterprise Architecture program +\$17.2

Cost of Work for Others (FY 2003 \$69.9; FY 2004 \$75.1)..... +\$5.2

Increase is due to increased number of projected foreign research reactor spent fuel shipments, increased sales of uranium for foreign research reactors, increased collaborations between Oak Ridge National Laboratory and state and local governments, and increased participation in homeland security and nonproliferation strategies.

Revenues (FY 2003 -\$137.5; FY 2004 -\$146.7)..... -\$9.2

Increase in revenues is due to increased number of projected foreign research reactor spent fuel shipments, increased sales of uranium for foreign research reactors, increased collaborations between Oak Ridge National Laboratory and state and local governments, and increased participation in homeland security and nonproliferation strategies. The change also reflects increased costs for handling and basin storage of spent fuel cores for the Department of Navy.

Inspector General

(dollars in thousands)

FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003
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Office of the Inspector General

Office of inspector general.....	32,405	37,671	39,462	+1,791	+4.8%
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PROGRAM DESCRIPTION

The **Inspector General** (IG) program promotes the effective and economical operation of the programs and operations of DOE, including the National Nuclear Security Administration (NNSA), through audits, inspections, investigations and other reviews while detecting and preventing fraud, waste, abuse, and violations of law.

Statutory requirements direct the IG to conduct annual financial statement audits required by the **Government Management Reform Act of 1994**, review DOE's information security systems as required by the **Government Information Security Reform Act of 2001**, and review DOE's implementation of the **Government Performance and Results Act of 1993**. In addition, the IG conducts reviews of the most significant management challenges facing the department, including the NNSA.

The IG program is committed to the President's emphasis on performance-based budgeting. The following is their strategic objective:

Operate a robust review program and provide timely performance information and recommendations to facilitate: (1) implementation of the President's Management Agenda; (2) resolution of Management Challenges; (3) execution of the Secretary's priorities; (4) completion of statutory Inspector General mandates; (5) recovery of monies and opportunities for savings; and (6) the integrity of the federal and contractor workforce.

PROGRAM HIGHLIGHTS

The FY 2004 request supports statutory requirements including work associated with the **Government Information Security Reform Act of 2001** to evaluate unclassified information systems and audit DOE's review of classified information systems. The IG will also operate a robust review program with greater emphasis on evaluating DOE's program performance and management improvements in each of the President's five key management initiatives, the Secretary's priorities, and the most serious management challenges facing the department.

SIGNIFICANT FUNDING CHANGES – FY 2003 to FY 2004 Request (\$ in millions)

Inspector General (FY 2003 \$37.7; FY 2004 \$39.5)..... +\$1.8
 Increase in FY 2004 funds 263 FTEs to conduct additional performance audits and meet requirements associated with the reviews of DOE's critical management challenge areas.

OTHER DEFENSE ACTIVITIES

OTHER DEFENSE ACTIVITIES

(dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Other Defense Activities					
Energy security and assurance.....	7,275	4,275	4,272	-3	-0.1%
Security.....	188,431	196,700	211,757	+15,057	+7.7%
Independent oversight and performance assurance.....	22,184	22,430	22,575	+145	+0.6%
Environment, safety and health.....	119,432	108,028	107,686	-342	-0.3%
Worker and community transition.....	19,997	25,683	15,000	-10,683	-41.6%
Legacy Management.....	54,433	44,752	47,525	+2,773	+6.2%
Hearings and appeals.....	2,890	2,933	3,797	+864	+29.5%
National security programs administrative support.....	22,000	25,587	25,000	-587	-2.3%
Subtotal, Other Defense Activities.....	525,817	520,034	523,390	+3,356	+0.6%
Use of prior year balances and other adjustments.....	-18,958	-7,412	-712	+6,700	+90.4%
Total, Other Defense Activities.....	506,859	512,622	522,678	+10,056	+2.0%

The organizations supported by the **Other Defense Activities** appropriation include: Energy Security and Assurance; Security; Independent Oversight and Performance Assurance; Environment, Safety and Health; Worker and Community Transition; Legacy Management; and Hearings and Appeals.

Energy Security and Assurance – Other Defense Activities

(dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Energy security and assurance					
Energy security.....	6,000	—	—	—	—
Program direction.....	1,275	4,275	4,272	-3	-0.1%
Total, Energy security and assurance.....	7,275	4,275	4,272	-3	-0.1%

PROGRAM DESCRIPTION

America's energy supply is essential to a strong economy and national security. Increasing energy demand unmet with increasing energy supply and vulnerability to disruptions from natural or malevolent causes could compromise the stability and reliability of our energy supplies. Failure to address these issues could threaten our Nation's economic prosperity and compromise our national security. The base program for **Energy Security and Assurance** has been transferred to the Department of Homeland Security; however, DOE will maintain a core capability to advise the Secretary on issues impacting the Nation's energy infrastructure.

Security – Other Defense Activities

(dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Security					
Nuclear safeguards and security.....	93,218	98,784	104,713	+5,929	+6.0%
Security investigations.....	44,927	45,870	54,554	+8,684	+18.9%
Program direction.....	50,286	52,046	52,490	+444	+0.9%
Subtotal, Security.....	188,431	196,700	211,757	+15,057	+7.7%
Use of prior year balances and other adjustments.....	-5,262	-712	-712	—	—
Total, Security.....	183,169	195,988	211,045	+15,057	+7.7%

PROGRAM DESCRIPTION

The **Security** program develops policies and provides programmatic direction governing the protection of national security and other assets entrusted to DOE. This program also provides safeguards and security training and field assistance to ensure the efficient and effective implementation of departmental security policy.

The **Nuclear Safeguards and Security** program provides policy, programmatic direction, and training associated with DOE's nuclear weapons, nuclear materials, classified information and facilities, and security at DOE headquarters. Funding is also provided to the DOE operations centers, which provide support to headquarters emergency response operations, including maintenance and operation of DOE's Emergency Communications Network. The **Security Investigations** program provides funding for background investigations for all DOE federal and contractor personnel who require access authorizations for classified information or access to Special Nuclear Materials due to the nature of their official duties. The program relies on the Federal Bureau of Investigation and the Office of Personnel Management to complete background investigations. The **Program Direction** account provides for salaries and benefits, travel, support services, and other related expenses associated with overall management, direction, and administration.

The Security program is committed to the President's emphasis on performance-based budgeting. The following is their strategic performance goal:

Develop policies and strategies to protect national security and other critical assets entrusted to DOE, deploy technological solutions to enhance security, protect headquarters personnel and facilities, and provide other specialized security activities.

PROGRAM HIGHLIGHTS

The FY 2004 request provides \$211 million to continue security activities in the three major program activities. The FY 2004 budget provides for security improvements at DOE headquarters, essential funding for operating support, including Nuclear Materials Accountability Systems, security investigations, and continued support for Continuity of Operations and Continuity of Government activities.

*SIGNIFICANT FUNDING CHANGES – FY 2003 to 2004 Request (\$ in millions)***Nuclear Safeguards and Security (FY 2003 \$98.8; FY 2004 \$104.7) +\$5.9**

Requested funding includes an increase at the Nonproliferation and National Security Institute (+\$0.2); an increase for Nuclear Materials Accountability Systems primarily for the Local Area Network Materials Accounting System (LANMAS) (+\$1.3); an increase in Information Security for e-Assessment of the Foreign Ownership, Control, or Influence initiative (+\$0.5); an increase for the headquarters guard force requirements including the Technical Surveillance Countermeasures program (+\$3.8); an increase for the Foreign Visits, Assignments, and Travel programs (+\$0.4); an increase for the Safeguards and Security Information Management System, risk management/vulnerability assessment activities, and New Brunswick Laboratory support (+\$1.3); and a decrease in Technology and Systems Development resulting from elimination of the automated information security function (-\$1.6).

Security Investigations (FY 2003 \$45.9; FY 2004 \$54.6) +\$8.7

Supports a significantly higher security investigation workload in FY 2004 due primarily to the cyclical surge in the 5-year reinvestigation requirement increasing by 2,422 cases (+\$6.0). Also, funds an additional 662 "Q" initial investigations (+\$2.7) due to heightening security requirements following September 11, 2001.

Program Direction (FY 2003 \$52.0; FY 2004 \$52.5) +\$0.5

Supports an increase in salaries and benefits to fund cost-of-living increases, promotions, within-grade increases, lump sum payments, overtime, and two new hires; safety specialists and survey team member (+\$0.8). Support services were reduced due to higher priority requirements (-\$0.8). Other related expenses increased due to the transfer of operations support, Working Capital Fund escalation costs, and the partial reinstatement to New Brunswick Lab for work previously reimbursed (+\$0.5).

Independent Oversight and Performance Assurance – Other Def. Activities

(dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Independent oversight and performance assurance					
Independent oversight and performance assurance.....	22,184	22,430	22,575	+145	+0.6%
Use of prior year balances.....	-158	—	—	—	—
Total, Independent oversight and perf. assurance.....	22,026	22,430	22,575	+145	+0.6%

PROGRAM DESCRIPTION

The **Independent Oversight and Performance Assurance** (OA) program performs independent evaluations of DOE's nuclear safeguards and security, environment, safety, and health, cyber security, and emergency management activities. The program plays a key role in supporting DOE's national security mission by providing program managers with tools and assessments needed to preserve and effectively protect critical national security interests, which include the safeguarding of nuclear weapons, materials, facilities, information assets, and the protection of the environment, as well as safety and health of workers and the public.

The OA program is committed to the President's emphasis on performance-based budgeting. The following is their strategic objective:

Reduce adverse security incidents, worker injuries, and environmental releases through policy development, and oversight of the Nation's energy infrastructure, nuclear weapons, materials, facilities, and information assets.

Environment, Safety and Health – Other Defense Activities

(dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Environment, safety and health					
Environment, safety and health (defense).....	97,138	87,278	87,276	-2	-0.0%
Program direction.....	22,294	20,750	20,410	-340	-1.6%
Subtotal, Environment, safety and health.....	119,432	108,028	107,686	-342	-0.3%
Use of prior year balances.....	-11,231	—	—	—	—
Total, Environment, safety and health.....	108,201	108,028	107,686	-342	-0.3%

PROGRAM DESCRIPTION

The **Environment, Safety and Health (ES&H)** program advises the Secretary of Energy on the status of the health and safety of DOE workers, the public, and the environment near DOE facilities. By statute, DOE assumes direct regulatory authority for safety and health, and the ES&H program plays a critical role by developing meaningful programs and policies; conducting independent reviews of environment, safety, and health performance; and providing technical services, resources, and information sharing. The DOE is externally regulated for compliance with applicable environmental laws administered by other federal agencies. Accordingly, the ES&H program serves as DOE’s advocate to assure that DOE interests are reflected in the formulation of environmental regulations and standards. The ES&H program develops environment, safety, and health directives and policies; performs Price-Anderson enforcement; and funds radiation health studies. The ES&H program also assists workers in obtaining information and medical records when applying for benefits under the **Energy Employees Occupational Illness Compensation Program Act**.

Funding for the ES&H program is provided in two accounts within the Energy and Water Development Appropriation: Energy Supply and Other Defense Activities. Defense-related activities of the Office of Environment, Safety and Health include: Corporate Safety Assurance, Health Studies, the Radiation Effects Research Foundation, Energy Employee Occupational Illness Compensation, and Program Direction. Also included are functional transfers of two programs from the Office of Environmental Management. These programs are operations of the Radiological and Environmental Sciences Laboratory and the Analytical Services Program.

The ES&H program is committed to the President’s emphasis on performance-based budgeting. The following is their strategic objective:

Reduce the number of deaths, injuries, and illnesses and environmental releases from environment cleanup; other operational activities such that DOE organization activities remain below the DOE average for the last 5 years of data for: (1) Total Recordable Case Rate, (2) Occupational Safety Cost Index, (3) Hypothetical Radiation Dose to the Public, (4) Average measurable dose to DOE workers, and (5) Reportable Occurrences of Releases to the Environment.

PROGRAM HIGHLIGHTS

In FY 2004, there is a new DOE-wide occupational medicine initiative. The goal of this new activity is to develop a blueprint for adequate and integrated occupational health programs at all DOE sites.

The **Radiological and Environmental Sciences Laboratory** (RESL) program at Idaho (FY 2003 \$7.4 million; FY 2004 \$7.5 million) is transferred to the ES&H program from the Environmental Management program. The RESL program is a reference laboratory for the ES&H program and supports activities at sites throughout DOE. It conducts a DOE-wide laboratory performance evaluation and accreditation programs, providing technical support and measurement quality assurance.

The **Analytical Services** program (FY 2003 \$1.6 million; FY 2004 \$1.6 million), which ensures that analytical laboratory environmental data is of high quality and reliable, is transferred to the ES&H program from the Environmental Management program. This program ensures that analytical laboratory data is technically and legally defensible.

The **Corporate Safety Assurance** program is expected to make a significant contribution to the effective integration and application of safety, including environment, safety, and health, into all DOE and NNSA missions and activities. The **Employees Compensation** activities (FY 2003 \$16.0 million; FY 2004 \$16.0 million) will continue the compensation of current and former DOE workers with work-related illness resulting from their employment at DOE nuclear weapons sites.

Worker and Community Transition – Other Defense Activities

(dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Worker and community transition					
Worker and community transition.....	18,000	22,965	12,321	-10,644	-46.3%
Program direction.....	1,997	2,718	2,679	-39	-1.4%
Subtotal, Worker and community transition.....	19,997	25,683	15,000	-10,683	-41.6%
Use of prior year balances.....	-266	—	—	—	—
Total, Worker and community transition.....	19,731	25,683	15,000	-10,683	-41.6%

PROGRAM DESCRIPTION

The **Worker and Community Transition** (WT) program ensures the fair treatment of workers and communities adversely affected by downsizing or closing of DOE facilities due to a change in program mission. The program operates to oversee work-force planning, assist in developing benefit packages for displaced workers, oversee labor relations efforts, and lessen the impact of downsizing on affected workers and communities by fostering alternative employment opportunities.

The WT program is committed to the President’s emphasis on performance-based budgeting. The following is their strategic objective:

Assist DOE contract workers and communities that have been adversely affected as the result of downsizing or closing of DOE facilities due to a change in, or termination of, program mission by providing: 1) separation benefits comparable to industry standards while achieving annual savings that are three times the one-time cost of separation and 2) creating and retaining jobs in the communities to absorb the displaced workers.

PROGRAM HIGHLIGHTS

The FY 2004 request provides \$15 million to continue worker transition activities.

SIGNIFICANT FUNDING CHANGES – FY 2003 to 2004 Request (\$ in millions)

- Work Force Restructuring (FY 2003 \$15.0; FY 2004 \$9.5).....-\$5.5**
Work force actions are expected to be lower in FY 2004 than in FY 2003.
- Community Transition Assistance (FY 2003 \$8.0; FY 2004 \$2.8)-\$5.1**
Need for DOE funding of community transition activities is expected to decrease in FY 2004.
- Program Direction (FY 2003 \$2.7; FY 2004 \$2.7).....\$0**
An expected decrease in FTEs will offset increases due to inflation.

Legacy Management – Other Defense Activities

(dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Legacy Management.....	54,433	44,752	47,525	+2,773	+6.2%

PROGRAM DESCRIPTION

The proposed **Legacy Management (LM)** program ensures the sustainable protection of human health and the environment after cleanup is completed and management of certain retirement benefits for former contractor personnel.

Transferring the long-term surveillance, maintenance, and benefit continuity functions after site closure from the Environmental Management program will allow them to better focus their efforts on remediation. The LM program will consolidate similar programs to provide a single focal point of management expertise and facilitate communication among elements. Most importantly, concentrating the functions in an office dedicated to legacy management will heighten the visibility and, consequently, accountability to the affected communities for successful performance of these important DOE functions.

The LM program is committed to the President’s emphasis on performance-based budgeting. The following are their strategic objectives:

Ensure the efficient and effective surveillance and maintenance of sites where cleanup has been completed. This is a part of the objective to manage waste safely and expeditiously and cleanup facilities and the environment.

PROGRAM HIGHLIGHTS

The FY 2004 request provides \$47.5 million to carry out legacy management functions.

SIGNIFICANT FUNDING CHANGES – FY 2003 to 2004 Request (\$ in millions)

Pre-Existing Liabilities at Oak Ridge, Paducah, and Portsmouth (FY 2003 \$12.9; FY 2004 \$11.6)	-\$1.3
Reduction reflects a decrease in the estimated requirement for post retirement life, medical, and long-term disability benefits.	
Long-term Surveillance and Maintenance (FY 2003 \$22.6; FY 2004 \$26.3).....	+\$3.7
Acceleration of treatment programs is expected in FY 2004.	
Program Direction (FY 2003 \$9.2; FY 2004 \$9.6).....	+\$0.4

Hearings and Appeals – Other Defense Activities

(dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Office of Hearings and Appeals					
Hearings and appeals.....	2,890	2,933	3,797	+864	+29.5%
Use of prior year balances.....	-33	—	—	—	—
Total, Hearings and appeals.....	2,857	2,933	3,797	+864	+29.5%

PROGRAM DESCRIPTION

The **Hearings and Appeals** program is responsible for all DOE's adjudicative processes except those administered by the Federal Energy Regulatory Commission. The program receives funding in both the Energy and Water Development and Interior and Related Agencies Appropriations Bills. The program's jurisdiction includes Freedom of Information and Privacy Act Appeals, evidentiary hearings to determine an employee's eligibility for a security clearance, appeals and initial agency decisions on whistle blower complaints, and requests for exception from DOE regulations and orders, such as reporting requirements to DOE elements. This program is also responsible for resolving appeals under the newly adopted Energy Employees Occupational Illness Compensation Program Act of 2000 and DOE's competitive sourcing appeals under OMB Circular A-76.

This section discusses Hearings and Appeals activities within the jurisdiction of the Energy and Water Development Appropriation. The program is also requesting funds (\$1.0 million) in the Interior Appropriation, discussed later in this document, for a total FY 2004 request of \$4.8 million.

PROGRAM HIGHLIGHTS

Other Defense Activities supported functions will continue in FY 2004, as Interior supported work continues to be phased out. The FY 2004 budget of \$3.8 million is a 30-percent increase over FY 2003 (\$2.9 million). The increase is requested to investigate and adjudicate whistle-blower complaints and to consider appeals of other DOE actions. These include determinations regarding security clearances, the Freedom of Information Act, the Privacy Act, the Energy Employees Occupational Illness Compensation Program Act of 2000, as well as DOE's competitive sourcing appeals under OMB Circular A-76. Federal FTEs in the Hearings and Appeals program will be increased from 17 in FY 2003 to 21 in FY 2004.

Power Marketing Administrations

(dollars in thousands)					
	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Power Marketing Administrations					
Southeastern Power Administration					
Southeastern power administration.....	39,350	24,606	20,100	-4,506	-18.3%
Use of prior year balances.....	—	-72	—	+72	+100.0%
Offsetting collections.....	-34,463	-20,000	-15,000	+5,000	+25.0%
Total, Southeastern Power Administration.....	4,887	4,534	5,100	+566	+12.5%
Southwestern Power Administration					
Southwestern power administration.....	29,819	28,066	28,888	+822	+2.9%
Use of prior year balances.....	—	-400	—	+400	+100.0%
Offsetting collections.....	-1,800	-288	-288	—	—
Total, Southwestern Power Administration.....	28,019	27,378	28,600	+1,222	+4.5%
Western Area Power Administration					
Western area power administration.....	363,112	198,641	194,992	-3,649	-1.8%
Use of prior year balances.....	—	-1,200	—	+1,200	+100.0%
Offsetting collections.....	-191,272	-34,683	-23,992	+10,691	+30.8%
Total, Western Area Power Administration.....	171,840	162,758	171,000	+8,242	+5.1%
Falcon and Amistad Operating and Maintenance Fund					
Operation and maintenance.....	2,663	2,734	2,640	-94	-3.4%
Total, Power Marketing Administrations.....	207,409	197,404	207,340	+9,936	+5.0%

PROGRAM DESCRIPTION

The **Power Marketing Administrations** (PMAs) sell electricity primarily generated by clean hydropower projects located at federal dams, contributing to the reliability of the Nation's electricity grid. Preference in the sale of power is given to public entities and electric cooperatives. Revenues from selling the power and transmission services are used to repay all their costs.

The **Southeastern Power Administration** markets federal hydroelectric power from 23 U.S. Army Corps of Engineers (Corps) multipurpose projects to preference customers in an eleven-state area in the southeastern United States. Since Southeastern does not own or operate any transmission facilities, it contracts with regional utilities that own electric transmission systems to deliver the federal hydropower to Southeastern's customers.

The **Southwestern Power Administration** operates within a six-state area marketing hydroelectric power produced at 24 Corps multipurpose projects. To transmit power to its customers, Southwestern maintains 1,380 miles of high-voltage transmission lines, 24 substations, and 46 microwave and VHF radio sites. Direct appropriations support personnel to conduct all activities connected with the marketing and delivery of federally-generated hydroelectric power to customers, maintain transmission lines, substations, and communication systems, and replace equipment at such facilities.

The **Western Area Power Administration** markets and transmits federal power to a 1.3-million-square-mile service area in 15 central and western states from 55 federally-owned hydroelectric power plants primarily operated by the Bureau of Reclamation, the Corps, and the International

POWER MARKETING ADMINISTRATIONS

Boundary and Water Commission. Western also markets the U.S.'s entitlement from the Navajo coal-fired power plant near Page, Arizona. More than half of its appropriation covers program direction for federal personnel who perform operations, maintenance, and construction activities associated with Western's nearly 17,000-mile transmission system and other power marketing activities.

The **Bonneville Power Administration** provides electric power, transmission, and energy services to a 300,000-square-mile service area in eight states in the Pacific Northwest. Bonneville wholesales the power produced at 31 operating projects operated by the Corps and the Bureau of Reclamation and from certain non-federal generating facilities. Bonneville, which is self-financed with revenues, funds the expense portion of its budget, the power operations and maintenance costs of the Bureau of Reclamation and the Corps in the Federal Columbia River Power System. The capital portion of the budget is funded through borrowing from the U.S. Treasury and is repaid with market-determined interest using revenues.

The PMAs are committed to the President's emphasis on performance-based budgeting. The following is their strategic objective:

Ensure federal hydropower is marketed and delivered while passing the North American Electric Reliability Council's Control Compliance Ratings, meeting planned repayment targets, and achieving an accident frequency rate at or below our safety performance standard.

PROGRAM HIGHLIGHTS

The Southeastern, Southwestern, and the Western Area Power Administrations, which primarily receive appropriations for expenses, resume phasing out the financing of their purchase power and wheeling activities through federal power receipts. The phaseout assumes that PMAs customers, acting independently or in partnerships, will increasingly enter energy markets to arrange directly with suppliers for their energy and related service needs. This change eliminates the need for the PMAs to use power receipts to finance these activities in advance and instead places the responsibility on PMAs customers. The PMAs also may continue to assist their customers in arranging the funding of these activities through alternative financing mechanisms.

Southeastern, Southwestern, and Western's FY 2004 requests propose to direct fund the Corps hydropower facilities operations and maintenance using federal power receipts. This proposal was first introduced in the FY 2003 request to improve power generation and reliability.

Bonneville Power Administration's FY 2004 submission addresses the volatility of the Northwest power market and proposes an additional \$700 million in borrowing authority. This additional authority will allow Bonneville to finance new infrastructure improvements in the Northwest to assure the reliability of the Northwest's electric transmission and energy supply.

Western is overseeing the construction of a third Los Banos-Gates transmission line to relieve the Path 15 constraint in central California. The project is expected to come on line in late 2004. Through a public/private partnership, approximately \$300 million of non-federal funds are being invested to expand the capacity of the transmission system by 1,500 megawatts.

SIGNIFICANT FUNDING CHANGES – FY 2003 to FY 2004 Request (\$ in millions)

Southeastern Power Administration (FY 2003 \$4.5; FY 2004 \$5.1) +\$0.6
FY 2004 program level is \$20.1, funded by \$5.1 in budget authority and \$15.0 in power revenue to pay for purchase power and wheeling activities.

Purchase Power and Wheeling (offset by collections)
 (FY 2003 \$20.0; FY 2004 \$15.0) -\$5.0
 FY 2004 request continues the phaseout that began in FY 2001 of federal financing of the PMAs' purchase power and wheeling (PPW) expenses. In FY 2004, Southeastern will use \$15.0 in power revenues to finance the PPW expenses that it will incur on behalf of its customers. They will also continue to assist their customers in using alternative financing mechanisms (net billing, bill crediting, and reimbursable authority).

Southwestern Power Administration (FY 2003 \$27.4; FY 2004 \$28.6) **+\$1.2**
 FY 2004 program level is \$28.9, funded by \$28.6 in budget authority and \$0.3 in power revenues to pay for the purchase of power and wheeling activities. In FY 2004 and thereafter, Southwestern proposes language to accept advances from non-federal entities for work associated with its transmission facilities.

Purchase Power and Wheeling (offset by collections)
 (FY 2003 \$0.3; FY 2004 \$0.3).....\$0
 FY 2004 request continues the phaseout that began in FY 2001 of federal financing of the PMAs' purchase power and wheeling (PPW) expenses. In FY 2004, Southwestern will use \$0.3 in power revenues to finance the PPW expenses that it will incur on behalf of its customers. They will also continue to assist their customers in using alternative financing mechanisms (net billing, bill crediting, and reimbursable authority).

Western Area Power Administration (FY 2003 \$162.8; FY 2004 \$171.0)..... **+\$8.2**
 FY 2004 Construction, Rehabilitation, Operation, and Maintenance program is \$195.0, to be funded by \$171.0 in budget authority, \$4.0 in receipts from the Colorado River Dam Fund, and \$20.0 in revenues from the sale of electricity for purchase power and wheeling expenses.

Purchase Power and Wheeling (offset by collections)
 (FY 2003 \$30.0; FY 2004 \$20.0) -\$10.0
 FY 2004 request continues the phaseout that began in FY 2001 of the federal financing of the PMAs' purchase power and wheeling (PPW) expenses through power receipts. In FY 2004, Western will use \$20.0 in power revenues to finance the PPW expenses it will incur on behalf of its customers. This is down \$10.0 from the FY 2003 request and down \$166.1 from FY 2002. Customers are expected to increase participation in energy markets, enabling them to meet, on their own, the cost of firming and wheeling their portion of the federal hydropower resource. Western will continue to assist its customers as necessary using alternative funding methods (net billing, bill crediting, and reimbursable authorities).

Program Direction (FY 2003 \$108.4; FY 2004 \$123.2) **+\$14.8**
 Net budget authority increase includes \$8.0 to cover salary increases for 1,024 FTEs (including salaries determined through negotiation and 25 additional FTEs financed in this account), \$3.3 for support services associated with the construction program and the renegotiation of regional technical support service contracts, and \$3.5 for other related expenses.

Construction and Rehabilitation (FY 2003 \$17.2; FY 2004 \$12.2) **-\$5.0**
 Emphasizes replacement and upgrades of the existing electrical system infrastructure to sustain reliability of the power system and deliveries to customers. Majority of the program decrease is attributed to a lower level of planned substation work (-\$3.3), fewer upgrades/replacements of communication systems (-\$1.9), and slightly lower level of transmission line upgrades (-\$0.4)...offset by lower use of prior-year balances (+\$0.6).

Operation and Maintenance (FY 2003 \$37.2; FY 2004 \$35.6)..... -\$1.6
 Net decrease is due to slightly lower level of planned regular O&M activities and a decrease in equipment purchases for replacements and additions to the power system, offset by lower use of prior-year balances (+\$0.6).

Utah Reclamation Mitigation and Conservation Account (FY 2003 \$0; FY 2004 \$0)\$.00
 FY 2004 request proposes to transfer authorities and future contributions for the Utah Reclamation Mitigation and Conservation Account from the Secretary of Energy to the Secretary of the Interior, Bureau of Reclamation. This account funds environmental mitigation covering fish and wildlife and recreation resources affected by the Central Utah and Colorado River Storage Projects in the State of Utah. Western already finances mitigation activities separately at its two projects in Utah, Flaming Gorge, and Lake Powell/Glen Canyon Dams. Western also contributes to mitigation on tributaries that flow into Lake Powell through its funding of the Recovery Implementation Program (P.L. 106-392).

Bonneville Power Administration (self finances through revenues)

Capital Investment Obligations (FY 2003 \$586.0; FY 2004 \$526.9)..... -\$59.1
 No annual appropriation received. In FY 2004, total requirements of all Bonneville programs include estimated budget obligations of \$4,089.0. This amount includes operating expenses of \$3,428.6 and total capital investments that require budget obligations and use of existing borrowing authority of \$528.0. These investments provide electric utility and general plant maintenance associated with the Federal Columbia River Power System's transmission services, capital equipment, hydroelectric projects, conservation, and capital investments in environment, fish, and wildlife. Increase in capital investments is needed to improve power system reliability and accommodate the first phase of major transmission infrastructure improvements. Bonneville's remaining borrowing authority is insufficient to fund all projects that have been identified to help relieve the infrastructure problems encompassing the West Coast. As a result, Bonneville's FY 2004 budget includes a legislative proposal to increase their limit on borrowing authority by \$700.

Power Business Line (FY 2003 \$211.8; FY 2004 \$168.6)..... -\$43.2
 Provides for additions, improvements, and replacements of existing U.S. Bureau of Reclamation and Corps of Engineers' hydroelectric projects in the Pacific Northwest that improve the power system reliability. Decrease is due to lower associated project costs (-\$24.4) and an emphasis on energy conservation program implementation (-\$18.8).

Transmission Business Line (FY 2003 \$330.2; FY 2004 \$329.6)..... -\$0.6
 Provides for additions, upgrades, and replacements to the federal transmission system, conducts pollution prevention and abatement activities in compliance with environmental laws and regulations, and mitigates environmental risks associated with operation of the power system. Transmission infrastructure improvements and additions will help the federal transmission system remain in compliance with national reliability standards, allow for interconnection of needed new generation, remove constraints that limit economic trade, remove constraints that limit the ability to maintain the system, and replace aging equipment. First phase includes the following major projects: (G1) Puget Sound Area Additions, (G2) North of Hanford/North of John Day, (G3) West of McNary (on hold), (G4) Starbuck Generation (on hold), (G5) Lower Monumental & McNary Area Generation (Phase II) (on hold), (G6) Cross Cascades North, (G7) Celilo Modernization, (G8) I-5 Corridor Generation Additions, (G9) Spokane Area and Western Montana Generation Additions, (G10) Portland Area Additions, (G12) Olympic Peninsula Additions, and (G13) I-5 Corridor Generation Additions (Southwest Washington-Northwest Oregon) (on hold).

Federal Energy Regulatory Commission

(dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Federal Energy Regulatory Commission					
Federal energy regulatory commission.....	184,155	192,000	199,400	+7,400	+3.9%
FERC revenues.....	-184,155	-192,000	-199,400	-7,400	-3.9%
Total, Federal Energy Regulatory Commission.....	—	—	—	—	—
Fees And Recoveries, Federal Energy Regulatory Commission					
Fees & recoveries in excess of annual appropriations.....	—	-18,000	-18,000	—	—

PROGRAM DESCRIPTION

The **Federal Energy Regulatory Commission (FERC)** regulates key interstate aspects of the electric power, natural gas, oil pipeline, and hydroelectric industries. It ensures that the rates, terms, and conditions of service for segments of the electric and natural gas and oil pipeline industries are just and reasonable. It authorizes the construction of natural gas pipeline facilities and ensures that hydropower licensing, administration, and safety actions are consistent with the public interest.

The FERC is fostering sustained, competitive energy markets to realize dependable, affordable energy availability. To accomplish this, the FERC is promoting a secure, high-quality, environmentally responsible energy infrastructure through consistent policies. This includes facilitating rapid development of appropriate infrastructure to ensure sufficient energy supplies, providing clarity of cost recovery to infrastructure investors, giving full and fair consideration to environmental and community impacts of energy projects, and promoting measures to improve the security and safety of the energy infrastructure. To foster nationwide competitive energy markets as a substitute for traditional regulation, the FERC is establishing regional transmission organizations (RTOs) across the entire country and establishing balanced, self-enforcing market rules.

The FERC also is developing its new program to protect customers and market participants through vigilant and fair oversight of energy markets. This will include promoting understanding of energy market operations and technologies, assuring pro-competitive market structure and operations, and remedying individual market participant behavior as needed to ensure just and reasonable market outcomes.

PROGRAM HIGHLIGHTS

It is clear that market crises can erupt quickly, especially in electricity, and the FERC is acting to provide a much more stable long-term platform for electricity markets. Two initiatives are especially important: a proposed standard market design (SMD) rulemaking and the new Office of Market Oversight and Investigation. The proposed SMD rule would require all areas of the country to adopt a standard design for electric power markets based on best practices, with regional differences accommodated as appropriate. This will be the primary tool to prevent severe market malfunctions and abuse of market power, and to respond quickly to problems as they arise.

SIGNIFICANT FUNDING CHANGES – FY 2003 to FY 2004 Request (\$ in millions)

Federal Energy Regulatory Commission (FY 2003 \$192.0; FY 2004 \$199.4)..... +\$7.4
 FY 2004 request funds 1,250 FTEs. FERC will recover the full cost of its operations through a system of annual charges and fees, resulting in a net appropriation of \$0 for FY 2004.

Fossil Energy Research and Development

(dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Fossil Energy Research And Development					
Coal and other power systems					
President's Coal Research Initiative.....	332,970	315,600	320,500	+4,900	+1.6%
Other power systems.....	56,678	49,500	47,000	-2,500	-5.1%
Total, Coal and other power systems.....	389,648	365,100	367,500	+7,300	+2.0%
Natural gas technologies.....					
Petroleum — Oil technology.....	44,069	22,590	26,555	+3,965	+17.6%
Cooperative research and development.....	56,244	35,400	15,000	-20,400	-57.6%
Fossil energy environmental restoration.....	8,023	6,000	6,000	—	—
Import/export authorization.....	9,900	9,715	9,715	—	—
Energy efficiency science initiative.....	2,400	2,500	2,750	+250	+10.0%
Energy efficiency science initiative.....	6,000	—	—	—	—
Program direction and management support					
Headquarters program direction.....	18,700	19,820	22,703	+2,883	+14.5%
Energy technology center program direction.....	67,300	64,880	70,082	+5,202	+8.0%
Total, Program direction and management support.....	86,000	84,700	92,785	+8,085	+9.5%
General plant projects.....					
Advanced metallurgical processes.....	13,450	2,000	3,000	+1,000	+50.0%
Advanced metallurgical processes.....	5,200	5,300	10,000	+4,700	+88.7%
Subtotal, Fossil Energy Research and Development.....	620,934	533,305	533,305	+4,900	+0.9%
Use of prior year balances and other adjustments.....	-43,150	-54,000	-14,000	+40,000	+74.1%
Total, Fossil Energy Research And Development.....	577,784	479,305	519,305	+44,900	+9.4%

PROGRAM DESCRIPTION

The **Fossil Energy Research and Development (FERD)** program's goal is to ensure that economic benefits from moderately priced fossil fuels and a strong domestic industry, which creates domestic jobs related to export markets, are compatible with the public's expectation for exceptional environmental quality and reduced energy security risks. In support of this goal, the mission of the program is to enhance U.S. economic and energy security by: (1) managing and performing energy-related research to promote efficient and environmentally sound production and use of fossil fuels; (2) partnering with industry and others to advance clean and efficient fossil energy technologies toward commercialization, and (3) supporting the development of information and policy options that benefit the public by ensuring access to adequate supplies of affordable and clean energy.

The United States relies on fossil fuels for about 85 percent of the energy it consumes. Many forecast that high U.S. reliance on these fuels will continue for decades. For example, the Energy Information Administration's *2002 Annual Energy Outlook* projects that fossil fuel reliance could exceed 85 percent in 2020. Accordingly, a key goal of DOE's fossil energy activities is to ensure that economic benefits from moderately priced fossil fuels and a strong domestic industry that creates export-related jobs are compatible with the public's expectation for exceptional environmental quality and reduced energy security risks. This includes promoting the development of energy systems and practices that will provide current and future generations with energy that is clean, efficient, reasonably priced, and reliable.

The Fossil Energy program is also responsible for administering the Elk Hills School Lands Fund, operating the Strategic Petroleum Reserve, Naval Petroleum Reserves, and the Northeast Home Heating Oil Reserve, all of which are described in separate sections in this document. Applied research is supported by Fossil Energy Research and Development activities which includes the following:

The **President's Coal Research Initiative** includes the **Clean Coal Power Initiative**, the activities formerly carried out in the **Clean Coal Technology Demonstration** program, and the coal research and development program. The Initiative includes the following activities:

	<i>(dollars in thousands)</i>		
	FY 2002	FY 2003	FY 2004
	<u>Comparable</u>	<u>Request</u>	<u>Request</u>
Clean Coal Power Initiative	146,065	150,000	130,000
Coal Research and Technology	<u>186,905</u>	<u>165,600</u>	<u>190,500</u>
Total, Pres. Coal Research Initiative	332,970	315,600	320,500

The **Clean Coal Power Initiative** (CCPI) is a key component of the National Energy Policy to address the reliability and affordability of the Nation's electricity supply, particularly from its coal-based generation. The initiative responds to the President's commitment to conduct research on clean coal technologies to meet this challenge. The CCPI is a cooperative, cost-shared program between the government and industry to rapidly demonstrate emerging technologies in coal-based power generation and to accelerate their commercialization. The Nation's power generators, equipment manufacturers, and coal producers help identify the most critical barriers to coal's use in the power sector. Technologies will be selected with the goal of accelerating development and deployment of coal technologies that will economically meet environmental standards, while increasing the efficiency and reliability of coal power plants.

The **Central Systems** program is focused on partnering with industry to provide the critical research that can dramatically reduce coal power plant emissions and significantly improve efficiency to reduce carbon emissions for carbon management and maintain a cost-competitive edge. The President's Clear Skies Initiative is supported by the development of advanced emission control technology and related byproducts and water usage under the Central Systems program. The Vision 21 program is focused on conducting research on innovative technology to support the long-term goal of zero emissions levels.

The Vision 21 concept integrates program goals to develop the full potential of the Nation's abundant fossil fuel resources while addressing climate change concerns. Vision 21 plants will be comprised of a portfolio of fuel-flexible systems and modules capable of producing electricity and/or a varied slate of high-value fuels or commodities tailored to market demands in the 2010-2015 timeframe.

The **Carbon Sequestration** program is developing a portfolio of technologies that hold great potential to reduce greenhouse gas emissions. The program will focus primarily on the following areas:

Develop capture and separation technologies that dramatically lower the costs of reducing carbon dioxide emissions from fossil fuel process treatment, and

Promote development of the infrastructure required for wide-scale deployment of greenhouse gas mitigation technologies.

The programmatic time line is to develop to a state of commercial readiness and develop a portfolio of safe and cost-effective greenhouse gas capture, storage, and mitigation technologies by 2012, leading to substantial market penetration beyond 2012. Technology developments within

the Sequestration program are expected to contribute significantly to the President's goal of reducing greenhouse gas intensity by 18 percent by 2012 and would play a critical role should it be necessary to stabilize greenhouse gas emissions in the United States.

In addition to maintaining core research and development, the Sequestration program will focus on providing funding support and management assistance for the President's National Climate Change Technology Initiative (NCCTI) competitive solicitation. The NCCTI competitive solicitation is intended to promote applied research, via a series of open competitive solicitations aimed at exploring concepts, technologies, and advanced technical approaches that could, if successful, contribute in significant ways to: further reductions in, or avoidances of, greenhouse gas (GHG) emissions; GHG capture and sequestration; and/or conversion of GHGs to beneficial use. The intent of this solicitation is to have all the various technologies that can potentially contribute to the reduction of greenhouse gas emissions or concentrations, to compete head-to-head based on GHG mitigation.

The mission of the **Fuels** program is to create public benefits by conducting the research necessary to promote the transition to a hydrogen economy. Research will target reducing costs and increasing efficiency of derived hydrogen from coal feedstocks as part of the Hydrogen Fuel Initiative.

The **Advanced Research** projects seek a greater understanding of the physical, chemical, biological, and thermodynamic barriers that limit the use of coal and other fossil fuels. The program funds two categories of activity. The first is a set of crosscutting studies and assessment activities in environmental, technical and economic analyses, coal technology export, and integrated program support. The second includes fundamental and applied research programs that focus on developing the technology base critical to the development of super-clean, very high efficiency coal-based power and coal-based fuel systems.

The **Other Power Systems** program includes the **Distributed Generation Systems** and **Novel Generation Systems** activities. These activities offer the potential to meet peak demand (and in some cases base and intermediate load) in a cost-effective manner, without the need for capital-intensive, central station capacity or costly investments in transmission and distribution. Fuel cell distributed generation systems have the additional advantage of being capable of reducing criteria pollutants well below current New Source Performance Standard levels, reducing non-criteria pollutants such as carbon dioxide and acid rain precursors, and reducing thermal emissions to the environment.

The **Natural Gas Technologies** and the **Petroleum – Oil Technology** programs focus on long-term, high-risk research that can create public benefits. For example, the program explores technological and policy options that can reduce the environmental impact of drilling, which helps improve access to a continuing domestic supply. To ensure market relevance, the program is closely coordinated with industry. Activities seek to ensure long-term availability of natural gas at reasonable prices and to investigate hydrates as a potential source for natural gas supply. The program is now targeted to research where there is a compelling need/market failure or a strong federal role and substantial public benefit.

The FERD program is committed to the President's emphasis on performance-based budgeting. The program has been refocused to:

Provide research to increase the supply of high-purity, economical carbon dioxide that is produced by power plants throughout the United States for delivery to local reservoirs to aid in the exploration and production of oil.

Identify reservoirs based on economics, technical issue, and feasibility of injecting carbon dioxide.

PROGRAM HIGHLIGHTS

In FY 2004, the FERD program will continue to operate all coal activities as a single program. The goal of President's Coal Research Initiative is to produce public benefits by conducting research and development on coal-related technologies that will improve coal's competitiveness in future energy supply markets. The Administration strongly supports coal as an important part of our energy portfolio. This request carries out the President's campaign commitment to spend \$2 billion on clean coal research over 10 years. The consolidation of this program will make existing budget authority available to the FERD account for expenditure on clean coal efforts. The Distributed Generation Systems program has been merged with a newly established program which has a focus on Novel Generation Systems in a decision unit entitled **Other Power Systems**. Natural gas is and will continue to be the primary fuel used for distributed power applications.

The FERD program has begun to incorporate the criteria into the program and project selection process consistent with the President's Management Agenda that directs the application of specific criteria to DOE's applied research and development investments. The FY 2004 budget request takes into consideration the National Energy Policy and maintains core research and development with an emphasis on cost sharing and industry collaboration. As a result of the evaluations under the Research and Development Investment criteria, as well as the Budget and Performance Integration exercise known as the Program Assessment and Rating Tool, program activities throughout FERD have been focused on emphasizing fundamental research and development activities.

The Natural Gas Technologies and the Oil Technology programs have undergone a significant overhaul as the result of these program reviews. A series of new activities are proposed to focus research on those areas with a strong public purpose and where industry would be unlikely to engage in the research without federal participation.

SIGNIFICANT FUNDING CHANGES – FY 2003 to 2004 Request (\$ in millions)

President's Coal Research Initiative (FY 2003 \$315.6; FY 2004 \$320.5)	+\$4.9
Clean Coal Power Initiative (FY 2003 \$150,000; FY2004 \$130,000).....	+\$1.0
Central Systems (FY 2003 \$85.0; FY2004 \$86.0).....	+\$1.0
Sequestration R&D (FY 2003 \$44.0; FY 2004 \$62.0).....	+\$18.0
Increase provides for exploratory research and testing of novel and advanced concepts for greenhouse gas capture, separation, storage and reuse, and increased research facilities and capabilities to conduct research in the area of sequestration.	
Fuels (FY 2003 \$5.0; FY 2004 \$5.0).....	\$0
Request transfers existing activities to the Natural Gas program and initiates research on the production of hydrogen from a coal-base.	
Advanced Research (FY 2003 \$31.7; FY 2004 \$37.5)	+\$5.8
Increase in Materials Research in ultra supercritical materials, mercury control, and support to Coal and Power Fuel Cell program. Increase in University Coal Research will provide support to develop mercury control technologies.	
Other Power Systems (FY 2003 \$49.5; FY 2004 \$47.0)	-\$2.5
Distributed Generation Fuel Cells (FY 2003 \$47.0; FY 2004 \$44.5).....	-\$2.5
Conclusion of molten carbonate demonstration activities resulted in a reduced requirement in this area. Most of these funds have been redirected to cross-cutting fuel cell issues and will continue to be carried out under Fuel Cell Systems. Activity changes include:	

FOSSIL ENERGY RESEARCH AND DEVELOPMENT

Advanced Research (+\$7.0), Fuel Cell Systems (-\$4.0), Vision 21 Hybrids (-\$6.5), and Innovative Systems Concepts (+\$1.0).

Novel Systems (FY 2003 \$2.5; FY 2004 \$2.5).....\$0

Natural Gas Technologies (FY 2003 \$22.6; FY 2004 \$26.2)..... +4.0

Exploration and Production (FY 2003 \$15.5; FY 2004 \$14.0)..... -\$1.5
 Significant revamping of all programs, offset by the initiation of a new program, Sustainable Supply.

Gas Hydrates (FY 2003 \$4.5; FY 2004 \$3.5) -\$1.0
 Request focuses on industry-led field activities to collect samples of naturally occurring hydrate from Alaska permafrost and Gulf of Mexico characterization of Arctic and offshore hydrate resources and reduces safety research, since this is primarily an industry responsibility.

Emerging Processing Technology (FY 2003 \$0; FY 2004 \$6.5) +\$6.5
 Request initiates a hydrogen-from-gas program.

Petroleum – Oil Technology (FY 2003 \$35.4; FY 2004 \$15.0) -\$20.4

Exploration and Production (FY 2003 \$16.4; FY 2004 \$2.0)..... -\$14.4
 Request reduces existing research and refocuses on Enhanced Oil Recovery and Carbon Dioxide injection.

Reservoir Life Extension/Management (FY 2003 \$9.5; FY 2004 \$5.0) -\$4.5
 Refocused program encourages best practices and approaches to conserve reservoir access to marginal wells.

Effective Environmental Protection (FY 2003 \$9.5; FY 2004 \$8.0)..... -\$1.5
 Request refocuses the program to balance the need to develop the Nation’s energy resources while maintaining our environmental values.

Advanced Metallurgical Research (FY 2003 \$5.3; FY 2004 \$10.0) +\$4.7
 Increase in Advanced Metallurgical Processes due to initiation of fuel cell and in-situ mineral carbonation research efforts.

Program Direction (FY 2003 \$84.7; FY 2004 \$92.8) +\$8.1
 Increase reflects increased salaries and benefits for headquarters and field. Includes funding for former Clean Coal program direction activities to be funded from balances in merged account.

Naval Petroleum and Oil Shale Reserves

(dollars in thousands)

FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
---------------------------------	-------------------------------	-----------------------------------	---------------------	--

Naval Petroleum & Oil Shale Reserves

Production operations.....	15,284	8,370	9,101	+731	+8.7%
Management.....	14,326	12,461	7,399	-5,062	-40.6%
Subtotal, Naval petroleum & oil shale reserves.....	29,610	20,831	16,500	-4,331	-20.8%
Use of prior year balances.....	-12,255	—	—	—	—
Total, Naval Petroleum & Oil Shale Reserves.....	17,355	20,831	16,500	-4,331	-20.8%

PROGRAM DESCRIPTION

The DOE has historically managed, operated, maintained, and produced oil from the **Naval Petroleum and Oil Shale Reserves (NPR)** while attempting to achieve the greatest value and benefit to the United States. As a result of the National Defense Authorization Act FY 1996, NPR-1 (Elk Hills) was sold to Occidental Petroleum Corporation and all three Naval Oil Shale Reserves (NOSR) have been transferred outside DOE.

Administrative jurisdiction for NOSR-1 and NOSR-3 was transferred to the Department of Interior to be made available for leasing. The other oil shale reserve, NOSR-2, was transferred to the Ute Indian Tribe in January 2000. The United States retains a 9-percent royalty interest in the value of any oil, gas, other hydrocarbons, and other minerals produced from the conveyed land, which will be applied to costs for remediation of the uranium mill tailings site near Moab, Utah.

The most significant post-sale activity is the settlement of ownership equity shares with the former unit partner in the NPR-1 field, Chevron U.S.A., Inc. Geologic petroleum and reservoir engineering services are required to prepare and support the government's equity position before an independent petroleum engineer and the Assistant Secretary for Fossil Energy, who are to impartially determine final equity shares. Each percentage point change in equity is worth millions of dollars to the federal government.

The budget request eliminates funding for the Rocky Mountain Oilfield Testing Center, which does not have a uniquely federal mission and is more appropriately carried out by the private sector.

PROGRAM HIGHLIGHTS

The FY 2004 request provides for closeout activities associated with NPR-1 as well as the operation and management of the two remaining activities: NPR-2 and NPR-3. The Elk Hills closeout work includes reservoir-engineering analysis to determine final equity percentages, legal support for all sale-related issues, and environmental remediation and cultural resource activities required as a result of the sale agreement. Responsibilities for the other properties include oversight of environmental compliance for the 17 NPR-2 leases, operation and maintenance of NPR-3 field operations, and environmental remediation of NPR-3.

SIGNIFICANT FUNDING CHANGES – FY 2003 to FY 2004 Request (\$ in millions)

Naval Petroleum and Oil Shale Reserves (FY 2003 \$20.8; FY 2004 \$16.5)..... -\$4.3
 Decrease in funding reflects the elimination of the Rocky Mountain Oilfield Testing Center, because it does not have a unique federal mission.

Elk Hills School Lands Fund

(dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Elk Hills School Lands Fund					
California teachers' pension fund payment.....	—	36,000	36,000	—	—
Advance appropriation.....	36,000	36,000	—	-36,000	-100.0%
Total, Elk Hills School Lands Fund.....	36,000	72,000	36,000	-36,000	-50.0%

PROGRAM DESCRIPTION

The National Defense Authorization Act for Fiscal Year 1996, Public Law 104-106, authorized the settlement of longstanding “school lands” claims to certain **Elk Hills** lands by the state of California. The settlement agreement between DOE and California, dated October 11, 1996, provides for payment subject to appropriation of 9 percent of the net sales proceeds generated from the divestment of the government’s interest in the Elk Hills Reserve. Under the terms of the act, a contingency fund containing 9 percent of the net proceeds of sale has been established in the U.S. Treasury and is reserved for payment to California.

The first installment payment was appropriated in FY 1999. While no appropriation was provided in FY 2000, the act provided an advance appropriation of \$36.0 million that became available in FY 2001. Similarly, the FY 2001 and FY 2002 Appropriations Acts provided advance appropriations of \$36.0 million that became available in October of 2002 and 2003.

PROGRAM HIGHLIGHTS

The FY 2003 budget requested \$36.0 million in new budget authority to be paid at the beginning of FY 2003 (fifth payment). The payment would be in addition to the FY 2002 advance appropriation payable October 1, 2002. This would have completed the first five installments. The FY 2004 request is a placeholder for half of the estimated balance for years six and seven as required by the settlement agreement until final equity finalization is complete. The request for \$36.0 million in FY 2003 in addition to the FY 2002 advance appropriation of \$36.0 million in FY 2003 will be subject to the enactment of a FY 2003 appropriation or a full-year Continuing Resolution.

SIGNIFICANT FUNDING CHANGES – FY 2003 to FY 2004 Request (\$ in millions)

California Teachers’ Pension Fund Payment (FY 2003 \$72.0; FY 2004 \$36.0).....-\$36.0
Request provides funding for payment to the state of California in accordance with Public Law 104-106.

Energy Conservation

(dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Energy Conservation					
Vehicle technologies.....	181,352	153,563	157,623	+4,060	+2.6%
Fuel cell technologies.....	46,682	57,500	77,500	+20,000	+34.8%
Weatherization & intergovernmental activities.....	324,181	359,446	356,960	-2,486	-0.7%
Distributed energy resources.....	55,137	54,784	51,784	-3,000	-5.5%
Building technologies.....	63,082	52,563	52,563	—	—
Industrial technologies.....	100,909	91,477	64,429	-27,048	-29.6%
Biomass and biorefinery systems R&D.....	24,779	23,939	8,808	-15,131	-63.2%
Federal energy management program.....	18,900	23,425	19,962	-3,463	-14.8%
National climate change technology initiative.....	—	20,000	9,500	-10,500	-52.5%
Program management.....	81,442	74,954	76,664	+1,710	+2.3%
Total, Energy Conservation.....	896,464	911,651	875,793	-35,858	-3.9%
<i>(Total, Energy Conservation grants, non-add).....</i>	<i>(275,000)</i>	<i>(315,898)</i>	<i>(326,998)</i>	<i>(+11,100)</i>	<i>(+3.5%)</i>
<i>(Total, Energy Conservation R&D, non-add).....</i>	<i>(621,464)</i>	<i>(595,753)</i>	<i>(548,795)</i>	<i>(-46,958)</i>	<i>(-7.9%)</i>

PROGRAM DESCRIPTION

The **Energy Efficiency and Renewable Energy (EE)** program conducts research, development, and deployment to advance energy efficiency and clean power technologies. The overall goal of EE's **Energy Conservation** funded programs is to develop technologies that can provide efficient, cost-effective, clean, and reliable energy services when and where they are needed. These activities assist all energy-consuming sectors of the economy: buildings, industrial use, transportation, power generation, and federal facilities.

EE's Energy Conservation budget request is composed of the following programs. The **FreedomCAR and Vehicle Technologies (FCVT)** program supports the **FreedomCAR** and 21st Century Truck partnerships with industry. The **Hydrogen, Fuel Cells and Infrastructure Technologies (HFCIT)** program supports the **FreedomCAR** and **Hydrogen Fuel** initiatives. The FCVT program funds research on technologies such as advanced lightweight materials, advanced batteries, improved power electronics, hybrid electric systems, and advanced combustion engines to enable light- and heavy-duty highway transportation to become dramatically more efficient. The overall HFCIT program (funded by both Energy Supply and Conservation appropriations) directs research, development, and validation of fuel cell and hydrogen production, delivery, and storage technologies for transportation and stationary applications. Energy Conservation funds support fuel cell power systems RD&D efforts.

The **Weatherization and Intergovernmental Activities** program assists deployment of energy efficient and renewable energy products into the marketplace, as well as funding Weatherization Assistance and State Energy Program grants. **Weatherization Assistance** delivers cost-effective, energy efficiency investments in the housing of low-income families and the **State Energy Program** supports energy efficiency projects in states and communities through formula grants and competitive awards. The **Distributed Energy Resources** program performs research and development to transform the existing electrical generation sector into a smarter, more flexible and more efficient energy system. The **Building Technologies** program develops, promotes, and integrates energy technologies and practices to make buildings more efficient and affordable. The **Industrial Technologies**

program conducts cost-shared research in energy-saving technology areas in partnership with industry and in providing technical assistance, tools, and training to help energy-intensive industries improve their energy efficiency. The **Biomass and Biorefinery Systems R&D** program is aimed at reducing processing energy requirements and production costs in biomass processing plants and future integrated industrial biorefineries. The **Federal Energy Management Program (FEMP)** program promotes federal energy and environmental leadership by advancing energy efficiency and water conservation, promoting the use of distributed and renewable energy, and improving utility management decisions at federal sites. The **National Climate Change Technology Initiative Competitive Solicitation** program supports applied research that has as its primary goal the reduction of greenhouse gas emissions or the sequestration of greenhouse gases. The **Program Management** account provides the resources necessary to effectively manage the programs described above.

PROGRAM HIGHLIGHTS

The FY 2004 request proposes several program shifts to more efficiently and effectively meet national energy needs. In March of 2002, the Office of Energy Efficiency and Renewable Energy began a complete reorganization of its programmatic and business functions into 11 program offices and a centralized administration office. The FY 2004 request presents a new budget structure that mirrors the new organizational structure. In addition, the budget shifts reflect application of the R&D Investment Criteria and the Program Assessment Rating Tool developed as part of the President's Management Agenda.

The **Hydrogen Fuel Initiative** is a new research and development initiative focused on hydrogen fuel production, storage, and distribution. The Hydrogen Initiative will complement the **FreedomCAR** initiative, which aims to develop technologies needed to enable the mass production of affordable, practical hydrogen powered fuel cell vehicles. Together, FreedomCAR and the hydrogen initiative will, through partnerships with the private sector, overcome key technology and cost barriers which will facilitate a fuel cell vehicle and hydrogen infrastructure commercialization decision by industry in the year 2015, allowing rapid market penetration and significant oil displacement for the year 2020 and beyond. The Administration has pledged over \$1.2 billion in spending on the hydrogen initiative over the next 5 years (FY 2004-2008).

The FY 2004 request includes \$5.0 million to launch another new initiative, the development of **Solid State Lighting** technologies for general illumination that could achieve energy efficiencies as high as 70 percent.

The FY 2004 request also supports the **National Climate Change Technology Initiative Competitive Solicitation**. Funding is requested for this Presidential initiative to conduct applied research that reduces or captures greenhouse gas emissions in both the Energy Supply (\$15.0 million) and Energy Conservation (\$9.5 million) accounts. In total, DOE's request includes \$40.0 million for this initiative, with \$13.2 million included in the request for the Office of Fossil Energy and \$2.3 million within the request for the Office of Nuclear Energy.

The FY 2004 request reduces or closes out several program efforts that were identified as complete, unable to provide high levels of public benefit, or reached a point where federal funding is no longer appropriate. For instance, the **Industries of the Future, Specific** subprogram will be reduced by 54 percent relative to the FY 2003 amended request. The funding requested will allow for successful completion of prioritized existing, high-payoff projects and concludes work on near-term commercialization efforts that industry can complete on its own. Funded research projects will contribute to a 20- to 25-percent decrease in energy intensity by the participating industries.

*SIGNIFICANT FUNDING CHANGES – FY 2003 to 2004 Request (\$ in millions)***Vehicle Technologies (FY 2003 \$153.5; FY 2004 \$157.6).....+\$4.1**

To support the FreedomCAR partnership, funding for energy storage R&D is increased (+\$7.6) to advance lithium polymer batteries and focus efforts on fundamental storage concepts. The request also increases support for propulsion materials for hybrid and fuel cell vehicles (+\$2.0) and lightweight materials for light-duty vehicles (+\$8.2). Funds are requested for a first biennial review of the FreedomCAR partnership (+\$1.5). Within Vehicle Technologies, STICK (-\$0.5) and CARAT (-\$0.6) activities are terminated, and DOE will work through SBIR and STTR to involve similar types of small businesses and pursue comparable technical innovation topics. The Off-Highway Vehicle activity (-\$0.5) and the Advanced Petroleum Based Fuels activity for trucks are terminated (-\$9.3), because they are largely within industry's capabilities. Combustion and Emission Control R&D (-\$2.6) is decreased, because initial success in some research areas indicates an increase in industry participation is warranted. The Environmental Impacts activity is terminated (-\$2.4), because the work is better aligned with the other agencies' missions.

Fuel Cell Technology (FY 2003 \$57.5; FY 2004 \$77.5)+\$20.0

All of EE program's fuel cell activities will support **Hydrogen** and **FreedomCAR** initiatives. Increase in funding will support cost reduction of critical Stack Components (+\$13.1) and Technology Validation activities(+\$13.2) to evaluate performance and reliability of integrated components through fuel cell vehicles testing. Reductions in Fuel Processor R&D (-\$6.3) reflect the decrease in mortgages to reach the FY 04 go/no-go milestone for on-board vehicle fuel processing.

Weatherization and Intergovernmental Activities**(FY 2003 \$359.4; FY 2004 \$357.0).....-\$2.4**

Increased funding for Weatherization Assistance program (+\$11.1) supports Administration's commitment to help 1.2 million families over the next 10 years. Decrease for Gateway Deployment activities (-\$13.6) reflects a consolidation to focus efforts toward achieving greater collaborative partner support and completion of programs such as NICE3.

Distributed Energy Resources (FY 2003 \$54.8; FY 2004 \$51.8).....-\$3.0

Funding is decreased to encourage higher cost-share on efforts with industry.

Industrial Technologies (FY 2003 \$91.4; FY 2004 \$64.4)-\$27.0

During FY 2004, activities with specific industries (forest products, glass, metal casting, steel, aluminum, mining, and chemicals) will focus on the successful completion of existing projects with the highest potential future energy efficiency and environmental benefits. New projects will be selected that are unlikely to be undertaken without federal support that significantly reduce energy intensity and that are in alignment with the Administration's R&D investment criteria.

Biomass and Biorefinery Systems R&D (FY 2003 \$23.9; FY 2004 \$8.8)-\$15.1

Technology development and validation associated with the Industrial Gasification activity is now within the capability of industry and should be pursued without further Federal support in FY 2004. This decision is in accordance with the Administration's R&D investment criteria.

National Climate Change Technology Initiative (FY 2003 \$20.0; FY 2004 \$9.5)-\$10.5

Funding change reflects an increased diversification of funding for the National Climate Change Technology Initiative Competitive Solicitation program, as compared to the FY 2003 amended request. DOE is requesting a total of \$40 million within three program offices, Energy Efficiency and Renewable Energy (\$24.5), Fossil Energy (\$13.2), and Nuclear Energy (\$2.3).

Northeast Home Heating Oil Reserve

(dollars in thousands)

FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
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Strategic Petroleum Reserve

Northeast Home heating oil reserve.....	8,000	8,000	5,000	-3,000	-37.5%
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PROGRAM DESCRIPTION

On July 10, 2000, the President directed DOE to establish a heating oil reserve in the northeastern United States capable of assuring home heating oil supply for the northeast states during times of very low inventories and significant threats to immediate further supply. Two million barrels of heating oil will protect the northeast against a disruption for 10 days, the time required for ships to carry heating oil from the Gulf of Mexico to New York harbor for distribution.

On March 6, 2001, Energy Secretary Abraham formally notified Congress that the Administration would establish the **Northeast Home Heating Oil Reserve** as a permanent part of America's energy readiness effort, separate from the Strategic Petroleum Reserve. The 2-million-barrel reserve was originally established in commercial facilities located in New York Harbor and New Haven, Connecticut. On August 6, 2001, the Secretary approved the relocation of 250,000 barrels of heating oil inventory from Connecticut to Rhode Island, giving the reserve additional truck and marine loading options.

PROGRAM HIGHLIGHTS

In May 2002, the storage contracts were recompeted for continued storage at the East Coast terminals. Contracts were awarded in June 2002 and performance commenced on October 1, 2002.

The FY 2004 request of \$5 million reflects contracts savings and is \$3 million below the FY 2003 request.

Hearings and Appeals – Economic Regulation

(dollars in thousands)

FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003
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Economic Regulation

Office of hearings and appeals.....	1,996	1,487	1,047	-440	-29.6%
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PROGRAM DESCRIPTION

The **Hearings and Appeals** program continues work related to previous enforcement activities of DOE to equitably terminate the regulatory program implementing the Emergency Petroleum Allocation Act of 1973. This program provides administrative review and resolution services for the department and provides adjudication pertaining to Interior-funded programs.

The Hearings and Appeals programs are funded under two appropriations, Energy and Water Development and Interior and Related Agencies. The Energy and Water Development activities are discussed separately in this document.

All programs stemming from the Emergency Petroleum Allocation Act of 1973 are coming to an end. A report is being prepared that details the plan to terminate all economic regulatory activities within the next 2 fiscal years. The largest on-going refund proceeding is the crude oil proceeding in which the Hearings and Appeals program distributed funds recovered by DOE to consumer claimants, including individuals, farmers, businesses, hospitals, school districts, and cooperatives. The Hearings and Appeals program will finish the current round of supplemental payments during FY 2004. After the current round of supplemental payments is finished, the remaining crude oil monies available for final restitution will total approximately \$258 million.

PROGRAM HIGHLIGHTS

This section discusses Hearings and Appeals activities within the jurisdiction of the Interior and Related Agencies Appropriation. The program is also requesting funds (\$3.8 million) in the Energy and Water Development Appropriation.

The FY 2004 budget of \$1.0 million, to be appropriated by the Interior and Related Agencies Subcommittee, would finance the phase-out of remaining oil overcharge activities (EPCA). The FY 2004 request is a 30-percent reduction from FY 2003 levels and is the result of the continuation of the remaining 2-year phase-out of Economic Regulation activities.

SIGNIFICANT FUNDING CHANGES – FY 2003 to FY 2004 Request (\$ in millions)

Hearings and Appeals – Economic Regulation (FY 2003 \$1.5; FY 2004 \$1.0)..... -\$0.5
 Reduction in personnel compensation reflects the continuation of the phase-out of these activities. FTEs will be reduced from 8 in FY 2003 to 2 in FY 2004.

Strategic Petroleum Reserve

(dollars in thousands)

FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003
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Strategic Petroleum Reserve

SPR — Facilities development.....	170,880	168,856	175,081	+6,225	+3.7%
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PROGRAM DESCRIPTION

The **Strategic Petroleum Reserve (SPR)** mission is to provide the United States with adequate strategic and economic protection against disruptions in oil supplies. The SPR maintains the capability to transition from operational readiness to a maximum rate crude oil drawdown within 15 days of Presidential notification. The SPR maintains this continual readiness posture through a comprehensive program of systems maintenance, exercises, and tests.

The current storage capacity is 700 million barrels at the four sites with inventory and accounts receivable totaling 675 million barrels of crude oil by the end of FY 2004. This inventory provides the equivalent of 58 days of net import protection.

The SPR program is committed to the President’s emphasis on performance-based budgeting. The following is their strategic objective:

Maintain the Strategic Petroleum Reserve in a state of readiness to supply oil at a sustained rate of 4.3 million barrels per day¹ for 90 days within 15 days notice by the President.

PROGRAM HIGHLIGHTS

Due to continued geothermal heating and renewed gas intrusion into the SPR crude oil, the program has initiated a vapor pressure mitigation program. Continuous removal of excess gas from the SPR crude oil inventory will commence by May 2004.

The DOE, in a joint initiative with the Department of Interior, implemented a royalty oil transfer plan in 1999 that competitively exchanged 28 million barrels of royalty oil at offshore platforms for crude oil that meets the reserve’s specifications. In November 2001, the President directed the Secretary of Energy to continue using this technique as a means to fill the reserve to its current capacity of 700 million barrels.

The FY 2004 request provides for continued storage site maintenance, operations, security, drawdown testing, and drawdown readiness for the reserve, in addition to funding the vapor pressure mitigation activities.

SIGNIFICANT FUNDING CHANGES – FY 2003 to 2004 Request (\$ in millions)

Strategic Petroleum Reserve (FY 2003 \$168.9; FY 2004 \$175.1)..... +\$6.2
 Increase reflects degas plant operations of storage sites, additional maintenance activities, and full funding for program direction.

¹ Achieved with inventory of 700 million barrels.

Strategic Petroleum Reserve – Petroleum Account

(dollars in thousands)

FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
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SPR petroleum account

Oil acquisition.....	—	11,000	—	-11,000	-100.0%
Transfer to Fossil Energy R&D.....	—	—	-5,000	-5,000	n/a
Total, SPR petroleum account.....	—	11,000	-5,000	-16,000	-145.5%

PROGRAM DESCRIPTION

The **Strategic Petroleum Reserve (SPR) Petroleum Account**, created by the Energy Policy and Conservation Act, is the source of funds required to acquire, transport, and inject oil into the Strategic Petroleum Reserve. Funds in the SPR Petroleum Account are also used for incremental drawdown and other related miscellaneous costs.

The SPR program is committed to the President’s emphasis on performance-based budgeting. The following is their strategic objective:

In FY 2005, fill the SPR to its 700-million-barrel capacity with Royalty-in-Kind oil.

PROGRAM HIGHLIGHTS

The President directed DOE on November 13, 2001, to add approximately 108 million barrels of royalty oil from federal offshore leases to the SPR to reach its full capacity. Fill operations commenced in April 2002, with completion in 2005. SPR’s current storage capacity is 700 million barrels at its four sites. The inventory at the end of FY 2004 is projected to be 675 million barrels of crude oil, which equates to 56 days of net import protection.

SIGNIFICANT FUNDING CHANGES – FY 2003 to 2004 Request (\$ in millions)

**Strategic Petroleum Reserve – Petroleum Account
(FY 2003 \$11.0; FY 2004 -\$5.0)-\$16.0**

Decrease represents the one-time financing of royalty-related fill expenses in FY 2003 and the transfer of prior-year balances to the Fossil Energy Research and Development account in FY 2004.

Unobligated Balances (FY 2003 \$0; FY 2004 -\$5.0).....-\$5.0

Transfer to Fossil Energy Research and Development program.

Energy Information Administration

(dollars in thousands)

	FY 2002 Comparable Approp	FY 2003 Amended Request	FY 2004 Request to Congress	FY 2004 vs. FY 2003	
Energy Information Administration					
National energy information system.....	78,437	80,611	80,111	-500	-0.6%
Use of prior year balances.....	—	-500	—	+500	+100.0%
Total, Energy Information Administration.....	78,437	80,111	80,111	—	—

PROGRAM DESCRIPTION

The **Energy Information Administration (EIA)** is an independent statistical agency that collects, analyzes, produces, and disseminates energy data, analyses, and forecasts covering the full range of fuels and a wide variety of energy issues. Topics include energy reserves, production, consumption, distribution, prices, technology, and related international economic and financial markets. Most of EIA's activities are required by statute, such as developing and maintaining a comprehensive energy database, producing specific reports, and disseminating reports and analysis for a variety of customers. Other activities satisfy inquiries for energy information from policymakers, the energy industry, and the general public.

The EIA supports the President's **National Energy Policy** by serving as the Administration's primary source of energy information, analyses, and forecasts. The following is their strategic objective:

Provide national and international energy data, analysis, information, and forecasts to meet the needs of the energy decision-makers and the public in order to promote sound policymaking, efficient energy markets and public understanding.

PROGRAM HIGHLIGHTS

The EIA's FY 2004 program request is \$80.1 million, which is the same level of funding as the FY 2003 request. The EIA priority is to maintain high-quality core energy data programs and forecasting systems needed to provide timely data, analysis, and forecasts. The EIA continues to update and overhaul its consumption surveys; overhaul the electricity surveys and data systems to accommodate changes in the deregulated energy industry; and improve data quality and accuracy in the petroleum, natural gas, and electricity areas.