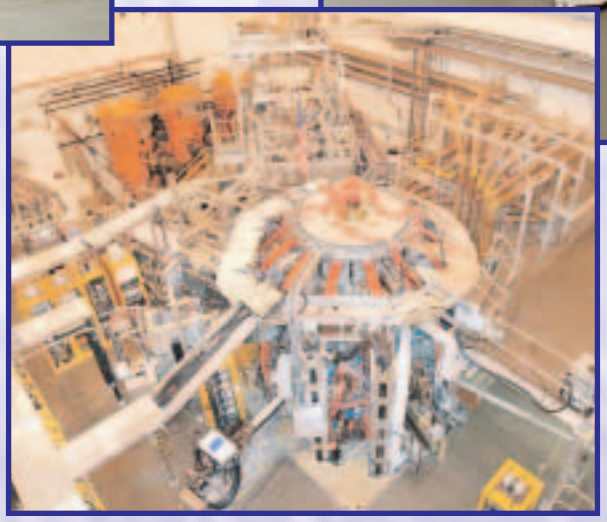
U.S. Department of Energy

Performance and Accountability Report



Fiscal Year 2004

DOE/ME0044

U.S. Department of Energy

Performance and Accountability Report

Fiscal Year 2004

Table of Contents

Message From the Secretary i

Foreword ii

MANAGEMENT'S DISCUSSION AND ANALYSIS **Page 1**

Department at a Glance 3
- History 3
- Mission 6
- Organization 6
- Resources 7
- Offices and Field Facilities 8
- Strategic Goals 9
- Financial Highlights 10
- Management Control Systems 12
  - Federal Managers' Financial Integrity Act of 1982 12
  - Federal Financial Management Improvement Act of 1996 12
  - President's Management Agenda 13
  - Management Challenges and Significant Issues 15
  - Improper Payments Information Act of 2002 24

Program Performance 25
- Performance Overview 25
- Defense – Meeting National Security Challenges 31
- Energy – Investing In America's Energy Future 43
- Science – Advancing Scientific Understanding 57
- Environment – Resolving the Environmental Legacy 67

This report is available online at http://www.mbe.doe.gov/progliaison/par2004.htm

Table of Contents con't

PERFORMANCE RESULTS **Page 77**

Introduction 79
General Goal 1: Nuclear Weapons Stewardship 82
General Goal 2: Nuclear Nonproliferation 122
General Goal 3: Naval Reactors 148
General Goal 4: Energy Security 154
General Goal 5: Science 248
General Goal 6: Environmental Management 274
General Goal 7: Nuclear Waste 284
Status of Unmet FY 2003 Performance Goals 288
Management – Related Annual Targets 296

FINANCIAL RESULTS **Page 301**

Message from the Chief Financial Officer 303
Consolidated and Combined Financial Statements 305
Principal Statements 307
Notes to the Consolidated and Combined Financial Statements 314
Consolidating Schedules 349
Required Supplementary Stewardship Information (RSSI) 362
Research and Development Costs 362
Required Supplementary Information (RSI) 369
Deferred Maintenance 369
Budgetary Resources 370
Schedule of Intragovernmental Amounts 371
Auditors' Report 372
Memorandum from the Inspector General 372
Independent Auditors' Report 374
Management's Response to Auditors' Recommendations 383
Inspector General's Management and Performance Challenges 385
Other Statutory Reporting 388
Management's Response to Audit Reports 388

APPENDICES **Page 391**

Glossary of Acronyms 392
Erroneous Payments and Recovery Activities 400

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Message from the Secretary of Energy

I am pleased to provide our Performance and Accountability Report, presenting information on the Department of Energy's financial, management, and programmatic results for fiscal year 2004. This report illustrates how we have used the resources entrusted to us in fulfilling the President's management vision for the energy, economic, and national security of the American people.

The independent public accounting firm KPMG LLP, working for the Department's Inspector General, has audited the fiscal year 2004 financial statements contained in this report. I am very proud to announce that, for the sixth consecutive year, the Department has received an unqualified audit opinion. I am also proud to report the Office of Management and Budget announced the Department of Energy is one of the top cabinet-level agencies in demonstrating progress in implementing the President's Management Agenda. These two achievements affirm our ongoing focus on achieving maximum results for the taxpayer at an acceptable cost.

As required by the Federal Managers' Financial Integrity Act and the Federal Financial Management Improvement Act, we have completed evaluations of the Department's management controls and our financial management system. No material weaknesses were identified in the Department for fiscal year 2004 and we find our financial management system generally conforms to governmental financial system requirements.

In addition to the progress we have made on our management initiatives and financial stewardship efforts, we have made great strides in meeting the many challenges the Department faces in accomplishing our critical missions. This includes advancing scientific research and development to ensure sustainable sources of energy, increasing the security of our nuclear facilities and materials, and addressing the environmental legacy. We are progressing toward a hydrogen economy, developing clean coal technologies, encouraging the next generation of nuclear power, and improving the reliability and efficiency of supplies of electricity and natural gas. We have made Americans more secure by reaching international agreements to reduce nuclear stockpiles, improving the security at nuclear sites, and developing the ability to detect nuclear materials at border sites and seaports. We have created a healthier environment by accelerating the cleanup of nuclear weapons production sites resulting in tens of billions in estimated savings. We have also identified and initiated the development of a central repository for spent nuclear fuel and high-level radioactive waste. Our report contains complete and reliable results achieved from working toward our goals, and also describes how we measure our performance, acknowledge our successes and address our shortcomings.

The Department has charted a course for the future – focusing on our technical capabilities to meet the Nation's energy needs and providing innovative solutions for tomorrow's challenges. As public servants, we are committed to managing the American people's resources effectively. We will not fall short in meeting our responsibilities as stewards of the public trust by ensuring the effective and efficient use of taxpayers' dollars.

Spencer Abraham
November 15, 2004

Foreword

The Reports Consolidation Act of 2000 authorizes Federal agencies to consolidate various reports in order to provide performance, financial and related information in a more meaningful and useful format. In accordance with the Act, the information contained in this report is a consolidation of reporting requirements that will serve multiple audiences and users with varied levels of detail. This report is comprised of three primary sections that provide an accurate and thorough documentation of the Department of Energy's (Department or DOE) stewardship of our mission critical resources and services provided to the American people.

1. **Management's Discussion and Analysis** section provides information on the Department's mission, its organizational structure, and its financial resources. It provides executive-level information on the Department's management controls, systems and compliance with laws and regulations and identifies the most significant management issues and challenges facing the Department. This section also provides information on the Department's most significant performance achieved within our critical mission objectives and describes the methods employed to monitor, assess, verify and validate our performance information.
2. **Performance Results** section provides detailed information and an assessment of our progress on all of the Department's performance goals and targets for the past four years.
3. **Financial Results** section provides a Message from the Chief Financial Officer, the Department's consolidated and combined financial statements, Auditors' Reports, the Inspector General's and Performance Management Challenges and other statutory reporting.

THIS REPORT MEETS THE FOLLOWING LEGISLATED REPORTING REQUIREMENTS:

Department of Energy Organization Act of 1977 – requires an annual report on agency activities.

Federal Managers' Financial Integrity Act (FMFIA) of 1982 – requires a report on the status of management controls and the most serious problems.

Federal Financial Management Improvement Act (FFMIA) of 1996 – requires an assessment of the agency's financial systems for adherence to government-wide requirements.

Inspector General (IG) Act of 1978 (Amended) – requires information on management actions in response to Inspector General audits.

Government Performance and Results Act (GPRA) of 1993 – requires performance results achieved against all agency goals established.

Government Management Reform Act (GMRA) of 1994 – requires agency audited financial statements.

Reports Consolidation Act of 2000 – requires the consolidated reporting of performance, financial and related information in a Performance and Accountability Report.

Improper Payment Information Act of 2002 – requires reporting on agency effort to identify and reduce erroneous payment.

U.S. Department of Energy

Performance and Accountability Report

Fiscal Year 2004

MANAGEMENT'S DISCUSSION AND ANALYSIS

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Department at a Glance

President Truman signing the Atomic Energy Act and creating the Atomic Energy Commission in August 1946.

History

The origins of the Department can be traced to the Manhattan Project and the race to develop the atomic bomb during World War II. Following the war, Congress engaged in a contentious debate over civilian versus military control of the atom. This debate was settled by the creation of the Atomic Energy Commission in 1946 to take control over the scientific and industrial complex supporting the Manhattan Project and to maintain civilian government control over the field of atomic research and development. Throughout the early Cold War Years, the Commission focused on designing and producing nuclear weapons and developing nuclear reactors for naval propulsion. In 1954 the exclusive Government use of the atom ended, spurring growth in the commercial nuclear power industry. The Atomic Energy Commission was given the authority to regulate this new industry. During the 1970's the Atomic Energy Commission was abolished and two new agencies were created in 1974: the Nuclear Regulatory Commission to regulate the nuclear power industry, and the Energy Research and Development Administration to manage the nuclear weapon, naval reactor, and energy development programs. The extended energy crisis of the 1970's demonstrated the Nation's need for unified energy organization. In October 1977, Congress passed the Department of Energy Organization Act, creating the Department of Energy. That legislation brought together for the first time not only most of the government's energy programs but also science and technology programs and defense responsibilities that included the design, construction and testing of nuclear weapons. Creating the Department of Energy consolidated the responsibilities of the Energy Research and Development Administration and organizational entities from a dozen departments and agencies.

The Department provided the framework for a comprehensive and balanced national energy policy by coordinating and administering the energy functions of the Federal Government. The Department undertook responsibility for long-term, high-risk research and development of energy technology, power marketing, energy efficiency, the nuclear weapons program, energy regulatory programs, and a central energy data collection and analysis program.

President Carter signing the Department of Energy Organization Act in August 1977.

Over its history, the Department has shifted its emphasis and focus as the needs of the Nation have changed. During the late 1970's the Department emphasized energy development and regulation. In the 1980's, nuclear weapons research, development, and production took priority. Since the end of the Cold War, the Department has focused on environmental cleanup of the nuclear weapons complex, nuclear nonproliferation and nuclear weapons stewardship, reliable energy supplies and delivery, energy efficiency and conservation, and technology transfer. Today, the Department contributes to the future of the Nation by ensuring our energy security, maintaining the safety and reliability of our nuclear stockpile, cleaning up the environment from the legacy of the Cold War, and developing innovation in science and technology.

In support of our mission to provide national security we have improved one of our highest priorities, safeguarding and securing our sites and facilities. The Department is implementing a revised Design Basis Threat, the post September 11th analysis of potential threats against our sites and materials across the country. Security procedures at our sites and locations have undergone a high-level review conducted by some of the Nation's top military and civilian experts.

The Department is pursuing new technologies to meet future energy and environmental challenges. These are transformative technologies that will change the way we think about, use and produce energy. The Department is paving the path toward a "Hydrogen Economy" with affordable zero emission fuel cell vehicles, abundant production sources, and safe storage and transportation of hydrogen. Hydrogen holds tremendous promise to help meet our Nation's future energy challenges, and the Department is at the forefront of implementing the President's Hydrogen Fuel Initiative. The Department is also developing carbon sequestration and using advanced power production technologies to ensure the Nation's coal reserves can be used with far less environmental impact.

Fuel Cell zero emissions vehicle combines hydrogen fuel with oxygen from the air to create electricity for power.

Secretary of Energy promoting a Hydrogen Economy.

The Department's fossil programs are carrying out the President's Coal Research Initiative by working to dramatically improve the efficiency and environmental protections being developed for coal burning power production. The Department has launched an ambitious FutureGen program that will create the world's first near-zero emissions coal plant.

The Strategic Petroleum Reserve and the Northeast Home Heating Oil Reserve are key elements of our Nation's energy security and serve as

resource options for the President to use to protect American citizens from disruptions in commercial energy supplies. The President has directed the Department to fill the Strategic Petroleum Reserve to 700 million barrels. The two million barrel Northeast Home Heating Oil Reserve remains ready to respond to a Presidential order should there be a severe fuel oil supply disruption in the Northeast.

A tanker offloading Strategic Petroleum Reserve oil into a storage area along Gulf coast. Storage areas reduce the Nation's vulnerability to a shortage of petroleum in the event of a severe supply disruption.

The Department is taking steps to ensure nuclear energy plays an important role in our future energy mix. Our scientists are pursuing an advanced fuel cycle to significantly improve fuel performance, energy utilization, and proliferation resistance for nuclear reactors. International work is also occurring to develop the next generation of nuclear technologies to take us to the next level in terms of efficiency, reliability, and security.

The Department has made progress in accelerating its environmental cleanup efforts to ensure that the legacy of the work done throughout our Cold War weapons complex does not become community burdens for future generations. While this task continues to be a significant challenge that will require unprecedented funding requirements, the Department has implemented reforms to accelerate completion of the cleanup program by 35 years, saving American taxpayers nearly $50 billion. The Department has also made progress towards another challenging effort to develop a permanent nuclear waste repository that will consolidate nuclear waste in one safe, secure location at Yucca Mountain in Nevada. While future long-standing financial commitments will be required, the success of the Yucca Mountain project will ensure that nuclear power remains part of the Nation's fuel mix.

The Yucca Mountain facility experimenting with robotic technologies.

The Department has also focused on the safety and health of its workers by accelerating the processing of applications by employees of contractors who may have become ill as a result of their work at the Department's facilities. The Department is committed to doing what's right and taking care of those whose labors helped secure our safety.

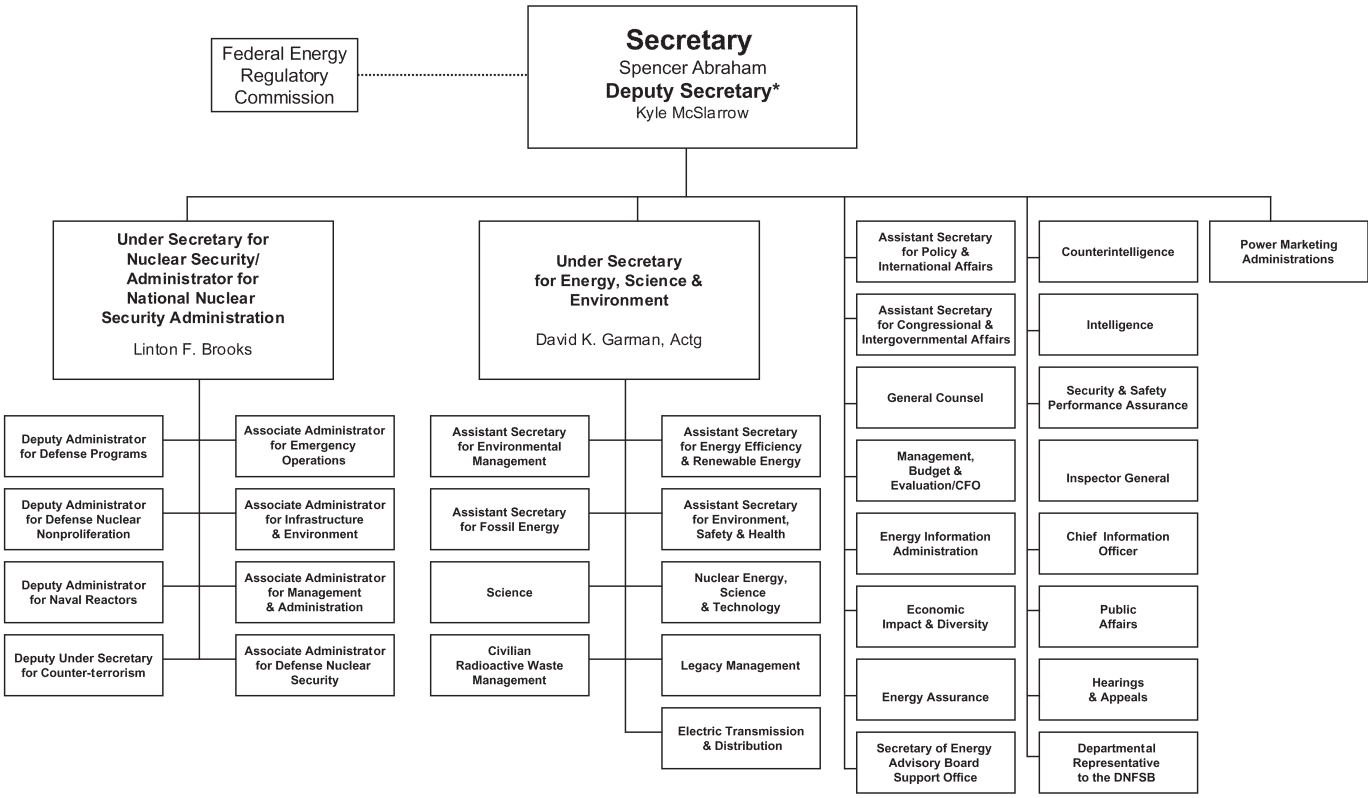
The Department strives to build on our successes of the past while working to meet the challenges that confront us today. To prepare for tomorrow and beyond, the Department will focus its resources on its mission and carry out its responsibilities to ensure America's national security and technological preeminence well into the future.

Mission

To advance the national economic and energy security of the United States;
To promote scientific and technological innovation in support of that mission;
To ensure the environmental cleanup of the national nuclear weapons complex.

Organization

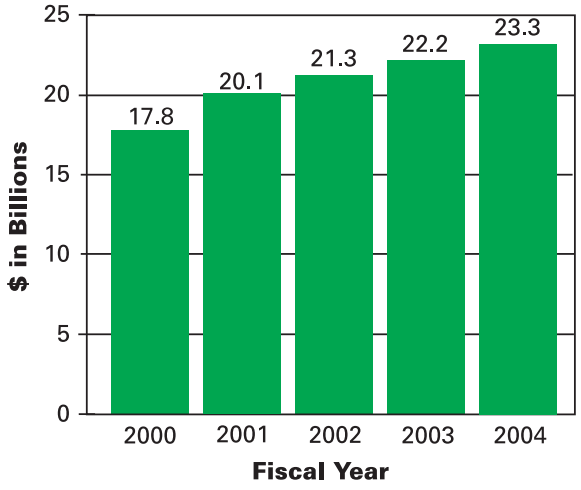
DEPARTMENT OF ENERGY



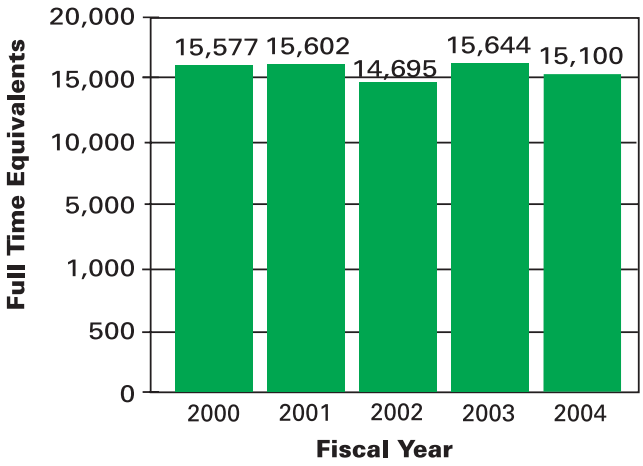
*** The Deputy Secretary also serves as the Chief Operating Officer**

Resources

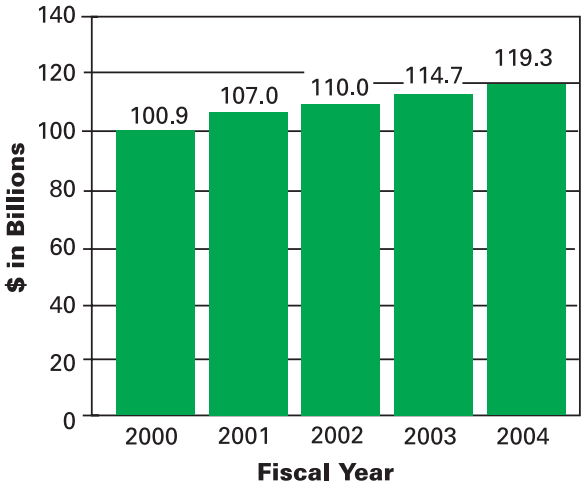
Funding



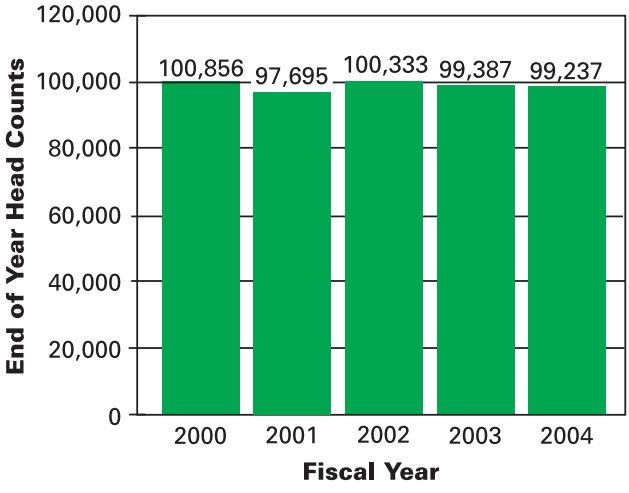
Federal Employees



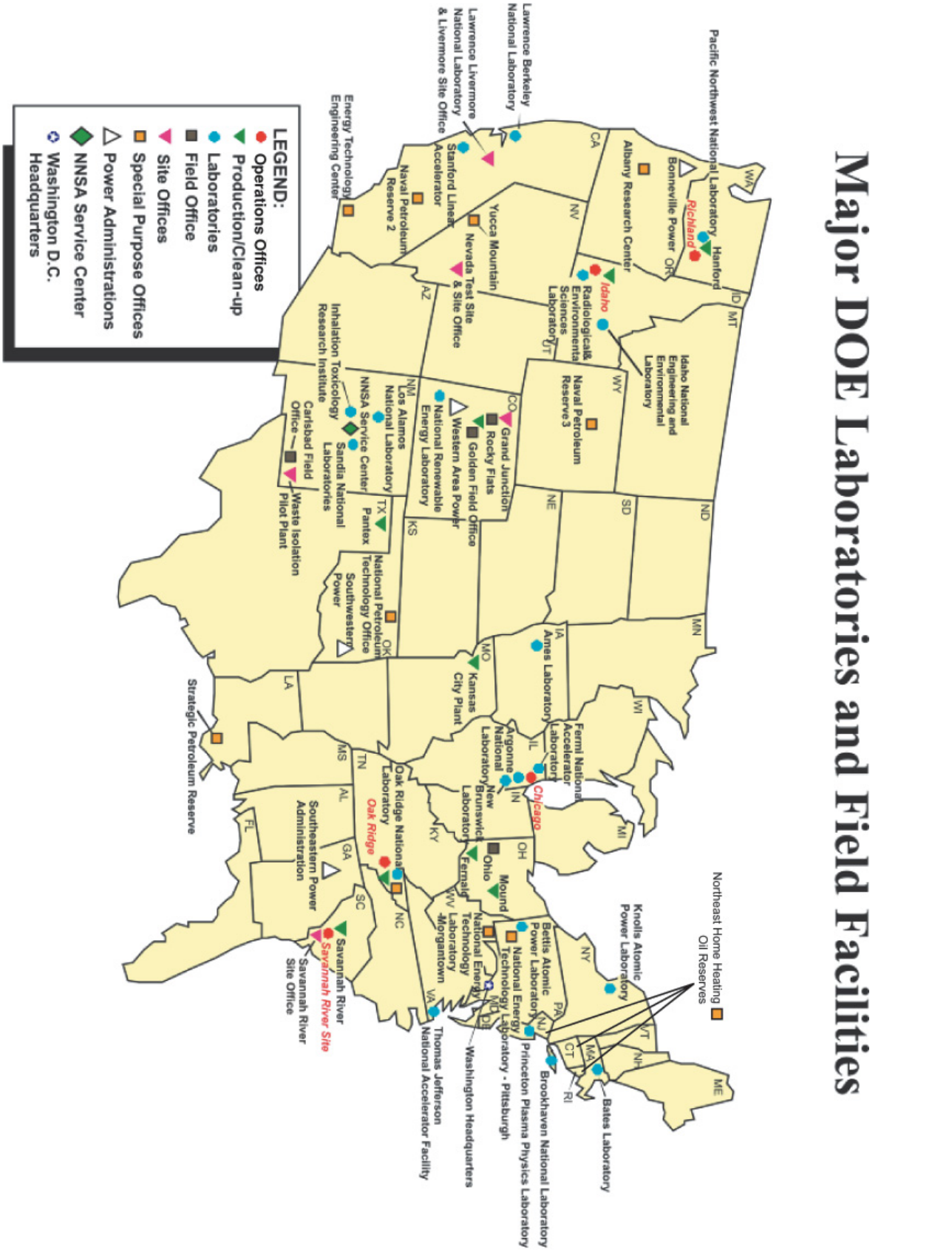
Assets



Contractor Employees



Offices and Field Facilities



Strategic Goals

The Department pursues the following four strategic goals and seven supporting general goals to achieve our mission. The performance, financial and other related information presented in this report is structured around these goals.

Strategic and General Goals	Resources Applied (in millions)
Defense Strategic Goal To protect our national security by applying advanced science and nuclear technology to the Nation's defense. ***General Goals*** • Maintain nuclear weapons stockpile • Detect and prevent nuclear proliferation • Support nuclear power needs of the U.S. Navy	$ Program Costs $ 8,061  Federal Employees 2,359*
Energy Strategic Goal To protect our national and economic security by promoting a diverse supply and delivery of reliable, affordable, and environmentally sound energy. ***General Goals*** • Enhance energy security	$ Program Costs $ 6,378  Federal Employees 6,808*
Science Strategic Goal To protect our national and economic security by providing world-class scientific research capacity and advancing scientific knowledge. ***General Goals*** • Maintain a world-class scientific research capacity	$ Program Costs $ 3,196  Federal Employees 960*
Environment Strategic Goal To protect the environment by providing a responsible resolution to the environmental legacy of the Cold War and by providing for the permanent disposal of high-level radioactive waste. ***General Goals*** • Clean up contamination of sites • Establish a permanent repository for high-level radioactive waste.	$ Program Costs $ 6,813  Federal Employees 1,804*

* These Federal Employee numbers do not include Federal Energy Regulatory Commission and Corporate Management employees (3,169) that support the above four strategic goals (e.g. CFO, General Counsel, etc.)

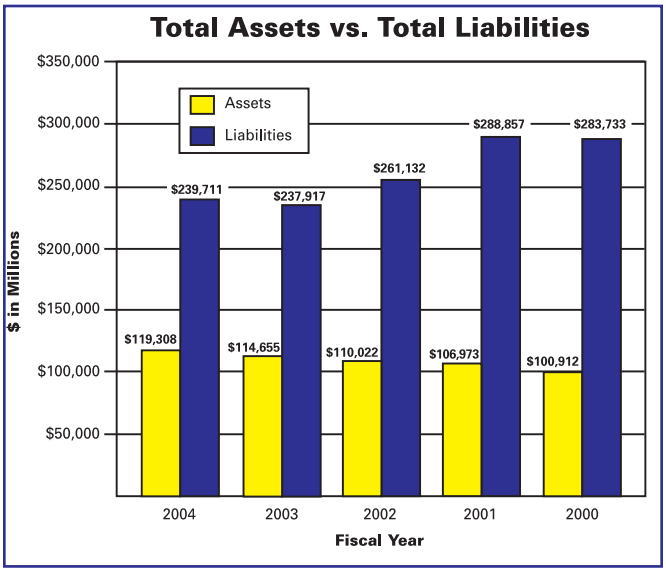
Financial Highlights

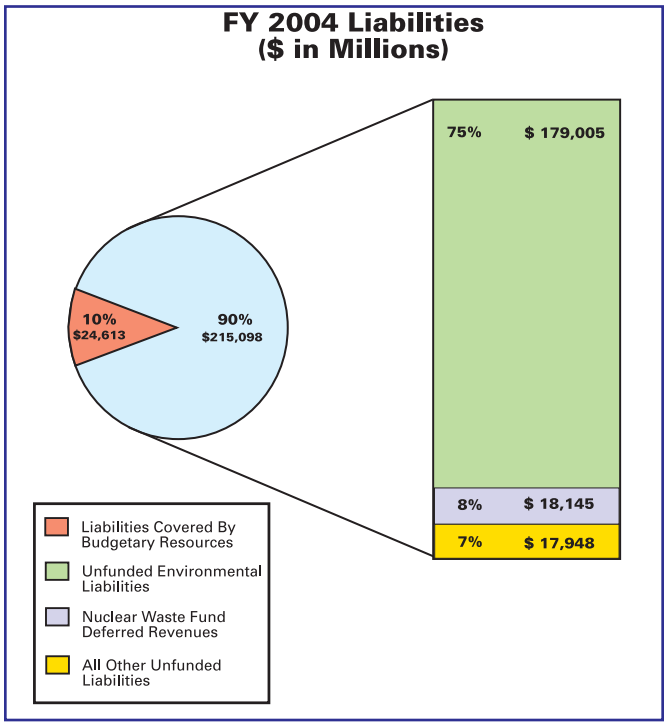
The Department's financial statements, which are included in the Financial Results section of this report, received an unqualified opinion from KPMG LLP. Preparing these statements is part of the Department's goal to improve financial management and provide accurate and reliable information that is useful for assessing performance and allocating resources. The Department's management is responsible for the integrity and objectivity of the financial information presented in these financial statements.

The financial statements were prepared from the Department's books and records in accordance with the formats prescribed by the Office of Management and Budget in conformity with generally accepted accounting principles (GAAP) in the United States of America. GAAP for Federal entities are the standards prescribed by the Federal Accounting Standards Advisory Board (FASAB).

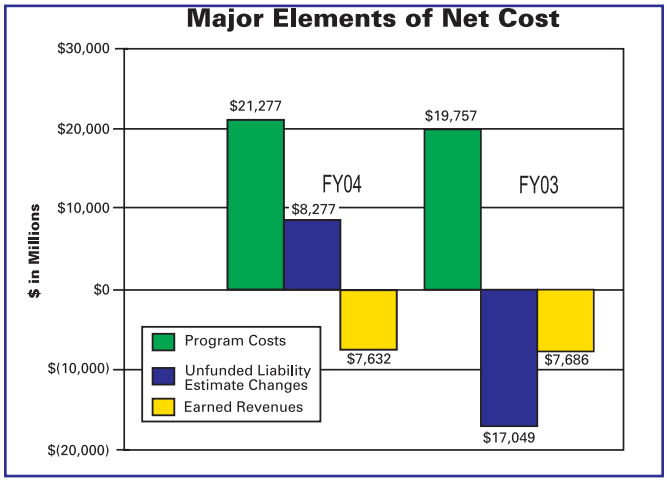
Balance Sheet. The Department has significant unfunded liabilities that will require future appropriations to fund. The most significant of these represent ongoing efforts to cleanup environmental contamination resulting from past operations of the nuclear weapons complex. The FY 2004 environmental liability estimate totaled $182 billion and represents one of the most technically challenging and complex cleanup efforts in the world. Estimating this liability requires making assumptions about future activities and is inherently uncertain. The future course of the Department's environmental management program will depend on a number of fundamental technical and policy choices, many of which have not been made. The cost and environmental implications of alternative choices can be profound.

Cleanup estimates have been reduced in the past few years primarily due to the Department's efforts to restructure the environmental program to focus on risk and accelerate cleanup goals, and the expenditure of $6 - $7 billion per year on actual cleanup work.





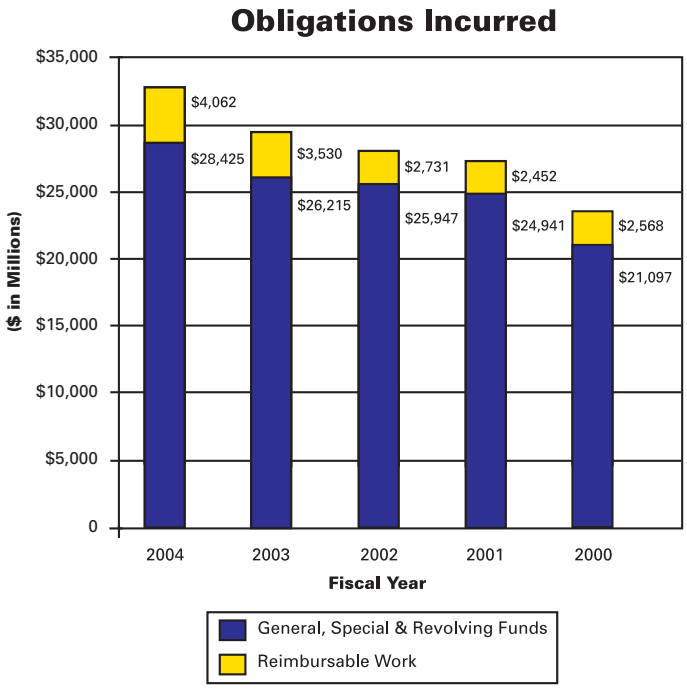
Net Cost of Operations. The major elements of net cost include program costs, unfunded liability estimate changes, and earned revenues. Unfunded liability estimate changes result from inflation adjustments; improved and updated estimates; revisions in acquisition strategies, technical approach, or scope; and regulatory changes. The Department's overall net costs are dramatically impacted by these changes in environmental and other unfunded liability estimates. Since these estimates primarily relate to the cost of prior years operations, they are not included as current year program costs, but rather reported as "Costs Not

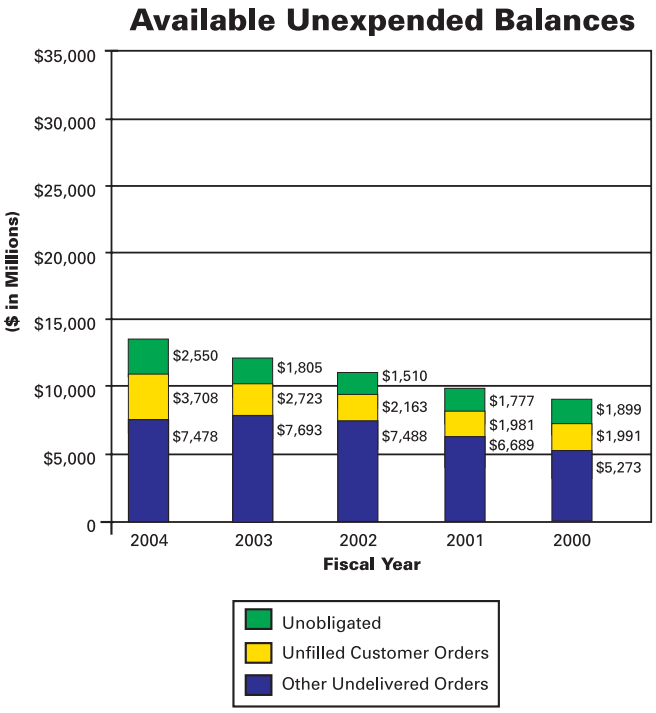


Assigned" on the Consolidated Statements of Net Cost. Program costs also exclude current-year expenditures for environmental cleanup work as those costs were accrued in prior years.

Budgetary Resources. The Combined Statements of Budgetary Resources provide information on the budgetary resources that were made available to the Department for the year and the status of those resources at the end of the fiscal year. The Department receives most of its funding from general government funds administered by the Department of the Treasury and appropriated for Energy's use by Congress. Since budgetary accounting rules and financial accounting rules may recognize certain transactions at different points in time, Appropriations Used on the Consolidated Statements of Changes in Net Position will not match costs for that period. The primary difference results from recognition of costs related to changes in unfunded liability estimates. The Consolidated Statements of Financing reconcile the accrual-based and budgetary-based information.

The Department continually analyzes its unexpended resources to ensure effective controls are in place to maximize the use of its available funding. FY 2004 increases in unfilled customer orders and unobligated balances available were primarily due to an increase in reimbursable work activities associated with the Naval Reactors Program.





Management Control Systems

This section of the report provides information on the Department's compliance with the:

- Federal Managers' Financial Integrity Act of 1982
- Federal Financial Management Improvement Act of 1996

This section also includes information on the Department's efforts to improve its operations through the actions it is taking to address:

- The President's Management Agenda
- Financial and Performance Integration
- Management Challenges and Significant Issues
- Improper Payment Information Act of 2002

FEDERAL MANAGERS' FINANCIAL INTEGRITY ACT OF 1982

The Federal Managers' Financial Integrity Act (FMFIA) of 1982 requires that agencies establish management control and financial systems to provide reasonable assurance that the integrity of Federal programs and operations is protected. Furthermore, it requires that the head of the agency provide an annual assurance statement on whether the agency has met this requirement and whether any material weaknesses exist. The Secretary's FY 2004 annual assurance statement is included in his message at the beginning of this report.

In response to the FMFIA, the Department developed a management control program which holds managers accountable for the performance, productivity, operations and integrity of their programs through the use of management controls. Annually, senior managers at the Department are responsible for evaluating the adequacy of the management controls surrounding their activities and determining whether they conform to the principles and standards established by the Office of Management and Budget and the Government Accountability Office. The results of these evaluations and other senior management information are used to determine whether there are any management control problems to be reported as material weaknesses. The Departmental Internal Control and Audit Review Council, the organization responsible for oversight of the Management Control Program, makes the final assessment and decision for the Department. For FY 2004, the Department identified no material weaknesses that place the overall control system at risk.

FEDERAL FINANCIAL MANAGEMENT IMPROVEMENT ACT OF 1996

The Federal Financial Management Improvement Act (FFMIA) of 1996 was designed to improve Federal financial management reporting by requiring that financial management systems comply substantially with three requirements: (1) Federal financial management system requirements; (2) applicable Federal accounting standards; and (3) the United States Government Standard General Ledger at the transaction level. Furthermore, the Act requires that the Independent Auditors' Report on the Department's financial statements indicate whether the agency's financial management systems comply with these requirements.

The Department has evaluated its financial management system and determined that it conforms to these governmental financial system requirements. Additionally, the Independent Auditors' Report on the Department's FY 2004 financial statements identified no instances of noncompliance. The Auditors' report is located in the Financial Results Section of this report.

PRESIDENT'S MANAGEMENT AGENDA

In 2001, the President challenged the Federal Government to become more efficient, effective, results-oriented, and accountable. Over the past three years, this initiative, called the President's Management Agenda (PMA), has become the framework for organizing the efforts cited by the President and focusing on the bottom line. This agenda reflects the President's commitment to achieve immediate, concrete, and measurable results that matter to the American people.

The President holds each agency accountable for its performance in carrying out the PMA. This is done through quarterly scorecards issued by OMB. Two rating categories are used – one for "status," which assesses whether a department has satisfied the overall goals or long-term criteria to accomplish an initiative and the other for "progress," which measures the extent to which the agency has followed its plan. To convey an agency's performance, the Administration developed a simple grading system of red, yellow and green.

The Department has met the President's challenge to change its approach to managing its people and its resources. When the first scorecard was issued in 2002, the Department of Energy was one of the lowest-rated agencies in the Federal Government. Two years later, in FY 2004, OMB ranked the Department of Energy as one of the top cabinet-level agencies in demonstrating progress in implementing the PMA. On the most recent scorecard, the Department achieved a "green" score in progress in each of the original five assessment areas which indicates that the Department is on track to achieve the Agenda's goals. This accomplishment is a source of pride to all the Department's employees who have demonstrated by their actions that they have embraced the spirit of the PMA.

The PMA originally identified five key government-wide areas where the opportunity to improve performance was the greatest. In addition, the Department was assigned an agency specific initiative related to research and development and, in FY 2004, one new government-wide initiative related to real property asset management was added, bringing our total to seven key opportunities for improvement. In FY 2005, the Department plans to continue our success in the areas in which we have achieved a green status and aggressively pursue excellence in the remaining initiatives the President has established. These initiatives are discussed below.

FY 2004 PMA Scorecard

INITIATIVE	STATUS	PROGRESS
HUMAN CAPITAL	Green	Green
COMPETITIVE SOURCING	Green	Green
FINANCIAL PERFORMANCE	Green	Green
E-GOVERNMENT	Yellow	Green
BUDGET & PERFORMANCE INTEGRATION	Green	Green
FEDERAL REAL PROPERTY ASSET MANAGEMENT	Red	Green
RESEARCH AND DEVELOPMENT	Red	Green

Strategic Management of Human Capital – Organizations are about people, and successful organizations have the right people with the right skills in the right places at the right time to achieve their goals. The Department's major components have analyzed the employee skills needed to conduct its business and eliminated various duplicative efforts by centralizing administrative operations. For example, the Department improved responsiveness and efficiency by consolidating the business and administrative support functions from three former operation offices into a single Service Center. The Department has also restructured its performance management system to link achievement with mission accomplishment and developed comprehensive workforce and succession management plans.

Competitive Sourcing – Opening up the government and its functions to competition, not only with the private sector but with other units of government, will lead to better performance and better value for the taxpayer. The Department conducted comparative studies in four programmatic areas: graphics, financial services, civil rights and NNSA logistics. The financial services study alone resulted in a major re-engineering and consolidation effort which allows for staffing reductions and a projected savings of $31 million over the next five years. One of the best ways to instill the principle of competition into the government's work is to make more and better use of the talents of small business, the backbone of America. The value of the Department's prime contracts with small businesses grew 53 percent, $511 million to $783 million, from FY 2001 to

2003. The number and value of subcontracts with small businesses also increased.

Improved Financial Performance – With access to accurate, timely and useful financial data, Federal managers can make the kind of decisions that achieve efficiencies while improving the lives of the American people. Financial data now available is far superior in quality and timeliness to that used previously and is used routinely by the Department to make major decisions regarding multi-million dollar programs and projects. For example:

• To enhance project management, the Department is establishing cost, schedule and technical baselines for its entire cleanup program with life-cycle costs over $100 billion;

• Obligation and cost data is extracted monthly from the Department's Financial Data Warehouse and summarized for senior officials as a key management tool for program evaluation; and

• Monthly reports are now compiled using cost, schedule and performance data provided by contractors and program offices to flag projects that are under-performing, behind schedule or over projected cost parameters.

A plan for expanding the Department's data integration activities was submitted to OMB during the fourth quarter of FY 2004 and is scheduled to begin implementation during the first quarter of FY 2005. A key component of this plan is deployment of a state-of-the-art accounting system that will enable program managers to track project costs on a regular basis with significant increases in the degree of granularity. The Department plans to deploy this new accounting system, called Integrated Management Navigation System/Standard Accounting and Reporting System (I-MANAGE/STARS) in FY 2005.

Expanded Electronic Government – Information technology (IT) is a powerful, cost-effective tool that can make government services available to more citizens, reduce burdensome paperwork, and lower costs. The flagship of the Department's e-Government initiatives is the development of an integrated business management system - I-MANAGE. The first two components of this system, a data warehouse and a new finance/accounting system, are scheduled to become operational in FY 2005. The Department has also supported the e-Payroll initiative by outsourcing its payroll function to the Defense Finance and Accounting Service and is working with 20 agencies to develop standardized systems in the areas of human resources and grants management. In the area of cyber security, approximately 90 percent of our information systems have been accredited as secure.

Budget and Performance Integration – Budget and management decisions should be based on whether a program is delivering the services promised in an efficient and effective manner. The Department's new strategic plan aligns the Department with its fundamental national and economic security goals. All work performed and every dollar spent must support the Department's overall mission. For each program, a 10 to 15 year plan has been developed to bridge the gap between annual budget requests and the long-term goals outlined in the Strategic Plan. The Department now tracks 255 performance targets for its programs that help measure success in achieving our strategic and program goals. Progress is assessed quarterly and failure to achieve milestones is reported as an "early warning" to senior management so that corrective action may be taken immediately. The Department also integrates performance assessment and budget decisions through use of OMB's Program Assessment Rating Tool (PART) process, although work remains on unifying PART targets and targets tracked internally by the Department. The Department also has implemented a new Planning, Programming, Budgeting and Evaluation process to support more informed resource and management decisions.

Federal Real Property Asset Management – Taxpayers have a right to expect that sound business practices are used to manage the Department's multi-billion dollar real estate portfolio. The Department is inventorying its real property assets and will use the inventory as a basis for determining which property should be maintained, cost-effectively repaired, or qualified for disposal.

Research that Solves Problems – The costs and benefits of proposed Research and Development are being evaluated according to a new set of rigorous criteria. These criteria – Relevance, Quality and Performance – are used not only when justifying projects and initiatives within the Department, but also in the PART process and in budget proposals to OMB and Congress.

MANAGEMENT CHALLENGES AND SIGNIFICANT ISSUES FACING THE DEPARTMENT

The Department carries out multiple, complex and highly diverse missions. Although the Department is continually striving to improve the efficiency and effectiveness of its programs and operations, there are some specific areas within our operations that merit a higher level of focus and attention. These areas represent the most daunting management challenges and significant issues we have in accomplishing our mission. The Reports Consolidation Act of 2000 requires that, annually, the Inspector General (IG) prepare a statement summarizing what he considers to be the most serious management and performance challenges facing the Department. That statement is to be included in the Department's annual Performance and Accountability Report. The Inspector General's statement included in the Financial Results section of this report identifies six challenges for the Department. Similarly, in FY 2003, the Government Accountability Office (GAO) identified six major management challenges and program risks to be addressed in FY 2004.

After considering the areas identified by the IG and GAO, as well as all other critical activities within the agency, we identified nine "Significant Issues" that we believe represent the most important matters facing the Department now and in the coming years. It is our goal that resolution of our Significant Issues will help mitigate the IG and GAO management challenges as well as internally identified issues. The following chart demonstrates the relationship between the internal and external issues.

You will note that the GAO identified two areas not included by the IG or the Department. The challenges are related to revitalizing the Department's infrastructure and meeting the Nation's energy needs. While the Department recognizes the importance of both of these areas and has included these as issues in the past, based on our progress in reducing these vulnerabilities, we no longer consider these areas to be significant management problems. In the area of revitalizing our infrastructure, agency-wide requirements pertaining to infra-

FY 2004 MANAGEMENT CHALLENGES AND SIGNIFICANT ISSUES

IG Challenge Area	GAO Challenge Area	Significant Issue Identified by Department
Contract Administration	Resolve problems in contract management that place agency at high risk for fraud, waste and abuse	Oversight of Contractors
National Security	Address security threats and problems	Security
Environmental Cleanup	Improve management for cleanup of radioactive and hazardous wastes	Environmental Cleanup
Stockpile Stewardship	Improve management of the Nation's nuclear weapons stockpile	Stockpile Stewardship
Information Technology Management		Information Technology Management
Project Management		Project Management
	Enhance leadership in meeting the Nation's energy needs	
	Revitalize infrastructure	
		Human Capital Management
		Safety & Health
		Nuclear Waste Disposal

structure, incorporating industry standards endorsed by the National Academies of Sciences and Engineering, have been issued. The National Nuclear Security Administration (NNSA) has instituted Ten-Year Comprehensive Site Plans (TYCSP) which have been integrated into the budget planning cycle for each site in its complex. The Office of Science has implemented an initiative to define modernization needs, provide appropriate funding, and improve the facilities management practices. Funding requirements are being addressed in an infrastructure budget initiative instituted in FY 2004. The Department's success in addressing infrastructure has been recognized by the IG.

To meet the Nation's energy needs, the Department has also moved aggressively to implement the recommendations of the National Energy Policy (NEP) over the last three years. We have addressed critical issues of energy supply and usage as well as energy safety and environmental impact to help ensure the nation's energy security and supported comprehensive energy legislation. The Department has also worked to provide a safe, reliable and economical supply of energy, from lighting and heating family homes to oil, gas, electricity, and other energy sources needed to power business and industry.

As previously discussed, the Department aggressively pursues corrective action for all challenges, whether externally identified by the IG or GAO or internally identified by the Department. To further highlight the Department's strategy for mitigating the previously mentioned significant management issues, the following table identifies the Department's Significant Issues for FY 2004.

SIGNIFICANT ISSUE	ACTIONS TAKEN AND REMAINING	EXPECTED COMPLETION
OVERSIGHT OF CONTRACTORS: Improvements are needed in the oversight of contractors managing and operating the Department's facilities. Specific oversight problems have been identified at environmental cleanup sites and laboratories conducting national security and scientific activities. Adequate oversight is needed to assure that contractor operations are effective and efficient.	An improved contract administration structure that focuses on performance-based contracts has been put in place. In FY 2004, an acquisition approach to drive performance by clearly identifying the work to be done, the Department's expectations, establishing proper incentives for its contracts, and adequately rewarding performance was implemented. In FY 2004, EM improved its acquisition approach to drive performance by clearly identifying the work to be done and the Department's expectations, establishing proper incentives for its contracts, and adequately rewarding performance. In addition, EM is ensuring performance based incentives are included in contracts so as to align with the objectives of the Accelerated Cleanup plans and to review all acquisitions strategies to ensure optimal support of the Accelerated Cleanup. SC is in the process of revising its laboratory oversight with scientific and operational measures being linked and meaningful performance incentives being employed. Also, the National Nuclear Security Administration is restructuring its workforce to improve the oversight of contractors managing and operating its facilities.	Correction is expected to extend into the out-years with the completion date to be reassessed in FY 2005.

SIGNIFICANT ISSUE	ACTIONS TAKEN AND REMAINING	EXPECTED COMPLETION
SECURITY: Unprecedented security challenges have evolved since the events of September 11, 2001. The need for improved homeland defense, highlighted by the threats of terrorism and weapons of mass destruction, created new and complex security issues that must be surmounted to ensure the protection of our critical energy resources and infrastructure. These have made it necessary for the Department to reassess and strengthen its physical and cyber security postures.	In FY 2004, the Department continued implementation of the Design Basis Threat. In March 2004, a process was established to monitor quarterly progress on site Implementation Plans through FY 2006. In May 2004, the Secretary of Energy announced a set of sweeping new initiatives to improve security across the Department's nationwide network of laboratories and defense facilities, particularly those housing weapons-grade nuclear material. These new initiatives ensure the Department has a clear strategic security plan outlining the Department's future security course, conduct ongoing threat analyses to establish the framework for continually improving security protective measures, and enhance the physical security of our facilities. Significant progress has been made to address these initiatives through a collaborative effort by all Departmental Elements. In addition, during FY 2004, the Chiles Report, "Strengthening NNSA Security Expertise, An Independent Analysis," was published and the NNSA is working toward implementation of the Chiles recommendations. The Office of Security and Safety Performance Assurance is reviewing the applicability of the Chiles recommendations for the entire Department. The NNSA completed their Vulnerability Assessments in FY 2004 and developed the corresponding implementation plans for the new Design Basis Threat. Roles and responsibilities were clarified within the NNSA by establishing the Office of Defense Nuclear Security under a new Associate Administrator and preparing corrective action plans to address the recommendations provided by special study groups in security operations and personnel. It is anticipated that problems with security operations and personnel within the NNSA will be addressed through FY 2005.	Long-term correction is expected due to the continuing nature of security threats.

SIGNIFICANT ISSUE	ACTIONS TAKEN AND REMAINING	EXPECTED COMPLETION
ENVIRONMENTAL CLEANUP: There are significant long-term compliance and waste management problems at the Department's facilities due to past operations that left risks to the environment. Even though these issues resulted from earlier activities conducted in a different atmosphere and under less stringent standards than today, the Department is committed to maintaining compliance with current environmental laws and agreements.	Environmental cleanup continues to be a challenge that will require unprecedented funding requirements; however, significant progress has been made in cleaning up contaminated sites. Environmental Management's (EM) Top-To-Bottom Review has resulted in an aggressive approach taken to implement an accelerated cleanup strategy with an emphasis on risk reduction and continuous improvement in safety. Since the release of the resultant report, Environmental Management has reduced its cleanup liability by nearly $50 billion. The time span to complete the cleanup mission has been reduced by 35 years, from 2070 to 2035. As of September 2004, EM has completed cleanup at 76 of 114 sites. The current status of the Environmental Management program was published in the June 2004 Office of Environmental Management Closing Planning Guidance which contains all the necessary strategy and performance elements required to carry out the cleanup program by 2035.	Long-term correction expected with completion date to be reassessed in FY 2005.
STOCKPILE STEWARDSHIP: Stewardship of the Nation's nuclear weapons stockpile is one of the most complex, scientifically technical programs undertaken and the Department needs to ensure that all aspects of this mission-critical responsibility are fulfilled. Based on stockpile stewardship activities, the Secretary, jointly with the Secretary of Defense, annually certifies to the President that the nuclear weapons stockpile is safe and reliable and that underground nuclear testing does not need to resume. Success is dependent upon unprecedented scientific tools to better understand the changes that occur as nuclear weapons age, enhance the surveillance capabilities for determining weapon reliability, and extend weapon lives. The Department must ensure that problems in these areas are aggressively addressed.	Processes have been put in place to eliminate a backlog of surveillance tests and resolve deficiencies in the investigations conducted when weapons problems are identified. Plans and financial controls over weapons refurbishment are being strengthened with improved cost accounting in FY 2004 and individual refurbishment plans to be finalized in FY 2006. Resource loaded plans that contain cost, scope, and milestones will be implemented through FY 2005.	FY 2006

SIGNIFICANT ISSUE	ACTIONS TAKEN AND REMAINING	EXPECTED COMPLETION
INFORMATION TECHNOLOGY MANAGEMENT: The Department has a decentralized approach to information technology management, limited control by the Chief Information Officer in the budgeting process, and lack of an information technology baseline to guide management decisions. These problems have impeded the Department's ability to effectively manage its information technology resources.	Management of information technology has been strengthened by making the Chief Information Officer a direct report to the Secretary and the primary official for agency information technology issues. The Department has revitalized its Information Technology Council to assist the Chief Information Officer in managing the Department's Information Technology resources. The Council conducts quarterly control reviews of the Department's major information systems to ensure that projects are performing to cost, schedule, and performance goals. In addition, the Council has chartered a specific Integrated Project Team to address management of the Department's Consolidated Infrastructure Investment, with emphasis on consolidating like elements within that infrastructure where investment dollars can be saved or avoided without impact to the mission. A strategic plan targeted at Clinger-Cohen Act reforms has been developed and a FY 2004 update of the high-level enterprise architecture and the modernization blueprint were submitted to OMB in September 2004. An agency-wide directive establishing information technology requirements is in the directives review process. The Enterprise Architecture Repository has been implemented, populated with initial baseline data, and expanded to integrate the President's Management Agenda Initiatives.	FY 2005

SIGNIFICANT ISSUE	ACTIONS TAKEN AND REMAINING	EXPECTED COMPLETION
PROJECT MANAGEMENT: The Department needs to improve discipline and structure in approving and controlling program and baseline changes to projects and needs a Department-wide approach to certify project managers at predetermined skill levels to ensure competent management oversight of resources. In addition, it was determined that the Department needs stronger policies and controls to ensure that ongoing projects are reevaluated frequently in light of changing missions.	Large-scale Departmental projects were reviewed and analyzed to determine factors that significantly contribute to project success and/or failure. Additional data collection and analysis was completed and a final report was received in June 2004. The report helped to confirm that the current policies and practices contained in the Department's project management manual and order are sound and serve to remedy the past deficiencies within the Department. Implementation of the program to certify contractor's earned value management systems continued during FY 2004. The Department has entered into a Memorandum of Agreement with the Defense Contract Management Agency to serve as the Department's agent for the certification review. The Department successfully reviewed and certified two contractor's earned value management systems. Those reviews served to confirm the integrity of the process being utilized. The Department has completed the implementation phase and is developing a detailed schedule to certify all major contractor systems by December 2006. Program offices will ensure all projects are managed by certified Project Directors in accordance with Departmental guidelines.	FY 2007

SIGNIFICANT ISSUE	ACTIONS TAKEN AND REMAINING	EXPECTED COMPLETION
HUMAN CAPITAL MANAGEMENT: Since 1995, the Department has experienced a 27 percent reduction in the workforce. By FY 2000, up to 30 percent of the Department's critical workforce was eligible for retirement within the next 5 years. Combined with other factors such as lengthy moratoria on hiring, the relative age of the workforce, and a variety of incentives to leave Federal service, the decline in staffing has left the Department with a significant challenge: reinvesting in its human capital to ensure that the right skills, necessary to successfully meet its missions, are available.	A Departmental framework for addressing this issue was put in place with the implementation of a comprehensive human capital management strategy; an improved senior executive performance management system; a guide on developing and retaining a highly-skilled workforce; and business visions and workforce plans for all major offices. Individual offices continue their right-sizing efforts to address their specific needs. The Office of Environmental Management has fully adopted an organizational structure designed to deliver its accelerated risk reduction and closure initiative. The National Nuclear Security Administration continues to re-engineer its workforce to streamline operations and strengthen accountability. Buyouts and increased excepted service authority; expected in FY 2006, will be used to upgrade technical capabilities.	FY 2006

SIGNIFICANT ISSUE	ACTIONS TAKEN AND REMAINING	EXPECTED COMPLETION
SAFETY AND HEALTH: Ensuring the safety and health of the public and the Department's workers is one of the top priorities in accomplishing our challenging scientific and national security missions. Due to the inherently critical nature of these issues, there is the need for continuous vigilance and improvement. Currently, the Department is addressing explosives safety issues and, with the ongoing re-engineering of the National Nuclear Security Administration workforce, needs to ensure that adequate focus on general safety at our laboratories and plants is maintained.	Significant actions have been taken to mitigate Safety and Health concerns. In FY 2004, the Office of Environmental Management continued to make major progress in approving and implementing improved safety bases for nuclear facilities. During FY 2004, Environmental Management approved all safety bases and implemented 96 percent. The remaining four percent will be implemented in the first quarter of FY 2005. The evaluation of these safety bases shows that the hazards associated with facility operations are properly identified, analyzed, and controlled. In addition to approving safety bases, Environmental Management headquarters and field offices are also overseeing the contractor implementation of the rule-compliant Documented Safety Analysis/Technical Safety Requirements to ensure that the identified controls are being implemented and maintained effectively. In FY 2004, the Office of Science initiated efforts with Bureau of Labor Statistics (BLS) to identify benchmarks for safety performance and establish a best-in-class performance measure based on performance by the top 10 percent of similar research and development industries (Standard Industrial Code 873) that are tracked by BLS. These goals are institutionalized and are being incorporated into lab appraisal plans. SC's plan is to have all labs performing in the top 10% of other R&D industries by the end of FY 2007. In addition, the Office of Security and Safety Performance Assurance conducted inspections to evaluate the effectiveness of the implementation of Integrated Safety Management core functions at the activity level, the functionality of essential safety systems, oversight and assessment activities, and selected institutional systems. Several crosscutting areas have been reviewed including legacy hazards management, safety for excavations, and the Unreviewed Safety Question process. Additionally, a special investigation of worker exposures and medical services at Hanford and the River Protection Project was completed at the request of the Deputy Secretary.	FY 2005

SIGNIFICANT ISSUE	ACTIONS TAKEN AND REMAINING	EXPECTED COMPLETION
NUCLEAR WASTE DISPOSAL: A repository for the Nation's spent nuclear fuel and high-level radioactive waste has not been opened as required by the Nuclear Waste Policy Act. Delays in milestones and revisions to cost and schedule baselines have been required as a result of funding shortfalls. A mechanism needs to be established to assure the necessary funding is available to lead to waste acceptance.	Extensive scientific testing determined that Yucca Mountain, Nevada, is suitable for the disposal of spent nuclear fuel and high-level radioactive waste and, in 2002, the President designated it as the site for the Nation's first repository. While future long-standing financial commitments will be required, the Yucca Mountain project continues to make progress toward the goal of opening a deep geologic repository and beginning waste acceptance. Potential funding mechanisms and a proposed asset management strategy (Capital Asset Management Plan) to ensure the Department can complete the remaining activities for waste acceptance were developed in FY 2003 and updated in September 2004. Alternative funding legislation was submitted to Congress on February 27, 2004. Regular updates to the proposed asset management strategy will be provided to the Office of Management and Budget, as needed. With the Capital Asset Management Plan in place, and if alternative financing legislation is enacted to ensure access to the necessary funding, this significant issue will be closed prior to the opening of the repository. If this is not authorized by Congress, funding would be uncertain and will require other policy decisions and actions.	Reassessment will occur in FY 2005 upon finalization of a funding mechanism.

IMPROPER PAYMENTS INFORMATION ACT OF 2002

The PMA includes a government-wide initiative to reduce improper/erroneous payments made by the Federal Government as defined in Public Law (P.L.) No. 107-300, "Improper Payments Information Act of 2002" (IPIA). In addition, the Defense Authorization Act (P.L. 107-107) established the requirement for government agencies to carry out cost effective programs for identifying and recovering overpayments made to contractors, also known as "Recovery Auditing." The Office of Management and Budget (OMB) has established specific reporting requirements for agencies with programs that possess a significant risk of erroneous payments and for reporting on the results of recovery auditing activities.

While the Department has no programs that meet the OMB criteria for significant risk, improper payments are monitored on a quarterly basis to ensure our error rates remain at minimal levels. The Departmental erroneous payment rate has remained at or below one percent since the inception of our tracking program in FY 2002. To support continued success, a PMA commitment was established to pursue reduction of improper payments at any one of the Department's payment sites that exceed a target rate of 1/10 of 1 percent for any quarter. Currently, the vast majority of all sites are below the target. The sites above target have identified corrective actions.

In FY 2004, the Department also established a policy for implementing recovery auditing requirements. This policy prescribes requirements for identifying overpayments to contractors and establishes reporting standards to track the status of recoveries. Our analysis of FY 2003 payment activities confirmed a low percentage of overpayments and a high recovery rate. The Department will continue to focus on both the identification and recovery of improper payments to maintain our record of low payment errors and ensure effective stewardship of public funds. Detailed information on IPIA reporting required by OMB is available in the Appendices.

Improper Payments ($ in millions)

	FY 2002		FY 2003		FY 2004	
	Dollars	Rate	Dollars	Rate	Dollars	Rate
Total Payments	$23,587		$22,695		$23,639	
Total Improper Payments	$11.2	0.05%	$13.7	0.06%	$20.3	0.09%

Note: In FY 2004, Federal payroll payments were excluded due to the outsourcing of the Department's Federal payroll function.

Overpayments to Contractors FY 2003 ($ in millions)

	Dollars
Total Overpayments	$ 6.0
Total Recovered	$ 6.0
Total Pending Recovery	$ 0.0
Total Unrecoverable	$ 0.0

Note: Overpayment information required for prior years only.

Program Performance

Performance Overview

The Department has made progress in achieving the goals set out in its Strategic Plan, issued September 30, 2003. The following sections focus on the Department's four strategic goals: Defense, Energy, Science, and Environment. Included within each strategic goal section is an overview of the Strategic Goal, the applicable General Goal(s), key GPRA Program Goals, (hereafter referred to as "program goals"), and associated key annual targets. These key program goals and the performance of these annual targets demonstrate the incremental progress toward the General Goal and ultimately the Strategic Goal. Each Strategic Goal section also includes a Performance Scorecard, a description of how the public is served by the actions of the Department, and a discussion on challenges and expectations for the future.

The Department's performance progress is provided in detail in the Performance Results section. This section provides the year-end assessment of each annual performance target for FY 2004, performance information for the past three fiscal years (FY 2001 – FY 2003), and an update on the progress of those FY 2003 targets that were not achieved last year ("Status of Unmet FY 2003 Performance Goals").

OUR PERFORMANCE MANAGEMENT STRUCTURE

The Department of Energy's overarching mission is to advance the national, economic and energy security of the United States; to promote scientific and technological innovation in support of that mission; and to ensure the environmental cleanup of the national nuclear weapons complex.

The Department has four strategic goals toward achieving this mission. A strategic goal is a statement of aim or purpose that agencies include in a strategic plan. Typically, a strategic goal will not be directly measurable. Strategic goals are used by the Department to group general and program goals in a performance budget.

The Department has seven long-term general goals to implement these strategic goals. A general goal defines more specifically what the Department plans to achieve in carrying out its mission over a period of time. The goal is expressed in a man-

ner which allows a future assessment to be made of whether the goal was or is being achieved. General goals are typically outcome-type goals.

To ensure consistency for a 10 to 15 year period and direct alignment with our strategic plan, the Department implemented 59 programs, each focused on one program goal. These goals are defined as outcome-oriented and should be centered on a program's core purpose.

In FY 2004, the Department tracked 255 GPRA-level annual performance targets. These targets set a level of performance which is expressed as a tangible, measurable objective, against which actual achievement can be compared. Performance targets can be either outcomes or outputs.

An example of the Performance Management Framework cascade is depicted below.

ENVIRONMENT

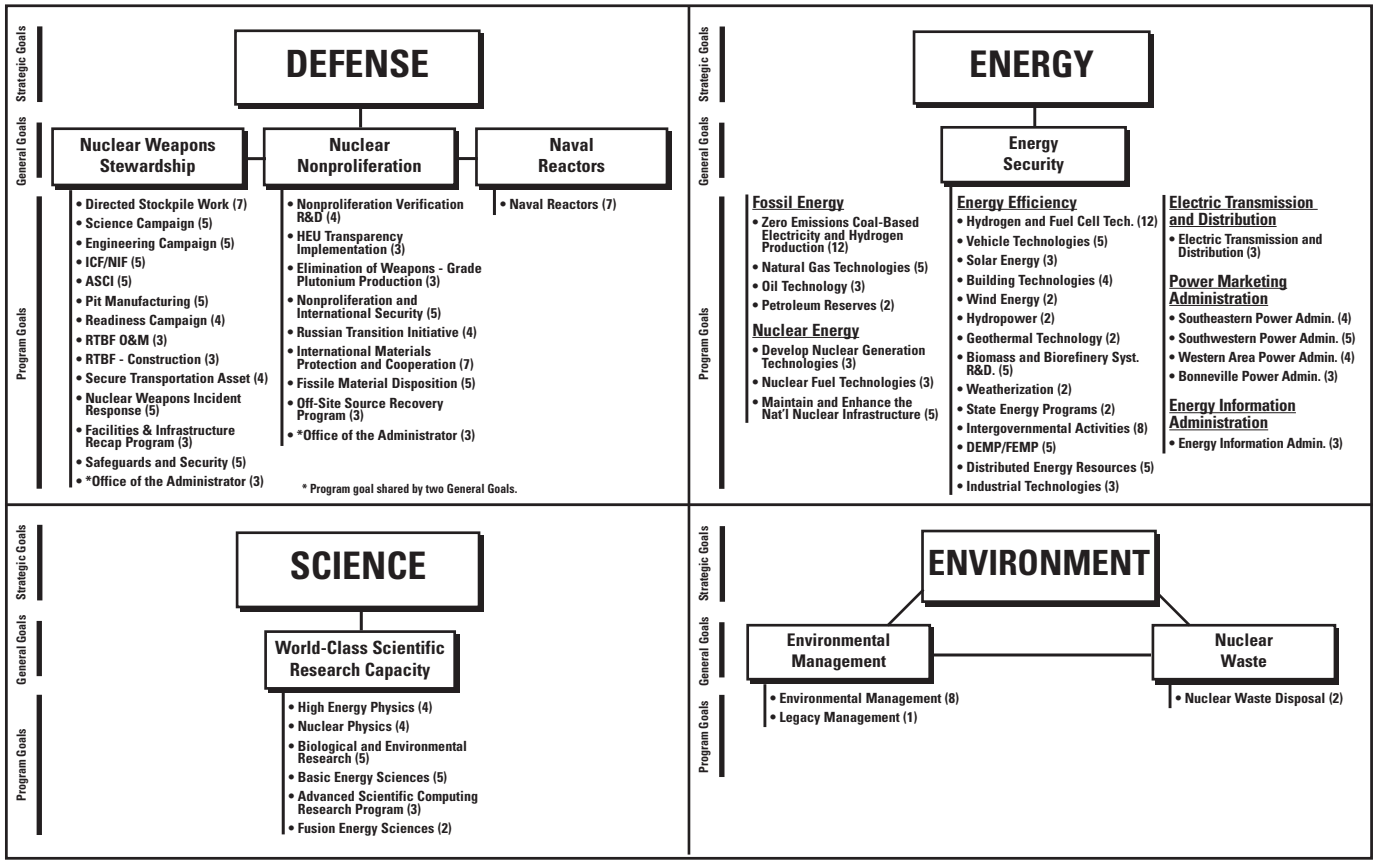
Environment Strategic Goal: To protect the environment by providing a responsible resolution to the environmental legacy of the Cold War and by providing for the permanent disposal of the Nation's high-level radioactive waste.

General Goal: Accelerate cleanup of nuclear weapons manufacturing and testing sites, completing cleanup of 108 contaminated sites by 2025.

Program Goal: Based on EM's accelerated risk reduction and site closure initiative, EM is targeting 89 and 100 geographic sites to be completed by the end of FY 2006 and FY 2012, respectively.

Annual Performance Target: Package 1,323 containers of plutonium metal or oxide for long-term storage, bringing the total number of containers packaged to 5,872.

A more detailed depiction of the Department's overall hierarchy, by Strategic Goal, is shown below with number of annual targets appearing in parentheses:



PERFORMANCE SCORECARD

Each Strategic Goal section includes a Performance Scorecard. This depiction reveals both cost (program costs and budgetary expenditures) and performance information in a consolidated presentation. Program costs are defined as full period costs computed using the accrual basis of accounting that recognizes expenses when incurred regardless of when the related budgetary expenditures are made. Budgetary expenditures represent the goods and services received during the current year for which the Department has paid or will be required to pay in the future. It is important to note that the budgetary expenditures will not equal program costs in any particular year because there are significant timing differences between accrued cost and budgetary expenditure recognition. As an example, if an asset with a useful life of ten years is purchased in the current year, its full cost will be recognized as a budgetary expenditure in the current year but its accounting cost will be spread over its ten-year useful life. Conversely, an unfunded liability recorded in the current year is recognized as program costs in the current year, but will not be recognized as a budgetary expenditure until funding is made available to liquidate the liability.

Based on the contribution of the annual performance targets, an assessment for each program is presented as either Green, Yellow, or Red (the methodology of which is described in the following section). Furthermore, the number of targets within each program that are assessed as either Met, Not Met (≥80%), Not Met (<80%), and "Undetermined" are exhibited.

PERFORMANCE MEASUREMENT

Actual performance against annual targets is recorded in Joule, the Department's performance measurement tracking system that was implemented in FY 2003. These results provide the basis for evaluating the Department's progress toward its program goals, and ultimately its general and strategic goals as reported in the Performance and Accountability Report (PAR). Each year, the Department adjusts its management strategies, as necessary, based on actual performance, the current resources available, and an updated national, energy, and economic outlook. This ensures that the Department is continuously fulfilling its mission to protect national, economic, and energy security with advanced science and technology.

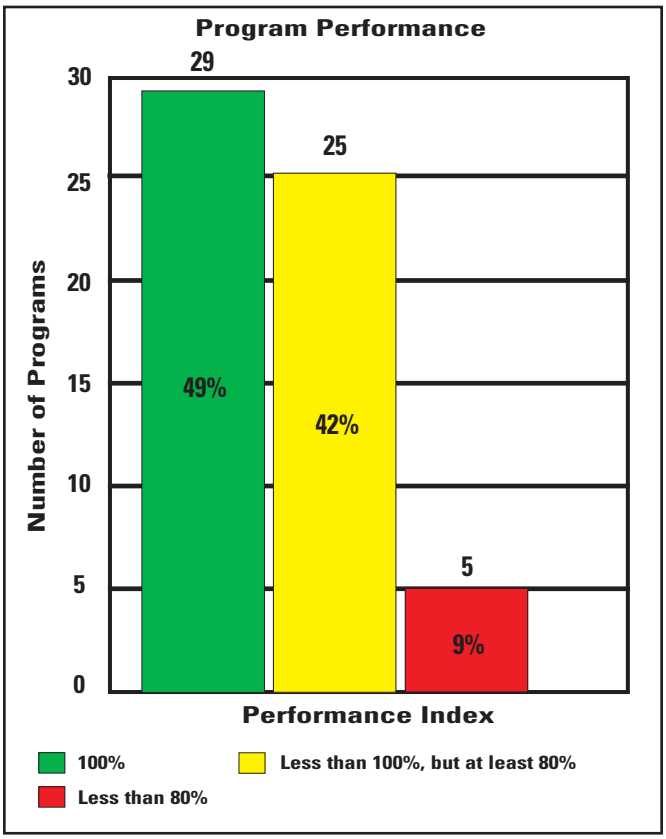
Departmental performance targets described in the PAR are aligned with the Department's Strategic Plan, issued in September 2003. These targets may differ from those included in the Annual Performance Plan (APP) submitted to Congress in February 2003. Some targets, originally included in the February 2003 APP, were revised based upon the Continuing Resolution and the actual FY 2004 Congressional appropriations. The targets tracked in the Joule system represent the revised FY 2004 APP. This report communicates the Department's achievement against those performance targets. The Strategic Plan and the APP can both be found at: http://crinfo.doe.gov/officedocs/me20/Library.htm.

For FY 2004, the definitions used for rating/assessments of each annual target as well as each program goal are as follows:

- 100 percent of the annual target/program goal was met (equivalent to **Green** in the Performance Scorecard).
- Unmet due to achievement of only at or above 80 percent, but below 100 percent, of the annual target/program goal (equivalent to **Yellow** in the Performance Scorecard).
- Unmet due to achievement of less than 80 percent of the annual target/program goal (equivalent to **Red** in the Performance Scorecard).
- Performance results that are undetermined at the time of publishing of the PAR or due to other factors are coded as **Red** in the Performance Scorecard and categorized as "undetermined" (this designation was not used in FY 2003).

By default, annual performance targets contribute equally to the rating of their associated program. However, program offices had the option of applying a custom weighting scheme to their targets, prioritizing targets in order of significance. Program offices were free to develop their own methodology for assigning custom weights, but had to adhere to two rules: (1) the sum of the weights for targets associated with any given program goal must equal 100 percent, and (2) no target may receive a weight of zero. The weighted distribution determined the contribution of the target toward the assessment (i.e., Green, Yellow, or Red) of the program.

Overall performance for FY 2004 of the programs is depicted in the following chart, using the below color-coding scheme.



VALIDATION AND VERIFICATION OF PERFORMANCE

Validation and verification of the Department's performance is accomplished by periodic reviews, certifications, and audits. Because of the size and diversity of the Department's portfolio, validation and verification is supported by budget preparation analysis, internal controls, automated systems, external expert analysis, and management reviews.

The Department's end-of-year reporting process includes certifications by heads of program elements on the accuracy of reported results. The results are internally reviewed for quality and completeness by the Department and key internal controls related to performance reporting were considered by the Department's independent auditors. Source data substantiating performance target results exist within the program offices, the National Laboratories, and the Department's contractor work force.

Budget Preparation Analysis: The Department provides verification and validation of the program contribution to the Departmental goals (Strategic and General) when completing the review and analysis of the Program Plans and the annual budget submission. Furthermore, the Department reviews all performance targets, submitted at each phase of the budget development, to ensure that they will effectively contribute to the achievement of the program and Departmental goals.

Internal Controls: During FY 2004, the Department strengthened its internal controls to enhance verification and validation. For instance, performance measurement training that addressed such criteria as relevance, meaningfulness, auditability, and accuracy of measurement results was offered on a quarterly basis. Training on internal controls for performance measurement was also provided to the program offices. These actions have assisted the program offices in establishing procedures to ensure the validation of performance results.

Automated Systems: For the past two years, Joule has been used for collecting and quantitatively presenting results and evaluating performance. The system allows remote data entry, monitoring, and oversight. Program offices directly input quarterly performance results during the year. End-of-year information performance inputs are used for the analysis and preparation of the PAR.

External Independent Analysis: Examining the Program Assessment Rating Tool (PART) assessments conducted by the OMB through 2003, revealed that a majority of the Department's assessed programs were found to have undergone independent evaluations of sufficient scope and quality on a regular basis, or as needed, to gauge program effectiveness and to support program improvements. In addition, programs were reviewed and audited by the Department's Office of Inspector General (http://www.ig.doe.gov/reports.htm) as well as the Government Accountability Office (http://www.gao.gov/index.html).

Management Reviews: In accordance with the FMFIA Act of 1992, the Department performs extensive evaluations of its management controls in effect during the fiscal year. Our evaluations include an assessment of whether the management

controls of the Department are in compliance with the standards prescribed by the Comptroller General. The purpose of these evaluations is to provide reasonable assurance that the management controls are working effectively, that program and administrative functions (including the accuracy and reliability of the reporting of performance results) are performed in an economical and efficient manner consistent with applicable laws and that the potential for waste, fraud, abuse or mismanagement of assets is minimized.

FY 2004 PROGRAM ASSESSMENT RATING TOOL (PART)

PART was developed by OMB in FY 2002 as a key component for implementing the PMA, specifically, the Budget and Performance Integration component. PART grew out of the Administration's desire to provide federal agencies with a disciplined tool for assessing program planning, management, and performance against quantitative, outcome-oriented goals. As an instrument for periodically evaluating the effectiveness of our programs, PART enables federal managers to identify and rectify real and potential problems associated with program performance.

Through FY 2004, the Department has completed official assessments for 39 (two-thirds) of its 59 GRPA Program Units, putting it well-ahead of OMB's implementation schedule for the federal government. Of these 39, over half are rated as "Moderately Effective" or "Effective." Detailed information on PART scores and OMB's findings are located at the following website: http://www.mbe.doe.gov/progliaison/par2004.htm

PART provides a pathway for the Department and OMB to agree upon meaningful long-term and annual goals for each program. As PARTs are completed for DOE programs, DOE's GPRA Program Unit goals will begin to correspond directly to the PART long-term goals, and DOE's Joule targets will correspond to the PART annual goals. FY 2004 was the first year involving PART; therefore, there is minimal representation of PART measures in this PAR.

The Department of Energy has vigorously incorporated the PART into its day-to-day program management decision-making processes. In March 2004, the Deputy Secretary of Energy established the Department's goal of assessing 100 percent of the Department's GPRA Program Units by the end of FY 2005. To meet this goal, several offices/administrations are conducting internal assessments for programs not yet scheduled for official OMB assessment. For example, the National Nuclear Security Administration requires all of its programs to complete PART assessments. This information is included in mid-year program reviews that provide management with an integrated financial and performance snapshot, which helps management identify issues and make future programming decisions.

Ultimately, the PART is designed to be an iterative process, capable of tracking the evolution of program performance over time through periodic reassessments. Key to this process are the recommendations that OMB develops during the assessment process to foster program improvement. Actions taken toward implementing PART recommendations are tracked by offices and reported to OMB annually. To see the Department's assessment of PART recommendations developed as part of the FY 2004 PART cycle (conducted during calendar year 2002) please refer to the following website: http://www.mbe.doe.gov/progliaison/par2004.htm

The on-going implementation and review of PART recommendations, coupled with the utilization of performance information derived from assessments and periodic reassessments, signify the PART as an integral process for planning and budget decision-making, as opposed to a set of one-time program evaluations. The Department will continue to make good use of this tool to ensure mission success. Please refer to Table A to see a breakdown of PARTs in support of the Department's performance management structure.

Table A:

PART Assessments (To Date) in Support of Department's Strategic Plan

Strategic Goal	General Goal	GPRA Units Assessed by OMB with the PART
Defense	Nuclear Weapons Stewardship	- Directed Stockpile Work (NNSA) - Inertial Confinement Fusions Ignition and High Yield Campaign (NNSA) - Advanced Simulation and Computing Campaign (NNSA) - Readiness in Technical Base and Facilities (Operations) (NNSA) - Secure Transportation Asset (NNSA) - Facilities and Infrastructure Recapitalization (NNSA) - Safeguards and Security (NNSA)
	Nuclear Nonproliferation	- Elimination of Weapons-Grade Plutonium Production (NNSA) - Nonproliferation and International Security (NNSA) - International Materials, Protection, Control and Cooperation (NNSA)
	Naval Reactors	
Energy	Energy Security	- Hydrogen/Fuel Cell Technology (EERE) - Vehicle Technologies (EERE) - Solar Energy (EERE) - Building Technologies (EERE) - Wind Energy (EERE) - Geothermal Technology (EERE) - Weatherization (EERE) - State Energy Programs (EERE) - Distributed Energy Resources (EERE) - Electric Transmission and Distribution (OETD) - Develop New Nuclear Generation Technologies (NE) - Nuclear Fuel Technologies (NE) - Maintain and Enhance the National Nuclear Infrastructure (NE) - Southeastern Power Administration - Southwestern Power Administration - Western Area Power Administration - Bonneville Power Administration - Zero Emissions Coal-Based Electricity and Hydrogen Prod. (FE) - Natural Gas Technologies (FE) - Oil Technology (FE) - Petroleum Reserves (FE) - Energy Information Administration (EIA)
Science	World-Class Scientific Research Capacity	- High Energy Physics (SC) - Nuclear Physics (SC) - Biological and Environmental Research (SC) - Basic Energy Sciences (SC) - Advanced Scientific Computing Research (SC) - Fusion Energy Sciences (SC)
Environment	Environmental Management	- Environmental Management (EM)
	Nuclear Waste	- Nuclear Waste Disposal (RW)

Meeting National Security Challenges

Defense Strategic Goal: *To protect our national security by applying advanced science and nuclear technology to the Nation's defense.*

"As beneficiaries of a proud heritage dating from the Manhattan Project, NNSA is building upon an enduring legacy by identifying and embracing its core values: Excellence, Integrity, Respect and Teamwork."

Linton F. Brooks, Administrator
National Nuclear
Security Administration

One of the primary responsibilities of the Department is to enhance national security through the application of nuclear technology. To accomplish this goal the Department oversees maintenance of the U.S. nuclear weapons stockpile, development of responsive infrastructure that can adapt quickly to stockpile changes while still drawing down the stockpile of weapons excess to defense needs, security of the nuclear complex, strengthening of international nuclear nonproliferation controls, reduction in global danger from weapons of mass destruction, provision to the U.S. Navy of safe and effective nuclear propulsion systems, and operation of its national laboratories. The National Nuclear Security Administration (NNSA), a semi-autonomous agency within the Department, is responsible for these activities critical to our national security.

A number of events and actions have shaped the NNSA's nuclear security mission. These include the challenges identified following the September 11, 2001, terrorist attack, the U.S. Nuclear Posture Review, the Moscow Treaty, and the Global Threat Reduction Initiative.

September 11, 2001

The Department of Energy's first response following the September 11, 2001, terrorist attacks was to secure its most critical infrastructure and upgrade its response assets available to be deployed in emergencies around the world. As a result of the priority given to these efforts, considerable progress has been made. The Department issued a revised Design Basis Threat (DBT) in May 2003, identifying the postulated threat in terms of numbers of adversaries and weapons capabilities that DOE sites were expected to design their security strategy to meet.

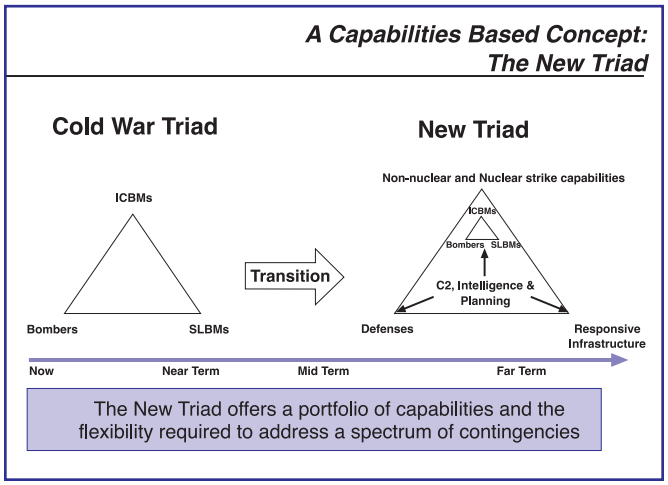
In February 2004, the DBT Implementation Plans for each NNSA site were approved. These site plans identify the actions considered necessary to upgrade each site's individual security posture to meet the Secretary's mandate to be in compliance with the revised DBT policy by the end of FY 2006. DBT implementation will be the focus of the Safeguards and Security program during the next two fiscal years in order to ensure the Secretary's FY 2006 compliance mandate is met.

Post September 11, 2001, enhanced site security is provided through the Department-wide Design Basis Threat Response.

The Nuclear Weapons Incident Response (NWIR) program responds to and mitigates nuclear and radiological incidents worldwide with capabilities that include technical personnel, equipment for monitoring and predicting environmental impacts of radiation, and medical and health support. As a result of "no-notice" exercises and other ongoing efforts, team members are now more extensively trained and prepared. In FY 2004, all of the emergency response equipment was upgraded. This goal was accomplished four years ahead of schedule.

Nuclear Posture Review

As the Nuclear Posture Review (NPR) articulated in 2002, the 21st century presents the prospect of a national security environment in which threats may evolve more quickly, be more variable in nature, and be less predictable than in the past. In this broad threat environment, the NPR recognized that nuclear weapons will continue to play a critical role in the overall U.S. security posture. The NPR affirmed that, for the foreseeable future, offensive strike systems, both nuclear and non-nuclear, integrated with both passive and active defenses and a revitalized defense infrastructure, will become the New Triad. Recently, a number of noteworthy accomplishments have been made under initiatives to implement the responsive infrastructure required in the New Triad. This portion of the New Triad is of critical significance to the Department.



The most important responsibility of the Secretary of Energy, in cooperation with the Secretary of Defense, is the certification to the President that the nuclear weapons stockpile is safe, secure and reliable and that there is no need for underground nuclear testing. The NNSA's science-based Stockpile Stewardship Program (SSP) was developed specifically to provide this confidence in our nuclear deterrent force while adhering to the nuclear testing moratorium. Often underfunded following the end of the Cold War, the SSP was designed to enhance the infrastructure necessary to create, design and deliver the capabilities so vital to our nuclear deterrent. By specifically identifying responsive infrastructure as a "leg" of the New Triad, the NPR highlighted the NNSA's important role as steward of this process and provided the rationale for increasing SSP focus and funding.

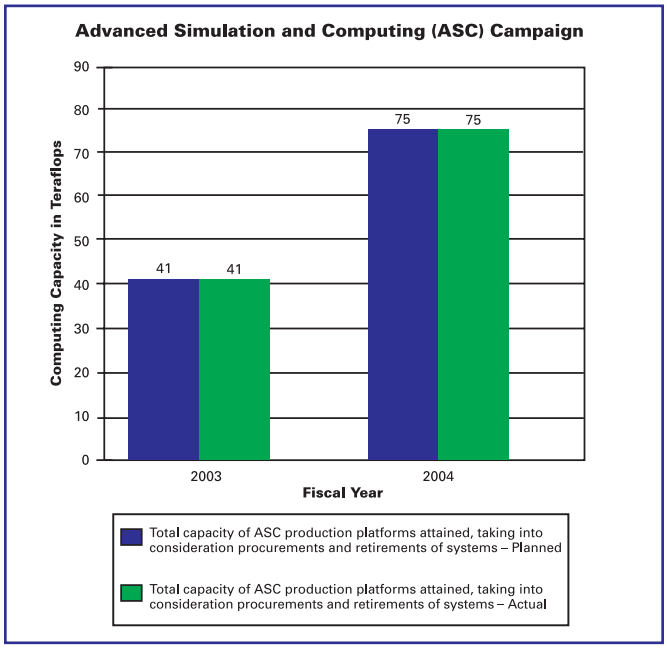
With respect to infrastructure revitalization, the Facilities and Infrastructure Recapitalization Program (FIRP) authorized projects in FY 2004 that reduced deferred maintenance by a cumulative eight percent of its long-term goal. By 2009, the backlog of stockpile-related facilities deferred maintenance will be reduced to an acceptable

level, consistent with industry standards and facilities management best business practices. Modernization of the Nation's defense capabilities helps ensure that future Presidents will have the ability to contemplate deterrence options to respond to new and emerging threats that are dramatically different from those of the Cold War.

As part of the warhead stockpile stewardship responsibilities, last year saw the first manufacture of a certifiable plutonium pit since the closure of Rocky Flats in 1989. The pit is part of the "trigger" for a nuclear weapon, without which it cannot function. Three additional pits were manufactured in 2004. The NNSA continues making progress toward building a modern pit manufacturing facility. In addition, progress continued on construction on a facility to extract and refresh tritium, a gas that is required for all U.S. nuclear warheads to operate as designed.

The NNSA continues to develop the predictive capabilities needed for weapons certification and assessment as well as to evaluate phenomena that results from changes to the devices from the way they were originally designed and built. To address this challenge and to quantify the uncertainties will require computer capabilities beyond the 100 trillion operations per second "Purple" platform being delivered in 2005. These computers will ultimately help conduct nuclear stockpile certification for all weapons systems using highly complex, three dimensional simulations. The Dual-Axis Radiographic Hydrotest (DARHT) facility has started to provide images of weapons implosion processes. The use of lasers to simulate detonations was initiated at the National Ignition Facility (NIF) in 2004. Each of these systems is essential for assuring the safety, security, and reliability of nuclear weapons without underground testing. Although still under construction, four of the NIF's 192 laser beams are already operating and being used to conduct experiments in thermonuclear fusion ignition and high-energy-density physics.

Current progress in computer capacity is shown in the following graph.



The Naval Reactors program has embarked on the development of a new reactor core, the Transformational Technology Core (TTC), to provide increased energy for its newest class of attack submarines. TTC will use new core materials to achieve a greater energy density – more energy in the reactor without increasing size, weight, or space while maintaining a reasonable cost – for future VIRGINIA class attack submarines. This is important to better serve the Navy's mission requirements including increased operational demands.

NNSA provides the nuclear propulsion plant for the Virginia Class attack submarine.

Moscow Treaty

The strategic nuclear weapons reductions anticipated in the NPR were codified by President Bush on May 24, 2002, in the Strategic Offensive Reduction Treaty (commonly referred to as the Moscow Treaty) with Russian President Putin. The Moscow Treaty called for a two-thirds reduction over the next decade in the number of today's operationally deployed strategic nuclear warheads. To implement the treaty, the NNSA, in conjunction with the Department of Defense, will reduce this number from today's level of 6,000 to between 1,700 and 2,000 by 2012. Russia has agreed to similar reductions.

Furthermore, in a report to Congress dated June 3, 2004, the NNSA Administrator detailed a plan for the significant reduction in the U.S. nuclear weapons stockpile facilitated by the Moscow Treaty. The plan, recently approved by the President, will lead to a significant decline – by nearly half – in the size of the total U.S. nuclear weapons stockpile (deployed weapons, spares, etc.) by 2012. Such a level has not been seen in several decades.

The reduction in the number of warheads allows certain programmatic realignments. Since fewer warheads will need to be refurbished and maintained, more resources can be directed at developing a smaller, more robust infrastructure in the U.S. to maintain deterrence and respond to evolving future threats. Finally, increased resources for U.S. assistance to help Russia with their significant warhead dismantlement requirements of the Moscow Treaty can also be anticipated.

One project impacted by these reductions is the Tritium Extraction Facility. Construction of this facility in South Carolina was 90% complete in 2004. Immediate plans for this facility are directed at extracting and renewing tritium in existing warheads. A smaller stockpile, though, will mean the renewal of fewer warheads and the capability to decommission retired warheads sooner.

Global Threat Reduction Initiative and Related Non-Proliferation Activities

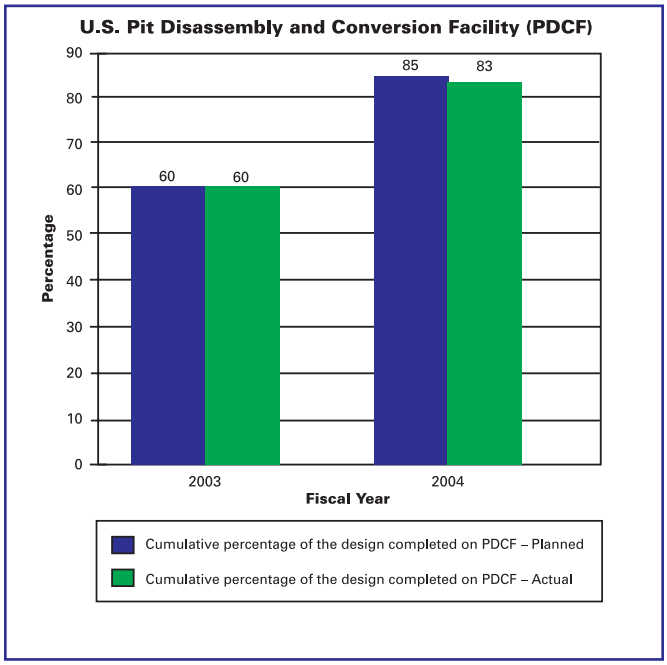
On May 26, 2004, Secretary Abraham launched a comprehensive global initiative to secure and remove high-risk nuclear and radiological materials that pose a threat to the United States and the international community. As part of the Global Threat Reduction Initiative, the Department will be developing a threat-based, prioritized approach to systematically address facilities that possess high-risk fissile and other nuclear materials. DOE, in conjunction with the Department of State, will also be preparing the diplomatic strategy necessary to secure, remove, or eliminate these materials. The Department will draw from its world class scientific and technical expertise and leverage existing non-proliferation programs to identify and prioritize vulnerable materials, remove or secure such materials, convert research and test reactors, and take any other steps necessary to meet changing threats.

Immediately following the announcement of the Global Threat Reduction Initiative, Secretary Abraham and Director Rumyantsev of the Russian Federal Agency for Atomic Energy signed a bilateral agreement concerning the repatriation of Russian-origin highly-enriched uranium (HEU) research reactor fuel to Russia. Under this agreement, more than a dozen countries are eligible to receive financial and technical assistance from the United States and others to ship their fresh and spent research reactor fuel to Russia for safe and secure management. More than 20 research reactors in 17 countries have been identified as having Russian/Soviet-supplied fuel.

With respect to foreign nuclear fuel originating in the United States, Secretary Abraham directed the NNSA to initiate actions necessary to extend the program's fuel acceptance deadline. Under the U.S.-origin spent fuel return program, approximately 1,100 kilograms of HEU spent fuel have been returned to the United States for final disposition.

In separate non-proliferation activities, new efforts are underway to extend to international ports NNSA's successful "Megaports" program, which installs sophisticated detection equipment at many of the world's critical cities. This Second Line of Defense (SLD) program provides detection systems worldwide in order to minimize the risk of nuclear proliferation and terrorism through detection and deterrence of illicit trafficking at international borders. As of the end of FY 2004, a total of 66 sites including 2 Megaports completed the installation of SLD equipment with a total of 300 sites and 20 Megaports to be completed by 2012.

NNSA's "Megaports" program provides radiological detector equipment to prevent/detect the movement of radiological materials via cargo ships before they enter U.S. waters.



To further limit the threat arising from nuclear proliferation, the NNSA is reducing the world's stocks of dangerous materials, such as HEU, through a variety of programs to convert this material to low-enriched uranium (LEU), and plutonium, through Fissile Materials Disposition programs in the U.S. and Russia. The NNSA is also working with its Russian counterparts to eliminate Russian plutonium production. Another initiative to reduce nuclear proliferation is the Pit Disassembly and Conversion Facility (PDCF). The above graph depicts the progress made in completing the detailed design of the facility. The FY 2004 goal of 85% completion was delayed due to a work stoppage at Los Alamos National Laboratory. The project is on track to complete the design by the end of FY 2005.

The following sections contain an overview of the results associated with performance against the most significant defense goals and annual targets for FY 2004.

Defense General Goals

Performance Scorecard:

DEFENSE ($ in Millions)

GENERAL GOAL	FY04 PROGRAM COST	FY03 PROGRAM COST	PROGRAM GOALS	*FY 2004 Budgetary Expenditures Incurred	OVERALL PROGRAM SCORE	PERFORMANCE OF ANNUAL TARGETS			
						MET	NOT MET (≥80%)	NOT MET (<80%)	UNDETERMINED
Nuclear Weapons Stewardship	$6,220	$5,214	Directed Stockpile Work	$1,352		4	3	0	
			Science Campaign	$232		3	1	1	
			Engineering Campaign	$331		5	0	0	
			ICF/NIF	$467		2	2	1	
			ASCI	$719		3	1	1	
			Pit Manufacturing	$256		2	1	2	
			Readiness Campaign	$215		3	1	0	
			RTBF O&M	$1,319		2	0	0	1
			RTBF Construction	$191		1	1	1	
			Secure Transportation Asset	$153		3	1	0	
			Nuclear Weapons Incident Response	$102		4	1	0	
			Facilities & Infrastructure Recap Program	$269		3	0	0	
			Safeguards and Security	$575		3	1	1	
			Office of Administrator**	$282		2.5	0.5	0	
Nuclear Nonproliferation	$1,101	$968	Nonproliferation Verification R&D	$237		3	1	0	
			HEU Transparency Implementation	$18		3	0	0	
			Elimination of Weapons-Grade Plutonium Production	$58		1	1	1	
			Nonproliferation and International Security	$115		3	1	1	
			Russian Transition Initiative	$50		4	0	0	
			International Materials Protection and Cooperation	$334		4	3	0	
			Fissile Material Disposition	$342		2	2	1	
			Off-Site Source Recovery Program	$4		3	0	0	
			Office of Administrator**	$56		2.5	0.5		
Naval Reactors	$740	$687	Naval Reactors	$738		7	0	0	
Total Costs	$8,061	$6,869		$8,415		73	22	10	1

*Includes capital expenditures but excludes such items as depreciation, changes in unfunded liability estimates and certain other non-fund costs, and allocations of Departmental administration activities.
**Program Goal shared by two General Goals

Nuclear Weapons Stewardship – General Goal 1:

Ensure that our nuclear weapons continue to serve their essential deterrence role by maintaining and enhancing the safety, security, and reliability of the U.S. nuclear weapons stockpile.

The most important responsibility of the Secretary of Energy, in cooperation with the Secretary of Defense, is certifying to the President that the Nation's nuclear weapons stockpile is safe, secure, and reliable. To do so, the NNSA develops a nuclear weapons stockpile surveillance and engineering capability; refurbishes and extends the lives of selected nuclear systems; and maintains a science and technology base, including the ability to restore the manufacturing infrastructure for the production of replacement weapons, should the need arise. These capabilities ensure the vitality of our nuclear weapons without the need for underground nuclear testing.

External Factors

The following external factors could affect our ability to achieve this goal:

- **Technology**: Technological development is inherently unpredictable. The discovery of an insurmountable scientific or engineering obstacle in a credible science-based stockpile stewardship program could force the resumption of underground nuclear testing.
- **Nuclear Threats**: Changes in the nuclear threats posed to the United States could require changes to our nuclear weapons stewardship programs.

How We Serve the Public

In addition to certification of the nuclear stockpile, the NNSA accomplished a number of significant milestones during 2004. These milestones represent activities that enhance nuclear security by using the most economically sound means.

- Completed 100% of the work on the W87 warhead Life Extension Program for the United States Air Force. This, like the other Life Extension Programs, is another cost-effective way to provide nuclear security.
- Reduced the need for underground testing by: (1) attaining a total capacity of Advanced Simulation Computing production platforms of 75 trillion operations per second; (2) beginning operations at the NIF at limited power in December 2003; and (3) executing the first experiments on the DARHT equipment.

The B83 weapons assembly shows the complexity of these nuclear weapons.

- Completed an aggregate total of 90 percent of the Tritium Extraction Facility. Tritium, a requirement in all U.S. nuclear weapons, must be extracted and replaced periodically to maintain the existing stockpile.
- Authorized projects to reduce the NNSA excess facilities footprint by another 525,000 gross square feet (GSF). More than half of the long-range goal reduction of 3 million GSF is now underway. This reduction will result in reduced maintenance and security costs.

Program Goals and Targets Supporting Nuclear Weapons Stewardship

One of the main activities supporting General Goal 1—to ensure that our nuclear weapons continue to serve their essential deterrence role by maintaining and enhancing the safety, security, and reliability of the U.S. nuclear weapons stockpile—is the certification of the nuclear stockpile to the President. Through 2004, the NNSA, jointly

with the Department of Defense (DoD), successfully completed the surety and assessment reports to support certification on the nuclear stockpile. (DP GG 1.27.1). This assessment/certification activity is critically important to the U.S. national security in the absence of underground nuclear weapon testing, which has been banned by U.S. adherence to the 1992 moratorium. The NNSA ensures that the nuclear warheads and bombs in the U.S. nuclear stockpile are safe, secure, and reliable by: (1) developing solutions to extend weapon life and correcting potential technical issues; (2) conducting scheduled warhead/bomb maintenance; (3) dismantling warheads/bombs retired from the stockpile; (4) conducting evaluations to certify warhead/bomb reliability and to detect/predict potential weapon fixes, mainly from aging; (5) producing and refurbishing warheads/bombs to install the life extension solutions and other fixes; and (6) researching advanced concepts (DP GG 1.27).

Without the underground testing to assure the reliability of the nuclear stockpile as required in General Goal 1, the NIF is used to create and measure extreme temperature and pressure conditions of a simulated nuclear explosion (DP GG 1.30). While the overall goal to complete the NIF by 2008 is on track, one target for this goal – to complete 16 percent of equipment fabricated to support ignition experiments at the facility (DP GG 1.30.4) – was not met; 12% was achieved. To correct this, the Mission Need for the NIF Cryogenic Target System (NCTS) was approved and alternative options to accomplish NCTS are now being developed. The effort has been rescheduled to the second quarter, FY 2005. This revised schedule remains consistent with the central program goal of demonstrating thermonuclear ignition of the NIF by 2010.

The stockpile stewardship activities of General Goal 1 necessitate a capability for the safe and secure transport of nuclear weapons, components, and materials that will meet projected DOE, DOD, and other customer requirements (DP GG 1.36). Advanced equipment and highly trained personnel are required to execute the mission. In FY 2004, 91 secure convoys were completed, thereby meeting the goal to exceed 90 secure convoys. This was up from 78 a year earlier and showing a steady year-to-year growth (DP GG 1.36.1).

Secure Transportation Asset Convoy Vehicle ensures safe and secure warhead movements.

More detailed information concerning the performance results for the above referenced goals and targets is available in the Performance Results Section.

Nuclear Nonproliferation – General Goal 2:

Provide technical leadership to limit or prevent the spread of materials, technology, and expertise relating to weapons of mass destruction; advance the technologies to detect the proliferation of weapons of mass destruction worldwide; and eliminate or secure inventories of surplus materials and infrastructure usable for nuclear weapons.

The NNSA reduces the threat posed by the proliferation of fissile material by helping to secure foreign stockpiles of weapons-grade material. In addition, the NNSA oversees the dismantlement, destruction, and ultimate disposition of weapons including the downblending of HEU or the burning of plutonium as mixed oxide fuel (MOX) in nuclear energy plants. The NNSA further reduces risk through controlling exports of nuclear-related technologies, monitoring borders for the movement of fissile materials, and ensuring the employment of foreign nuclear-related scientists and engineers in other more productive pursuits.

External Factors

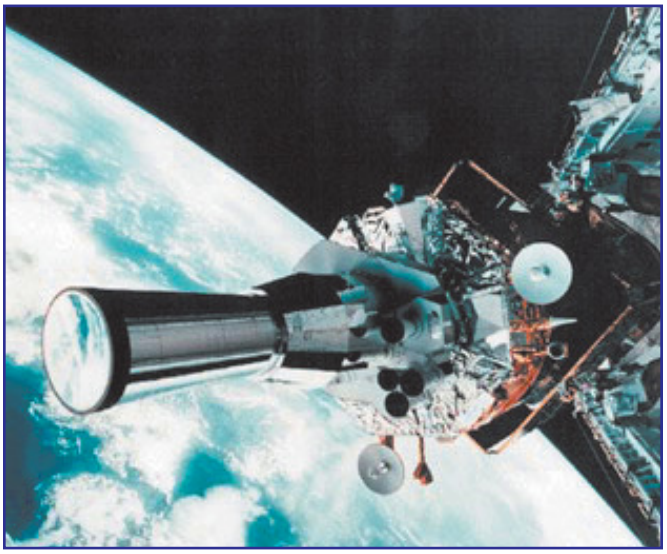
The following external factors could affect our ability to achieve this goal:

- **Close Cooperation with Russia:** Unprecedented levels of cooperation between the United States and Russia have made it possible to make great strides in securing and eliminating inventories of surplus materials. A close relationship is necessary for future progress.
- **International Atomic Energy Agency (IAEA)**: The IAEA is essential to the success of our efforts to control nuclear proliferation. It is uncertain whether the IAEA will receive the necessary funding and show the necessary leadership to member countries. We are monitoring this situation closely.
- **Technology:** Technological development is uncertain and unpredictable. Our efforts to develop nuclear weapons/material detection technology may be more or less successful than predicted, which would have a corresponding positive or negative impact on our efforts.

How We Serve the Public

In addition to the Global Threat Reduction Initiative activities already discussed, the NNSA conducted a number of high-profile operations in 2004 aimed at reducing the risk associated with proliferation. On May 25, 2004, in Greece, Secretary Abraham officially transferred hand-held radiological detection equipment to Greek officials to support increased security for the Summer Olympic Games. The radiation detection equipment was successfully used to detect or deter the illicit trafficking of nuclear and other radiological materials through ports or across international borders.

A Defense Support Program (DSP) satellite launched February 14, 2004, from Florida's Cape Canaveral included sophisticated nuclear test detection sensors from the NNSA. This equipment is used to monitor the Limited Test Ban Treaty of 1963 and to deter proliferant nations from conducting nuclear tests. The next DSP satellite, scheduled for launch in 2005, will complete the present nuclear detection sensor package design and also carry the demonstration experiment for the next generation of high altitude sensors – the Space and Atmospheric Burst Reporting System (SABRS) – that NNSA is currently developing.



The DSP supports nuclear test detection from space.

On February 25, 2004, NNSA initiated a new program to provide employment opportunities to Iraqi scientists, technicians, and engineers. This program complements other Bush Administration initiatives that seek to prevent the proliferation of weapons of mass destruction expertise to terrorists or proliferant states. The first phase of this long-term effort is the current survey of Iraq's science and technology infrastructure by scientists. Once the survey is completed, the partners will convene a workshop in the region to bring together representative experts from Iraq, the United States, the international science community, and funding organizations to discuss priorities and options for technical cooperation.

Also during 2004 the NNSA:

- Continued security upgrades on weapons-usable nuclear material. A quarter of the targeted 600 metric tons is now secure, thereby enhancing the security of our Nation.
- Created or expanded 16 commercial enterprises and employed 8,200 Russian scientists and engineers formerly employed in nuclear weapons facilities located in Russia. Similar to the aforementioned Iraqi reconstruction effort, the employment of these skilled nuclear-trained professionals in such endeavors as medical technology helps prevent the spread of sensitive knowledge to rogue states.

- Provided confidence, as part of the 1993 HEU Purchase Agreement, that Russian HEU is permanently eliminated from the Russian stockpile. Russian HEU was down blended into LEU (less than 5% U235 assay) and sold to the U.S. Enrichment Corporation (USEC). Through FY 2004, 231 metric tons of HEU, equivalent to 9,240 nuclear weapons, have been eliminated as part of 500 metric tons being eliminated by 2013.

- Recovered approximately 10,022 sealed sources of high-risk radiological sources, thereby preventing these radioactive materials from being used in a radiological dispersal device, also known as a "dirty bomb."

Program Goals and Targets Supporting Nuclear Nonproliferation

Many activities are underway to support General Goal 2 – provide leadership to limit or prevent the spread of materials, technology, and expertise relating to weapons of mass destruction; advance the technologies to detect the proliferation of weapons of mass destruction worldwide; and eliminate or secure inventories of surplus materials and infrastructure usable for nuclear weapons. For example, the NNSA is providing assistance to foreign governments to identify and intercept illegal shipments of weapons materials by working in Russia and other regions of concern to: (1) secure and eliminate vulnerable nuclear weapons and weapons-usable material; (2) locate, consolidate and secure radiological materials that can be used in a dirty bomb; and (3) install detection equipment at border crossings and Megaports to prevent and detect the illicit transfer of nuclear material (NN GG 2.46). This effort complements the Department of Homeland Security's Container Security Initiative, in which Customs and Border Protection agents partner with countries operating major shipping ports to help safeguard the international supply chain. In 2004, the target to install radioactive detection equipment at a cumulative total of 74 sites was not achieved. The length of time taken by foreign governments to review and approve agreement language resulted in a cumulative total of 66 sites provided with the equipment. (NN GG 2.46.6). Pace of implementation should increase in the first quarter of FY 2005 as Memoranda of Understanding with foreign governements are signed.

To prevent the spread of nuclear materials and reduce the threat of nuclear terrorism, the NNSA is facilitating the shutdown of the three remaining weapons-grade plutonium production reactors in Russia. This program is intended to provide an alternative fossil fuel power source to permit shutdown of the three reactors which, in addition to providing vital energy and heat for two Russian cities, also produces up to 1.2 metric tons of weapons-grade plutonium per year. This is being accomplished through: (1) refurbishment of an existing fossil-fuel (coal) power plant at Seversk (NN GG 2.42), and (2) construction of a new fossil-fuel (coal) plant at Zheleznogorsk. The NNSA had a key 2004 target for completing 16 percent of a fossil plant in Seversk, which would facilitate shutting down two weapons-grade plutonium production reactors (NN GG 2.42.1). However, after more refined estimates were developed through NNSA, U.S. contractors and their Russian counterparts, the preliminary cost assessments significantly increased. As a result, only 12.9 percent of the annual target was completed. However, additional funding should get this project on track in FY 2005.

Completion of other NNSA goals is also being compromised by an uncertain U.S./Russian diplomatic environment. Finishing the design and construction of a MOX facility (NN GG 2.47.6) for the goal of eliminating surplus Russian plutonium (NN GG 2.47) is particularly noteworthy. This program goal supports General Goal 2 by reducing the supply of fissile material. The annual target for 2004 required NNSA to complete 60 percent of U.S. assistance to the Russian Federation of the MOX fuel facility design. However, the resolution of a liability issue prevented the completion of this activity; 15% was completed. Resolution is presently being pursued by all affected agencies (e.g. DOE, DOD, and State) at the National Security Council level.

More detailed information concerning the performance results for the above referenced goals and targets is available in the Performance Results Section.

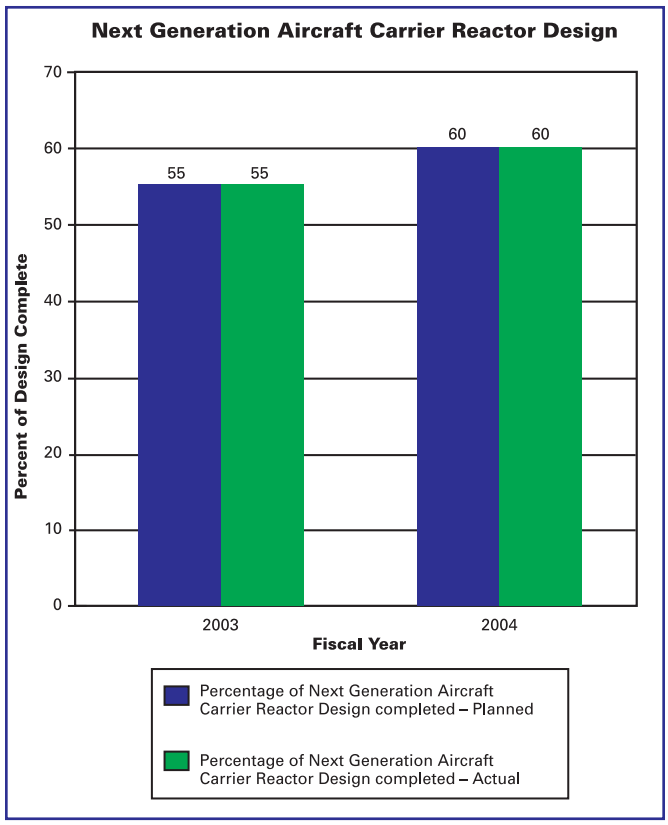
Naval Reactors – General Goal 3:

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

The NNSA is responsible for providing the United States Navy with safe, militarily effective nuclear

propulsion plants. Naval nuclear propulsion plants currently power about 40 percent of the Navy's principal combatants. The NNSA will continue to provide the Navy and the Department of Defense reliable and militarily effective nuclear power through the Naval Reactors program. New technologies, methods, and materials to support reactor plant design for future generations of reactors for submarines, aircraft carriers, and other combat ships are also developed under this program.

The chart below indicates that the Naval Reactors program completed 60 percent of the next generation aircraft carrier reactor design (referred to as the CVN 21) in FY 2004. The CVN 21 nuclear propulsion plant will have increased core energy, nearly three times the electrical plant generating capacity,



and will require half of the Reactor Department sailors when compared to today's operational aircraft carriers.

External Factors

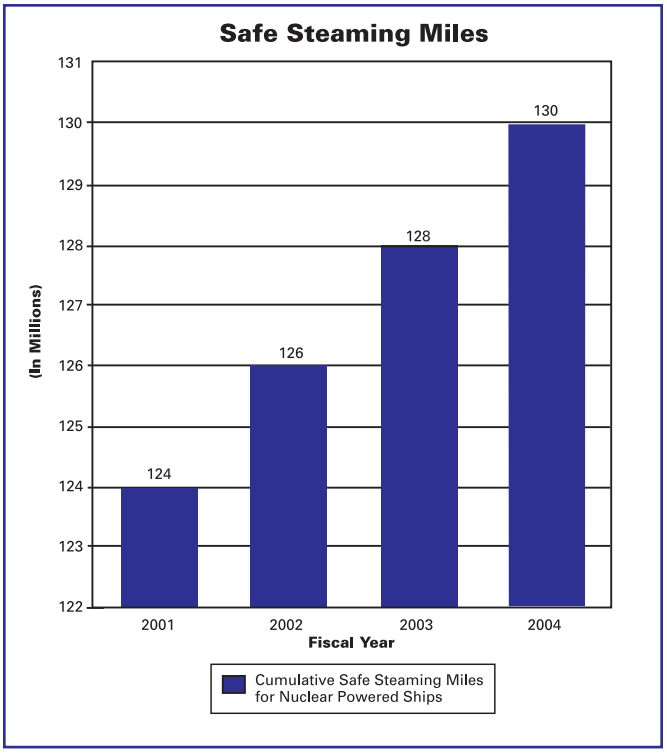
Currently, no external factors appear to impact the ability to achieve this General Goal. However, given the unique nature of the Naval Reactor's responsibilities, commitments to both DOE and the U.S. Navy must be considered at all times. Therefore, any external factor seriously affecting either organization's policies may have an impact on the Program's ability to achieve this goal.

How We Serve the Public

Naval Reactors continues the success it has had for more than 50 years, and is a prime example of how to manage unforgiving and complex technology. The Naval Reactors program, which supports the nuclear powered submarines and carriers around the world, remains a vital part of the national security mission and the Global War on Terrorism. In 2004, the Naval Reactors Program completed the next-generation submarine reactor plant design.

Program Goals and Targets Supporting Naval Reactors

The Naval Reactor's key program goal is identical to General Goal 3, which is to provide the Navy with safe, militarily effective nuclear propulsion plants and ensure their continued safe and reliable operation (NR GG 3.49). FY 2004 targets to implement this goal included 2 million miles of safe steaming in nuclear-powered ships and the design



of new reactors (NR GG 3.49.1). Since its inception, the Naval Reactors program has supplied 130 million miles of safe nuclear propulsion.

More detailed information concerning the performance results for the above referenced goal and target is available in the Performance Section.

Challenges and Future Expectations

In the next 25 years, our most significant expectations pertain to stockpile security, infrastructure for weapons production, nonproliferation and naval propulsion. Associated with these expectations are a number of key intermediate objectives and long-term targets along with the challenges the NNSA faces in meeting these expectations.

The first expectation, jointly with the Secretary of Defense, is the annual certification to the President on the nuclear weapons stockpile. The main challenge here is the continuation of an effective stockpile in the face of aging nuclear weapons systems. To assure the certification, we will work toward demonstrating the full capability of the NIF by 2010. Detailed three-dimensional simulations of weapons design and performance will be routine as both improved codes and computing capability platforms are realized. Although committed to the underground nuclear testing moratorium, the NNSA has as its parallel goal to be able, if necessary, to resume/conduct an underground test in as little as 18 months.

Secondly, the NNSA will develop and maintain the facilities and infrastructure necessary to ensure the safety, security, and reliability of the stockpile. By 2009, deferred maintenance will be reduced to industry standards, and over 3 million GSF of excess space will be eliminated.

Thirdly, all worldwide nuclear materials will be under controls and surveillance acceptable to the U.S. To do this, security upgrades will be completed on 600 estimated metric tons of weapons-usable nuclear materials by 2008, and 39 Russian Navy nuclear warhead sites by 2006. The last remaining nuclear reactors in Russia that produce weapons-grade plutonium ultimately will be shutdown by 2012. By 2012, 17 metric tons of Russian HEU will be converted to LEU. In addition to these activities, radiation sensing devices will have already been installed at 300 sites around the world. Diplomatic relations and economic conditions abroad will continue to impact the ability to secure fissile materials internationally and could challenge the success of these programs.

Lastly, the NNSA continues to provide nuclear reactors that meet the U.S. Navy's operational requirements safely and reliably. With a proven record in meeting the Navy's current needs for nuclear propulsion, the NNSA is directing resources at accomplishing the new challenge of providing reactors with an even longer life.

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Investing In America's Energy Future

Energy Strategic Goal: *To protect our national and economic security by promoting a diverse supply and delivery of reliable, affordable, and environmentally sound energy.*

"Energy, of course, is a vital component of our work. We must promote and execute both practical and visionary policies that will secure the energy we need to guarantee our continued economic growth and prosperity today and in the years and decades ahead."

Spencer Abraham
Secretary of Energy

The demand for energy in the U.S. is rising much faster than the projected increase in domestic energy production. The shortfall between energy demand and domestic supply is projected to increase nearly 50 percent by 2020. That projected shortfall can be made up in only three ways – import more energy, improve energy conservation and efficiency, and/or increase domestic supply.

The Administration considered these options in its development of the National Energy Policy (NEP). It concluded that increased dependence on oil imports from volatile regions of the world would jeopardize our national and economic security. As our dependence on oil rises, so does our vulnerability to price shocks, shortages, and disruptions. For that reason, the Administration resolved to take steps to improve energy conservation and efficiency and increase domestic energy production in order to avoid increased dependence on imports. That was the hallmark of the NEP issued in May 2001 and remains the heart of our Nation's energy strategy.

Science and technology are the Department's principal tools for achieving the goals of the NEP. The Department invests in high-risk, high-value energy research and development that the private sector alone would not or could not develop in a market-driven economy. We are developing technologies to allow renewable energy to play a more important role in the future of our Nation.

The following Offices within the Department are working toward the energy security goal:

The Office of Fossil Energy (FE) addresses issues related to the security, affordability, and environmental acceptability of fossil fuel supply and use. For the Clean Coal Program, this is carried out through public/private partnerships to develop technology that will ensure continued electricity production and potential future large scale hydrogen production from the extensive U.S. coal resource. For oil and gas, FE implements a policy, and technology development program to diversify natural gas supply

options and improve oil exploration and production capabilities.

FE also operates two facilities which comprise the Nation's first line of defense against severe petroleum product shortages, including: 1) the Strategic Petroleum Reserve (SPR), which provides emergency oil supplies in the event of a serious supply disruption; and 2) the Northeast Heating Oil Reserve, which helps ensure adequate heating oil supplies in the event of severe energy disruptions.

The Office of Nuclear Energy, Science and Technology (NE) leads the government's efforts to develop new nuclear energy generation technologies to meet energy and climate goals to develop advanced, proliferation-resistant nuclear fuel technologies that maximize energy from nuclear fuel, and to maintain and enhance the national nuclear technology infrastructure. NE serves the present and future energy needs of the country by managing the safe operation and maintenance of our critical nuclear infrastructure that provides nuclear technology goods and services. Nuclear power produces no greenhouse gas emissions and can play a significant role in reducing our dependency on foreign oil.

NE's research and development (R&D) programs are focused on (1) assisting the nuclear power industry in lowering the licensing risks associated with building nuclear power plants; (2) developing technologies for the next-generation of nuclear power plant plants; (3) developing technologies for the efficient generation of large commercial quantities of hydrogen using nuclear power; and (4) developing technologies that significantly reduce the long-term storage requirements of spent nuclear fuel.

NE also maintains a robust isotope production program, providing radioisotope-based power systems for deep space exploration and national security missions and providing a variety of users with the specific research and medical isotopes to meet their needs. In addition, NE's University Reactor Infrastructure and Education Assistance program enables the Nation to maintain a stable number of talented nuclear engineering and science graduates needed for industry, academia and national laboratories.

The Office of Energy Efficiency and Renewable Energy's (EERE) mission is to strengthen America's energy security, environmental quality, and economic vitality through public-private partnerships that promote energy efficiency and productivity, bring clean, reliable and affordable energy technologies to the marketplace, and make a difference in the everyday lives of Americans by enhancing their energy choices and quality of life. Examples of how some of these key department drivers are addressed by the eleven EERE programs include:

- Replacement of Conventional Fuels – the Vehicle Technology and Hydrogen programs work together through the FreedomCAR Partnership and Hydrogen Fuel Initiative to develop technologies that have the potential to virtually eliminate the use of petroleum for transportation over the next several decades. One of the major technical challenges we are addressing is the means to store sufficient amounts of hydrogen aboard the vehicle to provide a driving range of greater than 300 miles.
- Clean, affordable renewable energy sources – EERE's Wind Technology research and development program successfully graduated its high speed wind effort, meeting its cost of energy goal of 3 cents/kilowatt hour in strong winds. The program is now developing next-generation technologies to operate cost effective wind power in moderate speed winds, which will significantly expand the opportunities to use wind power nationwide.
- Clean, reliable energy – based upon DOE sponsored R&D, conducted by the Distributed Energy Resources program within EERE, the Mercury 50 Turbine was offered as a commercial product. This R&D enables "mission-critical" operations when grid-connected power is not available and improves the use of distribution assets by reducing the peak or altering the shape of energy demand.

The mission of the Office of Electric Transmission and Distribution (OETD) is to lead a national effort to modernize and expand America's electric delivery system to ensure a more reliable and robust electricity supply, as well as economic and national security. This effort is accomplished through research, development, demonstration, technology transfer, and education and outreach activities in partnership with industries, businesses, utilities, states, and other federal programs and agencies, universities, national laboratories, and other stakeholders.

Energy General Goal

Performance Scorecard:

ENERGY SECURITY ($ in Millions)

GENERAL GOAL	FY04 PROGRAM COST	FY03 PROGRAM COST	PROGRAM GOALS	*FY 2004 Budgetary Expenditures Incurred	OVERALL PROGRAM SCORE	PERFORMANCE OF ANNUAL TARGETS			
						MET	NOT MET (≥80%)	NOT MET (<80%)	UNDETERMINED
Energy Security	$6,378	$6,235	Zero Emissions Coal-Based Electricity and Hydrogen Production	$346		10	0	2	
			Natural Gas Technologies	$54		5	0	0	
			Oil Technology	$62		3	0	0	
			Petroleum Reserves	$269		2	0	0	
			Develop New Nuclear Generation Technologies	$107		2	0	1	
			Nuclear Fuel Technologies	$84		3	0	0	
			Maintain and Enhance National Nuclear Infrastructure	$235		5	0	0	
			Hydrogen/Fuel Cell Technologies	$81		11	0	1	
			Vehicle Technologies	$209		4	1	0	
			Solar Energy	$171		3	0	0	
			Building Technologies	$64		3	0	1	
			Wind Energy	$49		2	0	0	
			Hydropower	$6		2	0	0	
			Geothermal Technology	$23		0	0	2	
			Biomass and Biorefinery Systems R&D	$76		4	0	1	
			Weatherization	$256		2	0	0	
			State Energy Programs	$102		2	0	0	
			Intergovernmental Activities	$16		4	1	3	
			DEMP/FEMP	$22		3	0	2	
			Distributed Energy Resources	$61		4	0	1	
			Industrial Technologies	$132		3	0	0	
			Electric Transmission and Distribution	$72		2	0	1	
			Southeastern Power Administration	$36		4	0	0	
			Southwestern Power Administration	$34		5	0	0	
			Western Area Power Administration	$752		4	0	0	
			Bonneville Power Administration	$4,355		3	0	0	
			Energy Information Administration	$85		3	0	0	
Total Cost	$6,378	$6,235		$7,759		98	2	15	0

*Includes capital expenditures but excludes such items as depreciation, changes in unfunded liability estimates and certain other non-fund costs, and allocations of Departmental administration activities.

The value of the Department is not just found in R&D projects. The Power Marketing Administrations market and deliver reliable, cost-based Federal hydroelectric power and related services to customers over much of the southeastern, central and western United States. Transmission systems owned by the Power Marketing Administrations are part of the nation's interconnected generation and transmission system and make a significant contribution to the country's current energy supply. While the Power Marketing Administrations assure that customers receive the benefits of Federal power, they collect sufficient revenue to repay the American taxpayer's investments allocated to power within the timeframes established by law and regulations.

The following sections contain an overview of the results associated with performance against the most significant energy goals and annual targets for FY 2004.

Energy Security – General Goal 4:

Improve energy security by developing technologies that foster a diverse supply of reliable, affordable, and environmentally sound energy by providing for reliable delivery of energy, guarding against energy emergencies, exploring advanced technologies that make a fundamental improvement in our mix of energy options, and improving energy efficiency.

Secretary Abraham declared that the Department has "an ambitious, long-term vision of a zero emission future, free of reliance on imported energy." The programs supporting this General Goal follow through with the President's promise for a strong, secure economy, and an energy- independent future. Investments that are being made will expand our Nation's energy supply, assess and address our Nation's energy infrastructure vulnerabilities, and develop energy assurance activities consistent with the NEP.

The Department's technologies draw on all our available resources: oil; natural gas; coal; nuclear energy; renewable energy sources including hydropower, wind, solar, bioenergy, and geothermal; and reductions in demand through conservation and energy efficiency technologies and processes. The Administration believes it is not the role of the Federal Government to choose the energy sources for the country. Instead, the role of the Federal Government is to do high-risk, long-term R&D in areas where the private sector will not invest, and to allow the market to decide how much of each energy source is actually used. Diversity of energy sources (e.g., fossil, nuclear, and renewables) can help provide stability and guard against price spikes.

The Administration's energy portfolio takes a long-term focus through investments in hydrogen use and production, electricity reliability, and advanced

coal and nuclear energy power technologies. Investments in these pivotal areas honor a commitment to strengthen the Nation's energy security, not just in the near-term, but for generations to come.

The Nation's long-term energy solution will come not from the development of a single energy source but from a broad portfolio of energy supply options. Fossil energy is an essential component of a comprehensive energy strategy. The Department has invested in the President's Coal Research Initiative. Under this initiative, the Department is working to dramatically improve the efficiency and environmental protection being developed for coal burning power production by conducting research and development on coal-related technologies to improve coal's competitiveness in future energy supply markets. To address our Nation's ongoing need for oil and gas, the Department continues to develop and promote technologies that can both lower costs of oil and natural gas exploration and development, and maximize America's energy supply. To minimize the impact of oil supply disruptions, the Department is committed to filling the Strategic Petroleum Reserve to 700 million barrels.

The Department is at the forefront of implementing the President's Hydrogen Fuel Initiative to reduce America's growing dependence on oil. Hydrogen holds the promise of an ultra-clean and secure energy option for America's future because it can be produced from domestic sources. In addition, DOE continues to emphasize R&D to improve energy efficiency and reliability in homes, buildings, transportation, and industry, and to reduce the cost of renewable and related energy technologies such as wind, solar, geothermal, and biomass.

Nuclear energy remains a critical component of the Nation's energy portfolio and a significant part of America's energy future. The Department's nuclear energy programs are working together to develop advanced nuclear power technologies. This includes the Department's Nuclear Hydrogen Initiative which is focused on the development and demonstration of nuclear technologies necessary for the commercial production of hydrogen using nuclear power. Furthermore, the Department is working to develop advanced systems that are more proliferation resistant, and have reduced life cycle costs. The Department is also continuing to develop proliferation-resistant fuel treatment technology that reduces the volume and toxicity of high-level waste to optimize storage capacity of the first U.S. repository and reduce the need for additional repositories.

The Department is also developing technologies to assure the reliability of energy delivery. The Department is advancing technologies that will upgrade America's aging electricity infrastructure, relieve congestion on transmission and distribution systems, and develop superconducting materials that will improve the reliability of transmission system components.

The Department's Power Marketing Administrations sell and deliver electricity primarily generated from hydropower projects located at federally-owned dams. This clean, low-cost, renewable energy benefits customers throughout the southeastern, central and western states.

External Factors

The following external factors could affect our ability to achieve this goal:

- **Technology:** Technological development is inherently unpredictable. Our efforts to develop zero-emission fossil generation technology, hydrogen, renewable energy, advanced nuclear power and fusion may be more or less successful than predicted, with a correspondingly positive or negative impact on our efforts.
- **Market Forces**: Whether new technology is deployed depends to a large extent on whether that technology is competitive, considering relevant policies (e.g., tax incentives for the purchase of fuel-cell vehicles) and future energy prices.
- **Consumer Choice:** Improved energy efficiency is largely the result of millions of decisions by individual consumers. The Department can help develop improved technology, but whether this technology is deployed depends on consumer decisions, including the marketprice of energy and relevant policies that may affect those decisions. In addition, the deployment of hydrogen and alternative fueled vehicles depends to a large extent on the decisions by individual consumers to purchase these vehicles.
- **Nonproliferation Policy:** Deployment of advanced fuel cycle technologies will depend upon policy changes permitting fuel reprocessing.

How We Serve the Public

The offices that contribute to this General Goal are involved in a broad range of projects and activities that seek to merge cutting edge technologies with responsible energy practices. Examples of how each has served the public throughout FY 2004 are discussed below.

FE conducts research and development to enhance our recoverable oil and natural gas resources. Direct benefits to the public include improving exploration and drilling technologies, which may increase the total recoverable domestic resources of oil and gas. This could decrease our reliance on foreign sources of energy. Additional benefits also include decreasing harmful emissions of and improving the efficiencies of technologies related to energy production and use; and ensuring the availability of clean and affordable energy. The Strategic Petroleum Reserve and Northeast Home Heating Oil Reserve protect Americans from the severe adverse economic effects of petroleum supply disruptions.

In addition to exploring more efficient uses of our fossil energy resources, the Department is making advances in nuclear energy.

NE provides the following:

- Next-generation reactor technologies for producing electricity and hydrogen using nuclear power more efficiently and safely;
- Advanced fuel cycle technologies for reducing the volume and radiotoxicity, and increasing the proliferation-resistance of spent nuclear fuel, making nuclear energy more economical and environmentally friendly;
- Plutonium-based heat and power systems for National Aeronautics and Space Administration's (NASA) deep space exploration missions;
- Research and medical isotopes needed by a variety of paying customers; and,
- Nuclear reactor fuel and reactor upgrades to universities across the nation, as well as the financial assistance to nuclear engineering and science undergraduates and graduate students.

Cooperative arrangements at all levels of government illustrate the Department's commitment to responsible energy use.

On November 20, 2003, the Secretary of Energy joined by Ministers representing 15 nations and the European Commission, signed an agreement formally establishing the International Partnership for the Hydrogen Economy (IPHE). The IPHE is an international mechanism to coordinate hydrogen research and hydrogen technology development and deployment.

On February 19, 2004, the Secretary announced a new effort to educate state and local government officials on the vision of a hydrogen economy. "Hydrogen Power: The Promise, The Challenge" is a six-city national tour that commenced in Lansing, Michigan on March 23, 2004. Working with regional, state, and local partners, the Department offers "Hydrogen 101" to State and local officials who do not have a technical background, but are interested in learning more about hydrogen and fuel cell technologies, hydrogen safety, and the challenges to achieving the hydrogen vision.

On March 2, 2004, DOE and the U.S. Environmental Protection Agency (EPA) honored winners of the 2004 EnergyStar© Partner of the Year awards. EnergyStar© is a national symbol for energy efficiency that promotes energy savings by labeling products that exceed federal specifications for energy use. The awards highlight the efforts of leading manufacturers, retailers, utility companies, and a variety of state and regional programs that promote energy efficiency and awareness of the EnergyStar© label, which helps consumers identify the most energy-efficient products in the marketplace. Appliances, lighting, office equipment, home electronics, windows, and more can qualify by meeting the program guidelines. According to the EPA, consumer savings to date for all EnergyStar© activities is $9 billion.

On March 9, 2004, the Secretary launched a national public service advertising campaign designed to make children and their parents aware of energy efficient behavior through a new "spokes-villain," the Energy Hog, an energy waster. The Energy Hog and the campaign were developed by the Advertising Council and Energy Outreach Colorado and are sponsored by DOE, The Home Depot, the North American Insulation Manufacturers Association, the National Fuel Funds Network, and the Colorado Governor's Office of Energy Management and Conservation, who were

all present for the launch. Nineteen state energy offices, in addition to Colorado's, are also sponsors.

OETD's R&D directly benefits the public by leading the modernization and expansion of the Nation's electricity delivery system (the grid). These improvements will reduce the risk of multi-regional blackouts (such as the August 2003 blackout) by providing faster detection of problems, and more wide-spread operator awareness of local outages, load imbalances, frequency and voltage problems, and other faults.

Finally, the Power Marketing Administrations serve the public through delivery of reliable low-cost power and related services to many hundreds of customers including municipalities, cooperatives, public utility and irrigation districts, Federal and State agencies, and Native American tribes. The marketing efforts and delivery capabilities of the Power Marketing Administrations provide for recovery of annual operating costs as well as repayment of taxpayer investment in the Federal hydropower system.

Program Goals and Targets Supporting Energy Security

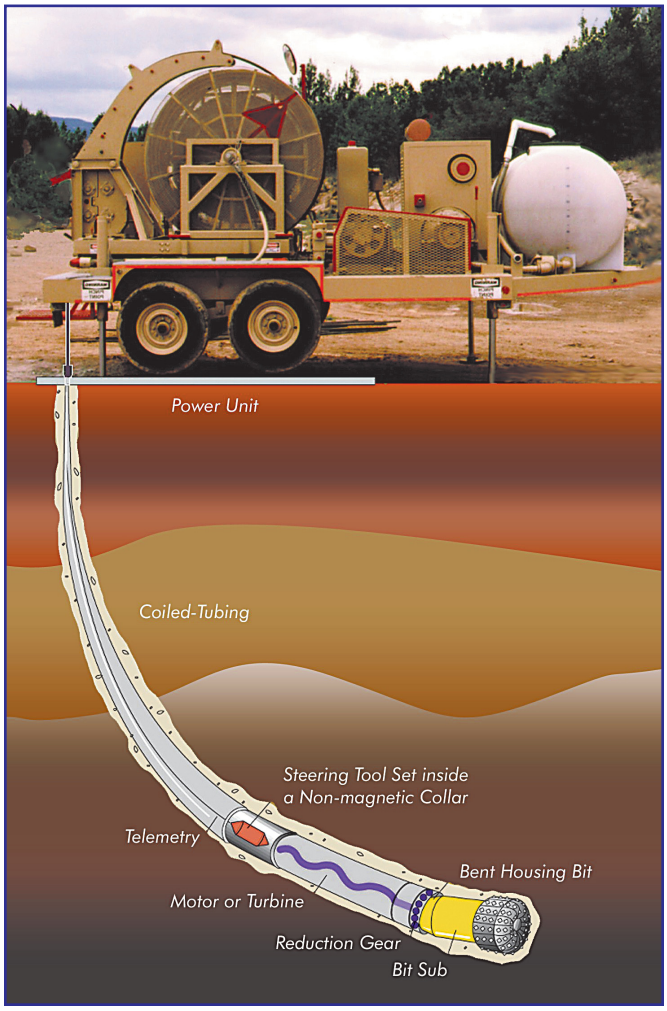
Fossil Energy

The United States relies on fossil fuels for about 85 percent of the energy it consumes and forecasts indicate that the percentage value will increase in the future. The Department's FE activities are designed to ensure that the economic benefits from moderately priced fossil fuels are compatible with the public's expectation for exceptional environmental quality and reduced energy security risks. Following this premise, one of FE's key program goals is to develop a zero emission coal power plant by 2015 (FE GG 4.55). In order to achieve this goal, public/private partnerships have been established to develop key technologies. Testing was initiated in 2004 on membrane technology that would separate hydrogen from gasified coal which could then be used as an environmentally friendly fuel for power generation (FE GG 4.55.2.2). This is one of the many steps toward achieving the 2015 goal.

To support the General Goal by promoting a diverse supply of energy, FE also focuses on increasing the availability of natural gas and oil (FE GG 4.56). Technologies will be developed to increase domestic supplies from unconventional sources, such as methane hydrates (see the following insert). The development of technologies, such as this, is sponsored by the Federal government because it is long term and high risk and therefore would not be funded by the private sector. In FY 2004, laboratory studies and feasibility analyses were completed in the areas of drilling vibration monitoring and control, high-temperature electronics, and specifications were developed for high temperature silicon to be used on key insulator components. In addition, simulation software was completed which integrated 3-D seismic data offering enhanced capabilities to locate new natural gas deposits, and thus contributed to the goal of increasing energy availability (FE GG 4.56.1).

***Methane Hydrates**. The United States Geological Survey study estimated the in-place gas resource within the methane hydrates of the United States to range from 112,000 trillion cubic feet to 676,000 trillion cubic feet, with a mean value of 320,000 trillion cubic feet of gas. This volume is larger by several orders of magnitude than previously thought and dwarfs the estimated 1,400 trillion cubic feet of conventional recovered gas resources and reserves in the United States.*

FE's key program goal for oil is to manage and fund oil exploration and production research and policy which results in development of domestic oil resources in an environmentally sound and safe manner (FE GG 4.57). Similar to the approach being used for natural gas recovery, in 2004, FE



Microhole Systems *One way to potentially lower the relatively high costs of locating and producing hydrocarbons in the United States may be to reduce the size of the borehole and the equipment needed to drill it. This program is exploring new concepts for miniaturized drilling systems.*

conducted innovative research (see the above Microhole Systems diagram) for enhanced oil recovery technologies, improved computer simulation software to better identify hydrocarbon targets, and initiated a fracture development timing study for Alaska's Brook Range to further characterize the location and availability of oil reserves in Alaska (FE GG 4.57.1). Through these and other initiatives, FE continues to pursue efforts that will increase the amount of oil that can be recovered from domestic sources.

By reducing the adverse economic impact of a major petroleum supply interruption to the U.S., the SPR has a direct affect on our energy security. For the SPR, energy security is measured by how quickly the program can respond to a Presidential direction to draw down, how much of the oil inventory is available, and the cost efficiency of operations. Therefore, the key program goal is to maintain operational readiness to drawdown at a sustained rate of 4.4 million barrels per day for 90 days, within 15 days notice by the President and fill the SPR to 700 million barrels by 2005 (FE GG 4.58). In 2004, 46 million of barrels were added to the reserve resulting in a total inventory of 670 million barrels, thereby exceeding the target of 656 million barels. This also provided 56 days of net import protection (FE GG 4.58.1).

> *"The Strategic Petroleum Reserve is an important element of our Nation's energy security. To maximize long-term protection against oil supply disruptions, I am directing...the Secretary of Energy to fill the SPR up to its 700 million barrel capacity."*
>
> *President George W. Bush*

More detailed information concerning the performance results for the above referenced goals and targets is available in the Performance Results section.

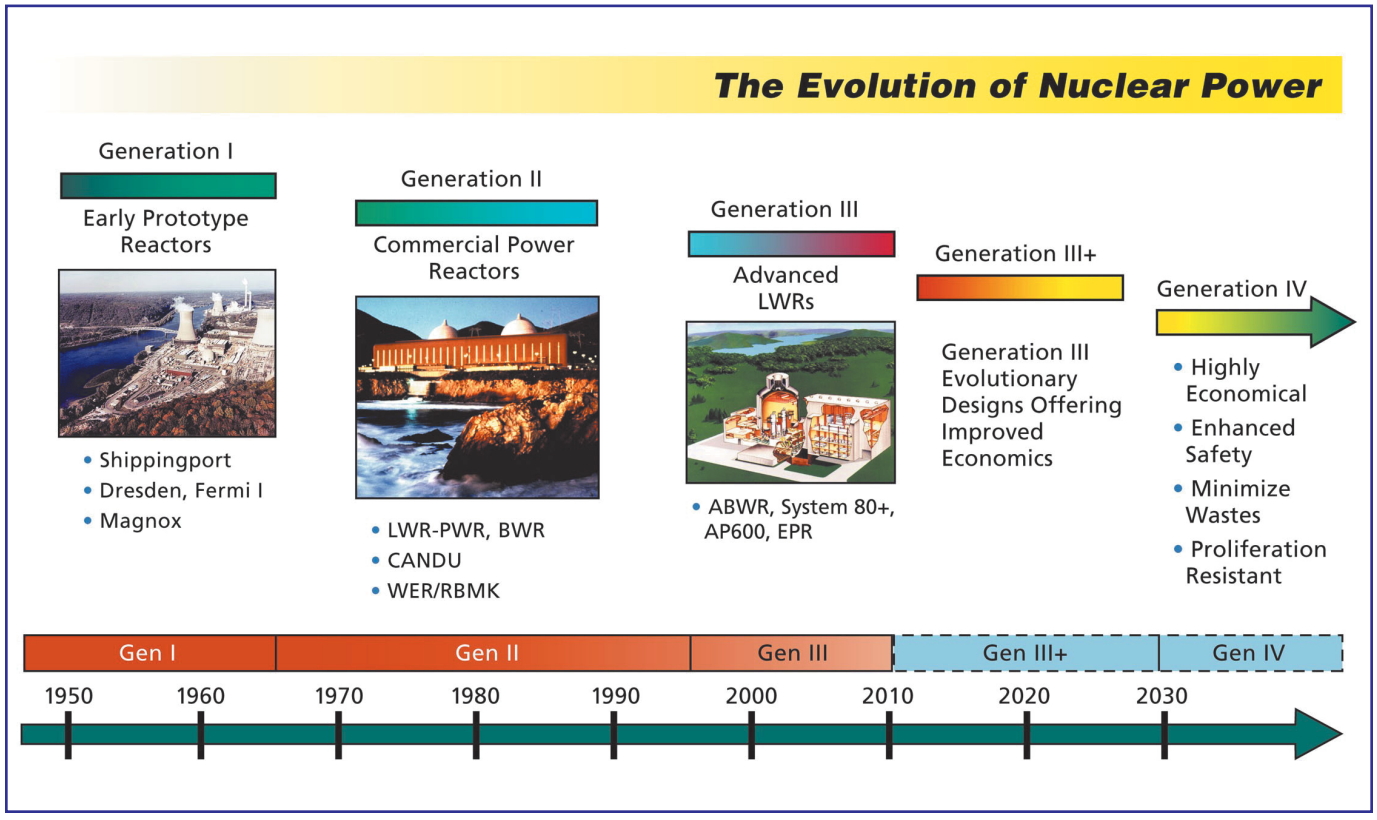
Nuclear Energy

The Department's nuclear energy R&D programs directly support the Energy Security General Goal of improving energy security by developing the nuclear energy technologies necessary to make nuclear energy part of a diverse supply of reliable, affordable, and environmentally sound energy. These R&D programs address both near-term and long-term nuclear energy critical issues. These issues include the risks associated with the permit and licensing process for the construction and operation of the next new nuclear power plant and the engineering of new materials, fuels, and reactor designs for the next generation of U.S. nuclear power plants that must be able to efficiently and safely generate both electricity and hydrogen. These next generation plants must produce less waste, have much lower radiotoxicity, and be proliferation resistant.

The Nuclear Power 2010 program has the goal of lowering the technical, institutional, and regulatory barriers to enable the nuclear power industry to order new nuclear power plants that can be deployed early in the next decade (NE GG 4.14). In 2004, the Department met its goal by receiving three financial assistance applications for nuclear power plant licensing demonstration projects in response to the Nuclear Power 2010 program solicitation (NE GG 4.14.1). The cost-shared projects awarded will support plans to demonstrate for the first time the U.S. Nuclear Regulatory Commission's untested combined Construction and Operating License (COL) process.

The Generation IV Nuclear Energy Systems Initiative program is conducting the R&D to develop next-generation nuclear energy systems that excel in safety, sustainability, cost-effectiveness and proliferation resistance. In May 2004, the Department issued a Request for Information and Expressions of Interest announcing the Department's interest in entering into a cooperative agreement for the conduct of the research, development and demonstration of a next-generation nuclear reactor coupled to advanced electricity and hydrogen generation technologies. Thirteen expressions of interest were received from U.S. companies interested in leading this effort along with comments from 40 companies and organizations with an interest in the future of nuclear power.

In conjunction with Generation IV, the Advanced Fuel Cycle Initiative is addressing long-term solutions for managing nuclear wastes by developing advanced, proliferation-resistant nuclear fuel technologies that reclaim the energy remaining in spent nuclear fuel, minimize wastes, and perform in a safe and environmentally sound manner (NE GG 4.15). In FY 2004, NE met a key target by demonstrating the separation of long-lived radioisotopes from spent nuclear fuel at laboratory scale (NE GG 4.15 3). The development of these separation technologies will permit economical reduction of the volume and heat load of high-level nuclear waste requiring repository disposal. Successful development of a full range of advanced spent fuel treatment and recycle technologies will significantly reduce the cost of geologic disposal while simultaneously reducing inventories of civilian plutonium.



Timescale for the development and implementation for next generation nuclear power technology.

NE's Nuclear Hydrogen Initiative is an integral part of the President's Hydrogen Fuel Initiative that has the goal of developing technologies for economically generating, storing, and distributing commercial quantities of hydrogen. NE's Nuclear Hydrogen Initiative is developing technologies for using the extreme-high temperatures found in some nuclear reactor designs to generate hydrogen on a commercial scale (NE GG 4.14). In FY 2004, a key target to complete the final designs of the baseline thermochemical and high-temperature electrolysis laboratory-scale experiments was met (NE GG 4.14.3). These laboratory-scale experimental results are needed for the design of pilot-scale experiments and ultimately the engineering-scale demonstration that will demonstrate the feasibility of nuclear hydrogen production on a commercial scale.

The Nuclear Energy Research Initiative (NERI) has realized its original goal of developing advanced nuclear energy systems and technology to help assure that the U.S. maintains a viable option to use nuclear energy to meet its energy and environmental needs. The research effort, conducted by the Nation's universities, laboratories, and industries, has helped to maintain and improve the nuclear research infrastructure in this country and has focused attention on the United States as a nuclear research and development leader. In FY 2004, the NERI program focused on advanced nuclear research at the Nation's universities and integrated the universities into the Department's mainline nuclear energy R&D programs described above. A solicitation, open to all U.S. universities, was issued in June 2004 and resulted in over 161 research proposals for evaluation by the Department.

To ensure that highly-talented nuclear engineers and scientists enter the work force to meet the current and future U.S. demand, NE maintains and enhances the Nation's nuclear infrastructure, which includes providing reactor fuel, reactor upgrades, and grant programs at the six regional university consortia and associated research reactors (NE GG 4.17). In FY 2004, NE met or exceeded the annual target by providing fuel to these reactors, funding 26 industry-matching grants, providing 20 equipment and instrumentation upgrades, providing 51 nuclear engineering education research grants and providing 21 fellowships and 54 scholarships (NE GG 4.17.1). This effort is reversing a previous steep decline in the number of graduating nuclear engineers and scientists.

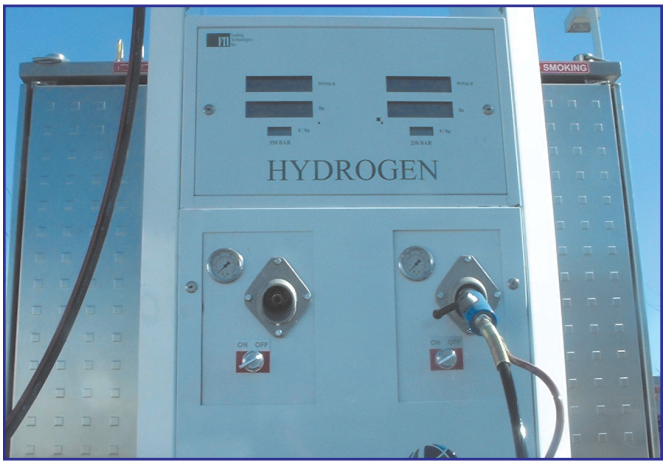
The Radiological Facilities Management program maintains and operates irreplaceable DOE nuclear technology facilities in a safe, secure, environmentally compliant and cost-effective manner to support national priorities (NE GG 4.17). Central to this infrastructure is the Nation's nuclear technology laboratory, the multi-program Idaho National Laboratory. The Radiological Facilities Management program also supports the oversight and planning required to assure that the Department's nuclear fuel assets – principally the Paducah Gaseous Diffusion Plant – can respond as required to future national requirements. As an example of efficiency, the Department met the annual target by maintaining and operating the radioisotope power systems facilities with less than 10 percent unscheduled downtime from their approved FY 2004 baseline (NE GG 4.17.4).

More detailed information concerning the performance results for the above referenced goals and targets is available in the Performance Results section.

Energy Efficiency and Renewable Energy

EERE's programs address both the supply and demand sides of the energy security equation. EERE's program activities are conducted in partnership with the private sector, state and local governments, DOE national laboratories, and universities. Highlighted on the following pages are the hydrogen technologies, solar technologies, vehicle technologies, weatherization and wind energy programs.

Through partnerships with the private sector, the President's Hydrogen Fuel Initiative seeks to develop hydrogen, fuel cell, and infrastructure technologies needed to make it practical and cost-effective for large numbers of Americans to choose fuel cell vehicles by 2020. The initiative will dramatically improve America's energy security by significantly reducing the need for imported oil. Hydrogen technology contributes to energy security by developing lower-cost means of producing and delivering hydrogen in large quantities from natural gas, coal, renewable-based electricity, and nuclear power; and developing fuel cell and hydrogen delivery infrastructure technologies.



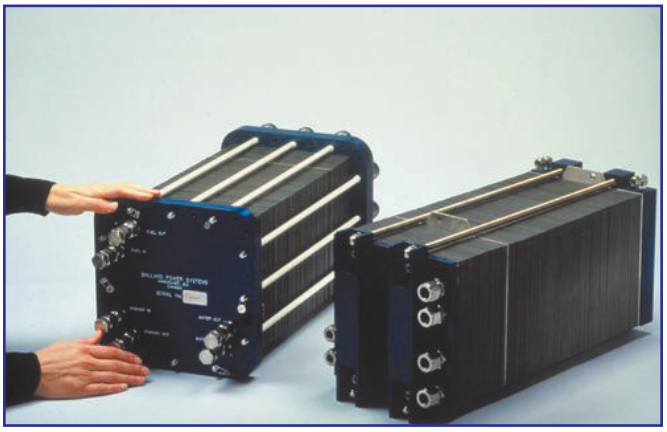
"A simple chemical reaction between hydrogen and oxygen generates energy, which can be used to power a car producing only water, not exhaust fumes. With a new national commitment, our scientists and engineers will overcome obstacles to taking these cars from laboratory to showroom so that the first car driven by a child born today could be powered by hydrogen, and pollution-free. Join me in this important innovation to make our air significantly cleaner, and our country much less dependent on foreign sources of energy."

President George W. Bush
State of the Union Address

The program supports the FreedomCAR Partnership (Cooperative Automotive Research) and the President's Hydrogen Fuel Initiative which has as its long-term goal of an industry decision to commercialize hydrogen-powered fuel cell vehicles by the year 2015 and the vision of a diverse, secure, and emissions-free energy future.

The Hydrogen and Fuel Cell Technology program is conducting R&D to develop hydrogen production, storage, and delivery technologies to the point that they are cost and performance competitive and are being used by the Nation's transportation, energy, and power industries. The Program will expand and support the General Goal by making our clean domestic energy supplies more flexible to dramatically reduce or even end dependence on foreign oil (EE GG 4.01). In 2004, the cost-competitive target of $200 per kilowatt for a hydrogen fueled 50 kilowatt fuel cell power system was achieved (EE GG 4.01.j).

The Solar Energy Technologies program helps America meet its energy needs by developing solar energy devices (see solar dish-engine system on the following page) and systems that are more efficient,

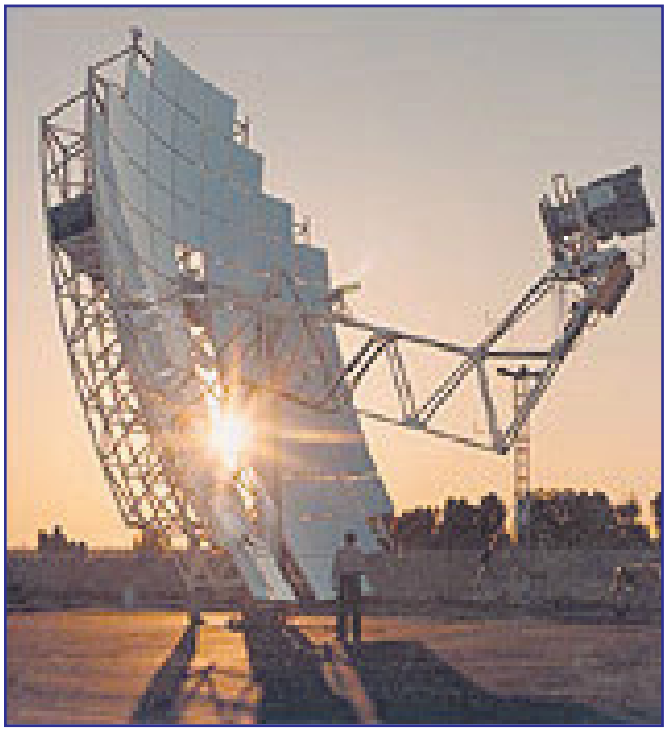


A fuel cell uses the chemical energy of hydrogen to produce electricity and water, cleanly and efficiently.

reliable and affordable. More specifically, the key Solar program goal expects to improve performance of solar energy systems and reduce development, production and installation costs to competitive levels. This helps address the need to improve the mix of energy options available as outlined by the General Goal. This will accelerate large-scale usages across the Nation and make a significant contribution to a clean, reliable and flexible U.S. energy supply (EE GG 4.03). Laboratory testing of commercial production crystalline silicon modules during 2004 verified the modules' conversion efficiencies in support of the program's goals (EE GG 4.03.01).

The Vehicle Technologies program contributes to energy security by developing technologies that enable the production of highly efficient cars and trucks. Activities in the Vehicle Technologies program contribute to two cooperative government/industry initiatives: the FreedomCAR Partnership and the 21st Century Truck Partnership. The FreedomCAR Partnership is a collaborative effort among three domestic automobile manufacturers, five energy companies, and DOE for cooperative, pre-competitive research on advanced automotive technologies having significant potential to reduce oil consumption. The 21st Century Truck Partnership includes 16 industrial partners and 4 federal government departments working cooperatively to improve the energy efficiency and safety of trucks.

The key Vehicle Technologies program goal is to develop technologies that enable cars and trucks to become highly efficient through improved hybrid power technologies, cleaner domestic fuels, and



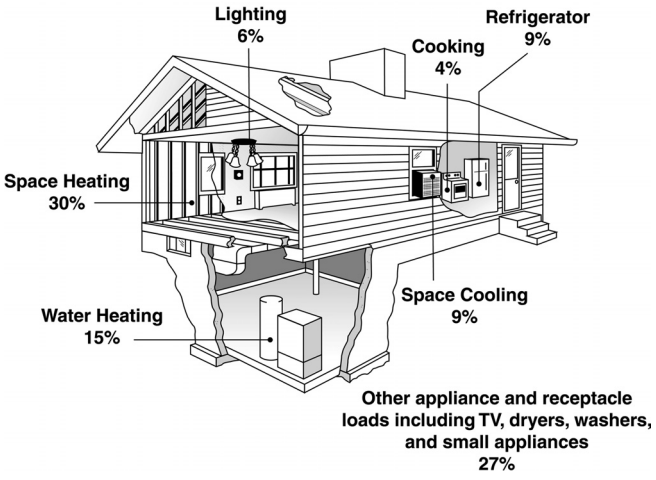
This solar dish-engine system is an electric generator that "burns" sunlight instead of gas or coal to produce electricity. The dish, a concentrator, is the primary solar component of the system, collecting the energy coming directly from the sun and concentrating it on a small area. A thermal receiver absorbs the concentrated beam of solar energy, converts it to heat, and transfers the heat to the engine/generator.

lightweight materials, to be cost and performance competitive (EE GG 4.02). Improving energy efficiency is a fundamental objective of the General Goal. Manufacturers and consumers will then use these technologies to help the Nation reduce both energy use and greenhouse gas emissions, thus improving energy security by dramatically reducing dependence on oil. In 2004, for example, the high power, light vehicle lithium ion battery cost was reduced to $964 per battery system (EE GG 4.02.2) thereby exceeding the FY 2004 target cost of $1,000 per battery system.

The Weatherization Assistance program improves the energy efficiency of the homes of low-income families through a network of 970 local agencies throughout the country (EE GG 4.09). It is one of the most important and longest running energy efficiency programs in this country. During the last 27 years, the Department's Weatherization Assistance Program has provided services to more than 5.4 million low-income families. Weatherization of a home saves the homeowner an average of $224 per year in utility costs. In FY 2004, 99,614 homes were weatherized, thereby exceeding the annual target of 94,450 homes (EE GG 4.09.1).

The Wind Energy Technologies program leads the Nation's R&D efforts to improve wind energy technologies that enhance domestic economic benefits from wind power development, and to address barriers to the use of wind energy in coordination with stakeholders. By 2012, the program goal is to complete technology R&D and collaborative efforts, and to provide technical support and outreach needed to overcome barriers – energy cost, energy market rules and infrastructure, and energy sector acceptance – to enable wind energy to compete with conventional fuels throughout the Nation in order to serve and meet energy needs (EE GG 4.05). This key program goal addresses the advancement of the General Goal in many ways – developing new technologies, providing a mix of energy options, and improving energy efficiency. In 2004, testing of prototypes was completed for the first advanced low wind-speed technology components, and detailed designs under the first public-private partnership project for full system low wind speed turbine development was completed, thereby achieving the annual target (EE GG 4.05.1).

Energy Use in a Typical Low-Income Household



Since 1999, DOE has been encouraging the network of weatherization providers to adopt the whole-house approach whereby they attack residential energy efficiency as a system rather than as a collection of unrelated pieces of equipment.

More detailed information concerning the performance results for the above referenced goals and targets is available in the Performance Results section.

Electricity Transmission and Distribution

OETD's sponsorship of R&D in the area of reliable electricity supply will effectively lead to the expansion of transmission capacity, thereby reducing bottlenecks and the risks of outages from transmission and power supply constraints. Technological improvements to intelligence and monitoring devices will allow operators to measure, track, and predict grid activity in real time and respond more quickly to minor disturbances before they spread. Real-time information management and advanced communication technologies will help prevent, detect, and resolve future power outages quickly and efficiently. Over the next 15 years, OETD's program goal is to lead a national effort to modernize the electricity delivery system (TD GG 4.12). The program goal contributes to DOE's national energy security goal by providing for reliable delivery of energy. As this wide area system is further developed over the next couple of years, it will provide the ability to assess critical real-time grid activity and, in turn, more adequately address disturbances before they result in brown-out or black-out situations. A prototype wide-area measurement system was installed and is operating in the Nation's Eastern Interconnection with 12 time-synchronized monitoring instruments that feed data into two data archiving and analysis locations, thereby meeting the annual target (TD GG 4.12.3).

More detailed information concerning the performance results for the above referenced goal and target is available in the Performance Results section.

Power Marketing Administrations

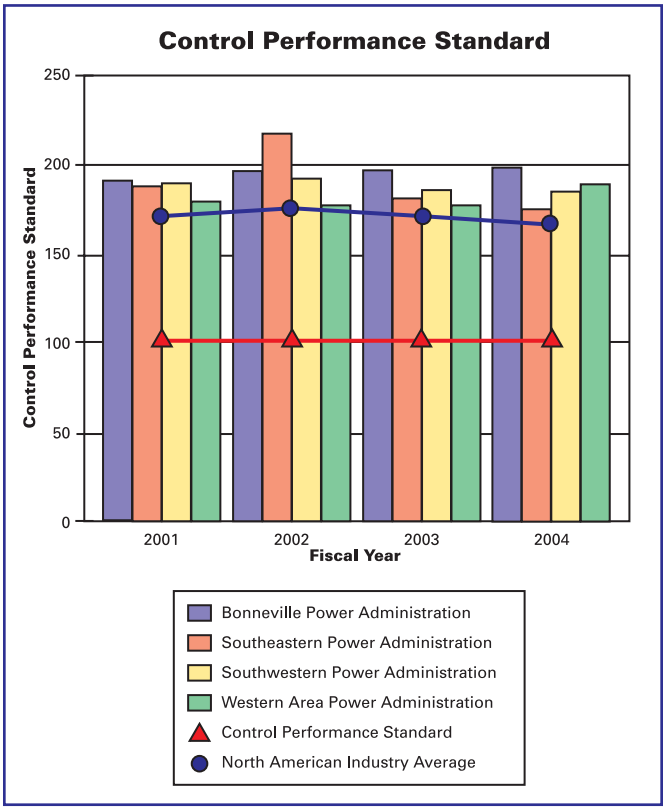
In the Flood Control Act of 1944 and the DOE Organization Act, Congress directed the Department to transmit and market power generated at federal hydropower facilities and dispose of such power at the lowest possible rates to consumers consistent with sound business practices. The Power Marketing Administrations' program goals are to ensure that this hydropower is marketed and delivered while complying with industry reliability standards, meeting planned and required repayment, and achieving a recordable accident frequency rate at or below their safety performance standard (PMA GG 4.51-4.54). Each Power Marketing Administration uses these key program goals as a focal point as they implement individual power marketing programs based on regional hydropower sources and other factors inherent to their specific region of the country. By marketing and delivering Federal hydropower, the Power Marketing Administrations are directly contributing to the Department's Energy Strategic Goal by fostering a diverse supply of reliable, affordable, and environmentally sound energy while increasing the Country's mix of energy options.

Grid modernization is a substantial undertaking because America's electric systems are capital-intensive and far-reaching:

- *10,000 power plants generate electricity*
- *157,000 miles of high voltage transmission lines deliver electricity*
- *3,100 utilities distribute electricity*
- *131 million commercial, industrial, and residential customers use electricity*

In order to continue to achieve their program goals, the Power Marketing Administrations must provide power to their customer bases that is both reliable and affordable. Electrical system reliability came to the forefront on August 14, 2003, when much of the northeastern United States and parts of Ontario, Canada experienced a black-out with power not being restored in some affected areas for up to four days. System reliability continues to be a key focus of the Power Marketing Administrations as they operate and maintain their transmission systems in accordance with key Control Performance Standards developed by the North American Electric Reliability Council (NERC). For many years the Power Marketing Administrations have measured their system reliability in accordance with NERC Control Performance Standards 1 and 2 (PMA GG 4.51.1-4.54.1). As can be seen from the Control Performance Standard chart the Power Marketing Administrations have achieved NERC standards and operated their power systems reliably and efficiently.

More detailed information concerning the performance results for the above referenced goals and targets is available in the Performance Results section.



Challenges and Future Expectations

President Bush's Coal Research Initiative promises tremendous energy benefits to the American people. In FY 2004, the Department continued to develop the technologies and processes to reap the maximum benefits from coal – the lowest cost, most abundant domestic energy resource. Over the next several years, the Department will extend its research of carbon sequestration – the capture and permanent storage of carbon dioxide produced by coal. Carbon sequestration is important because it acknowledges a simple fact: fossil energy – oil, gas, and coal – will continue for decades to be the lowest-cost energy resource worldwide. To meet this challenge the Department is focusing on FutureGen, a public-private partnership to design, build, and operate a virtually emissions-free, coal-fired, electricity and hydrogen production plant. This initiative will continue the Department's path forward to continue the development of technologies that foster a diverse supply of environmentally sound energy resources.

NE is a leader in the development of long-term, high-risk nuclear energy technologies while maintaining and enhancing the current nuclear infrastructure. NE is ensuring that nuclear technology plays a positive role in the foreseeable future by providing a vision and coordinating planning among governments, industries, laboratories, and universities of all nations interested in the future of nuclear energy. Specific examples of some of the challenges and expectations for the future for NE are:

- National Nuclear Infrastructure: NE is responsible for one of the world's most comprehensive nuclear research infrastructures constructed, for the most part, in the 1950s and 1960s. The existing infrastructure requires enhancements to provide the systems, fuels, and material testing requirements needed for advanced nuclear research and to support national priorities. NE will continue to make capital investments to replace or enhance processing equipment and infrastructure to ensure all NE facilities meet essential safety and environmental requirements and are maintained at user ready levels. For example, the Idaho National Laboratory (INL) has been designated to become the leading center of nuclear research and development for NE's strategic nuclear energy research and development enterprise.

- National Nuclear Education Infrastructure: NE continues to support programs that maintain and enhance national nuclear capabilities by producing highly trained nuclear scientists and engineers to meet the Nation's energy, environmental, health care, and national security needs. To do so, NE will continue to use educational incentives, including the fund matching grant program, to increase enrollments and graduates in nuclear engineering. This will help reverse the trend of the past twenty years that resulted in the erosion of the nuclear engineering infrastructure.

Renewable energy technologies hold tremendous promise in moving the Nation toward sustained, low-emission electricity and hydrogen supply. Government-sponsored R&D efforts over recent decades have been very successful in helping to lower costs and improve the reliability of renewable energy technologies, and more can be achieved with robust research and development in the future. An important factor is that renewable sources of generation will be designed to integrate into our existing distribution system. The tools that form the necessary interface between distributed energy systems and the grid are being developed to be less expensive, faster, more reliable and more compact. But as pointed out in the NEP, renewables don't always fit into traditional regulatory categories and are often subject to competing regulatory requirements, barriers which programs are working to address. For example, uniform interconnection protocols and regulatory treatments require developers of local renewable energy projects to negotiate interconnection agreements on a site-by-site basis. Specific examples of some of the challenges and expectations for the future for EERE are:

- Hydrogen Technologies. Achieving a hydrogen economy will require a combination of technological breakthroughs, market acceptance, and large investments in a national hydrogen energy infrastructure. Success will not happen overnight, or even over a few years, but over decades. It will require an evolutionary process that phases in hydrogen as the technologies and markets are ready. Success will also require that the technologies to utilize hydrogen fuel and the availability of hydrogen occur almost simultaneously.
- Biomass Technologies. Biomass, including agricultural crops, trees, wood wastes, plants, grasses, fibers, animal and other wastes, represents an abundant, domestic and renewable source of energy that has tremendous potential to increase domestic energy supplies. The current focus of our biomass program is enabling the co-production of liquid fuels, chemical and material products, and power in "biorefineries." A thriving bio-industry's demand for biomass feedstock would increase employment and income for rural America while also contributing to the Nation's energy security.
- Wind Technologies. Wind energy is one of the most widely used and fastest growing renewable energies in the world. The Department is now focused on developing technology that can cost-competitively harvest more widely available, lower speed wind resources that are generally closer to populations and load centers. If successful, this "low wind speed" technology could expand the land area where wind can be developed by a factor of 20, while reducing the average distance between the wind resources and where power is needed by a factor of five.

Advancing Scientific Understanding

Science Strategic Goal: *To protect our national and economic security by providing world-class scientific research capacity and advancing scientific knowledge.*

"Scientific and technological research are a high calling for any individual. And promoting research is an important role of our Federal government. . . . We'll continue to support science and technology because innovation makes America stronger. Innovation helps Americans to live longer, healthier, and happier lives. Innovation helps our economy grow, and helps people find work. Innovation strengthens our national defense and our homeland security. . . ."

President George W. Bush

Basic scientific research in the physical sciences is one of the foundations for economic growth and national security in this country. Achievements and benefits in areas such as public health, telecommunications, and supercomputing are dependent upon progress in the physical sciences. The Department's Office of Science (SC) is a primary government sponsor of basic scientific research in the U.S., and leads the Nation in supporting the physical sciences in a broad array of research subjects in order to improve our Nation's energy security, and to address issues ancillary to energy, such as climate change, genomics, and life sciences.

An important component of the Department's science activities is its operation and management of 10 national laboratories and 27 scientific user facilities, including x-ray and optical light sources, supercomputers, fusion devices, and particle accelerators across the country. The suite of user facilities plays a vital role in the Nation's science and technology portfolio, annually drawing over 17,000 users from universities, industry, and government.

The President's affirmation of the importance of Federal investments in science and technology continues an unbroken line of support by our Nation's leaders for the sciences that stretches back over 50 years – a line of support that parallels the history of the Office of Science and its predecessors.

The following section contains an overview of the results associated with the performance against the most significant goals and annual targets for FY 2004.

Science General Goal

Performance Scorecard:

SCIENCE ($ in Millions)

GENERAL GOAL	FY04 PROGRAM COST	FY03 PROGRAM COST	PROGRAM GOALS	*FY 2004 Budgetary Expenditures Incurred	OVERALL PROGRAM SCORE	PERFORMANCE OF ANNUAL TARGETS			
						MET	NOT MET (≥80%)	NOT MET (<80%)	UNDETERMINED
World-Class Scientific Research Capacity	$3,196	$3,068	High Energy Physics	$796		4	0	0	
			Nuclear Physics	$420		4	0	0	
			Bio and Environmental Research	$598		5	0	0	
			Basic Energy Sciences	$1,128		5	0	0	
			Advanced Scientific Computing Research	$210		2	0	1	
			Fusion Energy Sciences	$276		2	0	0	
Total Costs	$3,196	$3,068		$3,428		22	0	1	0

*Includes capital expenditures but excludes such items as depreciation, changes in unfunded liability estimates and certain other non-fund costs, and allocations of Departmental administration activities.

World-Class Scientific Research Capacity – General Goal 5:

Provide world-class scientific research capacity needed to: ensure the success of Department missions in national and energy security; to advance the frontiers of knowledge in physical sciences and areas of biological, medical, environmental, and computational sciences; or provide world-class research facilities for the Nation's science enterprise.

The common thread woven throughout all of the Department's activities is science – basic research underpins the Department's applied technology programs through strategic investments that fuel discoveries in materials sciences, chemistry, plasma science, plant sciences, biology, computation and environmental studies. SC plays five key roles in the U.S. research enterprise:

- Supports the missions of the Department, delivering the scientific knowledge for solutions to our Nation's most critical energy and environmental challenges;
- Acts as the Nation's leading supporter of the physical sciences, including physics, chemistry and materials science;
- Maintains stewardship of world-class scientific tools, building and operating major research facilities for use by the world's scientific community;
- Serves as a key Federal agency for the creation of leadership class computational facilities for open science, enabling solutions to problems in science and industry not attainable by simple extrapolation of existing architectures; and
- Supports a diverse set of researchers, including those at more than 280 universities in every state in the Nation as well as scientists and technicians at the Department's national laboratories and in industry.

External Factors

The following external factors could affect our ability to achieve this goal:

- **Scientific and Technical Talent**: The prospect of insufficient scientific and technical talent, now and in the foreseeable future, threatens our ability to maintain world-class scientific capacity.
- **National Support for Science**: Eroding national support for investments in the physical sciences that provide the critical foundations to virtually all other fields of science, and the rapidly growing dependency between the biological and physical sciences.

How We Serve the Public

The investments in the most basic areas of research spark our imaginations and advance our human curiosity about the universe in which we live. Historically, these investments have also paid handsome dividends in terms of new technologies that have raised our standard of living and even extended our life expectancy. For instance, the youngest school child thinks nothing of working on a personal computer, which is based upon state-of-the-art electronics. Life-threatening ailments are imaged, diagnosed, and treated without ever having to resort to surgery. And people can speak clearly to others halfway around the world using a phone barely the size of a human hand. Hopefully, our current efforts supporting the

development of an artificial retina will help some blind people see.

It is also interesting to note that many of the great scientific advances of the last century resulted from experiments that yielded results that were completely different from what theory had predicted. Today, those successful "failures" have led to a new understanding of the microscopic structure of matter and to the technology so essential to modern life.

Program Goals and Targets Supporting World-Class Scientific Research Capacity

High Energy Physics (HEP): Understand the unification of fundamental particles and forces and the mysterious forms of unseen energy and matter that dominate the universe; search for possible new dimensions of space; and investigate the nature of time itself (SC GG 5.19). This program goal supports the General Goal by advancing the frontiers of knowledge in the physical sciences.

We have learned much about the universe we exist in (see insert to the right). Nevertheless, we are continually humbled by what we still do not understand. Key scientific questions that are now being asked about the universe at its two extremes – the very large and the very small – are inextricably intertwined:

- Can we realize Einstein's dream – a unified description of fundamental particles and forces in the universe?
- Where is the fundamental particle that endows all other particles with their masses?
- Are there additional or "hidden" dimensions of space-time?
- What are the masses of the neutrinos, and what is their role in the universe?
- Why is there more matter than anti-matter in the universe?
- What are dark matter and the dark energy, which together make up more than 95 percent of the universe?

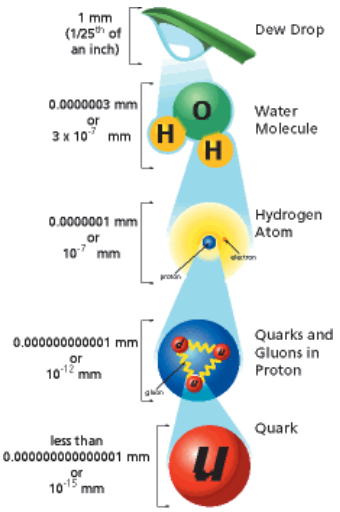
How the universe originated – its genesis – is one of the great mysteries of science. The HEP program explores and discovers the laws of nature as they apply to the basic constituents of matter, and the forces between them.

The following key annual targets represent experiments at HEP accelerators seeking evidence for unification: the blending of today's diverse patterns of particles and interactions into a much simpler picture at high particle energies, like those that prevailed in the very early universe.

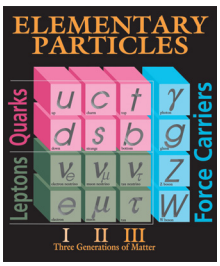
The Building Blocks of a Dew Drop and The Standard Model: Quarks, Leptons, and Bosons

A dew drop is made up of many molecules of water (10^{21} or a billion trillion). Each molecule is made of an oxygen atom and two hydrogen atoms (H_2O). At the start of the 20th century, atoms were the smallest known building blocks of matter.

Each atom consists of a nucleus surrounded by electrons. Electrons are leptons that are bound to the nucleus by photons, which are bosons. The nucleus of a hydrogen atom is just a single proton. Protons consist of three quarks. In the proton, gluons hold the quarks together just as photons hold the electron to the nucleus in the atom. Physicists call the theoretical framework that describes the interactions between elementary building blocks (quarks and leptons) and the force carriers (bosons) the Standard Model.

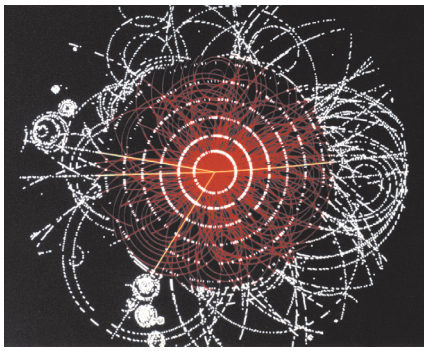


The Standard Model:



Physicists currently believe there are three types of basic building blocks of matter: quarks, leptons, and bosons. Quarks and leptons make up everyday matter, which is held together by bosons. Each boson is associated with a force. The photon, the unit of the electromagnetic force, holds the electron to the nucleus in the atom. The way these particles combine dictates the structure of matter.

Proving the Existence of the Higgs Field by Finding the Higgs Boson



A computer simulation depicts the decay of a Higgs boson, which is believed to give mass to elementary particles, into four muons.

As people float in water they "become" lighter. Depending on size, shape, etc, some people float better than others. The proposed Higgs field concept could be thought of as the opposite of people swimming in water. Every particle in our universe "swims" through the Higgs field, which is the "stuff" that gives all other particles a mass. Different particles interact with the Higgs field with different strengths, hence some particles are heavier (have a larger mass) than others. (Some particles have no mass. They don't interact with the Higgs field – they don't feel the field.) Unfortunately, we cannot directly probe for the Higgs field.

The proposed Higgs boson is a particle. It gets its mass like all other particles – by interacting with ("swimming in") the Higgs field. It can be thought of a dense spot in the Higgs field, which can travel like any other particle – like a drop of water in water vapor.

Though the Higgs particle interacts with all massive particles it prefers to interact with the heaviest elementary particles we know, especially the top quark. Because of this property of the Higgs boson, physicists have a chance to find evidence for the Higgs boson itself. As the mediating particle of the proposed Higgs field, discovering the Higgs boson would demonstrate the existence of the Higgs field.

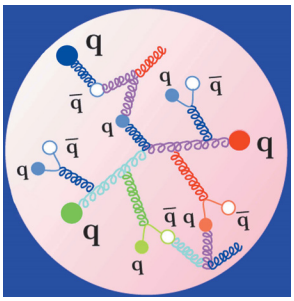
Discovery of the Higgs boson has the potential to profoundly affect our understanding of the universe. Likewise if the Higgs boson were found not to exist, it would be a major blow to the Standard Model.

- The search for evidence of a simpler, unified picture of the universe was the primary emphasis at Fermi National Accelerator Laboratory (FNAL). In 2004, FNAL operated the Tevatron accelerator and associated detectors for 36 weeks at higher data rates in its search for the "fingerprints" of unification – such as the Higgs boson, the expected source of mass (see insert above). The higher data rate achieved, measured by increased luminosity (331 inverse picobarnes exceeded the target goal of 192 inverse picobarnes), enhanced researchers' ability to make precise measurements and discover new phenomena (SC GG 5.19.1).
- Current theory speculates that very early in the evolution of the universe, the initial quantities of matter and anti-matter became lopsided, or "asymmetrical," resulting in the matter-based universe we now know. By measuring the matter- antimatter asymmetry in particle interactions (known as Charge-Parity, or CP, violations), physicists hope to understand one of the world's most mysterious phenomena – why, in the moments after the Big Bang, matter and antimatter did not annihilate one another and leave the cosmos empty. Observing this small imbalance in elementary particle interactions was the focus of the 39 weeks of operations at the Stanford Linear Accelerator Center in 2004. The higher data rate achieved, measured by increased luminosity (117 inverse femtobarnes exceeded the target goal of 45 inverse femtobarnes), enhanced researchers' ability to analyze data for examples of CP violation (SC GG 5.19.2).

NUCLEAR PHYSICS (NP): Understand the evolution and structure of nuclear matter, from the smallest building blocks (quarks and gluons), to the elements in the Universe created by stars; to unique isotopes created in the laboratory that exist at the limits of stability and possess radically different properties from known matter (SC GG 5.20). This program goal contributes to the General Goal by advancing the frontiers of knowledge in the physical sciences.

Protons and neutrons (nucleons) were born in the first minutes after the Big Bang. Their subsequent synthesis into the elements (nuclei) goes on in the ever-continuing process of nuclear synthesis in stars and supernovae. Nuclear matter is the "stuff" that makes up our planet and its inhabitants.

Today, understanding nuclear matter and its interactions has become central to research in nuclear physics and important to research in energy, astrophysics, and national security. For example, the development of Quantum Chromodynamics – QCD (see insert on the following page), has provided a method to quantitatively describe nuclear matter in terms of its underlying fundamental quark and gluon constituents. We have only recently acquired more sensitive tools to make the



The strong nuclear force is responsible for binding quarks together to form protons and neutrons, and the residual effects also bind these neutrons and protons together in the nucleus of the atom.

According to Quantum Chromodynamics (QCD), every quark carries color charge which comes in three types: "red", "green" and "blue" (see the figure). These are just names and not related to ordinary colors in any way. Antiquarks are either "anti-red", "anti-green" or "anti-blue." Like colors repel, unlike colors attract. The attraction between a color and its anti-color is especially strong.

The strong interaction acts between two quarks by exchanging particles called gluons. The strong interaction has a very limited range – not much farther than the radius of a proton. It also has a strange effect – as the distance between two quarks increases, the amount of energy in the force between them increases. If the force becomes strong enough, there is enough energy to create new quarks.

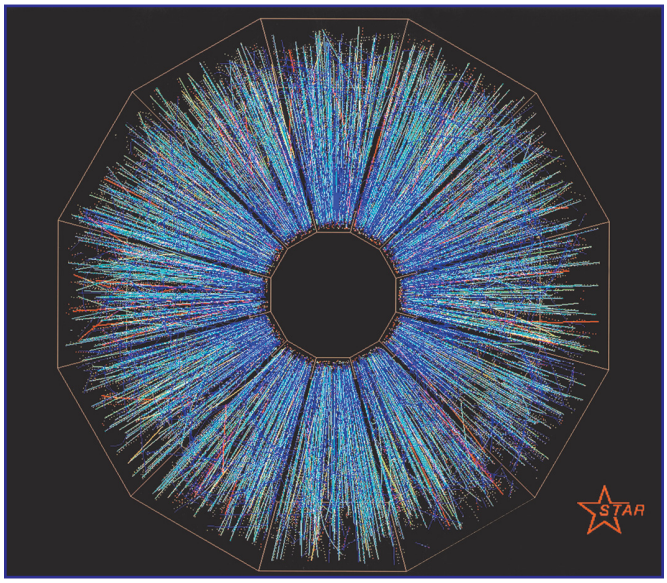
The textbook allegory is that of a rubber band. When the rubber band is stretched far enough, the band breaks and you have two new rubber bands. Similar with quarks: separate the quark pair far enough, and two new quarks will pop up.

measurements and calculations needed to address the key questions of modern Nuclear Physics:

- What is the structure of the nucleon?
- What is the structure of nucleonic matter?
- What are the properties of hot nuclear matter?
- What is the nuclear microphysics of the universe?
- What is to be the new Standard Model?

Understanding how nuclear matter is formed is critical to understanding the processes within stars and how elements are created – including possible new states of matter and elements – at high-energy densities and the extreme limits of stability. The NP program explores the extremes of nuclear matter and the processes that form all the chemical elements in stars and supernovae.

In 2004, the target number of events for accelerator experiments was met or exceeded at the following facilities: the Continuous Electron Beam Accelerator Facility (CEBAF) at Thomas Jefferson National Accelerator Facility in Newport News, Virginia; the Relativistic Heavy Ion Collider (RHIC) at

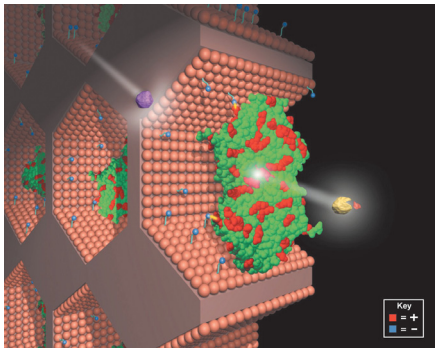


End view of a collision of gold beams in STAR detector at BNL's Relativistic Heavy Ion Collider (RHIC).

Brookhaven National Laboratory (BNL) in New York (see above insert); the Argonne Tandem Linac Accelerator System (ATLAS) at Argonne National Laboratory (ANL) in Illinois; and the Holifield Radioactive Ion Beam Facility (HRIBF) at Oak Ridge National Laboratory (ORNL) in Tennessee (SC GG 5.20.2 and SC GG 5.20.3).

BIOLOGICAL AND ENVIRONMENTAL RESEARCH (BER): Provide the biological and environmental discoveries necessary to clean and protect our environment, offer new energy alternatives, and fundamentally alter the future of medical care and human health (SC GG 5.21).

BER is key to General Goal 5 in that it advances environmental and biomedical knowledge that promotes national security, and potentially has broad impacts on our health, our environment, and our energy future. For example, microbes are among Nature's most underappreciated resources. They thrive in extreme environments. They consider toxic waste a gourmet meal, and some are mini-factories that can produce energy supplies. A BER challenge is to learn how to get microbes to work for us, to turn microbes into mighty engines of scientific progress. BER uses the knowledge and tools that we have developed over the past two decades of research into genomics to understand how microbes may be able to clean up chemical and radioactive pollutants and to produce abundant and clean energy. The following key

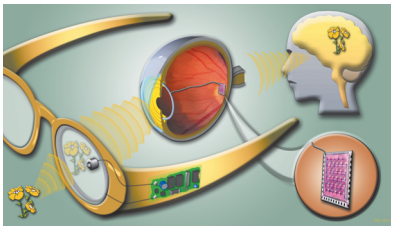


Learning about the inner workings of microbes and their diverse inventory of molecular machines can lead to the discovery of ways to isolate and use these components to develop synthetic nanostructures that carry out some of the functions of living cells. In this figure, the enzyme organophosphorus hydrolase (OPH) has been embedded in a synthetic nonomembrane (mesoporous silica) that enhances its activity and stability [J. Am. Chem.Soc. 124,11242-43 (2002)]. The OPH transforms toxic substances (purple molecule at left of OPH) to harmless by-products (yellow and red molecules at right). Applications such as this could enable development of efficient enzyme-based ways to produce energy, remove or inactivate contaminants, and sequester carbon to mitigate global climate change. The knowledge gained from DOE genomics research also could be highly useful in food processing, pharmaceuticals, separation, and the production of industrial chemicals.

annual targets have directly contributed to the BER program goal.

- We currently know very little about most microbial communities, including the microbes they are made of, the biochemical capabilities of those communities, and the regulatory mechanisms for those capabilities (see above insert). The Life Sciences sub-program focused on microbial research – looking at the most basic molecular-level process of nature – which offers tremendous promise for a safer, stronger, healthier and more secure world. Increasing the rate of Deoxyribonucleic Acid (DNA) sequencing (SC GG 5.21.2) increases the available source of "raw data" needed to carry out research in this area.
- Advanced climate models are needed to describe and predict the roles of oceans, the atmosphere, sea ice and land masses on climate. So too, the role of clouds in controlling solar and terrestrial radiation onto and away from the Earth needs to be better understood since it is the largest uncertainty in climate prediction. The Climate Change Research sub-program continued its efforts in the development of improved methods of climate data collection, and improved model-based climate prediction capability, thereby achieving the annual target (SC GG 5.21.3). Advancing our understanding of global climate change and our ability to predict climate over decades to centuries is critical to enable us to develop science-based solutions to minimize the impacts of climate change and to better plan for our Nation's future energy needs.

How Does the Artificial Retina Work?



The implant has pieces both inside and outside the eye. Patients wear glasses, like those shown on the left, with a tiny camera embedded in the lens. The camera captures images and sends the data to a microprocessor (concealed in the side of the glasses) which converts the data to an electronic signal. An antenna in the lens transmits the signal to a receiving antenna in the eye. The signal then travels along a tiny wire to the retinal implant. The signal causes the implant to stimulate the remaining retinal cells which send the image along the optic nerve to the brain.

- Developments in imaging technology have the potential to revolutionize all of medical imaging with increases in sensitivity, ease of use, and patient comfort. Technological wonders are on the horizon, like an artificial retina (see above insert) that is being developed by a multidisciplinary team of scientists within the Department. The artificial retina can help patients with muscular degeneration and retinitis pigmentosa regain useful eyesight. In 2004, a 60 microelectrode array was fabricated for use as an artificial retina, and planned animal testing completed, thereby achieving the annual target (SC GG 5.21.5).

BASIC ENERGY SCIENCES (BES): Provide the scientific knowledge and tools to achieve energy independence, securing U.S. leadership and essential breakthroughs in basic energy sciences (SC GG 5.22).

Nanoscale science research – the study of matter at the atomic scale – is taking us into a realm where the properties of materials are dramatically different from what we have today. Structures composed of just a few atoms and molecules may be engineered to assemble themselves into useful devices such as computers that can store trillions of bits of information on a device no larger than the head of a pin or implantable in diagnostic monitors the size of a cell. Large and complicated structures will be designed, one atom at a time, for desired characteristics such as super-lightweight and ultra-strong materials. BES is helping to lead this revolution and advance the progress of General Goal 5 by advancing the frontiers of knowledge in the physical sciences associated with nanoscale research in materials sciences, physics, chemistry, biology, and engineering, and developing the tools that can probe and manipulate matter at the atomic scale.

Research at the nanoscale is critical to revolutionary advances in materials properties and behaviors. Four thrust areas have been identified in this area: (1) attain a fundamental scientific understanding of nanoscale phenomena, particularly collective phenomena; (2) achieve the ability to design and synthesize materials at the atomic level to produce materials with desired properties and functions; (3) take full advantage of major user facilities, and (4) develop experimental characterization techniques and theory/modeling/simulation tools necessary to drive the nanoscale revolution. The following key annual targets have contributed toward achieving the BES program goal:

- Our ability to conduct research at the nanoscale depends on our ability to observe, characterize, manipulate, and computationally model matter at the atomic or molecular scale (see insert to the right). This is a fundamentally interdisciplinary effort, linking science and engineering, and providing the foundation for a broad spectrum of scientific and technical advances. Essential tools for this research include current generation synchrotron x-ray and neutron scattering sources, and the more advanced sources to come, higher resolution electron microscopes and other atomic probes, and terascale computers which are capable of 'seeing' very small (SC GG 5.22.1) items that behave in a very fast (SC GG 5.22.2) manner. In FY 2004, targets addressing these areas were met.

Seeing things tiny has been a long quest, one that predates our knowledge of the existence of atoms. The visible light microscope, invented about four hundred years ago and based on optics studies dating back one thousand years, gave us an initial glimpse of Nature's assemblies; however, fundamental laws of physics limit their resolution. The typical size of an atom is tenths of a nanometer, and the laws of physics limit the resolution (i.e., the smallest features that can be seen) of visible light microscopes to features roughly a few hundred nanometers in size. Thus, instruments with resolutions one thousand times better than the best visible light microscopes are required to see atoms.

To see atoms, we must use probes that are themselves as small as the atoms under investigation. Three such probes are: x-rays, electrons, and neutrons. Each has become the basis for major scientific user facilities in materials research and related disciplines. The BES synchrotron radiation light sources (such as the pictures photon source at Argonne National Laboratory), electron-beam microcharacterization centers, and neutron scattering facilities are revealing the atomic world.

- A primary focus of the BES program is continued support of nine scientific user facilities at near maximum operating levels (SC GG 5.22.5), and the design, fabrication, and construction of new facilities within established cost and schedule baselines to characterize and ultimately control materials (see the following NSRC insert) (SC GG 5.22.4). In FY 2004, both of these targets were achieved.

ADVANCED SCIENTIFIC COMPUTING RESEARCH (ASCR): Deliver forefront computational and networking capabilities to scientists

National Science Research Centers

Center for Functional Nanomaterials at Brookhaven National Laboratory

Center for Nanophase Materials Sciences at Oak Ridge National Laboratory

Molecular Foundry at Lawrence Berkeley National Laboratory

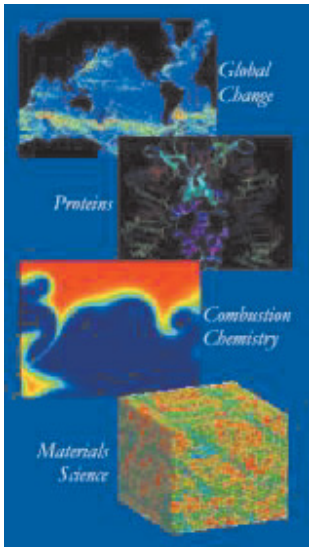
Center for Nanoscale Materials at Argonne National Laboratory

Center for Integrated Nanotechnologies at Sandia National Laboratories & Los Alamos National Laboratory

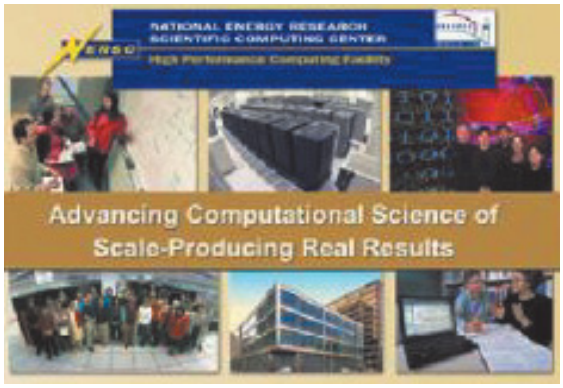
The Nanoscale Science Research Centers (NSRCs) supported by Basic Energy Sciences will be research facilities for the synthesis, processing, and fabrication of nanoscale materials. They will be collocated with existing user facilities to provide sophisticated characterization and analysis capabilities. In addition, NSRCs will provide specialized equipment and support staff not readily available to the research community. NSRCs will be operated as user facilities and be available to all researchers.

nationwide that enable them to extend the frontiers of science, answering critical questions that range from the function of living cells to the power of fusion energy (SC GG 5.23).

Computer-based simulation enables us to model the behavior of complex systems that are beyond the reach of our most powerful experimental probes or our most sophisticated theories. Computational modeling has greatly advanced our understanding of fundamental processes of nature, such as fluid flow and turbulence or molecular structure and reactivity. Advancing scientific computing supports the Science General Goal of providing world-class scientific research capacity since advanced scientific computing has become a true third pillar of discovery – joining theory and experiment as a standard tool that researchers now rely upon to make scientific progress.



Computational science capabilities already underpin the research and development that the Department conducts to meet its energy and national security missions. Because these capabilities are central to our missions, and because computational capability is also so critical to scientific discovery generally, it is appropriate that the Office of Science brings a renewed focus to this challenge.



***The National Energy Research Scientific Computing (NERSC) Center**, managed and operated by Lawrence Berkeley National Laboratory, is a world leader in accelerating scientific discovery through computation.*

A principle responsibility of ASCR is to provide the high-performance computational and networking resources that are required for world leadership in science (see above insert). Activities in FY 2004 that supported this effort can be divided into two areas:

- 'Near Term Results' are activities represented by efforts to focus on scientific problems which can simultaneously use the large numbers of computer processors that are currently available from the massively parallel processor high performance computing systems. One of these activities was the NERSC initiative to ensure that 50 percent of the scientific computing runs use more than 512 processors (SC GG 5.23.2). A number of critical computationally intensive, large-scale research projects, such as global climate, could not make effective use of 512 or more processors during most of FY 2004. In June 2004, ASCR began charging for only 50% of the hours used for large scale projects as an incentive to attract researchers. This action lead to 66% of the NERSC usage during the fourth

quarter of FY 2004 being for large scale projects. However, the overall result of 47% was not enough to achieve the annual target.

- 'Longer term result' activities are a part of the Next Generation Computer Architecture (NGA) effort to identify and address major bottlenecks in the performance of existing and planned Departmental science applications.

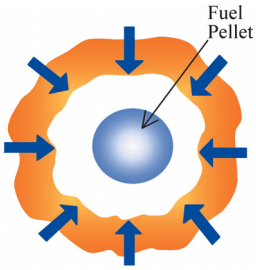
FUSION ENERGY SCIENCES (FES): Answer the key scientific questions and overcome enormous technical challenges to harness the power that fuels a star (SC GG 5.24).

Our challenge in supporting General Goal 5 is to provide the national basic research effort to advance plasma science, fusion science, and fusion technology – the knowledge base needed for an economically and environmentally attractive fusion energy source.

Magnetic and Inertial Confinement

The two principal approaches for confining fusion fuel on earth are magnetic and inertial. Magnetic fusion relies on magnetic forces to confine the charged particles of the hot plasma fuel for sustained periods of fusion energy production. Inertial fusion relies on intense lasers or particle beams to rapidly compress a pellet of fuel to the point where fusion occurs, yielding a burst of energy that would be repeated to produce sustained energy production.

Magnetic

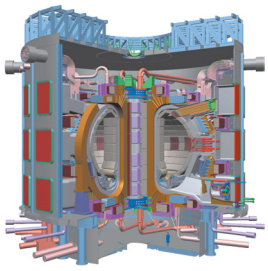


Inertial

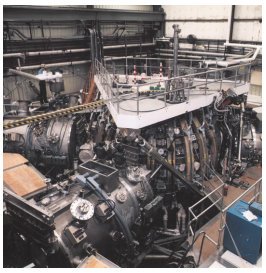
Fusion is the energy process that powers the stars. Fusion energy science studies the fundamental processes taking place in plasmas where the temperature and density approach the conditions needed to allow the nuclei of low-mass elements such as hydrogen and isotopes to join together, or fuse, giving off tremendous amounts of energy. Power generated from fusion energy produces no troublesome emissions, is safe, and has few, if any, proliferation concerns. It creates no long-lived waste and runs on fuel readily available to all nations.

Major Collaborative Facilities

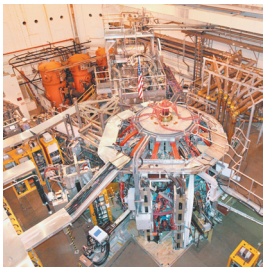
The Future: ITER. *The US is engaging in negotiations with international partners aimed at constructing the world's first sustained burning plasma experiment, capable of producing 500 million watts of fusion power for periods of 5 minutes or more.*



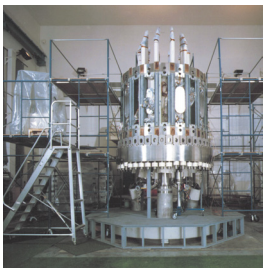
DIII-D,General Atomics, *is the largest magnetic fusion research facility in the United States, with plasmas at close to fusion reactor temperatures.*



NSTX, Princeton Plasma Physics Laboratory, *is an innovative magnetic fusion device that was constructed by the Princeton Plasma Physics Laboratory in collaboration with the Oak Ridge National Laboratory, Columbia University, and the University of Washington, Seattle.*



Alcator-C-Mod, Massachusetts Institute of Technology, *is a unique, compact-tokamak facility that uses intense magnetic fields to confine high-temperature, high-density plasmas in a small volume.*



Most of the world's fusion energy research effort, the U.S. included, is focused on the magnetic approach (see insert to the left). The FES program, in collaboration with the international fusion community, continues experiments that push the fron-

tiers of the experimental database relevant to burning plasmas. In parallel, computer codes are under development that will accurately predict key aspects of burning plasmas using advances in theory and simulation.

- In 2004, the FES program met its goal of maintaining an average operation time of 90 percent for its three primary collaborative facilities (see Major Collaborative Facilities insert): the DIII-D at General Atomics in San Diego, the Alcator C-Mod at MIT, and the National Spherical Tokamak Experiment at Princeton (SC GG 5.24.1). This supported the key program goal by maintaining the availability of these national facilities to researchers.
- President Bush has decided that the United States should join the negotiations for the construction and operation of a major international magnetic fusion research project. Known as ITER, this project will advance the effort to produce clean, safe, renewable, and commercially available fusion energy.

More detailed information concerning the performance results for the above referenced goals and targets is available in the Performance Results section.

Challenges and Future Expectations

Basic research supported by SC will provide the first chance for a rigorous test of the most basic predictions of what is thought to be understood about the structure of matter at the smallest scale imagined so far. However, it is not possible to predict what these experiments will provide in terms of technology for the future. Because basic research pushes the frontier of our current understanding of the world we live in, any new discoveries may not immediately or ever lead to practical applications.

We do believe that the most promising scientific fields of the new century are emerging at the boundaries between historically separate disciplines. This is especially true in the fields of chemistry, biology, materials science, and physics. For example, chemists are using atomic force microscopes to reveal the structure of viruses, and physicists are developing sensors that can detect minute quantities of airborne pathogens. Meanwhile, extraordinary breakthroughs in nanoscience – the study of materials at a billionth-of-a-meter resolution – are giving scientists the ability to manipulate individual molecules in their natural environment and develop complex molecular machines the size of microbes and even smaller.

If history is any indicator, then two things are clear: (1) humankind can only profit by having a deeper, more profound understanding of the ultimate structure of the matter making up the universe; and (2) every time something fundamental has been learned about the structure of matter, it has resulted in a benefit to humankind.

DOE has, and will continue to, put together teams of chemists, biologists, physicists, and engineers to pursue research at the intersection of the physical and biological using some of the most advanced imaging and analytical instruments in the nation. We honestly do not know what technologies will result from our basic research investments, but we welcome the opportunity to share the excitement and wonder of our continuing journey of discovery.

Resolving the Environmental Legacy

Environment Strategic Goal: *To protect the environment by providing a responsible resolution to the environmental legacy of the Cold War and by providing for the permanent disposal of the Nation's high-level radioactive waste.*

Brookhaven National Laboratory: Inside the newly constructed industrial park east groundwater treatment system, tucked away at an offsite industrial park, Stefano Ciafani, an environmental engineer and consultant to the Italian Parliamentary Commission on waste recycling, learns how granulated carbon is used to absorb contaminants from groundwater. The new groundwater treatment building, running in test-mode in February 2004, was pumping groundwater at depths of nearly 300 feet below the surface. At full capacity, the system is designed to clean contaminated groundwater at a rate of 160 gallons per minute.

The Department has had an environmental mission since its establishment in 1977. This mission has become more important since the end of the Cold War. Fifty years of nuclear defense work and energy research resulted in large volumes of solid and liquid radioactive waste along with significant areas of contaminated soil and water.

The Department's Environmental Management (EM) program was established in 1989 to clean up the contamination from these operations and dispose of the waste in a manner protective of the environment, the workers, and the public. The program, once focused only on managing risk, is now demonstrating the benefits of accelerating cleanup and closure by realizing the completion of tangible results. Over the last three years, the program has delivered significant risk reduction and cleanup results while ensuring that the cleanup is safe for workers, protective of the environment and respectful to the taxpayer. These outcomes are providing important and valuable benefits to the public, our communities, and for the generations to come.

While certain tank waste cleanup and management activities have been delayed as a result of litigation concerning the Department's Waste Incidental to Reprocessing (WIR) authority, EM has made significant advances in FY 2004 in accelerating other areas of risk reduction and environmental cleanup. These include completing more release site cleanups than were scheduled, and either completing the packaging, or packaging more than had been planned, of plutonium and other high risk nuclear materials, including spent nuclear fuel (SNF) for secure storage until disposition in a geologic repository. In addition, the Department was successful in launching the new Office of Legacy Management, which has as its mission the responsibility to ensure protection of human health and the environment through effective long-term stewardship of land, structures, facilities, and records, as well as the oversight of the Department's post-closure responsibilities for former contractor employees (refer to following discussion on Office of Legacy Management).

Office of Legacy Management

The Department has taken major steps toward fulfilling its commitment to cleanup the environmental portion of its legacy and is now faced with large scale closure of entire sites and the associated impacts on the federal and contractor workforce. In order to ensure proper focus on and management of these emerging responsibilities, the Department established the Office of Legacy Management (LM) in December 2003. Consistent with the Department's Strategic Plan, LM is working to ensure that the cleanup remedies remain protective, that the commitments made regarding pensions and benefits are met, and that the stakeholders (state, local and Tribal governments and the public) remain aware of the Department's activities and are able to contribute to its decision-making process. The following provides a more detailed summary of the Office's functions and responsibilities:

- LM is currently responsible for the long-term care of 67 sites – the majority of which are either former uranium mill tailing sites or sites associated with the Formerly Utilized Sites Remedial Action Program (FUSRAP). By 2015, LM will be managing land, environmental liability, and/or records for 120 sites, as EM completes its cleanup activities and additional sites transfer from private licensees and the U.S. Army Corps of Engineers.
- LM avoids benefit interruption while maintaining and improving the quality of service to post-closure plan participants.
- LM works closely with affected communities, local governments, regulators, and adjacent landowners to identify beneficial reuse of land that is safe for the public and protective of the environment.
- LM has responsibility for the cost effective management of large volumes of records and information associated with the cleanup sites and the oversight of former contractors' benefits.

The Nuclear Waste program also supports a critical outcome for the nation-safe disposal of high-level radioactive waste (HLW) and SNF. Consolidation of this nuclear waste from many locations scattered across the country will accomplish our Homeland Security objective. Further, containment of the waste will ensure that it does not pose a significant risk to human health and the environment. In FY 2004, the program focused on the development of a draft license application which is on the critical path to opening the geologic repository.

Savannah River Site: With the completed demolition of the 320-M Alloy Manufacturing Facility (seen at left), Savannah River Site (SRS) workers have met the challenge of safely demolishing six M-Area facilities in less than 18 months. Historically, M-Area was the beginning of the production process at SRS. Here, facilities produced materials for use in SRS reactors. All operations have been shut down since the late 1980s. The remainder of M-Area is scheduled to be razed by the end of 2006.

The following section contains an overview of the results associated with the performance against our most significant goals and annual targets for FY 2004.

Environmental Management - General Goal 6:

Accelerate cleanup of nuclear weapons manufacturing and testing sites, completing cleanup of 108 contaminated sites by 2025.

Environment General Goals

Performance Scorecard:

ENVIRONMENT ($ in Millions)

GENERAL GOAL	FY04 PROGRAM COST	FY03 PROGRAM COST	PROGRAM GOALS	*FY 2004 Budgetary Expenditures Incurred	OVERALL PROGRAM SCORE	PERFORMANCE OF ANNUAL TARGETS			
						MET	NOT MET (≥80%)	NOT MET (<80%)	UNDETERMINED
Environmental Management	$6,283	$6,287	Environmental Management	$7,967		4	1	3	
			Legacy Management	$57		1	0	0	
Nuclear Waste	$530	$421	Nuclear Waste Disposal	$526		2	0	0	
Total Costs	$6,813	$6,708		$8,550		7	1	3	0

*Includes capital expenditures but excludes such items as depreciation, changes in unfunded liability estimates and certain other non-fund costs, and allocations of Departmental administration activities.

In August 2001, the Secretary of Energy directed a "Top-to-Bottom" review of the environmental cleanup program, which was completed in February 2002. The Review concluded that significant change was required in how the Department attacked risk reduction and cleanup. The environmental cleanup program stood as one of the largest liabilities of the Federal Government. The top priority for the program has been to reform and refocus the nuclear weapons cleanup program to deliver risk reduction safer and faster and to clean up more efficiently and cost effectively. The Department, working collaboratively with the regulator and stakeholder community, is developing strategies to focus cleanup activities on accelerated risk reduction and site closure.

External Factors:

The following external factors could affect our ability to achieve this goal:

- **Regulatory Requirements**: Compliance with environmental laws and regulations, agreements with state and federal regulators, and legal decisions drive the Department's cleanup approaches. Laws and regulations are subject to change, agreements with states require renegotiation, and legal decisions can alter strategic frameworks.
- **Cleanup Standards**: The end state for cleanup at certain sites is not fully determined. The extent of cleanup greatly affects cost, schedule and scope of work.
- **Technology**: Suitable cleanup technologies do not always currently exist, and the development and deployment of innovative technologies could help reduce risk, lower cost, and accelerate cleanup.
- **Uncertain Work Scope**: Uncertainties are inherent in the environmental cleanup program due to the complexity and nature of the work. There are uncertainties in our knowledge of the types of contaminants, their extent, and concentrations.
- **Commercially Available Options for Waste Disposal**: Accomplishment of accelerated risk reduction and site closure is dependent upon the continued availability of commercial options for mixed low-level waste and low-level waste disposal.

Hanford Site: Workers are removing drums containing suspect transuranic waste from a retrieval trench in the middle of the site. By mid-March 2004, more than 1,600 drums had been retrieved.

Oak Ridge National Laboratory: Hydrologic isolation activities at the Solid Waste Storage Area 4 (SWSA 4) include employing a state-of-the-art trenching technology that ensures that the project meets the regulatory requirements for reducing groundwater infiltration into the waste burial grounds. Using a one-of-a-kind single-pass trencher, workers are able to install 2,450 feet of continuous pipe and drainage stone at one time. This saves time and has the added safety benefit of eliminating any open trenches. Using laser leveling technology, the trencher automatically adjusts its position to install the 8-inch drainage pipe at the precise depth and slope to divert groundwater around the waste burial ground.

How We Serve the Public

The Department is addressing the legacy of more than 50 years of nuclear weapons production and nuclear power research and development. The scope of the environmental program includes stabilization and disposition of some of the most hazardous materials known to man. The cleanup program resulting from over five decades of nuclear weapons

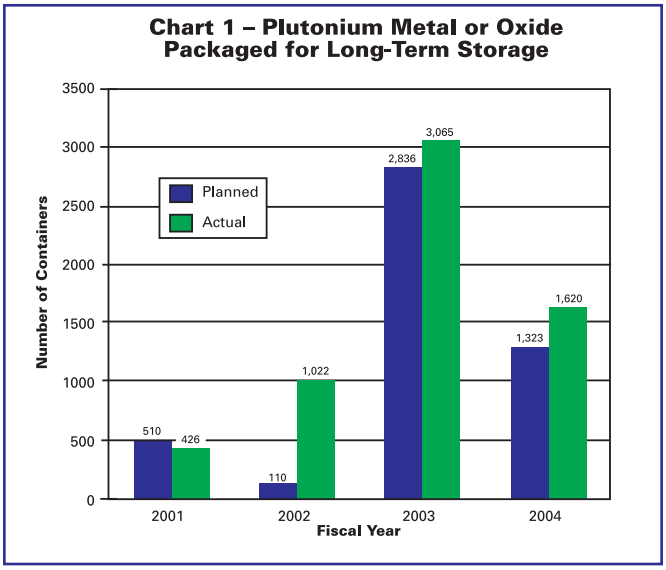
production and energy research is the largest active cleanup program in the world, encompassing over two million acres at 114 sites. As of September 2004, the cleanup of 76 sites has been completed. An additional 32 sites will be remediated by 2025, leaving six sites to be addressed after 2025.

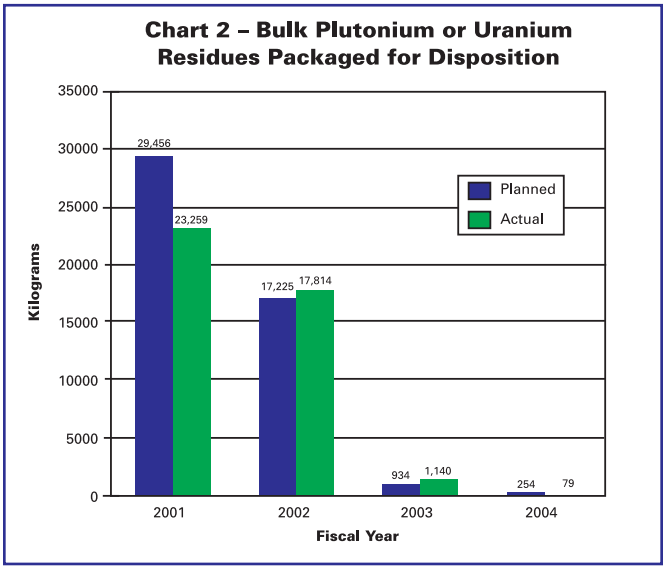
Savannah River Site: Members of the Citizens Advisory Board are briefed by Savannah River Site personnel at the old radioactive waste burial ground.

Program Goal and Annual Targets Supporting Environmental Management

Integral to meeting the General Goal, the Department is targeting 89 and 100 geographic sites to be completed by the end of FY 2006 and FY 2012, respectively (EM GG 6.18). To ensure a successful glide path to these future interim targets, in FY 2003 EM established a new set of corporate performance measures that enables the program to track the accomplishment of risk-reducing actions at each of its sites. EM's corporate performance measures are quantitative and provide a comprehensive programmatic perspective to completing the EM mission. The performance measures, each of which has an established annual target, are tracked in the context of the total measure (life-cycle) necessary to complete each site as well as the EM program as a whole. The five key performance measures discussed in the following paragraphs portray the broad scope of challenges the program faces in completing its cleanup mission.

The continued packaging of plutonium metal or oxide for long-term storage and the packaging of bulk plutonium or uranium residue for disposition are crucial milestones in the on-going clean-up efforts. As shown in Chart 1, EM has been making significant progress in the packaging of plutonium metal or oxide containers for long-term storage, and has consistently completed more actual work than planned over the past three years. Chart 2 depicts the progress EM has made in packaging bulk plutonium or uranium residues. In FY 2002 and FY 2003, EM's actual completion was above the planned targets resulting in EM completing the planned FY 2004 target quantity earlier than expected. In FY 2004, all remaining plutonium materials were packaged and removed from the Rocky Flats site, which dramatically reduced the site security costs as well as the safety and health risk to workers and the public. This reduction in the inventory of high risk nuclear materials by preparing it for long-term stor-

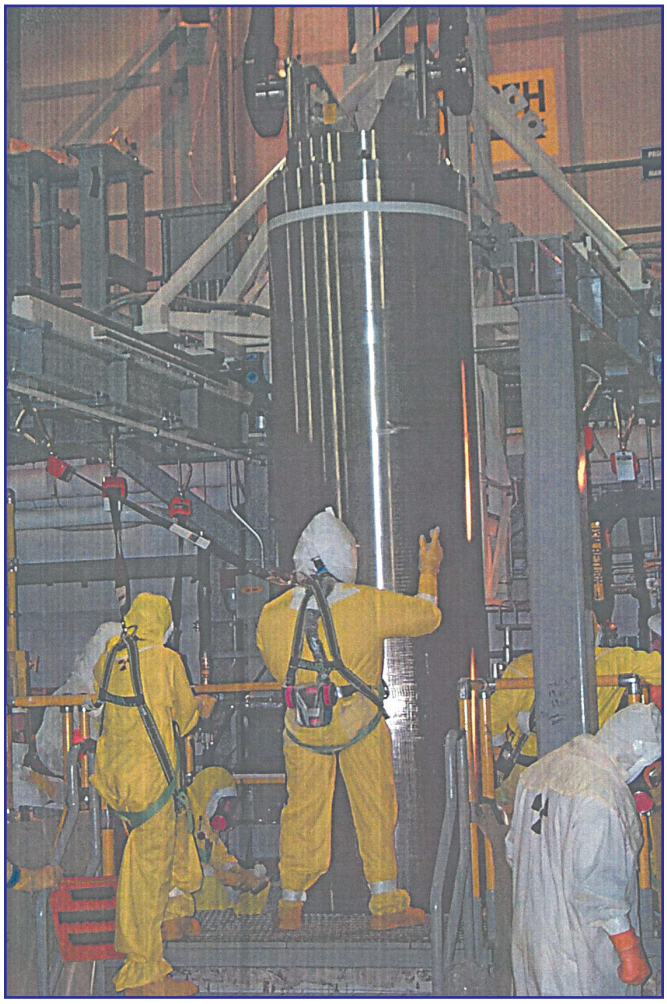




age or disposition quantitatively measures the Department's progress towards environmental, safety, and security risk reduction. Furthermore, the accelerated completion of activities that are major cost drivers frees up funds to accelerate environmental cleanup and risk reduction elsewhere (EM GG 6.18.1, EM GG 6.18.2).

By reducing the amount of highest risk radioactive liquid waste in inventory and subsequently closing the liquid waste tanks, the Department is demonstrating tangible evidence of EM's program goal to accelerate reduction of the highest risks in the complex. In addition to eliminating high risk material, corresponding life-cycle cost reductions are achieved for an activity that is a major cost driver to the EM program. Chart 3 shows that starting in FY 2003 and continuing through FY 2004, efforts to close tanks were delayed as a result of the legal uncertainty of the Department's WIR authority. No work was planned in FY 2001 - FY 2002. The FY 2005 National Defense Authorization Act provides a statutory mechanism which allows DOE to resume tank closure at the Savannah River Site and the Idaho National Laboratory (EM GG 6.18.3)

The Department is preparing DOE SNF for final disposition in order to ensure the material is ready for disposal in the federal geologic repository (EM GG 6.18.4). As Chart 4 summarizes, EM has had target shortfalls the previous two fiscal years due to technical problems encountered at the Hanford site. However, in FY 2004, these problems were resolved, allowing EM to exceed its annual target and make up for a portion of the previous years' shortfalls.



Hanford Site: Spent nuclear fuel project workers moving a Multi-Canister Overpack (MCO) of irradiated fuel From the K-West Basin. The purpose of this project was to move irradiated fuel out of undesirable wet storage near the Columbia River to safe, dry, interim storage in central Hanford. Fuel removal from the K-Basins was completed in FY 2004.

Chart 3 – Liquid Tanks Closed

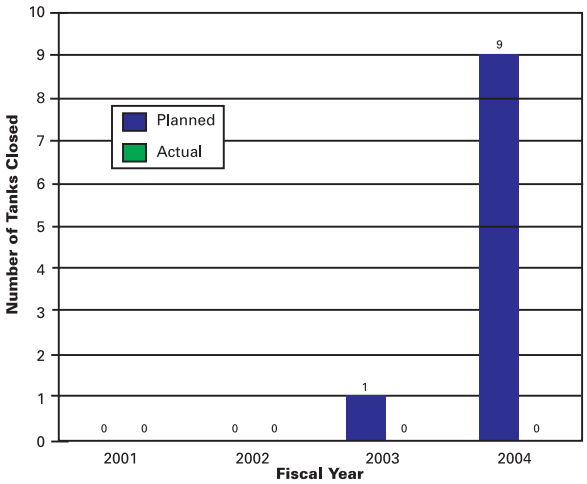
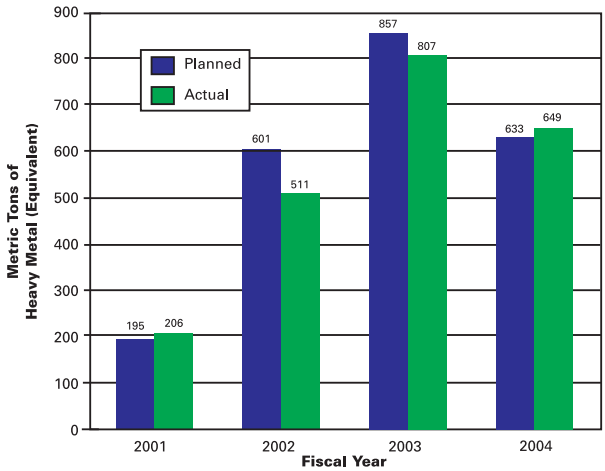


Chart 4 – Packaging of Spent Nuclear Fuel for Disposition



Completion of high risk SNF activities results in life-cycle cost reductions for the EM program.

In order to complete a geographic site (e.g., Fernald), the Department must complete remediation of discrete areas of contamination defined as release sites. EM has focused additional efforts to remediate release sites such that it has exceeded its annual target in each of FY 2002, FY 2003, and FY 2004 as depicted in Chart 5. This acceleration in the completion of release sites at Rocky Flats, Hanford, and Sandia National Laboratory, is a good indicator of a geographic site's progress towards completion. When active remediation at all release sites has been completed in accordance with the terms and conditions of cleanup agreements, a geographic site will be considered complete in its entirety. Each geographic site completion is an additional increment toward meeting the EM program goal and in turn, the EM General Goal.

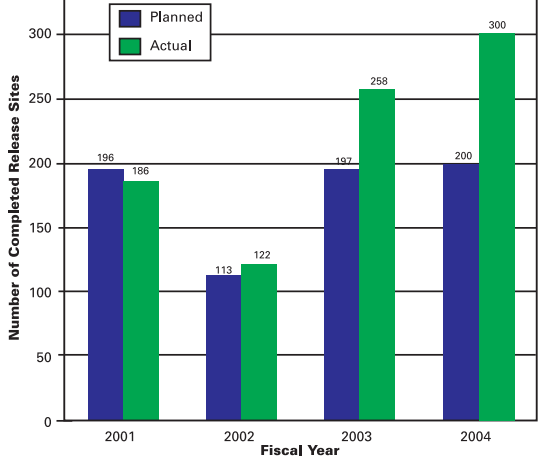
Fernald: Operating engineers raze the last section of the Pilot Plant. The facility was the last of 10 plants to be removed from the Fernald Skyline. The Pilot Plant was the first plant to go on line at Fernald. The plant served as an operating prototype for all phases of the uranium metal production process and a training area for new operators. Operations consist of surface decontamination, building and equipment dismantlement, size reduction of building material and the loading of demolition debris into rolloff boxes for transfer to the on-site disposal facility.

More detailed information concerning the performance results for the above referenced goal and targets is available in the Performance Results section.

Nuclear Waste - General Goal 7:

License and construct a permanent repository for nuclear waste at Yucca Mountain and begin acceptance of waste by 2010.

Chart 5 – Completed Release Sites

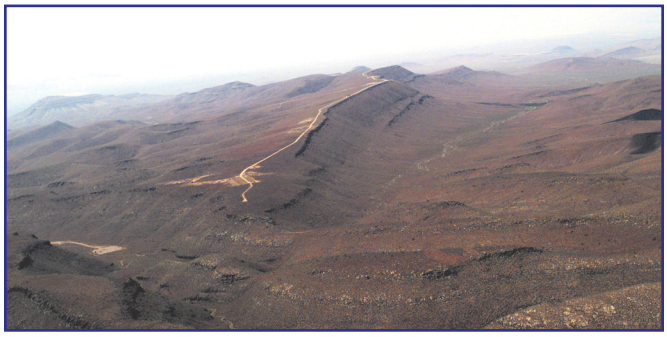


Associated with the Nation's energy supply is the Federal responsibility for the ultimate repository for SNF and HLW. This responsibility includes licensing, building, and operating a deep geologic repository at Yucca Mountain, Nevada, for the disposal of both commercial and the Department's SNF, HLW, and surplus fissile materials. Implementing this goal is the responsibility of the Office of Civilian Radioactive Waste Management (OCRWM). After more than two decades of scientific study, President Bush signed the joint Congressional Resolution designating Yucca Mountain, Nevada, as the site of the Nation's first geologic repository for HLW and SNF in July 2002.

External Factors

The Department intends to submit to the NRC a license application for the Yucca Mountain repository as soon as possible after we have resolution on the approach to address the lack of an EPA Standard. The opening date of the repository will depend on a number of factors, including: the implementation of an EPA Standard, the ability to begin early construction of site support facilities/utilities, and an adequate funding profile.

- **Regulatory Requirements**: The Nuclear Regulatory Commission (NRC) is responsible for approving a Departmental license application for Yucca Mountain. Any delay in issuing a license could subsequently delay the commencement of repository operations. The action of the Federal Court of Appeals in July 2004, vacating the 10,000-year compliance period in the EPA



Radioactive Waste Repository site, Yucca Mountain, Nevada

regulations for Yucca Mountain, introduces additional uncertainty with respect to the final regulatory requirements needed for a licensing decision. In addition, in August 2004, an NRC panel vacated the Department's initial certification of its Licensing Support Network (LSN) material that is being made available for discovery purposes. Certification of the LSN is a prerequisite for submitting a license application.

- **Litigation**: It is likely that any new EPA Standard and any NRC decision to issue a license to construct and operate a repository at Yucca Mountain will be challenged in the courts. The outcomes of a number of pending lawsuits by the state of Nevada, local jurisdictions, and others also pose schedule and financial risks to the program.
- **Congressional Funding:** In Fiscal Year 2005, and beyond, the nuclear waste disposal program will need a significant increase in funding to pay for the design, construction and operation of the repository and for the transportation infrastructure. Although the annual receipts and accumulated balance in the Nuclear Waste Fund are sufficient to fund current needs, budget processes have severely limited access to those funds. The Administration has submitted a legislative proposal to ensure the availability of the long-term funding required to accomplish program objectives.

How We Serve the Public

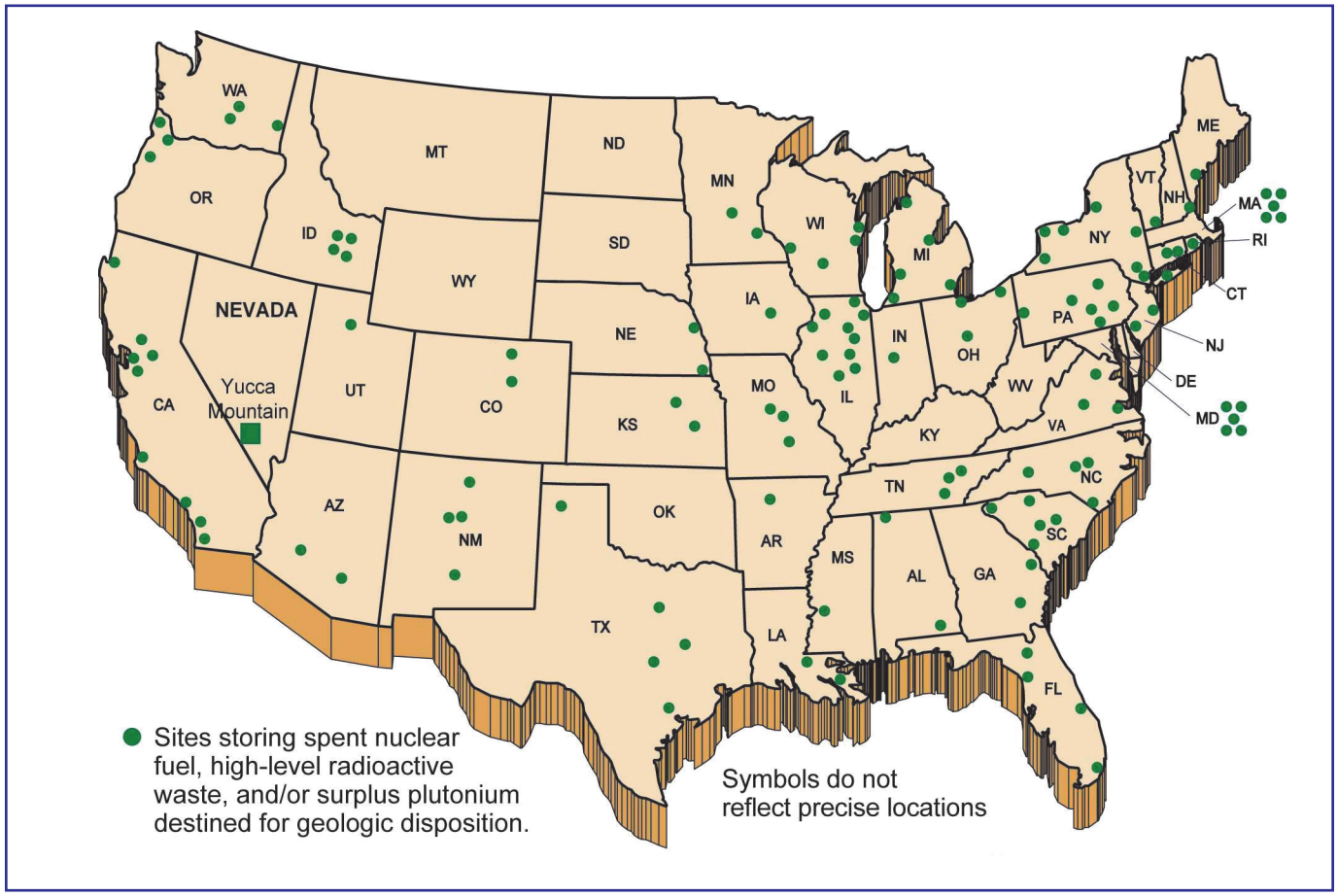
For more than half a century, the U.S. has been generating SNF and HLW by using materials to produce electricity, power naval vessels, perform research and development, and develop nuclear weapons. These materials are currently stored in temporary facilities at some 125 sites in 39 states (see map on the following page). More than 160 million Americans live within 75 miles of one or more of these sites.

The nuclear waste disposal program, mandated by the Nuclear Waste Policy Act of 1982, as amended, is a key priority for the Administration. The ultimate consolidation and disposal of nuclear waste at Yucca Mountain will support national security and energy security, reducing the number of locations where nuclear materials are stored and maintaining the viability of the Navy's nuclear powered fleet. Nuclear waste disposal is also essential for maintaining the viability of the commercial nuclear power industry, which currently supplies more than 20 percent of the nation's electricity. Congress has indicated that continued support for nuclear power development is contingent upon successfully establishing the repository.

Program Goal and Target Supporting Nuclear Waste

There is only one program goal associated with Nuclear Waste General Goal: In 2010, the Yucca Mountain repository is licensed, constructed, and operating; the national and Nevada waste transportation systems are in place; activities required to support receipt and emplacement of SNF and HLW at the repository are proceeding on schedule (RW GG 7.25). OCRWM's program goal directly supports the General Goal by establishing the framework for initial waste receipt, as well as the infrastructure to support ongoing repository operations.

Several significant accomplishments were made in support of the OCRWM program goal. Progress was made on completing a high quality defensible license application (including the underlying scientific, technical and design work) that meets regulatory requirements, merits the Commission's confidence, and provides the basis for beginning repository operations. (RW GG 7.25.1) In FY 2004, steps were taken to establish and certify a computer based documentation system, known as the Licensing Support Network. The system will contain all documentation associated with the regulatory review of the Department's license application and will be used by the various stakeholders during the discovery and evaluation process. In August 2004, an NRC panel vacated the Department's initial certification of its LSN. Assuring a successful review by the NRC



and gaining approval to begin construction are prerequisites to achieving the Department's goals.

A transportation strategic plan was issued early in FY 2004 which provides the strategic framework for the development of the national and Nevada transportation infrastructure. In addition, during FY 2004, significant policy decisions were made relative to using rail primarily as a safe and cost effective method of transporting waste to Yucca Mountain and the selection of a rail route. Following years of careful study, the Caliente Corridor was selected as the route for constructing a rail line within Nevada to the repository. These activities have been crucial for establishing the detailed approach, timetable, costs and capabilities for transporting the nuclear waste from throughout the country to the repository.

More detailed information concerning the performance results for the above referenced goal and target is available in the Performance Results section.

Challenges and Future Expectations

High-Level Waste: In FY 2003, the U.S. District Court for the District of Idaho ruled against the Department with respect to the Department's authority to classify tank waste as "incidental waste" in accordance with the Department's policy on Waste Management, ruling that it violated the Nuclear Waste Policy Act. The Department appealed the 2003 Idaho District Court decision. On November 5, 2004, the 9th Circuit Court of Appeals overturned the District Court's decision and directed the Court to dismiss the lawsuit. In addition, the FY 2005 National Defense Authorization Act provides a statutory mechanism which allows DOE to resume tank waste cleanup at the Savannah River Site and the Idaho National Laboratory.

Top-to-Bottom Review Initiatives: A Top-to-Bottom review of the EM program was completed in February 2002. Since the release of the resultant report, reforms within the program have enabled EM to reduce its cleanup liability by nearly $50 billion. They have also contributed to a shortening of cleanup completion by 35 years, from 2070 to 2035. EM will continue the process of implementing the following initiatives in order to realize the goal of achieving tangible results in accelerating risk reduction and cleanup:

- Human Capital Revitalization: The standup of the Consolidated Business Center in FY 2005 will increase program efficiency by consolidating business functional services for select closure sites (Reference Discussion of Consolidated Business Center).
- Acquisition Strategy: The Department will continue to recompete and renegotiate contracts to shorten schedules, establish more focused performance incentives, and restructure projects to accelerate risk reduction.
- Configuration Control: Through a Configuration Control Board, the Department will ensure that site end states, performance measures and performance objectives/incentives reflect those expectations and outcomes that are critical to the successful accomplishment of the environmental mission.
- Site Baselines: This effort represents a significant step to improve performance and accountability. Baselines are critical in enabling senior management to accurately monitor and measure the cleanup progress of each site against its completion objectives.

EM's Consolidated Business Center

In FY 2004, the Department announced the selection of the greater Cincinnati area as the site for the Department's national Consolidated Business Center (CBC) for its EM program. The CBC will combine essential business and technical support services in one location and serve as a central clearinghouse for a wide range of activities, from financial management and contracting to human resources and information resource management, supporting DOE's national environmental cleanup mission.

The CBC will combine essential business and technical support services in one location to serve DOE's environmental management efforts all over the country. This will allow the Department to do its job better, more efficiently, and with greater savings for the taxpayer.

Ultimately, the CBC will be staffed with a cadre of skilled employees who possess expertise in managing site closure requirements. This cadre will leverage and support the closure of other DOE sites in accordance with EM accelerated site performance plans. The CBC is needed to assure uninterrupted business services for the closure sites as they downsize and lose existing experienced staff. The initial staffing plan consists of consolidating critical business functions needed for site closures. These functions include financial management, procurement, human resource management, information management, legal services, certain logistics functions, and the closure cadres.

Nuclear Waste Disposal: Pending litigation with the commercial utilities places significant uncertainty on the Government's financial liabilities. Based on the controversial nature of nuclear waste transportation and disposal, there are many institutional barriers and constituencies that oppose the project. It is expected that additional litigation will be used as an obstacle as the project proceeds. There is also a large degree of uncertainty associated with the NRC's review of the repository's license application. In FY 2004, the Department retained an experienced law firm to serve as regulatory counsel during the licensing process.

In FY 2005 and beyond, significantly increased funding will be required to support repository design, construction and operation. Similarly, completion of the transportation infrastructure will require construction of a 300+ mile rail line, acquisition of specialized rail cars, a large variety of truck and rail shipping containers (known as casks), and maintenance facilities to support an estimated 175 shipments per year over a 24 year period. While this program is a priority of the Administration, it will still be a challenge to secure funding from Congress in a climate of competing national priorities. The Department has proposed an alternative funding strategy and implemented a phased approach to construction and operations to help mitigate the annual funding challenge.

The existing legal and regulatory basis for the repository limits the amount of SNF that can be disposed of at Yucca Mountain to 70,000 metric tons until a second repository is operational. Based on current inventories and future projections this volume is likely to be exceeded. The Nuclear Waste Policy Act requires that the need for a second repository be determined by January 2010. Over the next several years, the Department will investigate advanced technology options that could potentially and significantly reduce the amount or toxicity of nuclear waste. For example, the Department's Advanced Fuel Cycle Initiative program will provide a means to develop new technologies, which if successful, could reduce the volume of HLW from SNF fuel, thus reducing the long-term geologic disposal capacity needed.

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U.S. Department of Energy

Performance and Accountability Report

Fiscal Year 2004

PERFORMANCE RESULTS

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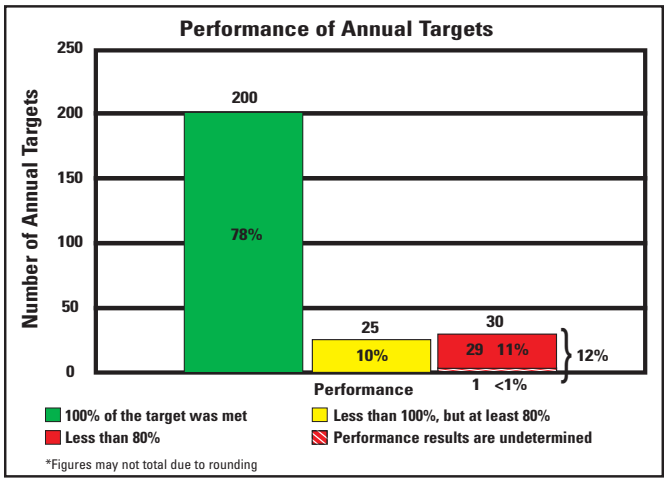
Introduction

In FY 2004, the Department carried out its mission through the pursuit of 59 program goals that articulate long-term (greater than one-year) outcomes and 255 annual targets that represent short-term (one-year) outcomes and/or outputs. Interim progress made toward annual targets is assessed by the performing organizations according to the completion of quarterly milestones.

The FY 2004 Performance Results section is composed of chapters for each General Goal, in the order of the four Strategic Goals they support, and consist of six sections:

- General Goal Overview, including a summary of FY 2004 annual performance against our annual targets, and FY 2003 and FY 2004 costs;
- Description of the Department's program goals that support the General Goal, including a Commentary section;
- Assessment of the FY 2004 annual performance targets associated with that Performance Goal;
- Supporting Documentation;
- Description of our Plan of Action for any annual targets that experienced performance shortfalls during the fiscal year; and
- Assessment of the Related Annual Targets for the period FY 2001-FY 2003.

The Department's performance through the course of FY 2004 against the annual targets is depicted in the following chart, using the color-coding scheme that is provided by the Joule performance tracking system (described below):



Joule Performance Monitoring and Tracking System

Joule is the Department of Energy's performance measurement tracking system for program goals and annual targets included in the Department's Annual Performance Plan (APP). Program goals and annual targets are created and reported on by offices/administrations, with the assistance of the Office of Management, Budget, and Evaluation (OMBE).

Performance is represented by a color rating (green, yellow, or red). The performance index is generated by the roll-up of annual target indices (the foundation level of the performance hierarchy, where actual performance is reported).

For the program goal and annual target levels, a "green" rating indicates that the performance index equals 100 percent. A "yellow" rating indicates that the performance index is less than 100 percent, but at least 80 percent. A "red" rating indicates that the performance index is less than 80 percent. Starting in FY 2004, performance results that are undetermined due to the accelerated reporting schedule of the PAR or other factors are coded as "red" and are categorized as "undetermined".

The Consolidated Quarterly Performance Report (CQPR) is created at the end of each quarter by OMBE, and transmitted to senior management by the Deputy Secretary of Energy. The report includes performance summaries for several areas, including Joule/APP, Small Business Contract Awards, Project Status Summary Assessments, the President's Management Agenda, and financial management information on funds available to obligate and cost.

The CQPR provides senior managers a "quick look" at program performance. The data is not meant to be a comprehensive assessment of program performance, but rather an "early warning" tool that will alert managers to potential problems that may hinder the completion of annual performance commitments. Department-level performance information is presented at the Department's Management Council meetings, chaired by the Deputy Secretary of Energy and attended by senior Departmental leadership.

Relationship Between Targets in Joule and the Program Assessment Rating Tool (PART)

PART was developed by OMB in 2002 as a key component for implementing the PMA, specifically, the Budget and Performance Integration component. PART grew out of the Administration's desire to provide federal agencies with a disciplined tool for assessing program planning, management, and performance against quantitative, outcome-oriented goals. As an instrument for periodically evaluating the effectiveness of our programs, PART enables federal managers to identify and rectify real and potential problems associated with program performance.

PART provides a pathway for the Department and OMB to agree upon meaningful long-term and annual goals for each program. As PARTs are completed for DOE programs, DOE's GPRA Program Unit goals will begin to correspond directly to the PART long-term goals and DOE's Joule targets will correspond to the PART annual goals. FY 2004 was the first year involving PART; therefore, there is minimal representation of PART measures in this PAR. In future PARs, the Department will clearly identify which Joule targets correspond in whole or in part to an accepted PART annual goal.

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General Goal 1: Nuclear Weapons Stewardship

Ensure that our nuclear weapons continue to serve their essential deterrence role by maintaining and the enhancing safety, security, and reliability of the U.S. nuclear weapons stockpile.

Summary of FY 2004 Annual Performance Targets

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
40.5	13.5	7	1

FY 2004 Program Costs ($ in Millions): Goal 1 Costs: $6,220
FY 2003 Program Costs ($ in Millions): Goal 1 Costs: $5,214

PROGRAM GOAL:

DP GG 1.27

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
	✓		

DIRECTED STOCKPILE WORK (DSW): Ensure that the nuclear warheads and bombs in the U.S. nuclear stockpile are safe, secure, and reliable. This goal is achieved by: (1) developing solutions to extend weapon life, correcting potential technical issues; (2) conducting scheduled warhead/bomb maintenance; (3) dismantling warheads/bombs retired from the stockpile; (4) conducting evaluations to certify warhead/bomb reliability and to detect/predict potential weapon fixes, mainly from aging; (5) producing and refurbishing warheads/bombs to install the life extension solutions and other fixes; and (6) researching advanced concepts. The DSW effort is fully coordinated with the Department of Defense (DoD).

Commentary: Absent underground nuclear testing, the stockpile was certified as safe, reliable, and secure and able to meet National Security requirements. Successful accomplishment of the FY 2004 performance targets made a positive contribution toward achieving this long-term DSW goal that, in turn, is essential for the conduct of a program of bomb/warhead research & development, evaluation, maintenance, refurbishment, and production, planned in partnership with the DoD. This directly supports the NNSA goal to maintain and enhance the safety, security, and reliability of the Nation's nuclear weapons stockpile to counter the threats of the 21st century.

Associated Annual Target for FY 2004

DP GG 1.27.1

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
✓			

Percent complete of required assessments and reports to support stockpile certification to the President.

Annual Target: Complete 100% of required Annual Stockpile Certification and Surety assessments and reports.

Commentary: Target fully met. Completed 100% of the Annual Stockpile Certification and Surety Assessment and Reports (i.e., Laboratory Annual Assessment Reports and Laboratory Annual Surety Reports) by the end of FY04/Q3. These reports enabled the annual stockpile certification by the Secretaries of Defense and Energy to the President.

Supporting Documentation: DP Milestone Reporting Tool and Actual Reports.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Report annually to the President on the need or lack of need to resume underground testing to certify the safety and reliability of the nuclear weapon stockpile (NS 1-1a).
  Assessment: MET

FY 2002

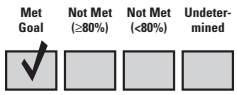
- The sixth annual letter to the President on the need or lack of need to resume underground testing to certify the safety and reliability of the nuclear weapon stockpile was transmitted in July 2002.
  Assessment: MET

FY 2001

- Report annually to the President on the need or lack of need to resume underground testing to certify the safety and reliability of the nuclear weapon stockpile.
  Assessment: MET

Associated Annual Target for FY 2004

DP GG 1.27.2 Cumulative percentage of progress in completing Phases of Nuclear Weapon Council (NWC)-approved B61-7/11 Life Extension Program (LEP).



Annual Target: Receive B61-7/11 Phase 6.4 authorization and complete 30% of Phase 6.4 (FY03 - 0% of Phase 6.4).

Commentary: Target exceeded. Received authorization for B61-7/11 Phase 6.4 (11/03). Completed 34% (48 of 139) planned Phase 6.4 milestones by FY04/Q3. FY activities maintained the progress to complete the B61 LEP by 2009 and extend its useful life.

Supporting Documentation: DP Milestone Reporting Tool and B61 LEP Integrated Master Schedule.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.27.3 Annual percentage of completed maintenance supporting Enduring Stockpile Maintenance in accordance with Production Control Document (PCD) schedules.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☐	☑	☐	☐

Annual Target: Complete 95% of all PCD-scheduled activity. Finish 100% of all prior year non-completed scheduled evaluations.

Commentary: Target partially met. Completed 85% of all PCD scheduled activities (vs 95% target) and finished 77% of all prior year non-completed scheduled evaluations (vs 100% target). As for the PCD-scheduled activities, work at Pantex was shut down (Q3) because of a previously unreviewed safety question on lightening and the Controlled Removable Electronic Media (CREM) work stoppage (Q4). The majority of the activities were restarted (Q4), but the M&O contractor recovery plan provided for completion of 85% of PCD-scheduled activity vs. target of 95% in FY04. As for the prior year non-completed activities, operational issues at Pantex and the unscheduled work stoppage due to CREM delayed disassemblies & inspections (D&Is), required prior to the evaluations. Of the planned 47 prior year non-completed D&Is, 36 were completed in FY04. Of the 11 non-completed D&Is, 4 are related to CREM stand-down and 4 are W84-related for which the authorization basis has expired.

Supporting Documentation: DP Milestone Reporting Tool, PCD schedule, and Pantex D&I schedule.

Plan of Action: For PCD scheduled activities, the plan is to work-off more than one-half of the backlog by FY05/Q2 in addition to accomplishing the planned FY05 activity. Pantex Site Office & M&O contractor are fully supporting the recovery schedule. Track remaining target until complete. For prior year non-completed evaluations, of the 11 non-completed D&Is, 7 (including 4 CREM-related) will be scheduled for completion by FY05/Q2. The 4 W84 D&Is will be scheduled for completion in FY06, after the W84 SS-21 procedures are approved. Track remaining target until completed.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.27.4 Cumulative percentage of progress in completing Phase 6.2/6.2A activities of the Robust Nuclear Earth Penetrator (RNEP).

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Annual Target: Complete 17% of RNEP Phase 6.2/6.2A (FY03 -0%).

Commentary: Target fully met. Completed 17% of the scheduled RNEP Phase 6.2/6.2A activities. Completed component tests and released B83 Sled-Test Design on schedule. FY activities continued the scheduled RNEP examination, as authorized.

Supporting Documentation: DP Milestone Reporting Tool & RNEP Program Implementation Plan Schedule.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.27.5 Cumulative percentage of progress in completing Phases of NWC-approved W76-1 LEP.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
	✓		

Annual Target: Complete 75% of W76-1 Phase 6.3 (FY03 - 50%). Complete 10% of Phase 6.4 (FY03 - 0%).

Commentary: Target partially met. Due to the unscheduled work stoppage associated with the CREM issue, only completed an additional 19% (total 69%) of Full-Scale Engineering Development (FSED) Phase 6.3 FY04 target (75%). However, completed 12% of Phase 6.4 target (10%). Provided hardware that met design definition to complete planned Joint Test Assembly.

Supporting Documentation: DP Milestone Reporting Tool and W76 LEP Integrated Master Schedule.

Plan of Action: Convene Preliminary Design Review and Acceptance Group (DRAAG) 10/04 to obtain DoD concurrence on design; approve FSED Schedule rebaseline FY05/Q1; and track remaining target until complete.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.27.6 Cumulative percentage of progress in completing Phases of NWC-approved W80-3 LEP.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
	✓		

Annual Target: Complete 70% of W80-3 Phase 6.3 (FY03 - 55%). Complete 10% of W80-3 Phase 6.4 (FY03 - 0%).

Commentary: Target partially met. Completed an additional 15% (total 70%) of Phase 6.3 target (70%); however, FY04 funding realignments/priorities delayed the start of the Phase 6.4 activity.

Supporting Documentation: DP Milestone Reporting Tool and W80-3 LEP Integrated Master Schedule.

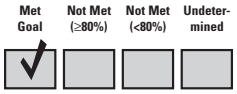
Plan of Action: Complete preliminary actions necessary for Phase 6.4 authorization. Reschedule the start of Phase 6.4 activity to FY05/1Q, concurrent with the authorization and track remaining target until complete. House FY05 Appropriations Bill reduces W80 LEP by $40M. This will most likely delay the start of Phase 6.4.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.27.7 Cumulative percentage of progress in completing Phases of NWC-approved W87 LEP.



Annual Target: Complete Alteration 342 to W87.

Commentary: Target met. The W87 activities at Pantex were restarted FY04/Q3 on an aggressive recovery schedule that resulted in completion of the target (Alteration) by the end of FY04/Q4, as originally scheduled. FY activities completed the W87 LEP and extended its useful life.

Supporting Documentation: DP Milestone Reporting Tool and W87 Quantity Production Schedule.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Additional Targets from 2003-2001

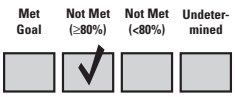
FY 2003
- Meet all annual weapons maintenance, refurbishment, and dismantlement schedules developed jointly by the DOE and DoD (NS 1-1b).
  Assessment: Met at or above 80% but less than 100% of Target

FY 2002
- Meet all annual weapons maintenance, refurbishment, and dismantlement schedules developed jointly by the DOE and DoD. This includes meeting milestones in the Federal Manager's Financial Integrity Act (FMFIA) corrective action plan for the Issue of Stockpile surveillance and testing.
  Assessment: MET

FY 2001
- Meet all annual weapons maintenance and refurbishment schedules developed jointly the DOE and DoD.
  Assessment: MET

PROGRAM GOAL:

DP GG 1.28

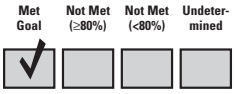


SCIENCE CAMPAIGN: Support the stockpile stewardship mission of the National Nuclear Security Administration (NNSA) by achieving the following goals: continue the development of knowledge, tools and methods to assess with confidence the safety, reliability and performance of the nuclear explosive package portion of weapons without further underground testing; develop new materials and technologies that are required to solve identified stockpile problems particularly for the nuclear explosive package; enhance the readiness of the NNSA to conduct underground nuclear testing as directed by the President; and develop and maintain essential scientific capabilities and infrastructure in nuclear weapons unique technologies.

Commentary: Actions continued to assess with confidence the safety, reliability and performance of the nuclear explosive package portion of weapons without further underground testing; develop new materials and technologies required to solve identified stockpile problems; enhance the readiness of the NNSA to conduct underground nuclear testing as directed by the President; and develop and maintain essential scientific capabilities and infrastructure in nuclear weapons-unique technologies. Successful accomplishment of the FY 2004 performance targets made a positive contribution toward achieving this long-term Science Campaign goal that, when coupled with other campaign target accomplishments, supports a strategy to develop science, design, engineering, testing, and manufacturing capabilities needed for long-term stewardship of the nuclear weapons stockpile. This directly supports the NNSA goal to maintain and enhance the safety, security, and reliability of the Nation's nuclear weapons stockpile to counter the threats of the 21st century.

Associated Annual Target for FY 2004

DP GG 1.28.1



Developments and improvements in the accuracy of predictive models and methodologies used to assess nuclear performance.

Annual Target: Complete development of Quantitative Margins and Uncertainties (QMU) logic for the W76, incorporate logic in advanced simulation , and conduct peer review.

Commentary: Target fully met. Completed a determination of the key performance gates for the W76 in FY04/3Q. Application of this logic and peer review of implementation facilitated achieving FY04/4Q target completion. FY activities continued to improve the accuracy of predictive nuclear performance assessment models/methodologies.

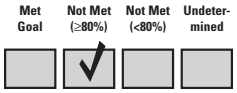
Supporting Documentation: DP Milestone Reporting Tool; JASON Review (07/04); and also reported at the Science Campaign Program Review (08/24/04).

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.28.2 Improved radiographic capabilities to support the assessment of nuclear performance, as required by the National Hydrodynamics Plan.



Annual Target: Complete 100% of the external technical review of required work on the Dual-Axis Radiographic Hydrotest (DARHT) facility and plans for completion of DARHT Second Axis.

Commentary: Target partially (80+%) met. The NNSA concern about possible delays in finding a vendor for new Mycalex material for replacement insulators in the DARHT accelerator cells was resolved. However, due to the unscheduled work stoppage at LANL associated with the CREM issue, the project has fallen behind schedule.

Supporting Documentation: DP Milestone Reporting Tool and DARHT CD-0 documentation.

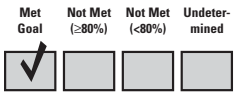
Plan of Action: Currently, estimate 6-month delay at LANL (FY05/2Q); proceed with plan laid out in CD-0; and monitor until complete.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.28.3 Readiness to conduct underground nuclear testing as established by National Security policy and documented in the Program Plan for Test Readiness.



Annual Target: Complete the Master Study for the Device Assembly Facility and implement the Technical Safety Requirements.

Commentary: Target fully met. (1) The Nuclear Explosive Safety Study (NESS) was completed 07/04. (2) The Armando Technical Safety requirements were implemented before Armando was executed on 05/29/04. FY activities supported 30-month test readiness status.

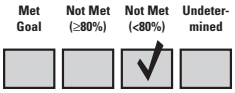
Supporting Documentation: DP Milestone Reporting Tool; (1) NTS Device Assembly Facility NESS Master Study; and (2) Armando Readiness Review Report.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.28.4 Documented National Hydrodynamics Plan, with peer review, to support the assessment of nuclear performance.



Annual Target: Execute the planned hydrodynamic experiments on DARHT and Container Firing Facility (CFF)/Flash X-Ray (FXR) at Los Alamos and Lawrence Livermore National Laboratories.

Commentary: Target not met. Had been on-track to accomplish FY04 target and completed 6 of 9 scheduled shots. However, due to the unscheduled work stoppage at LANL associated with the CREM issue, the project has now fallen behind schedule.

Supporting Documentation: DP Milestone Reporting Tool; Hydrotest Reports; and Science Campaign Review 08/24/04.

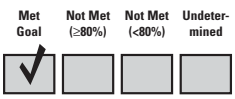
Plan of Action: LANL is developing corrective action plan and revised schedule. After approval by the HQ, the plan will be implemented. The target will be monitored until complete.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.28.5 Reduced cost of obtaining plutonium experimental data on the Joint Actinide Shock Physics Experimental Research (JASPER) facility to support primary certification models.



Annual Target: Establish the baseline cost for JASPER experiments.

Commentary: Target fully met. Completed determination of factors that contribute to baseline costs for JASPER shot in FY04/3Q and established baseline cost by end of FY04. FY activities will support continuation of a method to increase operational efficiency.

Supporting Documentation: DP Milestone Reporting Tool and Science Campaign Program review 08/24/04.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Additional Targets from 2003-2001

FY 2003

- Meet the critical FY 2003 Campaign performance targets contained in the NNSA Future-Year Nuclear Security Plan (FYNSP) (NS 1-2a).
  Assessment: Met at or above 80%, but less than 100% of the Target

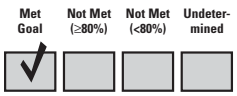
- Implement the recommendations requested by the Nuclear Posture Review to refine test scenarios and evaluate the cost/benefit tradeoffs to sustain optimum test readiness that best supports the New Triad (NS 1-2b). **Assessment: MET**

FY 2002 • There were no additional targets in FY 2002.

FY 2001 • There were no additional targets in FY 2001.

PROGRAM GOAL:

DP GG 1.29

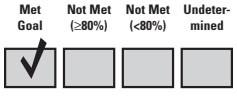


ENGINEERING CAMPAIGN: Provide validated engineering sciences and engineering modeling and simulation tools for design, qualification, assessment, and certification; improved surety technologies, improved radiation hardened design and modeling capabilities; improved microsystems and microtechnologies; component and material lifetime assessments; and predictive modeling capabilities and diagnostics to identify emerging aging concerns.

Commentary: Actions continued to provide validated engineering sciences and engineering modeling and simulation tools for design, qualification, assessment, and certification; improved surety technologies, improved radiation hardened design and modeling capabilities; improved microsystems and microtechnologies; component and material lifetime assessments; and predictive modeling capabilities and diagnostics to identify emerging aging concerns. Successful accomplishment of the FY 2004 performance targets made a positive contribution toward achieving this long-term Engineering Campaign goal that, when coupled with the target accomplishments of other campaigns, supports a strategy to develop science, design, engineering, testing, and manufacturing capabilities needed for long-term stewardship of the nuclear weapons stockpile. This directly supports the NNSA goal to maintain and enhance the safety, security, and reliability of the Nation's nuclear weapons stockpile to counter the threats of the 21st century.

Associated Annual Target for FY 2004

DP GG 1.29.1



Cumulative percentage of construction of the Microsystem and Engineering Science Application (MESA) Facility, as documented in the Engineering Campaign Program Plan.

Annual Target: Complete 35% of MESA construction.

Commentary: Target exceeded. Completed an additional 23% of the MESA construction in FY04 (total 45%) against FY04 target (total 35%). Project is ahead of baseline schedule. FY activities continue progress to deploy an operational MESA by 2009.

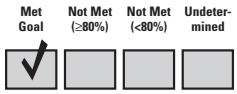
Supporting Documentation: DP Milestone Reporting Tool and monthly MESA reports to NNSA.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.29.2



Cumulative percentage of progress towards developing all improved surety improvements for Life Extension Programs having Phase 6.3 beginning in FY2010 or later, as documented in the Engineering Campaign Program Plan.

Annual Target: Complete 50% of the surety improvements.

Commentary: Target fully met. Completed an additional 10% of the improved surety improvements in FY04 (total 50%) as identified in the Surety Prioritization Study and the Enhanced Surety Implementation Plan. FY activities maintained required progress in meeting 2009 LEP support delivery schedule.

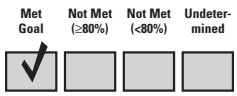
Supporting Documentation: DP Milestone Reporting Tool and site reports.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.29.3



Cumulative percentage of delivery of lifetime assessments, predictive aging models, and surveillance diagnostics toward the as documented in the Engineering Campaign Program Plan.

Annual Target: Complete 14% of the assessments, aging models and surveillance diagnostics (FY03 - 7%).

Commentary: Target fully met. Completed an additional 7% of the assessments, aging models, and surveillance diagnostics in FY04 (total 14%) or 15 Level 2 Milestones. This is significant because FY activities maintained required progress in meeting program 2012 100% objective.

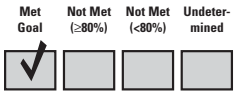
Supporting Documentation: DP Milestone Reporting Tool and site reports.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.29.4



Cumulative percentage of completed data sets used in developing tools and technologies to validate structural and thermal models with well defined ranges of applicability and qualified uncertainties in accordance with the Engineering Campaign Program Plan.

Annual Target: Complete 27% of the data sets (FY03 - 10%).

Commentary: Target fully met. Completed an additional 17% of the data sets in FY04 (total 27%). Data sets were produced to validate models that predict spin rate of the B61 and the stronglink-weaklink thermal race in the W80-3 Life Extension Program firing system design and an instrumented Nuclear Explosive Package was delivered. This is significant because FY activities maintained progress to deliver 47 data sets by 2009.

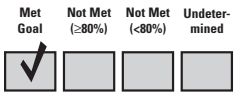
Supporting Documentation: DP Milestone Reporting Tool and site reports.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.29.5



Cumulative percentage of progress towards meeting goals identified in the Nuclear Survivability Annex of the Engineering Campaign Program Plan and effectiveness tools and technologies.

Annual Target: Complete 20% toward meeting goals.

Commentary: Target fully met. Completed an additional 10% of the activity scheduled (including 5 level 2 Milestones) in FY04 (total 20%). This is significant because FY activities maintained progress to deliver complete engineering technology and qualification tool development by 2012.

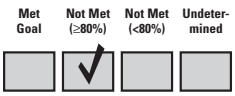
Supporting Documentation: DP Milestone Reporting Tool and site reports.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

PROGRAM GOAL:

DP GG 1.30

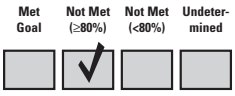


INERTIAL CONFINEMENT FUSION IGNITION and HIGH YIELD CAMPAIGN (ICF/NIF): Develops laboratory capabilities to create and measure extreme conditions of temperature, pressure, and radiation approaching those in a nuclear explosion and conducts weapons-related research, including nuclear burn, in these environments; this capability is required to support assessments and certification of the nation's nuclear weapons stockpile.

Commentary: Actions continued to develop laboratory capabilities to create and measure extreme conditions of temperature, pressure, and radiation approaching those in a nuclear explosion and conduct weapons-related research in these environments. FY 2004 performance targets accomplished made a positive contribution toward achieving this long-term ICF Campaign goal that, when coupled with the target accomplishments of other campaigns, supports a strategy to develop science, design, engineering, testing, and manufacturing capabilities needed for long-term stewardship of the nuclear weapons stockpile. This directly supports the NNSA goal to maintain and enhance the safety, security, and reliability of the Nation's nuclear weapons stockpile to counter the threats of the 21st century.

Associated Annual Target for FY 2004

DP GG 1.30.1



Cumulative percentage of progress towards creating and measuring extreme temperature and pressure conditions for the FY2010 nuclear stockpile stewardship requirements.

Annual Target: Complete 63%.

Commentary: Target partially met; completed 62%. Of 6 supporting milestones, 5 were completed. One, involving an experiment with a specific material on Trident, could not be completed in FY04/Q4, because of the unscheduled work stoppage associated with the CREM issue at LANL. The experiment is being rescheduled for FY05.

Supporting Documentation: DP Milestone Reporting Tool and program reports.

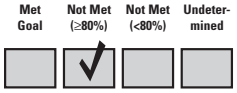
Plan of Action: Once the schedule is defined and approved, monitor execution. Expect to complete the experiment FY05/Q3. Track remaining target to completion.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.30.2 Cumulative percentage of progress towards demonstrating ignition (simulating fusion condition in a nuclear explosion) at the National Ignition Facility (NIF) to increase confidence in modeling weapons performance.



Annual Target: Complete 63%.

Commentary: Target partially met; completed 62%. Of 9 supporting milestones, 8 were completed. One could not be completed in FY04/Q4, because of a safety issue and the unscheduled work stoppage associated with the CREM issue at LANL. The experiment is being rescheduled for FY05.

Supporting Documentation: DP Milestone Reporting Tool and program reports.

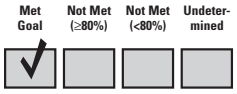
Plan of Action: Once the schedule is defined and approved, monitor execution. Expect to complete the experiment FY05/Q3. Track remaining target to completion.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.30.3 Cumulative percentage of construction completed on the 192-laser beam NIF.



Annual Target: Complete 74%.

Commentary: Target Exceeded. Completed an additional 11% (total 76%) of construction on the 192-beam NIF. This is important because FY activities maintained progress in completing NIF construction by 2008.

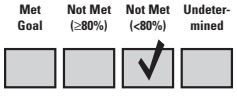
Supporting Documentation: DP Milestone Reporting Tool and monthly NIF Project reports.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.30.4 Cumulative percentage of equipment fabricated to support ignition experiments at NIF.



Annual Target: Complete 16% (FY03 - 7%).

Commentary: Target not met; completed additional 5% (total 12%). One of the two major supporting milestones, "Conceptual Design Report for NIF Cryogenic Target System (NCTS), could not be completed by FY04/4Q.

Supporting Documentation: DP Milestone Reporting Tool and NIF Project.

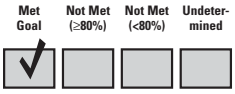
Plan of Action: Because of technical advances, the baseline ignition target has been changed to one that requires a simpler cryogenics system. This milestone is consistent with the revised schedule for ignition experiments and will be rescheduled for completion in FY05/2Q. Track remaining target to completion.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.30.5



Annual number of days available to conduct stockpile stewardship experiments, totaled for all ICF facilities.

Annual Target: 500 days.

Commentary: Target exceeded. Made available 700 days to conduct stockpile stewardship experiments at ICF facilities.

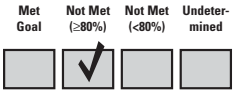
Supporting Documentation: Site facility reports.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

PROGRAM GOAL:

DP GG 1.31

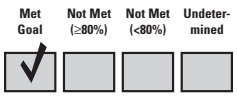


ADVANCED SIMULATION and COMPUTING CAMPAIGN (ASCI): Predict, with confidence, the behavior of Nuclear Weapons, through comprehensive, science-based simulations. In order to achieve this state, ASCI provides leading edge, high-end simulation capabilities needed to meet weapons assessment and certification requirements. These capabilities include developing weapon codes, weapon science, platforms, computer facilities and the necessary support to make the system operate together.

Commentary: Actions continued to predict, with confidence, the behavior of Nuclear Weapons, through comprehensive, science-based simulations by providing leading edge, high-end simulation capabilities needed to meet weapons assessment and certification requirements, including developing weapon codes, weapon science, platforms, computer facilities and the necessary support to make the system operate together. FY 2004 performance targets accomplished made a positive contribution toward achieving this long-term ASCI Campaign goal that, when coupled with the target accomplishments of other campaigns, supports a strategy to develop science, design, engineering, testing, and manufacturing capabilities needed for long-term stewardship of the nuclear weapons stockpile. This directly supports the NNSA goal to maintain and enhance the safety, security, and reliability of the Nation's nuclear weapons stockpile to counter the threats of the 21st century.

Associated Annual Target for FY 2004

DP GG 1.31.1



Peer-reviewed progress, according to schedule in the Advanced Simulation and Computing Campaign Program Plan, toward a validated full-system, high-fidelity simulation capability.

Annual Target: Achieve high-fidelity primary simulation and Stockpile to Target Sequence (STS) abnormal environments.

Commentary: Target fully met. Accomplished 100% of high-fidelity primary simulation and STS abnormal environments. This is significant because FY activities maintained progress in the development and implementation of improved models and methods into integrated weapon codes.

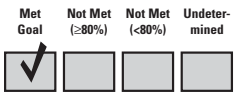
Supporting Documentation: DP Milestone Reporting Tool; DP Quarterly Program Reviews 05/04 and 07/04; and program reports.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.31.2



Number of weapon system components, primary/secondary/engineering system, analyzed using ASCI codes, as part of annual assessments and certifications.

Annual Target: 10 of 31.

Commentary: Target fully met. Analyzed an additional 3 of 31 weapon system components in FY04 (total 10 of 31). FY activities maintained progress toward analysis of all 31 weapon system components by 2010.

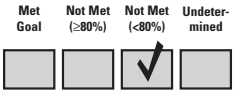
Supporting Documentation: DP Milestone Reporting Tool and status report.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.31.3 The maximum individual platform computing capability delivered, measured in trillions of operations per second (TeraOPS).



Annual Target: 40 TeraOPS (with 10 TeraBytes memory and 240 TeraBytes storage).

Commentary: Target not met. Testing of a new chip design has taken longer than planned. Delivery and operation of complete Red Storm platform has been delayed to FY05/2Q; with more than 80% available by FY04/4Q. Until Red Storm is operational, largest maximum individual platform computing capability remains at 20 TeraOPS.

Supporting Documentation: DP Milestone Reporting Tool and program reports.

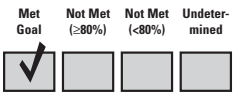
Plan of Action: Monitor schedule; look for possible efficiencies. Track remaining target to completion.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.31.4 Total capacity of ASCI production platforms attained measured in trillions of operations per second (TeraOPS) taking into consideration procurements and retirements of systems.



Annual Target: 75 TeraOPS.

Commentary: Target fully met. Attained total ASCI capacity of 75 TeraOPS. This is significant because FY activities maintained the schedule to attain a total production capacity of 930 TeraOPS by 2009.

Supporting Documentation: DP Milestone Reporting Tool and program reports.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.31.5 Average cost per TeraOPS of delivering, operating and managing all Stockpile Stewardship Program production systems in a given fiscal year.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
	✓		

Annual Target: Average cost of $8.15M/TeraOPS.

Commentary: Target partially met; average cost of $8.30M. Complete delivery of Red Storm computer platform (3rd Indicator & Target, above) is delayed until FY05/Q2. This results in a cost per TeraOPS of $8.30M, or 98% of target.

Supporting Documentation: Computation based on cost reports and production capability reports.

Plan of Action: Monitor schedule and cost reports. Remaining target should be achieved in FY05/Q2.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Additional Targets from 2003-2001

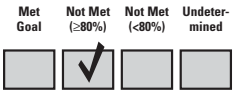
FY 2003
- There were no additional targets in FY 2003.

FY 2002
- Perform a prototype calculation of a full weapon system with three-dimensional engineering features.
  Assessment: MET

FY 2001
- Meet the FY 2001 ASCI Program Plan milestones for development of modeling and simulation tools and capabilities required for design and certification of the nuclear weapons stockpile.
  Assessment: MET

PROGRAM GOAL:

DP GG 1.32

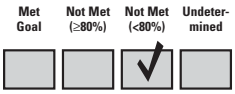


PIT MANUFACTURING: Restore the capability and some limited capacity to manufacture pits of all types required by the nuclear weapons stockpile including planning the design and construction of a Modern Pit Facility (MPF) to support long-term pit manufacturing.

Commentary: Actions continued to restore the capability and some limited capacity to manufacture pits of all types required by the nuclear weapons stockpile including planning the design and construction of a MPF to support long-term pit manufacturing. FY 2004 performance targets accomplished made a positive contribution toward achieving this long-term Pit Campaign goal that, when coupled with the target accomplishments of other campaigns, supports a strategy to develop science, design, engineering, testing, and manufacturing capabilities needed for long-term stewardship of the nuclear weapons stockpile. This directly supports the NNSA goal to maintain and enhance the safety, security, and reliability of the Nation's nuclear weapons stockpile to counter the threats of the 21st century.

Associated Annual Target for FY 2004

DP GG 1.32.1 Number of W88 pits manufactured.



Annual Target: Manufacture 6 (for total of 8).

Commentary: Target not met; manufactured 3 (total 5). A reprogramming decision by Defense Programs, supported by NNSA and DOE and approved by OMB and the Congress transferred $32 M from the W88 to the W76. Subsequent management approval, coordinated with DOD's Nuclear Weapons Council, of a Baseline Change Request established a revised schedule for the program to manufacture 4 pits (total of 6) in FY04. LANL actually manufactured 3 pits (total of 5) and was on schedule to manufacture 2 additional until the unscheduled work stoppage associated with the CREM issue.

Supporting Documentation: DP Milestone Reporting Tool and monthly project reports.

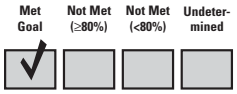
Plan of Action: HQ has approved this change based upon the fact that the rebaselined certification plan requires fewer tests on qualification pits than the previous plan, and relies on increased margin to be provided through the incorporation of an improved gas transfer system. The FY04 rebaselining schedule cancels the need for the 2 (FY04) pits, but still provides the required support for achieving a certified W88 pit, on schedule, in FY07. Progress on 1 (of the 2) LANL pits will be tracked until complete.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.32.2



Cumulative percent of major milestones, documented in the Pit Manufacturing and Certification Program Plan, completed on/ahead of schedule toward restoration of capability to manufacture the pit types in the enduring stockpile in FY 2009 and manufacture initial Engineering Development Units (EDUs) in FY 2012.

Annual Target: Complete 5% (new baseline).

Commentary: Target fully met. Completed initial 5% of major milestones in FY04. FY activities maintained progress toward restoration of capability to manufacture the pit types in the enduring stockpile in FY 2009.

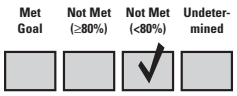
Supporting Documentation: DP Milestone Reporting Tool and monthly program reports.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.32.3



Cumulative percentage of major milestones, documented in the Pit Manufacturing and Certification Program Plan, completed on/ahead of schedule toward W88 pit certification.

Annual Target: Complete 25%.

Commentary: Target not met; completed 15%. LANL made significant progress in implementing the rebaselined schedule and was on track to complete 20% of the major milestones until the unscheduled work stoppage associated with the CREM issue. LANL is developing a revised schedule to meet the Level 1 Milestone for a certified pit by 2007.

Supporting Documentation: DP Milestone Reporting Tool and monthly program reports.

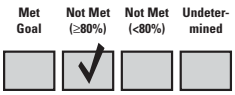
Plan of Action: NNSA is requesting the earliest possible completion date for the revised project baseline, including work packages, and a schedule for the completion of the major project milestones. After program approval, the schedule will be monitored until completion.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.32.4



Cumulative percentage of major milestones, documented in the Pit Manufacturing and Certification Program Plan, on/ahead of schedule toward completion of the Modern Pit Facility (MPF).

Annual Target: Complete 20% of the major milestones required for Critical Decision (CD)-1 approval (FY03 – initiated conceptual design).

Commentary: Target partially met; completed 17%. Progress continued through FY04 toward conceptual design (CD-1) of an MPF at a pace required for approval in 2007. The Program completed all required actions; however, the Administrator, NNSA and Secretary of Energy decided to defer until FY05 or later the release of Final Environmental Impact Statement (EIS) and programmatic Record of Decision.

Supporting Documentation: DP Milestone Reporting Tool; NA-1 Press release, 01/28/04 on MPF EIS deferral, including potential host site selection; and program documentation.

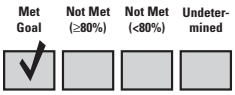
Plan of Action: Action Plan has two major components: (1) Maintain program readiness to complete associated milestones within 60 days of approval to proceed with MPF decision and (2) restructure Campaign activities to support continued development of a long-term pit manufacturing infrastructure, without near-term down-select to a single host.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.32.5



Completion of Nevada Test Site (NTS) milestones, documented in the Pit Manufacturing and Certification Program Plan, on or ahead of schedule toward execution of Los Alamos National Laboratory (LANL) major subcritical experiment (SCE) activities in support of the Pit Campaign.

Annual Target: Complete all FY04 milestones in support of the planned SCEs.

Commentary: Fully met target. Completed NTS milestones toward execution of LANL major subcritical experiments. This is significant because FY04 activities maintained schedule for the NTS to complete all related work by 2006.

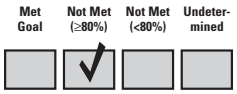
Supporting Documentation: DP Milestone Reporting Tool and monthly program reports.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

PROGRAM GOAL:

DP GG 1.33

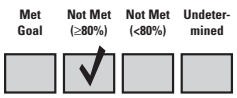


READINESS CAMPAIGN: An essential component of the Stockpile Stewardship Program with the responsibility for developing or reestablishing new manufacturing processes and technologies for qualifying weapon components for reuse.

Commentary: Actions continued to develop or reestablish new manufacturing processes and technologies for qualifying weapon components for reuse. Successful accomplishment of the FY 2004 performance targets made a positive contribution toward achieving this long-term Readiness Campaign goal that, when coupled with the target accomplishments of other campaigns, supports a strategy to develop science, design, engineering, testing, and manufacturing capabilities needed for long-term stewardship of the nuclear weapons stockpile. This directly supports the NNSA goal to maintain and enhance the safety, security, and reliability of the Nation's nuclear weapons stockpile to counter the threats of the 21st century.

Associated Annual Target for FY 2004

DP GG 1.33.2



Quantity of the major milestones, documented in the Readiness Campaign Program Plan, for major manufacturing processes (high explosives and weapons operations, stockpile readiness, and nonnuclear readiness), concerning new/upgraded capabilities completed, including foundry, machining, recovery, assembly, inspection, and verification processes to support stockpile production and Life Extension Program requirements.

Annual Target: Complete 5 of 27 major manufacturing process milestones.

Commentary: Target partially met; completed 4 (80%)of major manufacturing milestones for FY04. Program was on schedule to complete all 5 until the LANL unscheduled work stoppage associated with the CREM issue delayed the Integrated Pit Inspection Station.

Supporting Documentation: DP Milestone Reporting Tool and program reports.

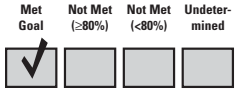
Plan of Action: Complete remaining target FY05/1Q. The Pantex Plant has a recovery plan in place to complete the Integrated Pit Inspection Station (IPIS) milestone within 12 weeks of receipt of the engineering evaluation release (EER) from LANL. EER delivery is forecast for 10/29/04, and the inspection station is expected to complete in 2Q/FY 05. Track remaining target until complete.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.33.3 Quantity of coated cladding tubes acquired for Tritium-Producing Burnable Absorber Rods.



Annual Target: Obtain 317 coated cladding tubes.

Commentary: Target fully met. Acquired 317 coated cladding tubes-delivered from PNNL to WesDyne. Tubes will be used in the next assembly of Tritium-Producing Burnable Absorber Rods (TPBARS) that will be shipped from Westinghouse Fuels in 12/04. This is significant because FY activities maintained progress to complete irradiation of 1840 TPBARS by 2010 to regenerate tritium production.

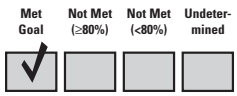
Supporting Documentation DP Milestone Reporting Tool and program reports.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.33.4 Cumulative percent of Tritium Extraction Facility (TEF) construction phase completed.



Annual Target: Complete 90% of TEF construction phase.

Commentary: Target fully met. Completed additional 40% (total 90%) of TEF construction in FY04. This is significant because the TEF remains on schedule for completion/turnover.

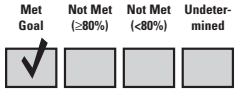
Supporting Documentation: DP Milestone Reporting Tool and SRS monthly reports to NA-10.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.33.5 Cumulative percentage of Tritium Extraction Facility (TEF) project (total project cost), while maintaining a Cost Performance Index of 0.9-1.5.



Annual Target: Complete 80% of TEF project.

Commentary: Target fully met. Completed additional 16% (total 80%) of TEF project in FY04. The TEF remains on schedule for completion/turnover.

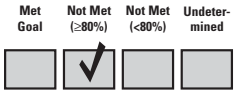
Supporting Documentation: DP Milestone Reporting Tool and SRS monthly reports to NA-10.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

PROGRAM GOAL:

DP GG 1.34

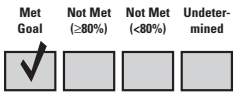


READINESS IN TECHNICAL BASE AND FACILITIES (RTBF) - OPERATIONS AND MAINTENANCE: Operate and maintain National Nuclear Security Administration (NNSA) program facilities in a safe, secure, efficient, reliable and compliant condition so that they are operationally ready to execute nuclear weapons stockpile stewardship tasks on-time as identified by the Directed Stockpile Work and Campaign programs. This includes facility operating costs (e.g. utilities, equipment, facility personnel, training, and salaries); facility and equipment maintenance costs (staff, tools, and replacement parts); environmental, safety, and health costs; the capability to recover and recycle plutonium, highly-enriched uranium, and tritium to support a safe and reliable nuclear stockpile; and specialized storage containers sufficient to support the requirements of the Nuclear Weapons Stockpile. To accomplish this mission, the NNSA must reverse the deterioration of its nuclear weapons infrastructure, restore lost production capabilities, and modernize selected facilities in order to be ready to begin scheduled refurbishments.

Commentary: Facility and infrastructure activities resulted in continued improvements to a safe, secure, efficient, reliable and compliant condition of the nuclear weapons complex in support of Stockpile Stewardship Program requirements. Successful accomplishment of the FY 2004 performance targets made a positive and on-schedule contribution toward achieving this long-term RTBF O&M goal that, when coupled with the target accomplishments of RTBF Construction, supports a strategy to provide state-of-the-art facilities and infrastructure supported by advanced scientific and technical tools to meet operational and mission requirements. This directly supports the NNSA goal to ensure the vitality and readiness of the NNSA's nuclear security enterprise.

Associated Annual Target for FY 2004

DP GG 1.34.1



Annual percentage of scheduled days that mission essential facilities are actually available.

Annual Target: 90% or more.

Commentary: Target exceeded. The average facility availability is 97.14%. This is significant because FY activities continued program efforts to maintain a responsive infrastructure.

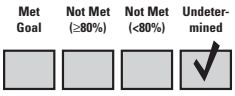
Supporting Documentation: DP Milestone Reporting Tool and site reports.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.34.2 Number of Reportable Accidents/200,000 hours work [vs. the Bureau of Labor and Statistics (BLS) national standard].



Annual Target: Reportable accidents are below National Bureau of Labor standards of 6.4.

Commentary: Results can not be determined by 9/30/04 because site reporting of fourth quarter accident rates is not be available until November, 2004. Final results will be determined and reported at that time. Aggregate accident rate through the third quarter is 1.85 per 200,000 work hours, well below the National Bureau of Labor Statistics (BLS) rate of 6.4. This accomplishment is significant because FY activities maintained the program efforts to provide a safe working environment.

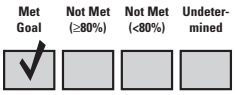
Supporting Documentation: DP Milestone Reporting Tool and site reports.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.34.11 Annual NNSA complex-wide aggregate Facility Condition Index (FCI), measured in deferred maintenance cost per replacement plant value, for all mission-essential facilities and infrastructure (the industry standard for good facilities is below 5%).



Annual Target: FCI below 10%.

Commentary: Target exceeded. The aggregate FCI for NNSA mission-essential facilities and infrastructure is 7.23%. This is significant because FY activities are on track to achieve an FCI of 5% or below.

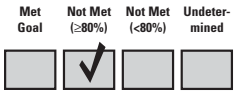
Plan of Action: DP Milestone Reporting Tool and site reports.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

PROGRAM GOAL:

DP GG 1.35

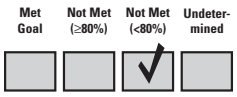


READINESS IN TECHNICAL BASE AND FACILITIES (RTBF) - CONSTRUCTION: New and ongoing line-item construction projects which support the nuclear weapons complex, but are not directly attributable to Directed Stockpile Work (DSW) or a specific campaign. RTBF construction focuses on state-of-the-art facilities and infrastructure and advanced scientific and technical tools, within the approved baseline cost and schedule, to ensure a reliable nuclear weapons stockpile.

Commentary: Line construction project activities resulted in continued improvements to a safe, secure, efficient, reliable and compliant condition of the nuclear weapons complex in support of Stockpile Stewardship Program requirements. FY 2004 performance targets accomplished made a positive and on-schedule contribution toward achieving this long-term RTBF Construction goal that, when coupled with the target accomplishments of RTBF O&M, supports a strategy to provide state-of-the-art facilities and infrastructure supported by advanced scientific and technical tools to meet operational and mission requirements. This directly supports the NNSA goal to ensure the vitality and readiness of the NNSA's nuclear security enterprise.

Associated Annual Target for FY 2004

DP GG 1.35.1



Number of projects initiating designs/attaining Critical Decision (CD)-1 , or canceled for cause.

Annual Target: Initiate design (CD-1) on, or cancel for cause, 11 projects.

Commentary: Target not met. Initiated design on 7 projects and cancelled 1 project (Lithoraphy Galvanoformung Abformung (LIGA) facility) for cause (73%). Postponed design initiation to FY05 for three projects (LANL Chemistry and Metallurgy Research Facility Replacement (CMRR), SRS Capability for Advanced Loading Missions (CALM), and Y-12 Beryllium) because of funding limitations and priorities.

Supporting Documentation: DP Milestone Reporting Tool and Project Reports.

Plan of Action: Reschedule 3 projects to FY05; track remaining target to completion.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.35.2 Number of projects initiating construction [CD-3] on schedule, or canceled for cause.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☐	☑	☐	☐

Annual Target: Initiate construction (CD-3) on, or cancel for cause, 8 projects.

Commentary: Target partially met. Because of priority changes, actually scheduled 7 projects for CD-3 and completed 7. Based on funding limits and priorities, 1 project (LANL CMRR Light Laboratory/Office Building) was moved to FY05.

Supporting Documentation: DP Milestone Reporting Tool and Project Reports.

Plan of Action: The remaining project will be reported against FY05 target.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.35.3 Number of construction projects completed [CD-4] within approved scope, cost, and schedule baselines.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Annual Target: Complete construction (CD-4) on 9 projects.

Commentary: Target fully met. Because of priority changes, actually scheduled 12 projects for CD-4 and completed 10.

Supporting Documentation: DP Milestone Reporting Tool and Project Reports.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Additional Targets from 2003-2001

FY 2003
- Meet established facility operating plans and construction schedules to ensure the physical infrastructure and facilities are operations, safe, secure, and compliant, and that a defined state of readiness is sustained at all needed facilities (NS 4-2a).
  Assessment: MET

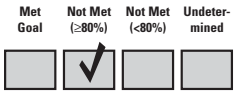
FY 2002
- Meet established facility operating plans and construction schedules to ensure the physical infrastructure and facilities are operational, safe, secure, and compliant, and that a defines state of readiness is sustained at all needed facilities. This includes addressing safety issues to allow restart of the Y-12 enriched uranium reduction process.
  Assessment: MET

FY 2001

- Ensure that the physical infrastructure and facilities are operational, safe, secure, and compliant, and that a defines state of readiness is sustained at all needed facilities.
  Assessment: MET

PROGRAM GOAL:

DP GG 1.36

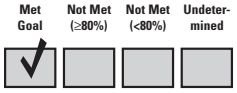


SECURE TRANSPORTATION ASSET (STA): Maintaining a capability for the safe and secure transport of nuclear weapons, components, and materials that will meet projected Department of Energy (DOE), Department of Defense (DoD), and other customer requirements.

Commentary: Actions continued to maintain a capability for the safe and secure transport of nuclear weapons, components, and materials to meet projected DOE, DoD, and other customer requirements. Successful accomplishment of the FY 2004 performance targets made a positive and on-schedule contribution toward achieving this long-term STA goal that supports a strategy to provide state-of-the-art facilities and infrastructure supported by advanced scientific and technical tools to meet operational and mission requirements. This directly supports the NNSA goal to ensure the vitality and readiness of the NNSA's nuclear security enterprise.

Associated Annual Target for FY 2004

DP GG 1.36.1 Number of secure convoys completed each year.



Annual Target: Complete > 90 convoys.

Commentary: Target met. Completed 91 convoy equivalents. This is significant because FY activities continued progress toward goal of 150 annual convoys.

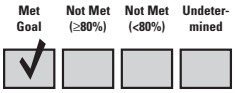
Supporting Documentation: DP Milestone Reporting Tool and STA customized computer database. (Convoy baseline is five days at full agent manning. Trip information from database is extracted and converted to convoy equivalents.)

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.36.2 Number of vehicles produced each year to replace the aging fleet of 100 escort vehicles and 46 armored tractors.



Annual Target: Replace > 20 vehicles.

Commentary: Target Exceeded. Replaced 23 vehicles (9 Conventional Escort Vehicles, 12 Special Response Vehicles, and 2 armored tractors). This is significant because FY activities continued progress toward fleet improvement goal.

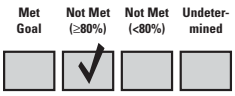
Supporting Documentation: DP Milestone Reporting Tool and contractor Statement of Work and delivery documents.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.36.3 Total number of Safeguard Transporters (SGTs) in operation to achieve a fleet of secure trailers.



Annual Target: Produce 3 SGTs for a total of 32 trailers.

Commentary: Target technically not met. Produced 3 SGTs as scheduled for a total of 31 trailers. However, the target of 32 (vs. 31) was incorrectly included at FY start based on an internal change in accounting for available trailers tested and operational vs. trailers off the production line. FY activities continued progress to achieve a fleet of 51 secure trailers.

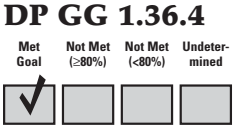
Supporting Documentation: DP Milestone Reporting Tool and contractor delivery documents.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.36.4 Total number of Federal Agents each year to achieve 420 agents by the end of 2008.



Annual Target: Achieve agent end-strength >266.

Commentary: Target exceeded. Current strength is 283. Rebaselining during the FY increased target to 280 to meet the needs of the accelerated DOE Environmental Management requirements. This is significant because FY activities continued progress toward achieving an agent force of 420.

Supporting Documentation: DP Milestone Reporting Tool and STA Federal Personnel database.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

PROGRAM GOAL:

DP GG 1.37 *NUCLEAR WEAPONS INCIDENT RESPONSE*: Respond to and mitigate nuclear and radiological incidents worldwide.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
	✓		

Commentary: Efforts remains on-track to achieve this program goal. Significant achievements during FY2004 included expanding maritime search capabilities, increasing consequence management qualifications, and improving response personnel/equipment readiness and remote assessment capabilities.

Associated Annual Target for FY 2004

DP GG 1.37.1 Cumulative number of the 7 designated Radiological Assistance Program (RAP) Regions with a maritime radiation search program.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
✓			

Annual Target: 1 (new baseline).

Commentary: The target was exceeded by fully establishing a maritime search program in 2 RAP regions. In addition to meeting all requirements at these 2 RAP regions, the program also completed all requirements except training on ship boarding procedures at 2 other RAP regions. However, NNSA is rethinking the process for RAP personnel to gain access to vessels at sea. Focus is shifting to train USCG in search procedures rather than RAP personnel boarding vessels at sea. In addition, the program completed deployment of maritime search equipment to all 7 RAP regions. This achievement is important because it is aimed at improving the nation's capability to detect the illicit introduction of nuclear and radiological weapons/material into the United States.

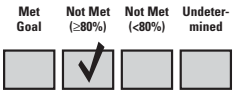
Supporting Documentation: Evidence of these results are documented in the Emergency Response Database System (ERDS).

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.37.2 Cumulative percentage of identified RAP team members (80 of 216) qualified to provide technical assistance in managing and executing the response to a radiological or nuclear event.



Annual Target: 30% of 80 team members qualified (new baseline).

Commentary: The target was not fully met as only 29% (23 of 80) of the planned RAP team members were qualified in FY04. This achievement is important because it allows RAP teams to manage the response to the aftermath of a radiological or nuclear event without having to wait for another team to arrive on the scene.

Supporting Documentation: Evidence of these results are documented in the Emergency Response Database System (ERDS).

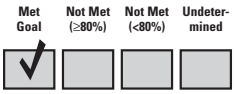
Plan of Action: Training for 1 of the 24 RAP members identified for training in FY2004 was delayed because of operations for emergency response. Training for this individual will be done during FY2005 when the next 24 RAP members are scheduled for training. Since this measures is cumulative the training for this individual is already included in the FY2005 target of 60%.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.37.3 Annual number of "no-notice" emergency management exercises conducted.



Annual Target: Conduct 8 exercises.

Commentary: The target was fully met by completing 8 no-notice exercises. This achievement is important because it provides the realistic training needed to prepare responders to handle an actual emergency. It also allows for new equipment and procedures to be tested and lessons identified in order to improve performance.

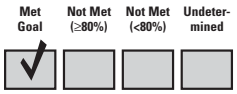
Supporting Documentation: Evidence of these results are documented in the FY04 No-Notice Exercise reports are available in the NA-41 Report Management Database.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.37.4 Annual Triage capability, measured in number of calls that could be resolved, to provide remote isotopic identification of an unknown item and determine if a threat exists.



Annual Target: 250 (new baseline).

Commentary: The target was fully met by validating the capability to resolve 250 individual triage calls annually for radiation spectrum analysis. A "triage call" is one radiation spectra file (i.e. the information contained from one radiation measurement) contained in an e-mail message. Each spectra file contained in an e-mail message is considered a separate triage call because it is analyzing a separate threat. During FY 04, field managers were able to compress multiple individual radiation spectrum analysis requests into one communication, in effect compressing multiple individual calls into one "batched" call. Triage received 31 of these "batched" calls, conducted 42 drills, and 17 communications checks, for a total of 90 callouts, collectively containing an equivalent of 250 individual calls. All requests were resolved successfully. This achievement is important because it provides a new and growing capability to remotely and cost-effectively determine the identity of an unknown item to see if a real threat exists so that response teams do not deploy unless appropriate.

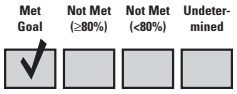
Supporting Documentation: Evidence of these results are documented in the Triage Database.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.37.5 Cumulative percentage of emergency response equipment replaced, upgraded, or re-certified by 2009.



Annual Target: 15% (new baseline).

Commentary: The target was exceeded by recertifying 100% of the equipment in FY04. Emergency response equipment to be replaced, upgraded, or re-certified have been entered into a central database and are being tracked for compliance to maintenance schedules. This achievement is important because it ensures that all response equipment is ready for use.

Supporting Documentation: Evidence of these results are documented in the Emergency Response Database System (ERDS).

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

PROGRAM GOAL:

DP GG 1.38

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
✓			

FACILITIES AND INFRASTRUCTURE RECAPITALIZATION PROGRAM (FIRP): Restore, rebuild and revitalize the physical infrastructure of the nuclear weapons complex – the third leg of the new Triad as identified in the Nuclear Posture Review dated December 2001 and released by the Administration in January 2002. The program applies new direct appropriations to address an integrated, prioritized series of repair and infrastructure projects focusing on deferred maintenance that will significantly increase the operational efficiency and effectiveness of the NNSA weapons complex sites.

Commentary: The Facilities and Infrastructure Recapitalization Program is contributing directly and significantly to the revitalization of the nuclear weapons complex, and based on FY 2004 results, remains on track to meet its long term goals. Recapitalization projects were authorized and funded in FY 2004 which will eliminate $98 million of deferred maintenance, 8% of the $1.2 billion FY 2009 deferred maintenance elimination goal. Additionally, disposition projects were authorized and funded which will result in the elimination of over 525,000 gross square feet of excess space, achieving a cumulative total of 57% of the FY 2009 goal of three million gross square feet to be eliminated. Approximately 77% of FY 2005 Recapitalization Projects are being planned with FY 2004 funds, exceeding the annual target of 53%.

Associated Annual Target for FY 2004

DP GG 1.38.1

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
✓			

Annual dollar amount of deferred maintenance backlog reduced based upon projects that have been issued authorizations to start work (and cumulative percentage of the estimated total deferred maintenance backlog of $1.2 billion to be reduced). The NNSA commitments are to stabilize deferred maintenance by the end of FY 2005 and achieve industry standards by the end of FY 2009 for mission essential facilities and infrastructure. The industry standard is for deferred maintenance to be less than 5% of Replacement Plant Value.

Annual Target: By the end of the fiscal year, issue authorizations to start work to achieve a reduction in NNSA's deferred maintenance of $79 million (7% of the estimated FY03 $1.2 billion baseline).

Commentary: Annual performance target was exceeded by issuing authorizations to start work on projects that will reduce NNSA's deferred maintenance by $98 million, for a cumulative total of approximately 8% of the estimated total deferred maintenance of $1.2 billion to be reduced by FY 2009. This achievement is important because it demonstrates significant progress towards NNSA's goal to reach industry standards in deferred maintenance levels for mission-essential facilities and infrastructure by FY 2009.

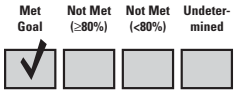
Supporting Documentation: Evidence of these results is documented in approved FIRP Work Authorizations for FY 2004 projects.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.38.2



Annual gross square feet (gsf) of excess facilities space reduced based upon projects that have been issued authorizations to start work (and cumulative percentage of gsf reduced) to achieve a total of three million gsf of excess facilities space reduced by FY 2009 in support of overall footprint reduction efforts.

Annual Target: By the end of the fiscal year, issue authorizations to start work to achieve a reduction to the NNSA footprint of 325,000 gsf, increasing the total footprint reduction to 45% of the estimated 3 million gsf that FIRP will disposition by FY 2009.

Commentary: Annual performance target was exceeded by issuing authorizations to start work on projects that will reduce NNSA's footprint by over 525,000 gsf, for a cumulative total of approximately 57% of the three million gsf that FIRP will disposition by the end of FY2009. This achievement is important because it demonstrates continued progress towards NNSA's goal for the elimination of excess facilities.

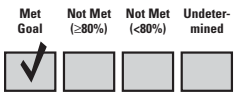
Supporting Documentation: Evidence of these results is documented in approved FIRP Work Authorizations for FY 2004 Facilities Disposition projects.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.38.3



Percentage of "next year" planned Recapitalization projects that are planned with current year planning funds.

Annual Target: At least 53%.

Commentary: Annual performance target was exceeded by issuing authorizations to plan 55 of 71 programmed FY 2005 Recapitalization projects. This represents approximately 77% of next years Recapitalization projects being planned with FY 2004 funds. This achievement is important because it demonstrates continued commitment to the effective and efficient execution of FIRP Recapitalization projects through advanced project planning.

Supporting Documentation: Evidence of these results is documented in approved FIRP Work Authorizations for FY 2004 Infrastructure Planning projects.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Additional Targets from 2003-2001

FY 2003
- Execute a multi-year Recapitalization Program to arrest the deterioration and reduce the backlog of maintenance and repair projects (NS 4-2b).
  Assessment: MET

FY 2002
- Execute oversight of more than 50 FY 2002 Recapitalization Projects consistent with scope, cost, and schedule baselines.
  Assessment: MET

FY 2001
- There were no additional targets in FY 2001.

PROGRAM GOAL:

DP GG 1.39

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
	✓		

SAFEGUARDS AND SECURITY: Protect National Nuclear Security Administration (NNSA) personnel, facilities, nuclear weapons, and information from terrorists and other post September 11th threats in a cost-effective manner.

Commentary: The program is on-track to fully achieve its long-term goal. During FY2004 results were mixed in that protective force overtime and physical security effectiveness were below targets. However, the program's cyber security effectiveness exceeded the target, completion of corrective action plans to fix all known findings exceeded the target, and the program is on-track to develop technologies that will reduce overtime and improve effectives thus correcting problem areas.

Associated Annual Target for FY 2004

DP GG 1.39.1 Percentage of Protective Force staff unscheduled overtime.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
	✓		

Annual Target: Reduce to 30%.

Commentary: The target was partially met as unscheduled overtime for FY 2004 yielded an annual cumulative rate of 34.7% of hours complex-wide compared to the target of 30%. This is important because reducing guard overtime hours through the deployment of new technologies reduces security operations costs.

Supporting Documentation: Defense Nuclear Security (DNS) FY2004 Unscheduled Overtime as Percentage of Total Overtime Table.

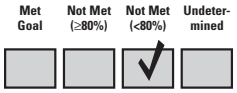
Plan of Action: Site visits were conducted during the early months of FY 2004. Management remains acutely aware of the need to reduce overtime, however continues to struggle with two primary realities: 1) the timeline for granting security clearances and 2) a period of heightened security; each of which increases the time it takes to hire and train new employees. This is an annual target which will remain unmet for FY 2004 but NNSA is investigating options to reduce unscheduled OT during FY 2005 through the deployment of new technologies to ease protective force requirements.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.39.2



Percentage of each of six physical security topical area reviews (program management, protective forces, physical security systems, information security, nuclear materials control and accountability and personnel security) at the NNSA sites where an evaluation of "effective" is achieved.

Annual Target: Increase to 80%.

Commentary: The target was not met as only 53.1% (26 of 49) of NNSA's physical security topical areas received effective ratings during their last OA inspection. This achievement is important because is provides an independent assessment of the physical security effectiveness at NNSA sites against a standard.

Supporting Documentation: Evidence of these results can be found in DNS Physical Security Table.

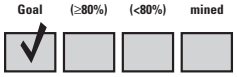
Plan of Action: All sites required to submit Corrective Action Plans (CAPs) have done so. A second OA inspection is scheduled for Y-12 in May 2005 to further assess progress. In addition, HQ is working closely with Y-12 and Nevada on critical issues highlighted in OA reports.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.39.3



Percentage of classified and unclassified Cyber Security reviews at the NNSA sites where an evaluation of "effective" is achieved.

Annual Target: Increase to 80%.

Commentary: The target of 80% was exceeded, as 10 out of 12, or 83% of NNSA's cyber security topical areas received effective ratings during their last OA inspections. This achievement is important because is provides an independent assessment of the cyber security effectiveness at NNSA sites against a standard.

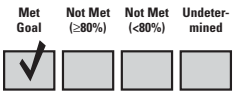
Supporting Documentation: Evidence of these results can be found in DNS Cyber Security Table.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.39.4



Percentage of Office of Independent Oversight & Performance Assurance (OA), Inspector General (IG) and Government Accountability Office (GAO) findings that have approved corrective action plans in place within 60 days from receipt of final report.

Annual Target: 90% of findings (FY03 - 4 sites 100%, 3 sites 90%, and 1 site 27%).

Commentary: The target was exceeded as 100% of sites established approved corrective action plans on-time. Each of the three sites reviewed have submitted approved Corrective Action Plans (CAPs) within the required 60 days. This achievement is important because it measures NNSA responsiveness in identifying effective fixes for findings identified during OA and other inspections.

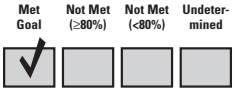
Supporting Documentation: Evidence of these results are documented in each site's CAP submissions: SNL-NM: Feb 27, 2004; Oak Ridge Y-12: April 16, 2004; LLNL-Cyber: May 24, 2004. Nevada is set to submit a CAP by mid-November, 2004.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1.39.5



Cumulative number of advanced technologies deployed for routine use, which reduce operational security costs while maintaining or increasing security "effectiveness".

Annual Target: Establish a technology development and application program.

Commentary: The target was fully met by establishing a program for development of new technologies. During the year NA-70 established a new program with over $5 million allocated to nine projects. The first technology is an enhancement of the Pantex early warning radar system, which will be deployed for routine use in October 2004. This achievement is important because new technologies will both increase security effectiveness and decrease protective force hours (costs).

Supporting Documentation: Evidence of these results are documented in the Technology Development Plan of March 2004.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Additional Targets from 2003-2001

FY 2003

- Assess line management's progress in implementing Integrated Safeguards and Security Management (NS 4-3a).
  Assessment: MET

- Complete implementation of "Higher Fences" to enhance the protection of certain Restricted Weapons Data within the DOE and DoD (NS 4-3b).
  Assessment: Met less than 80% of the Target

FY 2002

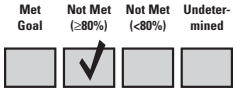
- Develop a strategic framework for responsive and effective security methodology following the September 11, 2001, events.
  Assessment: MET

FY 2001

- There were no additional targets in FY 2001.

PROGRAM GOAL:

DP GG 1/2 50

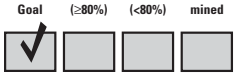


OFFICE OF THE ADMINISTRATOR (This Program Goal is shared with NN GG 1/2 50) Create a well-managed, diverse, inclusive, responsive, and accountable organization through the strategic management of human capital; enhanced cost-effective utilization of information technology; and greater integration of budget and performance data.

Commentary: Efforts remain on-track to achieve this program goal. Significant achievements during FY2004 included exceeding targets for reduction of NNSA federal staff, reduction is staffing vacancies and surplus employees, average PART scores, and awarding strategic sourcing contracts. IT targets were fully met and leadership targets were intentionally delayed two months into FY 2005 to take advantage the completion of the final stages of the NNSA reorganization.

Associated Annual Target for FY 2004

DP GG 1/2 50.1



(This Annual Target is shared with NN GG 1/2 50.1) Number of NNSA Federal employees.

Annual Target: 1,705 Federal employees (FY03 - 1,768).

Commentary: The target was exceeded as the end of year FY 2004 NNSA Federal staffing level for the Office of the Administrator account was 1,663. This achievement is important because it represents a reduction of 340 employees from FY 2002, a decrease of 17.0%.

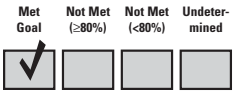
Supporting Documentation: Evidence of these results are documented in the NNSA Staffing Summary document prepared by NA-64, NNSA Office of Human Resources.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1/2 50.2 (This Annual Target is shared with NN GG 1/2 50.2) Annual NNSA Employment Efficiency Index to measure effectiveness in filling needed positions in accordance with approved Managed Staffing Plans.



Annual Target: 72% (new baseline).

Commentary: The target was exceeded as NNSA achieved an index of 97.1%. This achievement is important because NNSA continues to fill critical and noncritical vacancies and reduce surplus employees at a steady pace. The index may fluctuate when Managed Staffing Plans are revised to identify additional critical needs.

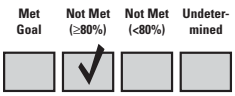
Supporting Documentation: Evidence of these results are documented in the "NNSA Employment Efficiency Index" prepared by the NNSA Office of Human Resources (NA-64). All information is based on the approved Managed Staffing Plans (MSPs).

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1/2 50.3 (This Annual Target is shared with NN GG 1/2 50.3) Percentage of NNSA employees who are aware that they can take a leadership role in fostering a diverse and inclusive workplace.



Annual Target: Develop NNSA's diversity leadership metrics and baseline.

Commentary: The target was unmet as only 85% of baselining activities were completed. Career coaching and follow up of 2003 Diversity Leadership Skills Training currently is in process and all other activities were completed on-time except the organizational assessment that was projected for September. Ambassador Brooks requested that the organizational assessment be conducted in November after the largest part of the NNSA reorganization is completed. This achievement is important to increase NNSA diversity and working environment.

Supporting Documentation: Evidence of these results are documented in the NNSA Diversity Demographic Analysis information is obtained quarterly from the DOE Info System which is updated on a continuous basis by NNSA's Office of Human Resources.

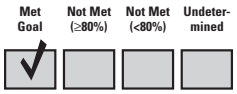
Plan of Action: Complete the organizational assessment in November (2 months late) as requested by Ambassador Brooks so it will come after the largest part of the NNSA reorganization is completed.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1/2 50.4 (This Annual Target is shared with NN GG 1/2 50.4) Average NNSA program score on the OMB PART assessment indicating progress in budget performance integration and results.



Annual Target: 70%.

Commentary: Target was exceeded by achieving an average PART score of 81.2%. Over the past 3 years OMB has assessed 10 of NNSA's 23 programs. OMB determined that one of those programs (EWGPP) was too new to fully rate at this time and the other 9 programs averaged a PART score of 81.2% (the average PART score including Elimination of Weapons Grade Plutonium Production (EWGPP) is 77.2% still exceeding the target). This achievement is important because it demonstrates that NNSA is ahead of schedule for meeting a Presidential requirement for all Government programs to integrate their performance results and budget dollars in terms that are clear and meaningful to the American public.

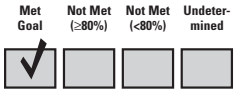
Supporting Documentation: Evidence of these results are documented in OMB PART excel spreadsheets and OMB 1-page PART Summaries. The Summaries are published each year in the budget.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1/2 50.5 (This Annual Target is shared with NN GG 1/2 50.5) Number of procurement actions awarded as a result of NNSA's Strategic Sourcing Initiative.



Annual Target: Award three contracts at a minimum cost savings of ten percent.

Commentary: Our annual target was exceeded. In total, we made 9 new prime strategic contract awards this fiscal year. This is a significant achievement because it resulted in at least a 10% cost savings.

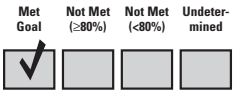
Supporting Documentation: Evidence of the number of contracts awarded are documented in the tracking worksheet summarizing Contract Name, Work Description, Billing Amount, Contract Duration, Projected Obligations, and Award Date. Evidence for the percentage of cost savings can be documented by comparing this fiscal years tracking worksheet with previous years.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

DP GG 1/2 50.6 (This Annual Target is shared with NN GG 1/2 50.6) Percentage of NNSA federal offices consolidated to the NNSA Information Technology Common Environment/Service Center. NOTE: Annual cost savings (gross) of $11M against an operating baseline of $34M will be achieved through a rationalized and modernized architecture resulting in reduced requirements for contractor support, equipment replacement and maintenance, and software procurement and licensing.



Annual Target: Baseline and initiate NNSA IT Service Center Standup and Common Environment project.

Commentary: The target was met by NNSA completing 100% of planned activities in FY 2004: project baselined, initiated and Livermore Site Office transitioned to Service Center support. Completed detailed planning for Los Alamos Site Office upgrades and also completed upgrades initiated during 4th Quarter. This achievement is a significant step in achieving NNSA IT modernization by FY06 that will result in an annual cost savings (gross) of $11M against an operating baseline of $34M.

Supporting Documentation: Evidence of these results are documented in the NNSA Service Center Standup Project Management Lifecycle Documentation, Volume 3 Execution Phase, Books 1-4.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

General Goal 2: Nuclear Nonproliferation

Provide technical leadership to limit or prevent the spread of materials, technology, and expertise relating to weapons of mass destruction; advance the technologies to detect the proliferation of weapons of mass destruction worldwide; and eliminate or secure inventories of surplus materials and infrastructure usable for nuclear weapons.

Summary of FY 2004 Annual Performance Targets

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
25.5	8.5	3	0

FY 2004 Program Costs ($ in Millions): Goal 2 Costs: $1,101
FY 2003 Program Costs ($ in Millions): Goal 2 Costs: $ 968

PROGRAM GOAL:

NN GG 2.40

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
	✓		

NONPROLIFERATION VERIFICATION RESEARCH AND DEVELOPMENT: Develop new technologies to improve U.S. Government capabilities to detect and monitor nuclear weapons production and testing worldwide.

Commentary: The Nonproliferation Verification Research and Development program has achieved their goal in developing new technologies to improve U.S. Government capabilities to detect and monitor nuclear weapons production and testing worldwide. The one goal not fully met is due to the lack of available subject matter experts. To resolve this issue, the program is actively recruiting the necessary technical independent reviewers.

Associated Annual Target for FY 2004

NN GG 2.40.3

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
✓			

Number of advanced technologies and operational systems (e.g. satellite payloads and seismic station calibration data sets) delivered to U.S. national security users which improves the accuracy and sensitivity of nuclear weapon test monitoring.

Annual Target: 6 (FY03 - 4).

Commentary: Target exceeded. Through 4th Q, 7 were completed. Two calibration data sets were delivered to operational users in November 2003. Two other data sets were delivered from the LLNL and LANL scientific integrators to the knowledge integrators at SNL in June. These were delivered to the operational users in July. For the space-based program, three operational systems were delivered. The Global Positioning System (GPS) Block IIF Global Burst Detection payload was delivered to the satellite contractor on schedule at the end of June. The demonstration/validation experiment for the enhanced Bahngmeter was launched on June 23.

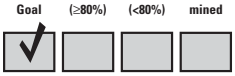
Supporting Documentation: Supporting documentation includes the contract deliverable documents: SNL quarterly progress reports and SNL pre-shipment readiness reviews.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.40.5 Number of professional papers/exchanges presented – each representing Science and Technology knowledge and U.S. leadership in program area.



Annual Target: 200 (FY03 - 250).

Commentary: Target exceeded. Through 4th Q, completed total of 202 papers. 93 papers are from the remote sensing group, 28 papers from proliferation detection and 30 papers from ground based nuclear explosion monitoring. 51 papers were presented at the Seismic Research Review (SRR) held in September of 2004.

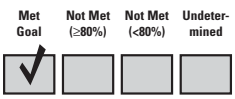
Supporting Documentation: Supporting documentation includes project conceptual, design analysis, and test documentation.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.40.7 Number of advanced radiation and remote sensing technologies developed and evaluated through customized tests which challenge and characterize their operating parameters. These advanced technologies are intended to improve U.S. accuracy in detecting the early stages of nuclear weapon programs.



Annual Target: 7 (FY03 - 4).

Commentary: Target exceeded. Through 4th Q, 9 were completed. In 4Q, two field tests were conducted. The "Portable Automated Sampler of the PUREX Process" field test took place on August 11, 2004 at the Nevada Test Site as part of the Roadrunner III series of experiments. A report detailing the experiment plan, samples collected and preliminary results was received on August 24, 2004. Analysis of the samples is continuing (during September 2004) and a full report will be submitted in early FY 2005. A uranium release experiment was conducted. The release within the F-Cell of 224-U was conducted on August 30 at 1550. These Infrared systems are being developed for NA22 under project PL211I.

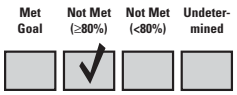
Supporting Documentation: Supporting documentation includes The utility of FM DIAL for Proliferation Detection report.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.40.8



Annual percentage of all active R&D projects for which an independent R&D merit assessment has been completed within the last 3 years to determine the scientific quality and continued user and mission relevance.

Annual Target: 40% (FY03 - 20%).

Commentary: Target not fully met. Through 4th Q, accomplished 37% (69/185) of the established target of 40%.

Supporting Documentation: Supporting documentation includes independent assessment/team members review of project plans, and technical and administrative supporting documents (e.g. life cycle plans, orders, directives, etc.).

Plan of Action: The independent review process has expanded to include an additional program area. To meet this increased objective, new independent reviewers are being recruited (throughout FY04 and FY05) with the necessary subject matter expertise to support this new program area.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Additional Targets from 2003-2001

FY 2003

- Demonstrate prototype commercial cargo inspection system to detect fissile materials and high explosives (NS 2-1a).
  Assessment: MET

- Provide two assays for biological threat agents to the Center for Disease Control Laboratory Response Network (NS 2-1b).
  Assessment: MET

- Work with U.S. Customs personnel to familiarize them with nuclear equipment, material, and technology, and to improve real-time analysis of suspect shipments (NS 2-2b).
  Assessment: MET

- Expand bilateral physical protection visits, physical protection training, and the IAEA's International Physical Protection Advisory Service to help protect WMD facilities around the world against terrorist attack and sabotage (NS 2-2c).
  Assessment: MET

FY 2002

- Field a demonstrated, deployable prototype biological threat detection system at the Winter Olympics.
  Assessment: MET

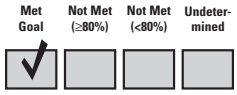
- Expand cooperation with other states and U.S. Customs to improve export control capabilities.
  Assessment: MET

FY 2001

- There were no additional targets in FY 2001.

PROGRAM GOAL:

NN GG 2.41

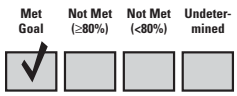


HEU TRANSPARENCY IMPLEMENTATION: Assurance that the LEU being purchased under the 1993 U.S./Russian HEU Purchase Agreement is derived from HEU extracted from dismantled Russian nuclear weapons, by developing and implementing mutually agreeable transparency measures to ensure that the 500 MT of HEU covered by the Agreement is permanently down blended and eliminated from Russian inventory.

Commentary: All FY04 targets fully met providing adequate assurance that the LEU being purchased under the 1993 U.S./Russian HEU Purchase Agreement is derived from HEU extracted from dismantled Russian nuclear weapons.

Associated Annual Target for FY 2004

NN GG 2.41.1



Number of Blend-Down Monitoring Systems (BDMS) operational and the annual percent of operation during the HEU blend-down process.

Annual Target: Two Blend-Down Monitoring Systems with an annual percent of operation targeted for 94%.

Commentary: Target was exceeded. BDMS systems are operational at two (2) plants: the Ural Electrochemical Integrated Plant (UEIP) and Electrochemical Plant (ECP). Analysis of data for October through August indicates that system operability was 100%. Data for September was obtained during Special Monitoring Visits in October 4-8 (UEIP) indicating system operability in September at UEIP. However, the overall system operability at both sites is 23/24 or 96%. This is important because high system operational capability provides for more blend down operations.

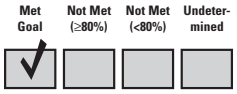
Supporting Documentation: FY04 BDMS System Availability table.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.41.2 Percentage completed of the 24 annually allowed Special Monitoring Visits (SMVs) to the four Russian HEU-to-LEU processing facilities to monitor 30 MT per year of HEU converted to LEU completed.



Annual Target: Conduct 22, 92%, of 24 allowed visits.

Commentary: Target exceeded as 100% of the 24 allowed visits were conducted. This accomplishment is significant because Special Monitoring Visits (SMVs) are one of the most important monitoring rights negotiated related to the HEU Purchase Agreement. SMVs are critical to program activities to acquire transparency data and provide assurance that HEU is being processed as declared and that HEU is being eliminated from the Russian stockpile. They are our only means to access and acquire BDMS output reports.

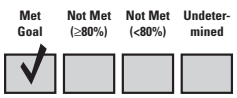
Supporting Documentation: Evidence of these results are documented in the Trip History Report listing all locations/dates for all SMVs completed in FY04. Also, individual trip reports are available for all completed SMVs.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.41.3 Percentage of the year that the on-site Transparency Monitoring Office (TMO), is staffed at the Ural Electrochemical Integrated Plant.



Annual Target: TMO coverage of plant operating schedule at 75% (FY03-70%).

Commentary: Target exceeded as the Transparency Monitoring Office (TMO) was staffed 80% of the time (201 staffing days over 251 plant operation days). This accomplishment is significant because the TMO is one of the rights that were negotiated related to the HEU Purchase Agreement. Monitors operating from the TMO are critical to program activities since they have daily plant access to acquire transparency data and provide assurance that HEU is being processed as declared and that HEU is being eliminated from the Russian stockpile.

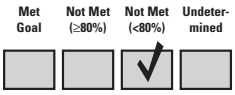
Supporting Documentation: Evidence of these results are documented in the Comparison of FY04 TMO Staffing and Plant Operations Days.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

PROGRAM GOAL:

NN GG 2.42

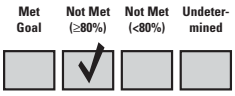


ELIMINATION OF WEAPONS-GRADE PLUTONIUM PRODUCTION (EWGPP) REACTORS: Reduce the threat of nuclear terrorism by facilitating shutdown of the three remaining weapons-grade plutonium production reactors in the Russian Federation through: (1) construction of a new fossil-fuel (coal) plant at Zheleznogorsk; (2) refurbishment of an existing fossil-fuel (coal) power plant at Seversk; and (3) execution of a nuclear safety upgrades project to improve reactor safety pending shutdown of the reactors.

Commentary: FY04 results reflect that the EWGPP program remains on schedule, despite a slight delay to the Seversk program, which will be recovered through the efforts described in the Action Plan. The program's overall FY 2004 rating is a result of the Russian termination of the U.S. interim Nuclear Safety Upgrades project, the third portion of this program. The Russians will accomplish this project themselves, and the elimination of this project will not affect the goals to shutdown the three reactors. Because the score for the Safety upgrades measure is zero, the overall rating for EGWPP is red, even though the other two measures are green and yellow.

Associated Annual Target for FY 2004

NN GG 2.42.1



Percentage of progress towards constructing a fossil plant in Seversk facilitating shut down of two weapons-grade plutonium production reactors.

Annual Target: Complete 16% of the construction (FY03 - 1%).

Commentary: The target was partially met as only 12.9% of the construction of the Seversk fossil fuel plant was completed (vs. the target of 16% of construction completed). These results were calculated using the Earned Value Management equation for percentage of construction completed. This calculation is Budgeted Cost of Work Performed (in this case $22M inclusive of long-lead procurement) divided by Budgeted Cost of all work at Completion of Construction (in this case $171M). Note: All activities budgeted and planned for FY04 were completed as scheduled, however, an increase adjustment in the Budgeted Cost of all work at Completion of Construction resulted in a reduction to the percentage of construction completed to date.

Supporting Documentation: Source Document for obligations reference Washington Group International, Contract No. DTRA01-01-D-0012, Task Order No. DE-AT52-03NA99067, Revision 013, Monthly Progress Report, September, 2004).

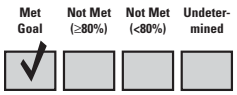
Plan of Action: The Seversk project obligated about $82M through September 28, 2004. These additional funds have been authorized for the first quarter of FY 2005. Further obligations of $39.5M are anticipated in FY05, which will allow the project to meet the planned FY 2005 target completion. In addition, the Seversk project is scheduled for Critical Decision 2, Approval of Performance Baseline, in the first quarter of FY 2005.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.42.2 Percentage of progress towards constructing a fossil plant in Zheleznogorsk facilitating shut down of one weapons-grade plutonium production reactor.



Annual Target: Complete 3% of the construction.

Commentary: The target was exceeded as 5% of the construction of the Zheleznogorsk fossil fuel plant was completed (vs. the target of 3% of construction completed). These results were calculated using the Earned Value Management equation for percentage of construction completed. This calculation is Budgeted Cost of Work Performed (in this case $14.9M) divided by Budgeted Cost of all work at Completion of Construction (in this case $295M).

Supporting Documentation: Source Documentation for obligations reference Zheleznogorsk Plutonium Production Elimination Project, Cost Performance Report, September 2004.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.42.3 Percentage of progress towards completing interim safety upgrades to the three operating Russian plutonium production reactors.

Annual Target: Complete 14% of the safety upgrades (FY03 - 5%).

Commentary: Project cancelled based on Feb 18 letter from Minatom 1st Deputy Minister Borovkov. The Russians have notified DOE/NNSA that they plan to fully fund interim safety upgrades. Therefore, the project's resources will be reallocated to the Seversk and Zheleznogorsk fossil fuel plant construction in accordance with baseline adjustments that are underway on those two projects.

Supporting Documentation: N/A

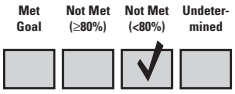
Plan of Action: Since the Russians formally declared they will do this work without U.S. assistance, this performance measure will be eliminated in FY05.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

PROGRAM GOAL:

NN GG 2.44

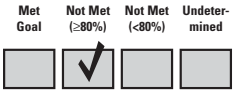


NONPROLIFERATION AND INTERNATIONAL SECURITY: Detect, prevent, and reverse the proliferation of weapons of mass destruction (WMD) materials, technology, and expertise, and to strengthen the nonproliferation regime.

Commentary: The Nonproliferation and International Security program has achieved a significant portion of their goal in detecting, preventing, and reversing the proliferation of weapons of mass destruction. The one goal that is identified in "red" is still under negotiation in terms of the purchase price of HEU fuel for U.S. research reactor use. Because the score for the HEU fuel purchase measure is zero, the overall rating for the NIS program is red, even though three of the other four measures are green and one is yellow.

Associated Annual Target for FY 2004

NN GG 2.44.1



Cumulative percentage of work completed on 98 targeted research and test reactor cores converted from high enriched uranium (HEU) to low enriched uranium (LEU).

Annual Target: Convert 42% of 98 reactors (39%).

Commentary: This target was partially met as 40% (39 of 98) of the targeted reactors have been converted. This achievement is significant because once these research and test reactors are converted from HEU to LEU cores they no longer pose a nuclear proliferation threat.

Supporting Documentation: Evidence of these results are documented in a Table, titled "U.S. Supplied Research and Test Rectors Formally Using HEU That Have Been Fully or Partially Converted to LEU Fuel in the Reduced Enrichment Research and Test Reactor (RERTR) Program", of an Argonne National Laboratory letter of June 17, 2004.

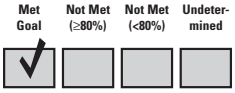
Plan of Action: The FY04 target of 42% of 98 reactors equates to 41 reactors converted. The 2 reactors not converted in FY04 will be completed along with another reactor by FY05/Q4.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.44.2



Annual number of safeguards or physical protection courses conducted.

Annual Target: Conduct nine physical protection courses.

Commentary: Target exceeded. Five of the nine FY04 physical protection courses were conducted in 1Q. Three courses were conducted in the 2Q, five courses were conducted in 3Q and three more were conducted in the 4Q. The program exceeded the goal with a total of 16 training courses or workshops conducted. This is important because it educates experts worldwide in the fundamentals of nuclear non-proliferation.

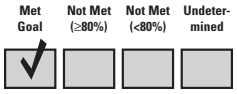
Supporting Documentation: Trip reports were received and verify completion of the workshops.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.44.3 Annual percentage of U.S. exports reviewed for proliferation concern.



Annual Target: Review 100% of U.S. nuclear-related transfers, and 60% of missile technology and chemical and biological -related exports.

Commentary: Target fully met. The organization has met the target to review WMD related export licenses for proliferation concern. This is important because DOE provides nuclear expertise to US Customs reviewing officials.

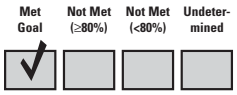
Supporting Documentation: Based on data in PINS, in the 4th Quarter, 1,729 export license applications were received and 100% completed a technical review. Based on data in PINS, in the 4th Quarter, 1,729 export license applications were received and 100% completed a technical review.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.44.4 Cumulative number of cooperative agreement actions completed.



Annual Target: Complete 15 actions.

Commentary: Target exceeded. 19 actions have been completed. Cooperative agreement actions are usually officially completed during annual meetings with international partners. Two additional meetings took place in the forth quarter, adding to the third quarter action of 17. This is significant because DOE provides advanced nuclear safeguards technology to foreign governments to better protect civilian nuclear facilities.

Supporting Documentation: Monthly reports from the field indicate the completion of this action.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.44.5 Cumulative kilograms of HEU purchased and delivered.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
		✓	

Annual Target: 177 kgs HEU (new baseline).

Commentary: Target not met, with 0 kg HEU delivered. Purchase price remains an unresolved issue with Russia.

Supporting Documentation: Supporting document is the July 23, 2004 letter from NNSA Deputy Administrator Longsworth to Mr. Kuchinov of Rosatom.

Plan of Action: Awaiting response from Rosatom on latest (7/26/04) U.S. pricing offer to purchase HEU for U.S. research reactor fuel use. NA-23 plans to coordinate with U.S. Embassy-Moscow to get Russian feedback and formal reply in October 2004.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Additional Targets from 2003-2001

FY 2003

- Demonstrate a fixed system to protect complex, key infrastructure facilities, components, and capabilities (NS 2-1c).
  Assessment: MET

- Successfully complete and close down the Soviet-designed reactor safety program (NS 2-4a).
  Assessment: Met at or above 80% but less than 100% of the Target

- Evaluate and prioritize nuclear safety concerns at nuclear power plants, research reactors and non-reactor nuclear fuel cycle facilities, and prepare needs assessments for technology transfers of nuclear safety methods based on risk with potential participant countries (NS 2-4b).
  Assessment: Met at or above 80%, but less than 100% of the Target

- Expedite the retrieval of spent nuclear fuel from Central Asia (NS 2-2a).
  Assessment: Met at or above 80% but less than 100% of the Target

FY 2002

- Develop a small nuclear safety pilot program between the U.S. Department of Energy and the Vietnamese Atomic Energy Commission.
  Assessment: MET

FY 2001

- Demonstrate systems to protect key infrastructure and special events from chemical and biological attacks.
  Assessment: MET

- Complete safety parameter display systems for Ukraine's South Ukraine nuclear plant unit 3, and Zaporizhzhya nuclear plant units 2 and 4.
  Assessment: MET

- Complete implementation of symptom-based emergency operating instructions at the Ignalina plant in Lithuania.
  Assessment: MET

- Complete comprehensive upgrades on an additional eight percent of 850 metric tons (MTs) of weapons-usable nuclear material raising the total to almost 21% secured at 95 sites in Russia.
  Assessment: Nearly Met Goal

PROGRAM GOAL:

NN GG 2.45

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

RUSSIAN TRANSITION INITIATIVE (RTI): Prevent adverse migration of weapons of mass destruction expertise by engaging weapons experts in peaceful efforts and by helping to downsize the Russian nuclear weapons complex.

Commentary: The Russian Transition Initiative program has fully met the goals of preventing adverse migration of weapons of mass destruction expertise by engaging weapons experts in peaceful efforts and by helping to downsize the Russian nuclear weapons complex. The program has engaged 8,200 experts, created 16 new business lines, and converted weapons equipment for commercial use at Zheleznogorsk.

Associated Annual Target for FY 2004

NN GG 2.45.1

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Annual number of former Soviet Weapons scientists, engineers, and technicians engaged.

Annual Target: 7,900.

Commentary: Target has been exceeded as 8, 200 former Soviet scientists, engineers and technicians were engaged (300 more than the FY2004 target). This is important because these scientists are less motivated to use their WMD skills for a livelihood with other rogue nations or terrorists.

Supporting Documentation: This is being tracked by the payment mechanism through the CRDF and the International Science and Technology Center (ISTC).

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Enhance nonproliferation efforts in the Russian nuclear cities, and accelerate several Russian technology development efforts that have clear counter-terrorism or terrorism response applications under the Russian Transition Initiatives (NS 2-3c).
  Assessment: MET

FY 2002

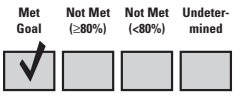
- Engage 2,500 former WMD scientists on cooperative commercial projects.
  Assessment: MET

FY 2001

- Engage approximately 2,000 scientists, engineers, and technicians at nuclear NIS institutes and approximately 800 scientists, engineers and technicians at NIS chemical/biological institutes in 40 projects to provide long-term commercial employment.
  Assessment: MET

Associated Annual Target for FY 2004

NN GG 2.45.2 Cumulative number of technologies commercialized or businesses created.



Annual Target: 21 technologies commercialized or businesses created.

Commentary: Target fully met. Dormash Road Repair Manufacture in Sarov completely self-sustainable, Atomlink ISP self sustaining and profitable in Zheleznogorsk, Kraspan energy efficient wall panels business created and profitable in Zheleznogorsk, Pharmaceutical Production in Snezhinsk begun in pilot phase. Ulba Metallurgical Plant in Kazakhstan has developed two new commercial product lines (beryllium-copper alloys, uranium concentrate recovery), and developed software for Nuclear Power Plant Simulator model at Sarov Open Computing Center. Annual goal for FY 2004 is one new technology commercialized or businesses created. This is important because these technologies are an alternative to WMD production. Year to date the program has completed 16 new business lines for a total of 36.

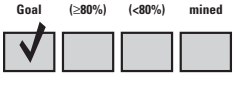
Supporting Documentation: This was verified through the Management Information System for RTI projects.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.45.3 Cumulative percentage of nuclear complex reduction targets at six weapons facilities and complete.



Annual Target: Complete 53% of all targets.

Commentary: Target fully met. FY2004 results - 53% - includes Niobium metal production business assessment, which will use PUREX nuclear weapons equipment for commercial purposes in Zheleznogorsk. This is important because it eliminates WMD production infrastructure.

Supporting Documentation: This was verified through monthly reports from the laboratories.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.45.4 Annual percentage of non-U.S. Government (USG) funding contributions obtained.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Annual Target: Obtain non-USG funding contributions equal to 60% of RTI project funds ($24 million).

Commentary: Non-USG funding exceeded the target of 60% of $24 million. Russian and Global Partnership contribution is increasing, including for All Russian Scientific Research Institute of Experimental Physics (VNIIEF)-Conversia Projects in Sarov, UK-CNCP funding energy Savings and IDC activities in Snezhinsk. Ten newly approved scientist engagement projects have 100% U.S. industry partner matching funds. This is important because it transitions these efforts to non-USG funding.

Supporting Documentation: Survey conducted by United States Industry Coalition (USIC) (for venture capital and other investment in Initiatives for Proliferation Prevention (IPP) projects) and national laboratory Cooperative Research and Development Agreements (CRADAs) with U.S. industry partners, verifies the completion of this target.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

PROGRAM GOAL:

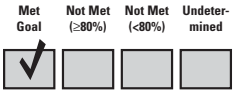
NN GG 2.46 *INTERNATIONAL MATERIALS PROTECTION AND COOPERATION*: Prevent nuclear terrorism by working in Russia and other regions of concern to (1) secure and eliminate vulnerable nuclear weapons and weapons-usable material; (2) locate, consolidate and secure radiological materials that can be used in a dirty bomb; and (3) install detection equipment at border crossings and Mega-Seaports to prevent and detect the illicit transfer of nuclear material.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☐	☑	☐	☐

Commentary: Efforts to prevent nuclear terrorism in Russia and other regions of concern remain on track. Significant accomplishments during FY 2004 included: exceeding/achieving targets for the security of the Russian warhead sites; achieving the target for the security of comprehensive MPC&A upgrades on weapons-usable nuclear material; exceeding the target for the security of Radiological Dispersal Devices; converting a cumulative total of 20% of the 17 MTs of surplus HEU to LEU; and completing installation of radiation detection equipment to detect nuclear smuggling at a total of 66 sites in the world including 2 Megaports.

Associated Annual Target for FY 2004

NN GG 2.46.1 Percentage of 39 Russian Navy warhead sites secured.



Annual Target: Secure 85% of the sites.

Commentary: Exceeded target by securing a cumulative total of 87% of the Russian Navy warhead sites, 2% (1 site) above the target for a cumulative total of 34 sites. This is important because it better secures a significant WMD proliferation threat.

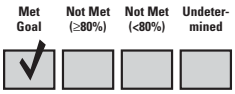
Supporting Documentation: Contract deliverable documents including photos, periodic site visits and assurance reports.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.46.2 Percentage of 25 Russian Strategic Rocket Forces sites secured.



Annual Target: Secure 8% of the sites.

Commentary: Met target by securing a cumulative total of 8% (2 sites) of the Strategic Rocket Forces sites. This is important because it better secures a significant WMD proliferation threat.

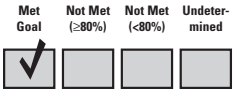
Supporting Documentation: Contract deliverable documents including photos, periodic site visits and assurance reports.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.46.3 Percentage of 600 MTs of weapons-usable nuclear material secured.



Annual Target: Secure 26% of the material.

Commentary: Target met, secured 26% of the material. This is important because it better secures a significant WMD proliferation threat.

Supporting Documentation: Completed task order deliverables, site visits, and assurance reports.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.46.4 Percentage of 27 MTs of HEU converted to LEU.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undeter-mined
	✓		

Annual Target: Convert 24% of the material (FY03 - 16%).

Commentary: Target not met, converted a cumulative total of 20% of HEU to LEU. This is due to an insufficient amount of feed material made available for blend down at Scientific Research Institute of Atomic Reactors (RIAR). This is important because it eliminates a significant WMD proliferation threat.

Supporting Documentation: Supporting documentation includes the Material Consolidation and Conversion project Down blending Conversion Summary.

Plan of Action: The blend down contract at RIAR was amended to assist the site in obtaining a greater amount of HEU feed for conversion. RIAR has reported that this has been successful in increasing the amount of feed material available and in increasing the conversion rate. Program expects to meet the FY04 target of 24% of 27 MTs (or 6.5 MTs) of HEU converted to LEU by FY05/Q3.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.46.5 Cumulative number of Radiological Dispersal Devices (RDD) sites secured.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undeter-mined
✓			

Annual Target: Secure 35 sites.

Commentary: Target exceeded by securing a cumulative total of 69 RDD sites, well above the FY 2004 target of 35 sites. This is important because it better secures a potential proliferation threat.

Supporting Documentation: Contract deliverables received, i.e. status reports, pictures etc.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.46.6 Cumulative number of Second Line of Defense (SLD) sites with nuclear detection equipment installed.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
	✓		

Annual Target: Install equipment at 74 sites (FY03 - 39).

Commentary: Target not met; completed a total of 27 sites (66 cumulative) including 2 Megaports, 20 sites in Russia, 1 in Lithuania, and 4 in Greece for a total 25 Core Program sites, verse the target of 74 sites. This is due to the length of time taken by foreign governments to review and approve agreement language. This program is important because it improves US capabilities to detect elicit WMD transport far from the US homeland.

Supporting Documentation: All sites can be verified as completed via the documentation of an Acceptance Testing Report.

Plan of Action: Kazakhstani government approval of Implementing Agreement (IA) is still underway. In addition, US DOS has identified a requirement for another exchange of Diplomatic Notes that must precede completion of IA. Awaiting comments from Ukrainian Border Guards on proposed Implementing Agreement, and DOE is pursuing other potential IA options. Slovenia is awaiting European Commission endorsement of SLD Program before ratification of Implementing Agreement. SLD Management is working with Brussels to address this issue. For Megaports, commitments by foreign governments to participate (i.e., negotiation and signature of Memoranda of Understanding or "MOU") coming more slowly than anticipated, however, MOU was signed with Sri Lanka in late FY 04. Implementation of Initiative at Port of Colombo is in process. Additionally, the program has engaged with 23 governments on the Megaports Initiative. Agreements with at least six countries appear to be nearing completion. Pace of implementation should increase in first quarter, FY 05 as MOUs with foreign governments are signed.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- There were no related annual targets in FY 2003.

FY 2002
- Accelerate the rapid and comprehensive upgrades on at-risk plutonium, highly enriched uranium, and Naval nuclear weapons at Russian sites and Second Line of Defense deployments.
  Assessment: MET

FY 2001
- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

NN GG 2.46.7 Annual percentage of buildings scheduled for completion of security upgrades in a year that are done on time.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
	✓		

Annual Target: Complete upgrades on 100% of the buildings scheduled for FY 04.

Commentary: Target was not met as only 92.9% (26 of 28 buildings) of the originally scheduled buildings were completed on-time compared with the stated target of 100%. However, NNSA exercised its management prerogative and accelerated the completion in FY 2004 of an additional 12 buildings not previously scheduled for completion until after FY2004. As a result of NNSA management initiative, 38 buildings were completed in FY 2004, a 35.7% increase to the originally stated target.

Supporting Documentation: Completed task order deliverables, site visit reports, and assurance reports.

Plan of Action: The 2 remaining buildings originally scheduled for completion in FY 2004 are on-track to be completed during FY 2005.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Additional Targets from 2003-2001

FY 2003
- Install Material Protection Control and Accountability (MPC&A) upgrades on nuclear weapons and materials, eliminate weapons-usable materials, and consolidate the number of storage locations for weapons-usable materials into fewer building and sites to improve security in Russia (NS 2-3b).
  Assessment: Met at or above 80% but less than 100% of the Target

FY 2002
- There were no additional targets in FY 2002.

FY 2001
- There were no additional targets in FY 2001.

PROGRAM GOAL:

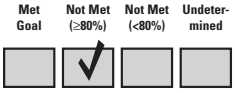
NN GG 2.47 *FISSILE MATERIAL DISPOSITION*: Eliminate surplus Russian plutonium and surplus U.S. plutonium and HEU.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
	✓		

Commentary: The program has downblended or shipped for downblending a cumulative total of 65 MT of U.S. surplus HEU. The program is also nearing the completion of the design of the U.S. MOX facility and is working with Russian on the design of its MOX facility.

Associated Annual Target for FY 2004

NN GG 2.47.1 Percentage of the design and construction of the Pit Disassembly and Conversion Facility (PDCF) completed.



Annual Target: Complete 85% of the detailed design (FY03 - 60%).

Commentary: Target not met, only 83% of the detailed design is complete due to the LANL shutdown, which delayed the process design support work, and reprogramming delays in January/February time frame, which caused the PDCF project to suspend design work due to lack of funding. This facility is important because it will reduce and secure the excess US nuclear stockpile material.

Supporting Documentation: Performance measure reported in monthly Earned Value Management System reports prepared by design contractor.

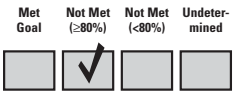
Plan of Action: Will meet the 85% target by the end of FY05/1Q and will be on track to meet the 100% design target by FY05/4Q.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.47.3 Percentage of the design and construction of the MOX Fuel Fabrication Facility completed.



Annual Target: Complete 100% of the detailed design (FY03 - 75%).

Commentary: Target not met, only 90% of the detailed design has been completed. This work has been delayed because the September 2000 Plutonium Management and Disposition Agreement states that the U.S. and Russian programs to dispose of 34 MT of surplus weapons-grade plutonium should proceed in rough parallel. The Russian plutonium disposition program has been delayed due to an inability to resolve disagreements regarding liability protections for U.S. work done in Russia. As a result, the start of construction of both U.S. and Russian MOX facilities has been delayed from June 2004 to May 2005. Despite this delay, the Administration remains committed to this important nonproliferation program, and is working on the resolution of this issue at the highest levels.

Supporting Documentation: Performance measure reported in monthly Earned Value Management System reports.

Plan of Action: NNSA and Duke, Cogema, Stone & Webster (DCS) have established a task force to identify and implement actions necessary to ensure completion of 100% of the licensable design by the end of FY05/1Q.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- Complete Title II (detailed) design of the Mixed Oxide Fuel Fabrication Facility for disposition of excess U.S. weapons-grade plutonium, and commence down blending of off-specification highly enriched uranium at the Savannah River Site (NS 2-3a).
  Assessment: Met less than 80% of the Target

FY 2002
- Develop a plan for U.S. and Russian plutonium disposition that is politically, fiscally, and technically feasible, and obtain White house approval.
  Assessment: MET

FY 2001
- The siting decision for plutonium disposition facilities is implemented based on the Record of Decision in FY 2000.
  Assessment: MET

Associated Annual Target for FY 2004

NN GG 2.47.4 Amount of HEU shipped to the United States Enrichment Corporation (USEC) for down-blending.

Annual Target: Ship an additional 11 metric tons (MT) for a total of 45MT.

Commentary: Target fully met by shipping an additional 11MT to USEC for downblending. This includes ~8MT of HEU metal and ~3MTU of HEU oxide shipped from the Y-12 National Security Complex to the USEC contractor for down blending in FY04. This is important because it will reduce excess US nuclear material.

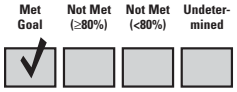
Supporting Documentation: Performance measure reported in monthly receipt reports provided by BWX Technologies Nuclear Products Division.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.47.5 Amount of off-specification HEU down-blended.



Annual Target: Down-blend ~ 9.0MT for a total of 12.7 MT.

Commentary: Target exceeded by downblending 10 MT HEU at Savannah River Site (SRS). In addition, NA-26 has delivered ~4.3 MT of resulting LEU and surplus HEU to the Tennessee Valley Authority (TVA). This is important because it will reduce excess US nuclear material.

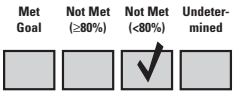
Supporting Documentation: Performance measures reported in monthly reports provided by Nuclear Fuel Services and SRS.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.47.6 Russianize the design and construct the MOX Fuel Facility in Russia.



Annual Target: Complete 60% of the Russianization of the design (FY03 - 10%).

Commentary: Target not met only 15% of the Russianization of the design has been completed. Russianization of the U.S. MOX facility design is being delayed as a result of an inability of the U.S. and Russia to agree on liability provisions for contractors working in Russia. This is important because it will reduce excess Russian nuclear material.

Supporting Documentation: Performance measure reported in monthly contractor progress reports.

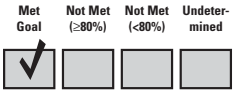
Plan of Action: State and DOE have established interim arrangements with the French Government to facilitate the transfer of limited design information to permit licensing, but not construction, of the Russian MOX facility.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

PROGRAM GOAL:

NN GG 2.62

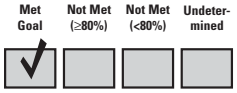


OFF-SITE SOURCE RECOVERY PROGRAM: Recover excess and unwanted sealed sources on a priority basis, determined by the U.S. Nuclear Regulatory Commission in consultation with the Department of Energy, to reduce and ultimately eliminate the risk these sources pose to homeland security by their possible use in a radiological dispersal device. The Off Site Source Recovery (OSRP) reduces this risk by removing excess and unwanted sources from non-Department of Energy sites and placing these sources in storage at Department of Energy facilities.

Commentary: The OSR Program exceeded both internal NNSA and congressionally mandated targets by achieving 10,022 cumulative radioactive sealed sources recovered during FY 2004. This achievement included specific high-profile work achieved in cooperation with the Nuclear Regulatory Commission and Department of Homeland Security: (1) conducting the most complex recovery to date by removing 480 sources from a bankrupt firm in Pennsylvania, (2) conducting the largest recovery to date by removing 60,000 curies of strontium-90 from the Houston area ahead of February's Superbowl, and (3) recovering 68 high-risk sources prior to this summer's political conventions in Boston and New York City.

Associated Annual Target for FY 2004

NN GG 2.62.1 Cumulative number of excess and unwanted sealed sources recovered.



Annual Target: Recover approximately 8,500 sealed sources.

Commentary: Target exceeded recovering 10,022 sources verses the FY 2004 target of 8,500 sealed sources. This is important because it removes a potential "dirty bomb" threat.

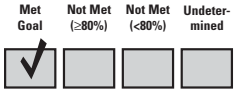
Supporting Documentation: Bi-weekly reports on source recovery provided by Los Alamos National Laboratory.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.62.2 Cumulative number of Department of Energy – owned loan-lease plutonium-239 beryllium sources recovered.



Annual Target: Recover 250 DOE-owned Plutonium (Pu)-239 sources.

Commentary: Target exceeded by recovering 265 plutonium-239 sources. This is important because it removes a potential "dirty bomb" threat.

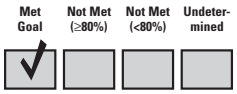
Supporting Documentation: Bi-weekly reports on source recovery provided by Los Alamos National Laboratory.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 2.62.3 Annual ratio of sources recovered in a year over the number of known excess sources at the beginning of that year Risk Reduction Efficiency Factor (RREF). The goal is to recover more sources in a year than were known at the beginning, for an RREF > 1.



Annual Target: At least 0.8.

Commentary: Target fully met by achieving a Risk Reduction Efficiency Factor (RREF) annual target of 1.071. At the beginning of FY 2004, we were aware of 2,515 sources that needed to be recovered. Through the forth quarter of FY 2004 we have recovered 2,693 sources for an RREF of 1.071. This is important because it removes a potential "dirty bomb" threat.

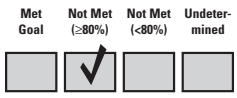
Supporting Documentation: Bi-weekly reports on source recovery provided by Los Alamos National Laboratory.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

PROGRAM GOAL:

NN GG 1/2 50

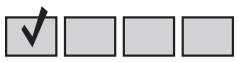


OFFICE OF THE ADMINISTRATOR: This Program Goal is shared with DP GG 1/2 50. Create a well-managed, diverse, inclusive, responsive, and accountable organization through the strategic management of human capital; enhanced cost-effective utilization of information technology; and greater integration of budget and performance data.

Commentary: Efforts remain on-track to achieve this program goal. Significant achievements during FY2004 included exceeding targets for reduction of NNSA federal staff, reduction is staffing vacancies and surplus employees, average PART scores, and awarding strategic sourcing contracts. IT targets were fully met and leadership targets were intentionally delayed two months into FY 2005 to take advantage the completion of the final stages of the NNSA reorganization.

Associated Annual Target for FY 2004

NN GG 1/2 50.1 (This Annual Target is shared with DP GG 1/2 50.1) Number of NNSA Federal employees.



Annual Target: 1,705 Federal employees (FY03 - 1,768).

Commentary: The target was exceeded as the end of year FY 2004 NNSA Federal staffing level for the Office of the Administrator account was 1,663. This achievement is important because it represents a reduction of 340 employees from FY 2002, a decrease of 17.0%.

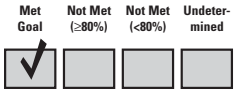
Supporting Documentation: Evidence of these results are documented in the NNSA Staffing Summary document prepared by NA-64, NNSA Office of Human Resources.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 1/2 50.2 (This Annual Target is shared with DP GG 1/2 50.2) Annual NNSA Employment Efficiency Index to measure effectiveness in filling needed positions in accordance with approved Managed Staffing Plans.



Annual Target: 72% (new baseline).

Commentary: The target was exceeded as NNSA achieved an index of 97.1%. This achievement is important because NNSA continues to fill critical and noncritical vacancies and reduce surplus employees at a steady pace. The index may fluctuate when Managed Staffing Plans are revised to identify additional critical needs.

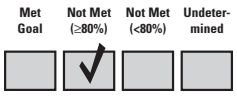
Supporting Documentation: Evidence of these results are documented in the "NNSA Employment Efficiency Index" prepared by the NNSA Office of Human Resources (NA-64). All information is based on the approved Managed Staffing Plans (MSPs).

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 1/2 50.3 (This Annual Target is shared with DP GG 1/2 50.3) Percentage of NNSA employees who are aware that they can take a leadership role in fostering a diverse and inclusive workplace.



Annual Target: Develop NNSA's diversity leadership metrics and baseline.

Commentary: The target was unmet as only 85% of baselining activities were completed. Career coaching and follow up of 2003 Diversity Leadership Skills Training currently is in process and all other activities were completed on-time except the organizational assessment that was projected for September. Ambassador Brooks requested that the organizational assessment be conducted in November after the largest part of the NNSA reorganization is completed. This achievement is important to increase NNSA diversity and working environment.

Supporting Documentation: Evidence of these results are documented in the NNSA Diversity Demographic Analysis information is obtained quarterly from the DOE Info System which is updated on a continuous basis by NNSA's Office of Human Resources.

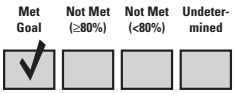
Plan of Action: Complete the organizational assessment in November (2 months late) as requested by Ambassador Brooks so it will come after the largest part of the NNSA reorganization is completed.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 1/2 50.4 (This Annual Target is shared with DP GG 1/2 50.4) Average NNSA program score on the OMB PART assessment indicating progress in budget performance integration and results.



Annual Target: 70%.

Commentary: Target was exceeded by achieving an average PART score of 81.2%. Over the past 3 years OMB has assessed 10 of NNSA's 23 programs. OMB determined that one of those programs (EWGPP) was too new to fully rate at this time and the other 9 programs averaged a PART score of 81.2% (the average PART score including EWGPP is 77.2% still exceeding the target). This achievement is important because it demonstrates that NNSA is ahead of schedule for meeting a Presidential requirement for all Government programs to integrate their performance results and budget dollars in terms that are clear and meaningful to the American public.

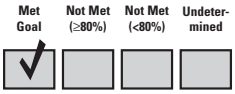
Supporting Documentation: Evidence of these results are documented in OMB PART excel spreadsheets and OMB 1-page PART Summaries. The Summaries are published each year in the budget.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 1/2 50.5 (This Annual Target is shared with DP GG 1/2 50.5) Number of procurement actions awarded as a result of NNSA's Strategic Sourcing Initiative.



Annual Target: Award three contracts at a minimum cost savings of ten percent.

Commentary: Our annual target was exceeded. In total, we made 9 new prime strategic contract awards this fiscal year. This is a significant achievement because it resulted in at least a 10% cost savings.

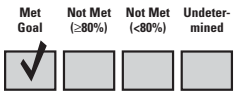
Supporting Documentation: Evidence of the number of contracts awarded are documented in the tracking worksheet summarizing Contract Name, Work Description, Billing Amount, Contract Duration, Projected Obligations, and Award Date. Evidence for the percentage of cost savings can be documented by comparing this fiscal years tracking worksheet with previous years.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NN GG 1/2 50.6 (This Annual Target is shared with DP GG 1/2 50.6) Percentage of NNSA federal offices consolidated to the NNSA Information Technology Common Environment/Service Center. NOTE: Annual cost savings (gross) of $11M against an operating baseline of $34M will be achieved through a rationalized and modernized architecture resulting in reduced requirements for contractor support, equipment replacement and maintenance, and software procurement and licensing.



Annual Target: Baseline and initiate NNSA IT Service Center Standup and Common Environment project.

Commentary: The target was met by NNSA completing 100% of planned activities in FY 2004: project baselined, initiated and Livermore Site Office transitioned to Service Center support. Completed detailed planning for Los Alamos Site Office upgrades and also completed upgrades initiated during 4th Quarter. This achievement is a significant step in achieving NNSA IT modernization by FY06 that will result in an annual cost savings (gross) of $11M against an operating baseline of $34M.

Supporting Documentation: Evidence of these results are documented in the NNSA Service Center Standup Project Management Lifecycle Documentation, Volume 3 Execution Phase, Books 1-4.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

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General Goal 3: Naval Reactors

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

Summary of FY 2004 Annual Performance Targets

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
7	0	0	0

FY 2004 Program Costs ($ in Millions): Goal 3 Costs: $740
FY 2003 Program Costs ($ in Millions): Goal 3 Costs: $687

PROGRAM GOAL:

NR GG 3.49 *NAVAL REACTORS*: Provide the Navy with safe, militarily effective nuclear propulsion plants and ensure their continued safe and reliable operation.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
✓			

Commentary: The program is on-track to fully achieve its long-term goal. During FY 2004 all targets to provide the Navy with safe, militarily effective nuclear propulsion plants and ensure their continued safe and reliable operation were met or exceeded.

Associated Annual Target for FY 2004

NR GG 3.49.1 Miles of safe reactor plant operation supporting National security requirements.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
✓			

Annual Target: Complete safe steaming of approximately two million miles in nuclear powered ships.

Commentary: The target was met for FY 2004. Naval Reactors safely steamed approximately two million miles in nuclear powered ships. This is important because it supports the Program's goal of providing the Navy with safe, militarily effective nuclear propulsion plants and ensuring their continued safe and reliable operation.

Supporting Documentation: Evidence of these results are documented in the Naval Reactors DOE Performance Measure Status Report.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- Complete safe steaming of approximately two million miles in nuclear-powered ships (NS 3-1a).
  Assessment: MET

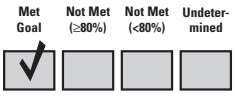
FY 2002
- Maintain utilization factors of at least 90% of operation of test reactor plants, and 124 million miles cumulative steamed for nuclear-powered ships.
  Assessment: MET

FY 2001

- Ensure the safety, performance, reliability, and service life of operating reactors for uninterrupted support of fleet demands, including maintaining utilization factors of at least 90% for test reactor plants, and 121 million miles steamed for nuclear-powered ships.
  Assessment: MET

Associated Annual Target for FY 2004

NR GG 3.49.2 Utilization factor for operation of test reactor plants.



Annual Target: Achieve a utilization factor of at least 90% for operation of test reactors.

Commentary: The target was exceeded for FY 2004. Naval Reactors achieved a utilization factor of 96% for the operation of test reactor plants. This is important because it supports the Program's goal of providing the Navy with safe, militarily effective nuclear propulsion plants and ensuring their continued safe and reliable operation.

Supporting Documentation: Evidence of these results are documented in the Naval Reactors DOE Performance Measure Status Report.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Achieve a utilization factor of a least 90 percent for operation of test reactor plants (NS 3-1b).
  Assessment: MET

FY 2002

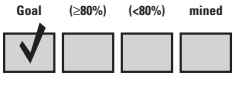
- Maintain utilization factors of at least 90% for operation of test reactor plants, and 124 million miles cumulative steamed for nuclear-powered ships.
  Assessment: MET

FY 2001

- Ensure the safety, performance, reliability, and service life of operating reactors for uninterrupted support of fleet demands, including maintaining utilization factors of a least 90% for test reactor plants, and 121 million miles steamed for nuclear-powered ships.
  Assessment: MET

Associated Annual Target for FY 2004

NR GG 3.49.3 Percent of completion on the next-generation submarine reactor plant design.



Annual Target: Complete 100%.

Commentary: The target was met in FY 2004. Naval Reactors completed 100% of the next-generation submarine reactor plant design. VIRGINIA was commissioned at Norfolk, Virginia on 10/23/04. This is important because it supports the Program's goal of providing the Navy with safe, militarily effective nuclear propulsion plants and ensuring their continued safe and reliable operation.

Supporting Documentation: Evidence of these results are documented in the Naval Reactors DOE Performance Measure Status Report.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- Next-generation submarine reactor design 99 percent complete (NS 3-1c).
  Assessment: MET

FY 2002
- Develop new technologies, methods, and materials to support reactor plant design, including the next generation submarine reactor, which will be 96% complete by the end of FY 2002; and conduct detailed design efforts on a reactor plant for the next generation aircraft carrier.
  Assessment: MET

FY 2001
- Develop new technologies, methods and materials to support reactor plant design, including the next generation submarine reactor, which will be 93% complete by the end of FY 2001; and initiate detailed design efforts on a reactor plant for the next generation aircraft carrier.
  Assessment: MET

Associated Annual Target for FY 2004

NR GG 3.49.4 Percent of completion on the next-generation aircraft carrier reactor plant design.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Annual Target: Complete 60%.

Commentary: The target was met for FY 2004. Naval Reactors has completed the FY 2004 Performance Measure Baseline resulting in 60% completion of the overall reactor plant design. This is important because it supports the Program's goal of providing the Navy with safe, militarily effective nuclear propulsion plants and ensuring their continued safe and reliable operation.

Supporting Documentation: Evidence of these results are documented in the Naval Reactors DOE Performance Measure Status Report.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- Next-generation aircraft carrier reactor design 55 percent complete (NS 3-1d).
  Assessment: MET

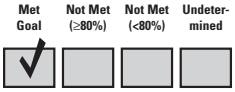
FY 2002
- Develop new technologies, methods, and materials to support reactor plant design, including the next generation submarine reactor, which will be 96% complete by the end of FY 2002; and conduct detailed design efforts on a reactor plant for the next generation aircraft carrier.
  Assessment: MET

FY 2001

- Develop new technologies, methods and materials to support reactor plant design, including the next generation submarine reactor, which will be 93% complete by the end of FY 2001; and initiate detailed design efforts on a reactor plant for the next generation aircraft carrier. **Assessment: MET**

Associated Annual Target for FY 2004

NR GG 3.49.5 Percent of completion on the Transformational Technology Core (TTC) reactor plant design.



Annual Target: Establish design basis from preliminary studies and development to enable the start of conceptual design.

Commentary: The target was met for FY 2004. TTC Nuclear Design Basis was submitted to NR headquarters for approval on 4/9/2004, and work on the Conceptual Design has begun. This is important because it supports the Program's goal of providing the Navy with safe, militarily effective nuclear propulsion plants and ensuring their continued safe and reliable operation.

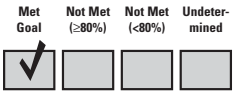
Supporting Documentation: Evidence of these results are documented in the Naval Reactors DOE Performance Measure Status Report.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NR GG 3.49.6 Ensure no one exceeds Federal limits for personnel radiation exposure from Program operations.



Annual Target: No personnel exceed 5 Roentgen Equivalent Man (REM)/year.

Commentary: The target was met for FY 2004. A review conducted on 30 September 2004 confirmed that no personnel exceeded Federal limits for personnel radiation exposure in FY 2004. This is important because it supports the Program's goal of providing the Navy with safe, militarily effective nuclear propulsion plants and ensuring their continued safe and reliable operation.

Supporting Documentation: Evidence of these results are documented in the Naval Reactors DOE Performance Measure Status Report.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- No personnel exceed 5 REM/year (NS 3-1e). **Assessment: MET**

FY 2002

- Maintain outstanding environmental performance by ensuring that no personnel exceed Federal limits for radiation exposure, and no significant findings result from environmental inspections by State and Federal regulators.
  Assessment: MET

FY 2001

- Maintain outstanding environmental performance by ensuring that no personnel exceed Federal limits for radiation exposure, and no significant findings result from environmental inspections by State and Federal regulators.
  Assessment: MET

Associated Annual Target for FY 2004

NR GG 3.49.7 Ensure Program operations have no adverse impact on human health or the quality of the environment.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Annual Target: Operations have no adverse impact on human health or the quality of the environment.

Commentary: The target was met for FY 2004. Naval Reactors ensured operations had no adverse impact on human health or the quality of the environment. This is important because it supports the Program's goal of providing the Navy with safe, militarily effective nuclear propulsion plants and ensuring their continued safe and reliable operation.

Supporting Documentation: Evidence of these results are documented in the Naval Reactors DOE Performance Measure Status Report.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Operations have no adverse impact on human health or the quality of the environment (NS 3-1f).
  Assessment: MET

FY 2002

- Maintain outstanding environmental performance by ensuring that no personnel exceed Federal limits for radiation exposure, and no significant findings result from environmental inspections by State and Federal regulators.
  Assessment: MET

FY 2001

- Maintain outstanding environmental performance by ensuring that no personnel exceed Federal limits for radiation exposure, and no significant findings result from environmental inspections by State and Federal regulators.
  Assessment: MET

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General Goal 4: Energy Security

Improve energy security by developing technologies that foster a diverse supply of reliable, affordable, and environmentally sound energy by providing for reliable delivery of energy, guarding against energy emergencies, exploring advanced technologies that make a fundamental improvement in our mix of energy options, and improving energy efficiency.

Summary of FY 2004 Annual Performance Targets

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
98	2	15	0

FY 2004 Program Costs ($ in Millions): Goal 4 Costs: $6,378
FY 2003 Program Costs ($ in Millions): Goal 4 Costs: $6,235

PROGRAM GOAL:

FE GG 4.55

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
	✓		

ZERO EMISSIONS COAL-BASED ELECTRICITY and HYDROGEN PRODUCTION: Create public/private partnerships to provide technology to ensure continued electricity production from the extensive U.S. fossil fuel resource, including control technologies to permit reasonable-cost compliance with emerging regulations, and ultimately, by 2015, zero emission plants (including carbon) that are fuel-flexible, and capable of multi-product output and efficiencies over 60% with coal and 75% with natural gas.

Commentary: The Zero Emissions Coal-Based Electricity and Hydrogen Production goal is on track for meeting its 2015 target. All FY04 critical targets have either been met or have action plans in place to ensure in the 2015 target will be met. 84% of the targets reported for GPRA and 90% of the targets tracked internally to FE have been complete on or ahead of schedule.

Associated Annual Target for FY 2004

FE GG 4.55.1.1

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
✓			

Complete bench- and pilot-scale testing of five novel mercury control concepts capable of achieving > or = 90% mercury capture and initiate seven new projects under second phase of field testing of mercury control technology capable of achieving 50% - 70% mercury capture at costs equals $35,000/lb mercury (Hg) removed.

Commentary: This target has been met. Multiple rounds of bench- and pilot-scale testing have been completed and eight projects have been initiated under the second phase of field testing of mercury control technology. These bench and pilot scale test of mercury control technologies are a critical step in the deployment of lower cost, higher mercury capture technologies.

Supporting Documentation: Multiple test reports.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Complete preliminary field testing of alternative mercury control technologies representing at least three approaches for achieving 50% or greater removal (ER4-1a).
  Assessment: MET

- Complete fine particulate monitoring in the Upper Ohio River Valley region; complete field testing of alternative particulate matter collection technologies representing at least two approaches for achieving 99.99 percent removal; initiate research of PM 2.5 and mercury transport and deposition (ER4-1c).
  Assessment: MET

- Initiate projects for developing technologies to address emerging electric utility/water issues and combustion byproducts utilization and disposal (ER4-1d).
  Assessment: MET

FY 2002

- Complete report characterizing concentration and composition of ambient PM 2.5 as input to the EPA PM 2.5 National Ambient Air Quality Standards (NAAQS) review. This data will help identify the impact of emission sources on air quality.
  Assessment: MET

- Complete Phase I report characterizing concentration and composition of ambient PM 2.5 emissions as input to the EPA PM 2.5 National Ambient Air Quality Standards (NAAQS) review. This data will help identify the impact of emission sources on air quality.
  Assessment: MET

FY 2001

- Deliver to EPA two years worth of high-quality PM 2.5 ambient monitoring data from the upper Ohio River Project.
  Assessment: MET

Associated Annual Target for FY 2004

FE GG 4.55.2.1 Complete Ion Transport Membrane (ITM) designs with target oxygen production of 95% purity, to obtain engineering data for further technology scale-up, ultimately leading to cost reductions of $75-$100/KW, and efficiency improvements of 1-2 points.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☐	☐	☑	☐

Commentary: Annual target not met. However, because most technically challenging part of the overall program, the function of the ceramic ITM is progressing well, APCI still anticipates commercial readiness by 2010. This will allow the Zero Emissions Coal-Base Electricity and Hydrogen Plant program goal to be met.

Supporting Documentation: N/A

Plan of Action: Air Products submitted a cost and scope revision application which has been accepted and an Amendment issued because it will result in a net gain to Government. As a result of the change in scope, the FY 04 Q4 milestone is now re-scheduled to FY 06 Q2. Process flow diagrams, control schemes, major equipment specs, firm bid estimate etc are complete and Air Products will pre-commercialize ITM Oxygen technology by 2008 and entrance plant by 2009.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Initiate developmental testing of SCR catalysts for reducing Nox emissions from alternatively fueled boilers (ER4-1b).
  Assessment: MET

- Establish the design basis for a one to five ton per day facility capable of determining engineering feasibility, defining technical performance, and establishing operating costs for oxygen separation using membrane technology (ER4-2a).
  Assessment: MET

FY 2002

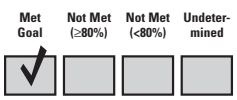
- There were no related annual targets in FY 2002.

FY 2001

- Issue request for proposals for the commercial scale demonstration of technologies to assure the reliability of the Nation's energy supply from existing and new electric generating facilities.
  Assessment: MET

Associated Annual Target for FY 2004

FE GG 4.55.2.2



Initiate testing on advanced hydrogen separation membranes in simulated coal gasification product streams and complete design of a hydrate pilot-scale slipstream test unit. Advanced hydrogen separation technologies target eventual sequestering of carbon dioxide (CO2) with a less than 10% increase in electricity cost by 2012.

Commentary: The annual target was met. Hydrogen separation membranes are critical to economically viable gasification based sequestration and hydrogen production systems. This initial test of a commercially viable dense ceramic membrane capable of operating at high temperatures and pressures without becoming embrittled by its interactions with hydrogen and without becoming poisoned by the presence of sulfur in the feed gases is a major milestone.

Supporting Documentation: The CO2 hydrate slipstream test unit engineering design basis draft report was submitted for DOE review on September 30, 2004. The information contains technical proprietary information. Results on the initiation of testing of hydrogen separation membranes using simulated, coal-derived synthesis gas will be included in project's FY04 4th quarter technical report.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Complete initial laboratory-scale performance testing of hydrogen separation membranes using simulated gas streams (ER4-2b).
  Assessment: MET

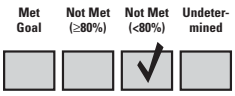
- Complete initial laboratory tests to determine performance capabilities of sorbents, sieves, and membranes for removing mercury, sulfur, nitrogen, and CO2 from gas streams (ER4-2c).
  Assessment: MET

FY 2002 • There were no related annual targets in FY 2002.

FY 2001 • There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

FE GG 4.55 2.3 Complete at least 250 hours of high efficiency desulfurization process units operating with coal-derived synthesis gas. Eventual process units improvement are targeted to contribute a 60-80 $/Kilowatt (KW) capital cost reduction and a 1 point efficiency gain to the gasification system performance by 2010.



Commentary: This target was not met. However, progress was made towards the capital cost reduction target and a 1 point efficiency gain. In fact, the T-2749 sorbent has been awarded R&D 100 Award. Based upon current progress, it is still possible to meet the 2010 program goals.

Supporting Documentation: N/A

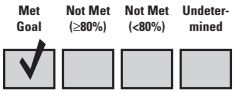
Plan of Action: The FY05 program has been evaluated and projects critical for gas clean up program success will be addressed. However, an extended shut-down of the Wabash facility will adversely impact several project in the Gasification Technologies program.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

FE GG 4.55.2.4 Perform modeling, facility modifications, and conduct pilot-scale tests for identifying technology opportunities to increase reliability, improved performance and increased feed flexibility of advanced gasifiers. Gasification improvements target eventual capital cost reductions and a 90% single train availability by 2010.



Commentary: Annual target met. The modeling strategy was changed at the beginning of the year to pursue a more effective modeling approach. The modeling and testing associated with this effort will identify technologies that can be used to improve the reliability and reduce the cost of gasification systems.

Supporting Documentation: The MFIX Model and run results are available for observation at the National Energy Technology Laboratory; Albany Research Center (ALRC) project Refractory Material Issues in Gasifiers (FEAA010B) 2nd quarter FY 04 Report.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003 • Conduct gasification support tests on leachability of gasifier residues, improved refractories, and oxygen-blown gasification of alternative fossil fuel feedstocks, and develop a simulator for a Vision 21 plant (ER4-2d).
Assessment: MET

- Develop technical and cost information sufficient for DOE decision-making on the viability of proceeding with plans for construction of a co-production plant (ER4-2e).
  Assessment: MET

FY 2002

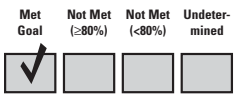
- Complete initial tests of the Integrated Gasification Combined Cycle (IGCC) transport gasifier to confirm the feasibility of the technology to significantly improve reliability, cost effectiveness, and efficiency for producing electricity and other products.
  Assessment: MET

FY 2001

- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

FE GG 4.55.2.5



Perform a thermal analysis of syngas turbine blades, initiate testing of an hydrogen (H2) delivery system, and perform a systems study of an optimized IGCC turbine design. Ultimately by 2008 these and follow-on efforts will reduce IGCC Nitrous Oxide (NOx) emissions to less than 3 ppm, reduce turbine cost by 10-20 % by increasing specific power output, increase turbine firing temperature and combined cycle integration to improve efficiency by 2 - 3 percentage points and reduce emissions associated with high hydrogen fuels.

Commentary: Target was met. Optimization of a hydrogen turbine is needed for a zero emissions coal plant to be economically viable. Thermal analysis of blades, testing of the hydrogen delivery system, and system studies are important steps toward this goal.

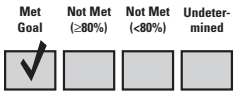
Supporting Documentation: Provided in Electric Power Research Institute's (EPRI) project (41231) Combustion Turbine Hot Section Coating Life Management report, National Energy Technology Laboratory (NETL) In-house combustion Project for Hydrogen Delivery System (FY04-OST- Combustion) project data files, and General Electric Power Systems project (41889) System Study for Improved Gas Turbine Performance for Coal IGCC Application report.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

FE GG 4.55.3.1



Advanced Capture and Sequestration from Power Plants and Other Energy Plants.

Commentary: This target has been met. Several novel concepts for carbon separation and capture have been designed and tested. These concepts are critical to reducing the cost of sequestration by 75% by 2012.

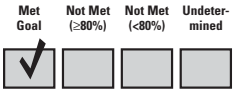
Supporting Documentation: Carbon Separation and Capture Concept Design and Test Reports.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

FE GG 4.55.3.2 Infrastructure Development, Measurement-Monitoring-Verification (MMV), and Sequestration through Restoration of Disturbed/Unproductive and Productive Lands:



Annual Target: Develop instrumentation and initiate one or more field tests of advanced monitoring and verification methods for carbon inventories for geologic and terrestrial sequestration. Complete a database for mid-continent geological storage projects.

Commentary: Annual target met. Instrumentation development and field tests for the measurement, monitoring and verification (MMV) of sequestered carbon dioxide were completed. Ensuring that carbon dioxide remains safely sequestered is the critical mission of MMV and is critical to a zero emissions coal power plant.

Supporting Documentation: VPI and State University's Q2 FY2004 Report, LANL's Annual Report and in a publication submitted to The Leading Edge on September 8, 2004. A database for mid-continent geological storage projects was completed as illustrated by Midcontinent Interactive Digital Carbon Atlas and Relational Database (MIDCARB)'s website (www.midcarb.org) and a framework for U.S. wide project planning was initiated and illustrated by National Carbon Sequestration Database and Geographic Information System (NATCARB)'s website (www.natcarb.org) and as part of two Masters' theses from MIT students: (1) Cheng, D.S., "Integration of Distributed and Heterogeneous Information for Public-Private Policy Analyses" and (2) Singh, N., "A Systems Perspective for Assessing Carbon Dioxide Capture and Storage Opportunities."

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Complete initial set of field tests of advanced monitoring and verification methods for carbon inventories on natural and engineered terrestrial systems and establish a database for mid-continent planning of geological storage projects. Establish regional carbon sequestration partnerships (ER4-3a). **Assessment: MET**

- Initiate evaluations of three novel concepts, comprising integrated sequestration with enhanced coal bed methane recovery, mineral carbonation, and CO2 flooding during enhanced oil recovery and establish initial recommendations for long-term monitoring of CO2 geological storage to assure acceptability as a safe, long-term storage option (ER4-3b). **Assessment: MET**

- Complete initial planning, field-testing, or analysis of sequestration concepts involving saline aquifer storage, ocean storage, and scientific feasibility of CO2 storage as hydrate on the ocean floor and complete initial comparative evaluation of energy technology scenarios to identify promising concepts for CO2 sequestration (ER4-3c).
  Assessment: MET

FY 2002

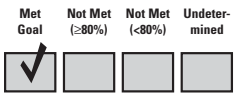
- There were no related annual targets in FY 2002.

FY 2001

- For carbon sequestration, expand the number of possible cost-effective, collaborative, multi-national applied R&D options carried to the "proof of concept" stage. Complete multiple field experiments on promising technologies.
  Assessment: MET

Associated Annual Target for FY 2004

FE GG 4.55.4.1



Relative to FY03 baseline of 145 mWatt/cm2 power density at 800C, demonstrate a 20% improvement in fuel cell stack power density for Solid State Energy Conversion Alliance (SECA) system design. This effort will ready systems for prototype testing and eventual capable of achieving SECA cost reduction and efficiency goals of $400/kW and 40-60 percent by 2010.

Commentary: The annual target was met. The demonstrated improvements in power density far exceeded the target goal. This accomplishment will lead to prototype testing readiness and lower costs that will help meet SECA specifications and goals by 2010.

Supporting Documentation: Available on the SECA website (http://www.seca.doe.gov/), especially the Fuel Cell Annual Report 2004.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Communicate fuel cell program objectives and results and conduct peer-reviews through conferences, workshops, and website tools. Manage the PSPG R&D portfolio through assessment of results and selection of new projects to fill portfolio gaps (ER4-4a).
  Assessment: MET

- Conduct cost reduction R&D programs involving near term developers, Siemens Westinghouse (SWPC) and FuelCell Energy (FCE), for the fuel cells, including manufacturing and Balance Of Plant (BOP) components (ER4-4b).
  Assessment: MET

- Conduct field test necessary to establish feasibility of high temperature fuel cell hybrids and novel systems, including design, procurement, construction, and testing (ER4-4c).
  Assessment: MET

- Conduct contracted and in-house State Energy Conversion Alliance (SECA) core technology of crosscutting and proof-of-concept R&D for transferred to one or more industrial teams, including know-how, patents, licenses, reports, papers in peer reviewed journals, etc. (ER4-4d).
  Assessment: MET

- The SECA industrial team shall conduct stack design and testing, including manufacturing approaches, and materials and BOP systems optimization leading prototypes (ER4-4e).
  Assessment: MET

FY 2002

- Complete demonstration of a commercial-scale, 250 kW Molten Carbonate Fuel Cell (MCFC) power plant system. This test will verify the commercial design for the MCFC technology for the combined heat and power (CHP) or distributed generation (DG) market and, if successful will justify the construction of a MCFC manufacturing facility in the U.S.
  Assessment: MET

FY 2001

- Begin testing of a 300 kW-1MW solid oxide fuel cell/turbine hybrid commercial prototype for distributed power applications.
  Assessment: MET

Associated Annual Target for FY 2004

FE GG 4.55.4.2 Relative to FY03 baselines of 900 for cathode performance and 174 for interconnect performance in area specific resistance units of mohms-cm2 at 750C, complete 20% improvements in cathode performance and in the service-life of electrical interconnects and transfer technology advances to the SECA industry teams to facilitate systems cost reduction and efficiency goals of $400/kW and 40-60 percent by 2010. Annual stakeholder workshops and semi annual peer reviews will communicate progress and define future R&D requirements.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Commentary: The annual target was met. Both the cathode performance and interconnect performance far exceeded the goals set in this annual target. These performance measures are both critical to the long term cost and system efficiency goals.

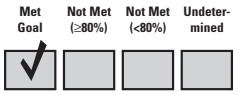
Supporting Documentation: Available on the SECA website (http://www.seca.doe.gov/), especially the Fuel Cell Annual Report 2004.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

FE GG 4.55.5.1 Complete a Hydrogen from Coal R&D program plan and complete draft solicitation research guidance for technology innovations to reduce the cost of producing hydrogen from coal.



Commentary: The annual target was met. All program planning document and research guidance preparation was completed in FY04, namely the Hydrogen from Coal Multi-Year Program Plan. This plan serves as a road map for our current and future efforts.

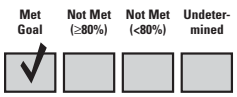
Supporting Documentation: Located on the NETL (http://www.netl.doe.gov/coal/fuels/) and Fossil Energy (http://www.fossil.energy.gov/programs/fuels/index.html) websites.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

FE GG 4.55.6.1 Make go/no go decisions regarding award of cooperative agreements for one or more Round 1 Clean Coal Power Initiative (CCPI) projects and issue a Round 2 CCPI solicitation.



Commentary: The annual target has been met. Go/no go decisions were made regarding the award of cooperative agreements for seven Round 1 CCPI projects, and a Round 2 final solicitation was issued on February 13, 2004.

Supporting Documentation: Acquisition actions available through NETL Acquisition and Assistance. Information also available at the Fossil Energy, Clean Coal Technology website at http://www.fossil.energy.gov/programs/powersystems/cleancoal/index.html.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Additional Targets from 2003-2001

FY 2003

- There were no additional targets in FY 2003.

FY 2002

- Complete initial tests of the IGCC air-blown transport gasifier on bituminous coal, to determine the feasibility of the technology on high rank coals for significantly improving reliability, cost effectiveness, and efficiency for producing electricity.
  Assessment: MET

- Complete construction and start operations of Circulating Atmospheric Fluidized Bed demonstration project at Jacksonville, Florida.
  Assessment: MET

- Complete the injection of 2,500 tons of CO2 into a depleting oil reservoir to monitor the transport of CO2 and verify predictive geologic models on reservoir integrity.
  Assessment: Not Met

- Restart and test the 220-kW hybrid solid oxide fuel cell (SOFC) microturbine power plant at the National Fuel Cell Research Center. If successful, this test will verify the commercial design for this particular SOFC technology for DG or CHP applications.
  Assessment: MET

- Complete development of manufacturing processes that will reduce MCFC stack and other component production reject rates, reduce product cost per KW, and improve throughputs. These improvements will be incorporated into a MCFC manufacturing plant boosting production capacity from 6MW to 50 megawatt (MW) per year.
  Assessment: MET

FY 2001

- Issue a request for proposals for the commercial scale demonstration of technologies to assure the reliability of the Nation's energy supply from existing and new electric generating facilities.
  Assessment: MET

- Demonstrate hydrogen and CO2 separation from syngas to meet the long-term goals of providing low-cost hydrogen for high-efficiency fuel cells, and for providing concentrated CO2 streams for sequestration.
  Assessment: MET

- Complete design and continue construction of the Circulating Atmospheric Fluidized Bed demonstration project at Jacksonville, Florida.
  Assessment: MET

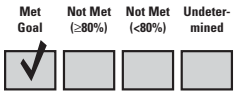
- Begin testing of a 300kW-1 MW solid oxide fuel cell/turbine hybrid commercial prototype for distributed power applications.
  Assessment: MET

- Initiate construction of a fixed-bed slagging gasification and fuel cell demonstration project (Kentucky Pioneer Energy Project).
  Assessment: MET

- Begin construction of a one MW Solid Oxide Fuel Cell (SOFC) hybrid.
  Assessment: Nearly Met

PROGRAM GOAL:

FE GG 4.56

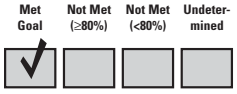


NATURAL GAS TECHNOLOGIES: The Natural Gas Technologies' goal is to provide technology and policy options capable of ensuring abundant, reliable, and environmentally sound gas supplies.

Commentary: The Natural Gas Technologies goal is on track for meeting its long-term program targets. All FY04 critical targets have been met and the program remains on track to meet all long-term program targets. The research, development and testing completed in FY-04 are critical steps on the path to meeting the long-term goal of having an abundant and environmentally sound gas supply.

Associated Annual Target for FY 2004

FE GG 4.56.1



Conduct laboratory studies and feasibility analysis necessary to justify the next stage of R&D for a drilling vibration monitoring and control system, a novel mud hammer, high temperature - high pressure (HTHP) cements, gas resources in the Uinta and Anadarko basins, and HT electronics. This is accomplished by completing prototype development and validation testing of data fusion algorithms, a power amplifier, and simulating software for fractured reservoirs prior to field trials.

Commentary: The annual target was met. Laboratory studies, feasibility analyses and model development efforts have been completed to justify the next stage of development or moving to field testing as appropriate. These activities have directly contributed towards meeting the long term objective.

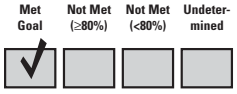
Supporting Documentation: Information provided in ProMIS tracking system.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

FE GG 4.56.2



Complete field tests and analysis of stripper well technologies, a jet assisted drilling system, advanced fracture stimulation designs, natural fracture predictions, and downhole power and communications systems to determine the overall technical and cost efficiency of the technology and the next step(s) to be taken, i.e., commercialization, additional modifications and testing, or termination.

Commentary: Field tests conducted in 2004 have resulted in several tools being commercialized, have directly resulted in increased gas production from several wells in several different basins, and will help operators continue to improve gas production if applied to other wells. These activities have directly contributed towards meeting the long term objective.

Supporting Documentation: Various field test and analysis reports.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Complete basin model for the Wind River Basin and well site selection in Greater Green River Basin to evaluate integrated remote sensing, seismic surveys and basin structural analysis to differentiate gas-bearing from uneconomic fractured reservoirs, complete a conceptual model of regional water distribution to help operators avoid poor production areas, and build and have field ready an initial prototype of a 400-geophone receiver array to improve seismic resolution necessary to locate economically productive gas zones (ER5-1a).
  Assessment: MET

- Conduct two field tests of improved drilling technology that will improve the productivity of gas reservoirs and reduce drilling costs and two field tests of technologies to improve natural fracture detection to increase the percentage of economically producing wells of all wells drilled (ER5-1b).
  Assessment: MET

FY 2002

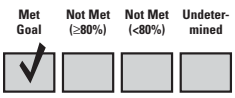
- Demonstrate safe economic slim hole drilling technology in actual use under Arctic conditions. This technology can significantly reduce cost and environmental impacts.
  Assessment: MET

FY 2001

- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

FE GG 4.56.3 Hold 2 interagency meetings to exchange hydrate information and coordinate hydrate efforts between government agencies. Issue 2 newsletters and hold 1 workshop to communicate program results to stakeholders.



Commentary: The annual target was met. Meetings and workshops are continuing to provide a well coordinated effort between all government agencies. Program results are being communicated through these workshops and newsletters. These activities have directly contributed towards meeting the long term objective. A meeting of the Federal Advisory Committee for the Methane Hydrate R&D program was held in La Jolla, California on September 21-22, 2004. The meeting included representatives from all 5 participating agencies (the NTL, USGS, MMS, NOAA, NSF, and DOE) and included discussions of overall program plans and priorities. In addition a meeting of agencies (DOE-NETL, MMS and NOAA-NURP) involved in efforts to establish a permanent sea-floor monitoring station met in Silver Spring, MD in August '04 to discuss plans and options for future efforts.

Supporting Documentation: September 21-22, 2004, meeting summary is posted in Groupwise Library for SCNGO. Report on August 2004 meeting was reported in NETL Weekly September 10, 2004 as Item for Headquarters.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Exchange information and coordination effort between government agencies. Award subprojects under Joint Industry Projects (JIP) for Gulf of Mexico seafloor stability and monitoring programs. Issue newsletters, publish available technical reports on the methane hydrate website, and hold two workshops to coordinate program results to researchers. Conduct annual Federal Advisory Committee meeting (ER5-2a).
  Assessment: MET

FY 2002

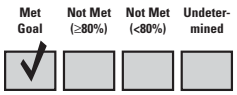
- There were no related annual targets in FY 2002.

FY 2001

- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

FE GG 4.56.4



Complete laboratory analysis of core samples from the Malik research well and the Hot Ice No. 1 well, thermal property and thermal conductivity measurements, and complete installation of a 12-liter hydrate cell to obtain the necessary data for modeling and characterizing hydrate deposits.

Commentary: Annual target was met. Laboratory analyses and measurements of hydrate properties will provide valuable data for modeling and characterizing hydrate deposits. These activities have directly contributed towards meeting the long term objective.

Supporting Documentation: Thermal Properties have been successfully measured on a compacted hydrate sample and a compacted sediment sample. Documentation on their completion is available in a Chemistry and Surface Science Division common drive folder. The United States Geologic Survey completed, in July 2004, thermal conductivity measurements of tetrahydroturan (THF) hydrate at varying temperatures and Gas Hydrate and Sediment Test Laboratory Instrument (GHASTLI) measurements to constrain mechanical properties in silt samples containing gas hydrate. Milestone documentation is detailed in July 2004 Monthly Report in ProMIS. (FT34343).

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Complete hydrate modeling for Alaska drilling program. Report strength and thermal property tests at national labs, this is fundamental data needed to model production and seafloor stability of hydrates. Develop prototype Raman Spectroscopy to use lasers to define hydrate molecular structure (ER5-2b).
  Assessment: MET

FY 2002

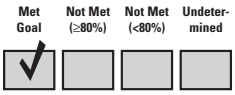
- There were no related annual targets in FY 2002.

FY 2001

- Quantify a hydrate deposit by correlating core samples with geophysical and well log data.
  Assessment: MET

Associated Annual Target for FY 2004

FE GG 4.56.5 Complete field tests of hydrate logging and coring operations in the Gulf of Mexico, and drilling and coring Hot Ice No. 1, and analyze results and publish reports on Ocean Drilling Program (ODP) leg 204 and Malik well to advance our understanding of seafloor stability and production potential.



Commentary: The annual target was met. Core obtained by NRL in Gulf of Mexico is providing ground truth characterization of the JIP deep drilling, logging and coring sites to advance our understanding of seafloor stability. The Hot Ice drilling and coring project provide a wealth of information towards understanding production potential on the North Slope. These activities have directly contributed towards meeting the long term objective. Coring in Gulf of Mexico was completed on May 15, 2004 under NT34344. NETL had the opportunity to complete this milestone early. A total of 15 piston cores were taken, mostly over Mound F, in the Atwater Valley, Gulf of Mexico.

Supporting Documentation: The preliminary cruise report is available under the "Status" tab of the project's ProMIS profile.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Complete initial report of improved hydrate coring device on Ocean Drilling Program, Leg 204. Study of oceanic samples is essential to understanding the distribution and properties of hydrate in nature. Drill one test well to determine aerial extent of hydrate occurrence in Alaska. Complete evaluation of hydrate occurrence in Gulf of Mexico to understand the interaction of hydrate and seafloor stability (ER5-2c).
  Assessment: MET

FY 2002

- There were no related annual targets in FY 2002.

FY 2001

- There were no related annual targets in FY 2001.

Additional Targets from 2003-2001

FY 2003

- Conduct four field tests to demonstrate technical feasibility of advanced remote sensing and pipeline inspection technologies to reduce unintentional damage and increase pipeline integrity. Complete two field tests for underground gas storage facilities to improve gas storage well deliverability. Complete field-testing of energy meter prototype (ER5-1f).
  Assessment: MET

FY 2002

- Complete laboratory testing and begin field demonstrations of an improved remedial technology for storage wells.
  Assessment: MET

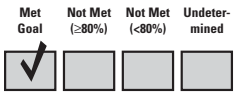
- Develop two technologies to detect and quantify areas of high fracture density in currently uneconomic low permeability gas reservoirs. Select drill sites for demonstration of the two technologies.
  Assessment: MET

FY 2001

- There were no additional targets in FY 2001.

PROGRAM GOAL:

FE GG 4.57

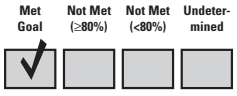


OIL TECHNOLOGY: The goal of the Oil Technology program is to enhance U.S. energy security by managing and funding oil exploration and production (E&P) research and policy which results in development of domestic oil resources in an environmentally sound and safe manner.

Commentary: The Oil Technology goal is on track for meeting its long-term target. All FY04 critical targets have been met and the program remains on track to meet all long-term program targets. The research, development and testing completed in FY-04 are critical steps on the path to meeting the long-term goal of developing domestic oil sources in a safe and environmentally sound manner.

Associated Annual Target for FY 2004

FE GG 4.57.1



Advance the state-of-the-art in oil recovery processes by conducting bench tests in surfactant behavior (2 projects), modeling non-conventional reservoirs, studying gel control of water production, developing seismic algorithms to better identify hydrocarbon targets, testing 2 prototypes (3-phase separator and microhole completion), and modeling sweep efficiency for enhanced oil recovery technologies to increase the amount of oil that can be recovered from discovered reservoirs.

Commentary: The annual target was met. Conformance studies in existing fields were completed and results were published as SPE 89401. The Tundra Model work was exceptionally important because it allows Arctic operators to work extended periods in the field.

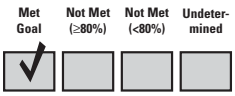
Supporting Documentation: Conformance Studies Results published as SPE 89401.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

FE GG 4.57.2



Enhance access to remaining domestic oil resources using advanced technology by focusing on high-risk research (award 3 projects–Micro-hole technology); issuing competitive solicitation and awarding three projects; initiate Russian cooperative Research Program; and conduct model integration peer review and industry strategic program review.

Commentary: The annual target was met. The micro-hole technology will allow the program to make resources economically recoverable that could not previously contribute to the Nation's resource base. These projects are long-term in their support of the program.

Supporting Documentation: Information tracked in ProMIS.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Increase access to the domestic oil reserves by using advanced technology. Focus on high-risk research (award six projects and issue one solicitation microhole technologies) for future applications on state and federal lands and waters, and on addressing nearer-term barriers. Select and award five projects with independents, and on a regional basis award four projects-PUMP. Award two projects in Advanced technologies and select and award projects under the Broad Funding Announcement (ER5-1c).
  Assessment: MET

FY 2002

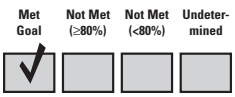
- Demonstrate a small-diameter, lightweight composite drill pipe for ultra-short radius drilling.
  Assessment: MET

FY 2001

- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

FE GG 4.57.3



Ensure that refining and gas production and use are safe for the environment and the public by conducting field tests and data analysis for remediation, produced water treatment, and synthetic muds technologies; preparing baseline characterization of impacts of Wyoming and Montana coalbed methane (gas from coal seams) production on ground-water systems; and utilizing laser-coupled technology to identify natural gas distribution system leaks.

Commentary: All milestones were met. The synthetic muds work results can improve the economics of deep water projects.

Supporting Documentation: Various field test and analysis reports.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Analyze results of bench-scale reverse osmosis in produced water treatment equipment. Develop kinetics for model compounds to be used in enzymatic and biomimetic catalysts for upgrading heavy crude oils. Construct greenhouse prototype for phytoremediation for methane (natural gas) from coal bed water. Collect data on fine particulate matter emission factors. Complete prototype methane leak detection refinery test. These studies will provide the scientific basis for lower-cost commercial-scale environmental technologies (ER5-1e).
  Assessment: MET

FY 2002

- There were no related annual targets in FY 2002.

FY 2001

- There were no related annual targets in FY 2001.

Additional Targets from 2003-2001

FY 2003

- Reduce the number of dry holes drilled in frontier areas, and increase near-term energy security through field testing (three projects) improved oil recovery techniques, seismic (one project), data acquisition (two projects); interpretation (one project) and streamflood simulation (one project) in existing light and heavy oil reservoirs at sites ranging from Alaska to Utah. Initiate full-scale field test of newly developed vibration sonic tool (ER5-1d).
  Assessment: Met less than 80% of the Target.

FY 2002

- There were no additional targets for FY 2002.

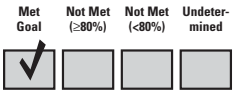
FY 2001

- Completed the demonstration of five advanced secondary and tertiary technologies. Based on models, it is estimated these technologies will increase near-term incremental production by 1.7 million barrels of oil, and long-term incremental production over 2.4 billion barrels of oil.
  Assessment: Nearly Met

- Demonstrate the field application of a shoulder-mounted, portable video methane leak detection system that can be used to significantly reduce costs of leak monitoring at refineries and other facilities while reducing harmful air emissions. Annual savings of $500,000 per year per refinery, on average, would result from regulatory acceptance and application of this technology.
  Assessment: Not Met

PROGRAM GOAL:

FE GG 4.58

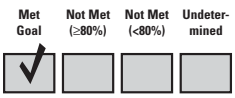


PETROLEUM RESERVES: Maintain operational readiness of the SPR to drawdown at a sustained rate of 4.4 million barrels per day for 90 days, within 15 days notice by the President and fill the SPR to its current capacity of 700 million barrels by 2005.

Commentary: The Petroleum Reserves Program goal is on track to fill the Strategic Petroleum Reserve (SPR) to 700 million barrels by the end of 2005. The reserves added to the SPR in FY04 exceeded program targets. Degas plant operation also commenced which will enhance safety and reduce environmental and health risks when draw down of the SPR supplies is required.

Associated Annual Target for FY 2004

FE GG 4.58.1 End of year crude oil inventory will equal 656 million barrels.



Commentary: FE met the inventory goal for the Strategic Petroleum Reserve enhancing its role as being the first line of defense against an interruption in petroleum supply.

Supporting Documentation: Total inventory as of September 30, 2004 was 670.3 million barrels as documented in the Crude Oil Movement and Event Tracking System (COMETS).

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Add 39.8 million barrels (cumulative from April 2002). EOY crude oil inventory will equal 628 million barrels (ER6-1b).
  Assessment: Met at or above 80%, but below 100%, of the Target.

FY 2002

- Continue the delivery of exchanged Federal Royalty Oil to the SPR that was transferred to DOE in FY 1999-2001, per the FY 1999 Agreement with the Department of Interior. Approximately 11 million barrels will be added to SPR inventory in FY 2002.
  Assessment: MET

- Commence the transfer of Federal Royalty Oil under Phase III to the SPR in April 2002. By the end of FY 2002, add 9.2 million barrels of royalty oil to the SPR inventory.
  Assessment: MET

FY 2001

- Establish a Northeast Heating Oil Reserve of up to two million barrels.
  Assessment: MET

- Complete the transfer of Federal Royalty Oil to the SPR by November 2000, per the FY 1999 Agreement with the Department of Interior.
  Assessment: MET

Associated Annual Target for FY 2004

FE GG 4.58.2 Commence full degas plant operations.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Commentary: Long-term storage of crude oil in underground solution-mined salt cavers resulted in increased crude vapor pressure due to gradual geothermal heating and possible methane gas intrusion from the salt formation. When oil is drawn down, or removed from caverns, increased vapor pressure results in gas being released in amounts that may be unacceptable, posing environmental, safety, and health risks. The most cost effective solution for long-term vapor pressure control was the construction of a portable degasification plant, which would move from site to site, as needed.

Supporting Documentation: Degas plant continues to operate well above 100,000 barrels per day as evidenced in the Degas Plant Performance Tracking Sheet.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- Complete the Degas Plant design (ER6-1c).
  Assessment: MET

FY 2002
- Award the contract for degas plant construction by November 30, 2001. A degas plant is a vapor pressure system for the continuous removal of excess gas from the SPR crude oil inventory.
  Assessment: MET

FY 2001
- There were no related targets in FY 2001.

PROGRAM GOAL:

NE GG 4.14 *DEVELOP NEW NUCLEAR GENERATION TECHNOLOGIES*: Develop new nuclear generation technologies and advanced energy products - including high efficiency electricity and hydrogen - that provide significant improvements in sustainability, economics, safety and reliability, and proliferation and terrorism resistance.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☐	☑	☐	☐

Commentary: Progress has been made towards the development of the technologies and products required for the nuclear power plants of the future. For the near-term goal of lowering the risks associated with obtaining the licenses to build and operate the next nuclear power plant in the U.S., the combined Construction and Operating License (COL) process has moved forward by awarding a project to conduct a detailed evaluation of both obtaining a COL license and building an advanced light water reactor. For the long-term goal of developing the technologies that will enable hydrogen generation using nuclear power, the laboratory-scale experiments have been designed for the two baseline hydrogen production processes. If these processes can be demonstrated as economically viable, follow-on commercial-scale tests of these processes will be conducted to further define the economic constraints.

Associated Annual Target for FY 2004

NE GG 4.14.1 Select for award at least one cost-shared project with a power generating company-led team for activities required to demonstrate for the first time the combined Construction and Operating License (COL) process.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
✓			

Commentary: Three industry consortia responded to the Department's solicitation to demonstrate the combined COL process for new nuclear power plants. The Department has awarded and initiated one cost-shared project with a power generation company-led team to conduct a detailed cost and schedule evaluation to obtain a combined Construction and Operating License (COL) and build an advanced light water reactor at the Bellefonte site in Alabama. During FY 2004, the Department made significant progress toward evaluating sites and candidate technologies for building new nuclear power plants and working with industry to demonstrate the new licensing processes. In addition to continued progress in demonstrating the Early Site Permit process, the Department has successfully encouraged the industry to form consortia and innovative business arrangements among power generation companies, reactor vendors and architect-engineers having strong and common incentives to build and operate new nuclear power plants in the United States.

Supporting Documentation: DOE/TVA Interagency Agreement dated August 26, 2004.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Under the cooperative agreements with U.S. power generation companies, support the preparation and submittal of at least two Early Site permit applications for commercial sites to NRC (ER7-1a).
  Assessment: MET

- Following a competitive process, award at least one industry cost-shared cooperative agreement for technology development and regulatory demonstration activities (ER7-1b).
  Assessment: Met less than 80% of the Target

FY 2002

- Complete at least two cooperative agreements with U.S. power generating companies to jointly proceed with at least two NRC Early Site Permit (ESP) applications for specific DOE and/or commercial sites.
  Assessment: MET

- Develop and sign an agreement with U.S. industry and our international partners to begin a gas reactor fuel-testing program that will enable licensing of gas-cooled reactors in the United States.
  Assessment: MET

- Complete and issue the government/industry roadmap to build new nuclear plants in the United States by 2010.
  Assessment: MET

FY 2001

- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

NE GG 4.14.2 Award one or more contracts for the Next Generation Nuclear Plant (NGNP) pre-conceptual design.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
		✓	

Commentary: The annual target was not met. Initial planning for the Next Generation Nuclear Plant (NGNP) called for awarding a contract by the end of FY 2004 for pre-conceptual design. In working toward this goal, the Department anticipated the release of the request for proposals (RFP) for the management and operating contract for the new Idaho National Laboratory (INL) early in CY 2004. Because many key programmatic goals expected to be met by the INL are coincident with those to be met by the NGNP, the Department decided to delay the initial public release of the NGNP procurement strategy until release of the final INL RFP. The INL RFP was released in late spring 2004. The delay in the issuing the INL RFP has led to a delay in the issuance of a program announcement for a cooperative agreement leading to a pre-conceptual design. DOE engaged the industry and the public in an open process to inform its development of an acquisition strategy for the NGNP. By the end of the fiscal year, the Office of Nuclear Energy, Science and Technology finalized both the Mission Need Statement and the Draft Program Announcement for the NGNP.

Supporting Documentation: Mission Need Statement and Draft Program Announcement for the Next Generation Nuclear Plant signed by the Director, NE on September 24, 2004.

Plan of Action: As a result of the analysis associated with the Department's implementation of its acquisition strategy approval process and resolution of comments received through a request for Expressions of Interest, the Department has modified the acquisition strategy for this project. A new target and associated quarterly milestones have been developed for FY 2005 to track the progress of this effort. The FY 2005 target is "Sign a cooperative agreement with a U.S. company to act as a 'Project Integrator' for the Next Generation Nuclear Plant."

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Issue the Generation IV Technology Roadmap to develop the most promising next generation nuclear energy system concepts (ER7-1c).
  Assessment: MET

- Develop preliminary functional requirements for the Generation IV Very-High-Temperature Reactor (ER7-1d).
  Assessment: MET

FY 2002

- Complete the draft Generation IV Technology Roadmap for development of the next generation nuclear energy systems.
  Assessment: MET

FY 2001

- Formally establish the Generation IV International Forum to assist in identifying and conducting cooperative R&D. Initiate development of a Generation IV Technology Roadmap for development of next generation nuclear energy systems.
  Assessment: MET

Associated Annual Target for FY 2004

NE GG 4.14.3 Complete final designs for the baseline thermochemical and high-temperature electrolysis laboratory-scale experiments.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
✓			

Commentary: The final designs for the baseline thermochemical and high-temperature electrolysis laboratory-scale experiments were completed and describe the experimental equipment for the two hydrogen production processes that will be constructed and tested over the next two years. These tests are the first of a three-phase experimental scaling process that will demonstrate the economics of nuclear-driven hydrogen production systems.

Supporting Documentation: Design of an Integrated Laboratory-Scale Experiment for the Sulfur-Iodine Thermochemical Cycle and Design of a 50kW Integrated Laboratory-Scale High-Temperature Electrolysis System.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Additional Targets from 2003-2001

FY 2003

- Complete 29 Nuclear Energy Research Initiative (NERI) projects initiated in FY 1999 and FY 2000 in the areas of advanced reactor technology, advanced reactor fuel, fundamental nuclear science technology, and/or nuclear waste management (ER7-3a).
  Assessment: MET

- Award five new International NERI (I-NERI) projects in the areas of next generation reactor and fuel cycle technology, innovative nuclear plant design and advanced nuclear fuels and materials with the Republic of Korea (ER7-3b).
  Assessment: MET

FY 2002

- Complete the first 3-year phase of NERI research and development.
  Assessment: MET

- Complete funding for the 10 NERI projects initiated in FY 2000; provide funding for the second year of the 13 NERI projects initiated in FY 2001; and award at least 16 new NERI projects.
  Assessment: MET

- Complete five projects initiated in prior years associated with managing long-term effects of plant aging and improving electricity generation.
  Assessment: MET

- Award at least six International NERI bilateral cost-shared research projects with three countries.
  Assessment: MET

FY 2001

- Complete funding for the first 3-year phase of Nuclear Energy Research Initiative (NERI) research and development; select feasible and important reactor and fuel cycle concepts for continued development; and, issue approximately 15 new awards.
  Assessment: MET

- Complete four projects, continue 10 projects initiated in FY 2000, and initiate eight new projects to conduct R&D activities associated with managing long-term effects of plant aging and improving electricity generation.
  Assessment: MET

- Establish bilateral research programs with other countries to improve the cost, and enhance the safety, non-proliferation, and waste management capabilities of future nuclear energy systems.
  Assessment: MET

PROGRAM GOAL:

NE GG 4.15

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

NUCLEAR FUEL TECHNOLOGIES: Develop advanced, proliferation-resistant nuclear fuel technologies that maximize energy output, minimize wastes, and operate in a safe and environmentally sound manner.

Commentary: The Department completed the planned FY 2004 AFCI research activities, which included the fabrication, irradiation, and post-irradiation examination of fuel samples that are being designed for the next generation nuclear power plants. These research activities were completed within the AFCI program's planned technical scope, cost and schedule baselines. The AFCI program continues to demonstrate the feasibility of building nuclear power plants that maximize the extraction of energy, minimize the generation of waste, and can be safely operated in an environmentally sound manner. These accomplishments enable the Department to move closer to fuel selection and larger-scale demonstrations.

Associated Annual Target for FY 2004

NE GG 4.15.1

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Achieve variance of less than 10 percent from cost and schedule baselines for Advanced Fuel Cycle Initiative (AFCI) activities.

Commentary: The AFCI program achieved variances of less than 10 percent (cost 1.06 percent / schedule 0.97 percent) from established cost and schedule baselines through August 2004. The September 2004 results will not be available until the third week of October 2004 and will be reflected in the results for the first quarter of FY 2005. This achievement signifies NE's ability to successfully manage this high-profile, national research program being conducted throughout the Department's national laboratories.

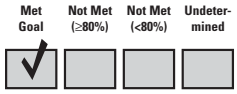
Supporting Documentation: Program Baseline Documentation (Appropriated - 1st Qtr was based on Continuing Resolution), Monthly AFCI Cost and Schedule Performance Reports.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

NE GG 4.15.2



Complete fabrication and irradiation of advanced light water reactor (LWR) proliferation-resistant transmutation fuel samples, and initiate post-irradiation examination of the samples.

Commentary: Fabrication and irradiation of advanced light water reactor (LWR) proliferation-resistant transmutation fuel samples were completed and post-irradiation examination of the samples was initiated. Successful irradiation of these fuel samples marks the first time LWR proliferation-resistant transmutation fuel samples containing minor actinides have been irradiated in the U.S. The post-irradiation examinations conducted to date indicate no evidence of fuel failures. This achievement significantly advances the knowledge of the performance of these advanced fuels under realistic irradiation conditions, and paves the way towards eventual fuel selection and larger-scale demonstration.

Supporting Documentation: Report of visual inspections conducted in the ATR facility at INEEL and in the HFEF at ANL-W issued September 15 and September 30, 2004, respectively.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Complete fabrication of test articles containing proliferation-resistant transmutation fuels for irradiation in the ATR beginning in FY 2004 (ER7-2a). **Assessment: MET**

FY 2002

- Successfully manufacture advanced transmutation non-fertile fuels and testing containers for irradiation testing in the Advanced Test Reactor. **Assessment: MET**

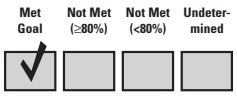
- Complete a report to Congress comparing chemical processing, and pyroprocessing, accelerator-driven, and fast reactor alternatives for transmutation, proliferation resistance, and life cycle cost estimates. **Assessment: Mixed Results**

FY 2001

- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

NE GG 4.15.3 Issue the report on the demonstration of a laboratory-scale separation of americium/curium from spent nuclear fuel to support the development of advanced fuel cycles for enhanced repository performance.



Commentary: The report on the demonstration of a laboratory-scale separation of americium/curium from spent nuclear fuel to support the development of advanced fuel cycles for enhanced repository performance was issued. The results documented in the report demonstrate that the Reverse Talspeak separations process is effective in separating minor actinides (Americium/Curium) from lanthanides (rare earths including europium and gadolinium) in commercial spent nuclear fuel. The tests were performed with radioactive solutions and established separation factors of 10 to 100, adequate for successful solvent extraction separations. Transmutation fuels containing minor actinides may be intrinsically proliferation resistant but must be low in impurities with high thermal cross-sections, such as the lanthanides, which the Reverse Talspeak process appears capable of achieving. Establishing the basic feasibility of the separation of americium (Am) and curium (Cm) from rare earths elements (lanthanides) at laboratory-scale strengthens the potential for the future development of a complete advanced fuel cycle that includes treatment of commercial spent fuel. If successful, advanced fuels or transmutation targets containing Am/Cm may be feasible for powering commercial light water reactors while simultaneously providing substantial waste management benefits. Am/Cm separation also affords the opportunity to prepare specialized targets for Generation IV fast reactor or accelerator based transmutation which could lead to essentially complete destruction of minor actinides. Additional laboratory and engineering-scale research must be completed to establish the feasibility of such advanced fuel cycles on a commercial scale.

Supporting Documentation: "Summary of Actinide and Lanthanide Separation Studies for Spent Fuel Processing", by L. K. Felker, D. E. Benker and E. D. Collins, Oak Ridge National Laboratory.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- Demonstrate a laboratory scale extraction of plutonium and neptunium as well as cesium and strontium from other actinides and fission products to support the development of advanced fuel cycles for enhanced repository performance (ER7-2b).
  Assessment: MET

FY 2002
- Demonstrate the separation of highly radioactive isotopes from civilian spent nuclear fuel from uranium with the uranium cleaned up to 99.999% pure (Class C waste), using the newly developed Uranium Extraction Plus (UREX) process.
  Assessment: MET

FY 2001
- There were no related annual targets in FY 2001.

Additional Targets from 2003-2001

FY 2003
- There were no additional targets in FY 2003.

FY 2002

- Following completion of primary sodium drain, complete deactivation of Experimental Breeder Reactor II (EBR-II) and all directly related surplus facilities by March 2002.
  Assessment: MET

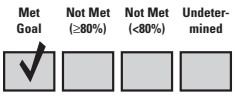
- Treat a minimum of 0.5 MTHM of EBR-II spent nuclear fuel.
  Assessment: MET

FY 2001

- Establish a new Advanced Accelerator Applications university fellowship program, and fund ten new graduate students in engineering and science.
  Assessment: MET

PROGRAM GOAL:

NE GG 4.17

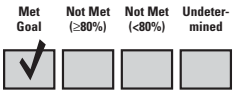


MAINTAIN AND ENHANCE THE NATIONAL NUCLEAR INFRASTRUCTURE: Maintain and enhance the national nuclear infrastructure to support the requirements of the Department's energy security technology development/demonstration programs, and to meet the Nation's energy, environmental, health care, and national security needs.

Commentary: The Department continues to significantly support the education of the next generation of nuclear engineers and scientists by providing over 90 fellowships, scholarships, and industry matching grants, as well as, funding numerous equipment and instrumentation upgrades at the university reactors throughout the country. In addition, by continuing to execute the scheduled upgrades and construction of key nuclear facilities, the Department is supporting the various R&D programs of the Department and other agencies that utilized these facilities.

Associated Annual Target for FY 2004

NE GG 4.17.1



Fund the six existing regional reactor centers; provide fuel to University Research Reactors; fund 20 to 25 DOE/Industry Matching Grants, 20 equipment and instrumentation upgrades, and 50 Nuclear Engineering Education Research grants; and provide 18 fellowships and 47 scholarships.

Commentary: The Department's University Program (UP) met all of its annual goals and continues to strengthen and enhance the Nation's nuclear research infrastructure, thereby, helping to heighten the visibility of nuclear engineering as a viable career opportunity and strengthen the nuclear engineering pipeline to replace retiring professionals. The Department funded the six existing regional reactor centers and 20 equipment and instrumentation upgrades and successfully implemented an aggressive fuel shipment schedule to meet the needs of the university research reactor community. In addition, the UP program surpassed the annual goals in the areas of Matching Grants, NEER, and fellowships and scholarships. The annual goal for Matching Grants was to award 20 to 25 matching grants. The Department awarded 26. The NEER program goal was 50, and 51 were awarded. In the areas of fellowships and scholarships, the goal was 18 and 47, respectively. The Department awarded 21 fellowships and 54 scholarships. The program supports the National Energy Policy objective to expand nuclear energy in the United States by preserving the education and training infrastructure that is needed at universities as the U.S. continues its reliance on advanced nuclear technologies.

Supporting Documentation: Signed Notices of Financial Assistance Award (NFAA).

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Protect national nuclear research assets by: funding four regional reactor centers; providing fuel to University Research Reactors; funding 20 to 25 DOE/Industry Matching Grants, 18 equipment and instrumentation upgrades, and 37 Nuclear Engineering Education Research grants; and providing 18 fellowship and 40 scholarships (ER7-4a).
  Assessment: MET

FY 2002

- Attract outstanding U.S. students to pursue nuclear engineering degrees by: providing 18 graduate student fellowships with higher stipends beginning in FY 2002; supporting 50 university Nuclear Engineering Education Research Grants to encourage creative and innovative research at U.S. universities; and providing scholarships and summer on-the-job training to approximately 40 sophomore, junior, and senior nuclear engineering and science scholarship recipients.
  Assessment: MET

- Support U.S. universities' nuclear energy research and education capabilities by: providing fresh fuel to university reactors requiring this service; funding all of the 23 universities with research reactors that apply for reactor upgrades and improvements; partnering with private companies to fund 20 to 25 DOE/Industry Matching Grants for universities; providing funding for Reactor Sharing with the goal of enabling all of the 28 eligible schools that apply for the program to improve the use of their reactors for teaching, training, and education; and awarding two or more Innovations in Nuclear Infrastructure and Education awards.
  Assessment: MET

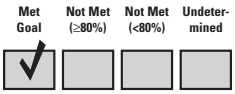
FY 2001

- Attract outstanding U.S. students to pursue nuclear engineering degrees by: providing 24 fellowships; increasing the number of Nuclear Engineering Education Research Grants to approximately 50 existing and new grants; and providing scholarships to approximately 50 sophomore, junior, and senior nuclear engineering and science scholarship recipients, including the partnering of minority institutions with nuclear engineering schools to allow these students to achieve a degree in their chosen course of study and nuclear engineering.
  Assessment: MET

- Support U.S. universities' nuclear energy research and education capabilities by: providing fresh fuel to all university reactors requiring this service; funding at least 23 universities with research reactors for reactor upgrades and improvements; partnering with private companies to fund 18 or more DOE/Industry Matching Grants Program for universities; and continuing to support Reactor Sharing enabling each of the 29 schools eligible for the program to improve the use of their reactors for teaching, training, and education within the surrounding community.
  Assessment: MET

Associated Annual Target for FY 2004

NE GG 4.17.2 Keep cost and schedule milestones for upgrades and construction of key nuclear facilities within 10 percent of approved baselines, using the cost-weighted mean percent variance (+/-10 percent) approach.



Commentary: Cost and schedule milestones for upgrades and construction of key nuclear facilities were executed within 10 percent of approved cost and schedule baselines (9.5 percent cost/6 percent schedule). These upgrades and construction projects ensure that the Department's unique facilities, required for advanced nuclear energy technology research and development, are maintained and operated such that they are available to support national priorities.

Supporting Documentation: Approved Baselines, Monthly Idaho Facilities Management Televideo Conference Presentations and Office of Engineering and Construction Management's Project Assessment Reports.

Related Annual Targets (FY 2003 - FY 2001)

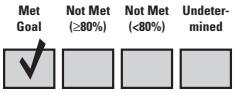
FY 2003
- Keep cost and schedule milestones for upgrades and construction of key nuclear facilities within 10 percent of approved baselines (ER7-4b).
  Assessment: Met at or above 80%, but below 100% of the Target

FY 2002
- Complete 80% of the construction of the Los Alamos Isotope Production Facility, which is needed for the production of short-lived radioisotopes essential for U.S. medical research.
  Assessment: MET

FY 2001
- Complete 75% of the facility construction and equipment installation for the new 100 MeV Isotope Production Facility, which is needed to continue production of short-lived radioisotopes essential for U.S. medical research.
  Assessment: MET

Associated Annual Target for FY 2004

NE GG 4.17.3 Consistent with safe operations, maintain and operate key nuclear facilities so the unscheduled operational downtime will be kept to less than 10 percent, on average, of total scheduled operating time.



Commentary: Consistent with safe operations, key nuclear facilities were maintained and operated so the unscheduled operational downtime was kept to less than 10 percent, on average, of total scheduled operating time. Efficient maintenance and operation ensures that the Department's unique facilities, required for advanced nuclear energy technology research and development, are available to support national priorities.

Supporting Documentation: Approved Baselines, Monthly Reports, Approved schedule revisions to accommodate customer needs.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Safely operate each key nuclear facility within 10 percent of the approved plan, shutting down reactors if they are not operated within their safety envelope and expediting remedial action (ER7-4c).
  Assessment: MET

FY 2002

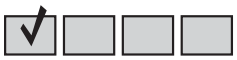
- There were no related annual targets in FY 2002.

FY 2001

- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

NE GG 4.17.4 Maintain and operate radioisotope power systems facilities with less than 10 percent unscheduled downtime from approved baseline.



Commentary: Radioisotope power systems facilities were maintained and operated with less than 10 percent unscheduled downtime from the approved baseline. Efficient maintenance and operation ensures that the Department's unique facilities, required for advanced nuclear energy technology research and development, are available to support national priorities.

Supporting Documentation: Weekly critical activities reports and monthly reports for ORNL. LANL closure is well documented in internal and public announcements.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Demonstrate the operational capability of radioisotope power systems infrastructure by fabricating flight quality products at each of the major facilities (i.e., at least eight iridium clad vent sets at Oak Ridge National Laboratory (ORNL) and at least eight encapsulated Pu-238 fuel pellets at Los Alamos National Laboratory (LANL), and by processing at least two kilograms of scrap Pu-238 at LANL) (ER7-4d).
  Assessment: MET

FY 2002

- Bring the full-scale scrap recovery line to full operation and begin processing Pu-238 scrap for reuse in ongoing and future missions requiring use of radioisotope power systems.
  Assessment: Mixed Results

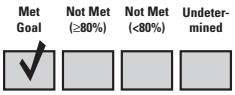
- Demonstrate the operational capability of radioisotope power systems infrastructure by fabricating quality products at each of the major facilities (i.e., at least eight iridium clad vent sets at ORNL and at least eight encapsulated Pu-238 fuel pellets at LANL).
  Assessment: MET

FY 2001

- Complete installation of the full scale Pu-238 scrap recovery line to process Pu-238 scrap that will be required to provide radioisotope power systems for planned NASA and national security missions.
  Assessment: MET

Associated Annual Target for FY 2004

NE GG 4.17.5



Issue the Design Basis Threat Implementation Plan for the Idaho National Engineering and Environmental Laboratory and Argonne National Laboratory-West.

Commentary: Design Basis Threat (DBT) Implementation Plan for the Idaho National Engineering and Environmental Laboratory and Argonne National Laboratory-West was issued on schedule. This plan provides a framework for achieving the Department's milestone of full DBT implementation by end of FY 2006.

Supporting Documentation: Integrated Design Basis Threat Implementation Plan issued February 20, 2004.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Complete the Idaho Integrated Safeguards and Security Plan to assure appropriate protective measures are taken commensurate with the risks and consequences for both laboratories on the Idaho site (ER7-4e).
  Assessment: MET

FY 2002

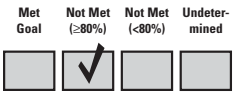
- During FY 2002, no national security incidents occurred within NE Idaho site wide cyber systems and security areas that caused unacceptable risk or damage to the Department.
  Assessment: MET

FY 2001

- There were no related annual targets in FY 2001.

PROGRAM GOAL:

EE GG 4.01

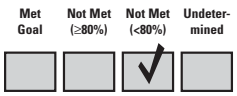


HYDROGEN and FUEL CELL TECHNOLOGIES: The Hydrogen, Fuel Cells and Infrastructure Technologies Program goal is to develop hydrogen production, storage, and delivery technologies to the point that they are cost and performance competitive and are being used by the Nation's transportation, energy, and power industries. As such, the Program will expand and make more flexible our clean domestic energy supplies to dramatically reduce or even end dependence on foreign oil.

Commentary: Meeting all technology and cost targets in the concurrent technology paths of hydrogen production, storage, and fuel cell power are key contributions to meeting the Hydrogen Posture Plan goals. The Department of Energy is actively executing its program plan by issuing competitive solicitations and making awards in key research areas such as hydrogen storage, hydrogen production and delivery, and fuel cell development.

Associated Annual Target for FY 2004

EE GG 4.01.a



Non-Renewables: Complete research for natural gas-to-hydrogen production and dispensing component development and fabrication towards achieving 5,000 psi hydrogen for $3.00/gge (untaxed and without co-production of electricity) at the station in 2006.

Commentary: Initiated final design tasks for the Penn State Hydrogen Refueling Station. Due to funding delay, the final system design was not completed. Final system design for Air Products and Chemicals, Inc. State College Refueling Station will be completed in the second quarter of FY 2005. To date, process engineering, controls engineering, safety reviews, and operability reviews have begun. The design of the compression, storage, and dispensing modules has been completed. These systems will be deployed at Penn State in the first quarter of FY 2005. Additionally, design work has begun on optimizing the Hydrogen Generation system (reformer, shift, compression, pressure adsorption). This will result in system deployment at Penn State in the third quarter of FY 2005, at which time the station will be fully operational. Progress on the Air Products and Chemicals, Inc. State College Refueling Station, while delayed, is expected to lead to achieving 5,000 psi hydrogen for $3.00/gge (untaxed and without co-production of electricity) at the station in 2006.

Supporting Documentation: Quarterly reports from Air Products and Chemicals, Inc. which describe progress on natural gas-to-hydrogen production and dispensing component development.

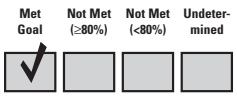
Plan of Action: To keep project going, a liquid hydrogen storage tank is being used until reformer development is complete. Program anticipates final system deployment in the third quarter of FY 2005.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

EE GG 4.01.b



Renewables: Complete research for biomass syngas reforming catalysts to improve durability and reduce cost towards achieving 5,000 psi hydrogen produced for $5.70/gallon of gasoline equivalent (untaxed, modeled cost) at the station by 2005.

Commentary: NREL has completed research for biomass syngas reforming catalysts that will reduce biomass gasification/pyrolysis reforming costs and has improved catalyst durability in a laboratory scale reformer. The new catalyst has minimal attrition and stable comparable activity when operated in a fluid bed reformer compared to a commercial catalyst that has severe attrition in this operating mode. The fluid bed reformer approach minimizes catalyst coking compared with conventional fixed bed reforming. Progress in this catalyst will lead to achieving 5,000 psi hydrogen produced for $5.70/gallon of gasoline equivalent (untaxed, modeled costs) at the station by 2005.

Supporting Documentation: NREL milestone report dated September 30, 2004. NREL Monthly reports.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

EE GG 4.01.c

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
✓			

Complete development of 5,000 pounds per square inch (psi) cyro-gas tank and 10,000 psi compressed gas tank achieving 1.3 kilo watt-hour per kilogram (kWh/kg) and 1.0 kilo watt-hour per liter (kWh/L).

Commentary: Work at Quantum and LLNL completed development of 10,000 psi compressed gas tank achieving 1.3 kilo watt-hour per kilogram (kWh/kg) and 1.3 kilo watt-hour per liter (kWh/L). Quantum supplied a preliminary feasibility report on composite materials and design materials for a 5000 psi compressed Coolfuel (-70C) gas tank (9/30/04). Their analysis indicates that the Coolfuel tank appears feasible since Quantum does not see any technical problems that cannot be mitigated. The next step is to run the computational fluid dynamics (CFD) model of the tank and in-tank regulator assembly model with various thermal conditions to see if any other potential issues might arise.

Supporting Documentation: Quarterly reports from Air Products and Chemicals, Inc, Lawrence Livermore National Laboratory, and Quantum. Technical reports. A full detail report is scheduled to be submitted later in the project.

Related Annual Targets (FY 2003 - FY 2001)

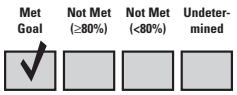
FY 2003
- Complete design of the 5,000 psi cryo-gas tank and 10,000 psi compressed gas tank to achieve 1.3 KWh/kg and 1.0 kWh/1 (ER2-1a2).
  Assessment: MET

FY 2002
- Construct process development unit of ceramic membrane system for membrane system tests for hydrogen production.
  Assessment: MET

FY 2001
- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

EE GG 4.01.d



Complete draft of standard test protocol and construction of test facility for solid-state hydrogen storage materials in support of the 2005 targets of 1.2 kWh/L and 4.5 wt% and the 2010 targets of 2.0kWh/kg (6 wt. %), 1.5 kWh/L at $4/kWh.

Commentary: Draft of standard test protocol and construction of test facility for solid-state hydrogen materials were completed. These standard test protocols focus on hydrogen sorption/desorption measurements of small quantities of hydrogen storage materials using a magnetically coupled thermogravimetric analyzer (TGA), a Sieverts apparatus and a thermally programmed desorption apparatus. Construction of the test facility for solid-state hydrogen storage materials has been completed by SwRI (9/29/04). Progress will lead to reaching the 2005 targets of 1.2 kWh/L and 4.5 wt% and the 2010 targets of 2.0kWh/kg (6 wt. %), 1.5 kWh/L at $4/kWh.

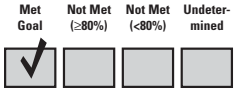
Supporting Documentation: Quarterly reports from Southwest Research Institute, Workshop Report, and Independent review report. Drafts of standard test protocols were completed by Southwest Research Institute (SwRI) on 9/13/04 (SwRI Document Numbers 05064-0001;05064-0009; 05064-0010 and 05064-0011: Master Protocol Index & Facility Overview, High-Pressure Thermogravimetric Analysis; Volumetric Analysis; and Laser Thermal Desorption Mass Spectrometry).

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

EE GG 4.01.e



Determine the baseline level of knowledge and develop a plan for educating target audiences (students and teachers, State and local governments, and large-scale end-users nationwide).

Commentary: All four surveys (public, students and teachers, large scale end users, and state and local government officials) were conducted. This will establish the baseline to be checked against year 2008 (2-fold increase) and year 2010 (4-fold increase).

Supporting Documentation: A report entitled, "Results of the 2004 Knowledge and Opinions Surveys for the Baseline Knowledge Assessment of the Hydrogen, Fuel Cells, and Infrastructure Technologies Program, Version 1" was completed on September 30, 2004. The report includes all four survey instruments, description of approach, results, and conclusions, which support the hydrogen technology education plan.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

EE GG 4.01.f Define requirements for system analysis and integration to link the program's technical objectives to cost and schedule.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Commentary: The Programmatic Baseline, utilizing FY 2004 data, has been completed and input into the systems engineering management tool. Along with the Technical Baseline completed in the third quarter, this provides the last input required for the initial Integrated Baseline. The Integrated Baseline is now available for validation by the individual program elements and to support planning and decision making.

Supporting Documentation: NREL Quarterly Reports describing model requirements, hydrogen mission analysis, technical baseline for hydrogen system, and integrated baseline.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

EE GG 4.01.g Identify and complete feasibility and system design of an isothermal compressor to be incorporated in hydrogen refueling stations to produce hydrogen at $3.00/gge by 2009.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Commentary: The work completed over the past year has shown that hydrogen fueling at 10,000 psig can be accomplished in a cost effective manner. The low-cost compressor and new stand-alone dispenser designs have been completed and will be incorporated into a refueling station at Pennsylvania State University (PSU). The fueling station at PSU is expected to demonstrate the ability to produce and deliver hydrogen for less than $3.00/gge (untaxed) in mass production.

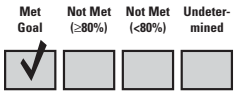
Supporting Documentation: Quarterly reports from Air Products and Chemicals, Inc. for isothermal compressor activities. Feasibility design, dispenser design, and analysis documents.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

EE GG 4.01.h



Complete the harmonized technical standard for high pressure vehicle storage that can be incorporated into a regulation (i.e. incorporating the various standards of different countries into a single regulation) for hydrogen storage. Complete the draft technical standard for vehicular safety.

Commentary: Draft Standard for the high pressure vehicle storage is complete. Technical integration of Compressed Hydrogen Vehicle Tank and Pressure Relief Device (with required tubing) is complete. The Draft Technical Standard for vehicular safety was completed. These standards need to be in place to support the 2015 hydrogen fuel cell commercialization decision.

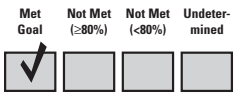
Supporting Documentation: Quarterly reports from Compressed Gas Association for harmonized technical standard. Draft technical standard.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

EE GG 4.01.i



Contribute proportionately to EERE's corporate goal of reducing corporate and program uncosteds to a range of 20-25% by reducing program annual uncosteds by 10% in 2004 relative to the program uncosted baseline (2003) until the target range is met.

Commentary: The Hydrogen and Fuel Cell Technologies Program exceeded its annual target of a ten percent reduction in programs adjusted obligated but uncosted. At the end of the year, the adjusted obligated uncosted (excluding congressionally directed earmarks and Formula Grant activities) was $29,283K (target was $35,924K). Reducing uncosted leads to program activities occurring sooner leading to greater savings from the program.

Supporting Documentation: Uncosted data is verified by MARS. EERE Management Action Plan FY05.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

EE GG 4.01.j Achieve $200/kW for a hydrogen fueled 50kW fuel cell power system.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Commentary: Achievement of $200 kW cost target (high volume production) for hydrogen fueled 50 kW fuel cell power system was verified by a cost analysis by TIAX that identified improvements in bipolar plate, the membrane and the catalyst accomplished through work at Porvair, 3M, DuPont, Cobot Superior Micropowders, Argonne National Laboratory and Los Alamos National Laboratory. The plates met all of the target properties (conductivity, strength, flexibility, permeability…) and demonstrated performance (voltage vs. current density) in single cell testing that was equivalent to the standard graphite plates. If this plate technology were scaled-up (with material cost reduction, process improvement and capital investment) to 500,000 units/year, then the target of $10/kW for the bipolar plates could be met.

Supporting Documentation: Quarterly reports from Los Alamos National Laboratory, Argonne National Laboratory, and industry partners.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- Achieve $225/kW for a 50 kW fuel cell power system (ER2-1b1).
  Assessment: MET

FY 2002
- Achieve $275/kW for a 50 kW fuel cell power system.
  Assessment: MET

FY 2001
- Complete test and evaluation of a fuel-flexible 50 KW integrated fuel cell power system.
  Assessment: MET

Associated Annual Target for FY 2004

EE GG 4.01.k Achieve 31 percent efficiency at full power for a natural gas or propane fueled 50-250 kW stationary fuel cell system.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Commentary: Proof of concept performance data validating projected 31% efficiency of 50kW system was provided by IdaTech, LLC. The Fuel Cell met its efficiency target, and the 5kW fuel processor efficiency was used to project the overall system efficiency of 31%, efficiency increasing with upscaling of systems. This leads to progress towards the 2010 goal of 40% efficiency for stationary fuel cell system.

Supporting Documentation: This information is documented in correspondence from IdaTech, and will be included in the IdaTech quarterly report.

Related Annual Targets (FY 2003 - FY 2001)

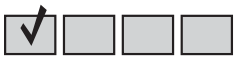
FY 2003
- Achieve 30 percent efficiency at full power for a natural gas/propane 50kW-250kW stationary fuel cell. Plan technology validation activity (ER2-1b2).
  Assessment: MET

FY 2002
- Achieve 29 percent efficiency at full power for a natural gas of propane fueled 50kW stationary fuel cell system.
  Assessment: MET

FY 2001
- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

EE GG 4.01.l Industry contracts are awarded and initial vehicles delivered that support the 1,000 hour durability target.



Commentary: Industry contract awards were made for the Validation Project to DaimlerChrysler, Ford, GM and ChevronTexaco in the 4th quarter 2004. Initial fuel cell vehicles have been delivered and data collection has started. This will lead to the validation of 2009 fuel cell vehicle durability targets of 2,000 hour.

Supporting Documentation: Solicitation packages managed at Golden Field Office. Finalized negotiated awards for the validation project.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Additional Targets from 2003-2001

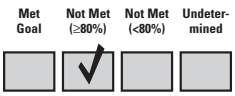
FY 2003
- Verify low electricity and hydrogen production cost (<$.08/kWh and <$3.60/gal equivalent untaxed when produced in quantity) through cost shared operation of a 50kWe stationary fuel cell and hydrogen co-production facility for six months (ER2-1a1).
  Assessment: MET

FY 2002
- There were no additional targets in FY 2002.

FY 2001
- There were no additional targets in FY 2001.

PROGRAM GOAL:

EE GG 4.02

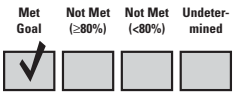


VEHICLE TECHNOLOGIES: Vehicle Technologies Program goal is to develop technologies that enable cars and trucks to become highly efficient, through improved power technologies and cleaner domestic fuels, and to be cost and performance competitive. Manufacturers and consumers will then use these technologies to help the Nation reduce both energy use and greenhouse gas emissions thus improving energy security by dramatically reducing dependence on oil.

Commentary: This program contributes to the General Goal by developing technologies that can enable cars and trucks to become highly efficient by means of R&D that provides clean power technologies and improved domestic fuel specifications that work in concert with advanced power systems. In addition, this program will focus on reducing the cost and improvement of other attributes of advanced vehicle technologies so that they will be both performance and cost competitive. This program is on track for its goals in Vehicle System, Materials Technology, Hybrid and Electric Propulsion, Advanced Combustion Engine R&D, Fuel Technology, and Materials Technology Programs.

Associated Annual Target for FY 2004

EE GG 4.02.1 Reduce parasitic loses to 27 percent of total engine output in a laboratory test.



Commentary: Parasitic loses were reduced from 30% to 27% through improvements in oil filtration system, use of electric accessories, and modified air flow over the truck. This was verified at the Trucking Research Institute test track in Ohio over the body of a tractor trailer. The Society for Automotive Engineers Type 2 fuel economy tests were completed by Georgia Tech Research Institute and Volvo at the Trucking Research Institute, Transportation Research Center test track and confirmed that for trucks traveling at 65 mph, blowing additional air over the rear surface of a trailer reduces parasitic losses by 10%, resulting in a measured net improvement in fuel efficiency of 10%.

Supporting Documentation: EMP Test Results, A Kenworth T-2000 Class-8 truck with a Caterpillar C-15 fuel economy test results, Quarterly Progress Report, Continued Development and Improvement of Pneumatic Heavy vehicles, Phase VI, Robert Englar, Georgia Tech Research Institute, April 15, 2004 (especially pages 14-16).

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- Reduce parasitic losses of heavy vehicle systems to 30% and benchmark additional reductions through heavy truck electrification (ER1-3c).
  Assessment: MET

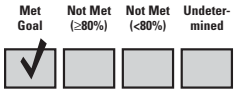
FY 2002
- Reduce parasitic losses of heavy vehicle systems from 39% to 36%.
  Assessment: MET

FY 2001

- Completed testing of the 276-volt battery aimed at demonstrating an integrated system having thermal and electrical controls.
  Assessment: MET

Associated Annual Target for FY 2004

EE GG 4.02.2



Reduce high power 25 kW light vehicle estimated lithium ion battery cost to $1,000 per battery system.

Commentary: Through the use of lower cost carbon (lowered from 22.54 to 10 $/kg) and lower cost separator (20 cents to 10 cents per square foot), the prototype system light vehicle lithium ion battery was lowered from $1050 to $964 per battery system (8.2% reduction). This was demonstrated by Saft America at Cockeysville, Maryland in their USABC Battery Development program.

Supporting Documentation: Contract for $40/kW lithium ion battery for hybrid electric vehicles.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Reduce high power 25 kW-estimated battery cost to $1,180 per battery system (ER1-3a).
  Assessment: MET

FY 2002

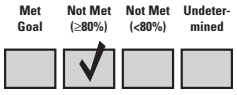
- Complete development of second-generation lithium ion electrochemistry for hybrid vehicle power.
  Assessment: MET

FY 2001

- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

EE GG 4.02.3



Complete Light Truck activity with 35 percent fuel efficiency improvement over a gasoline powered light truck and Tier 2 emissions levels. Demonstrate 45 percent thermal efficiency for heavy duty diesel engines while meeting EPA 2007 emission standards (1.2 g/bhp/hr Nox).

Commentary: Cummins Engine Company light truck prototype achieved a 49 percent improvement in fuel economy (equates to a greater than 35% improvement in fuel efficiency) at their facility in Indiana in September 2004. For Heavy Vehicle, improvement in the fuel injection system, the turbo charger, the control system and the emission control system achieved a thermal efficiency of 44% (80% of improvement goal) with emission levels at 1.3 g/bhp-hr Nox (92% of improvement goal) and 0.01 g/bhp-hr PM. Measurements were performed by Cummins Engine Company. Early analysis indicated that the 45% efficiency goal for heavy duty diesels could be achieved; however, experimental data showed that an improved-capacity heat exchanger is required. The heat exchanger is on order but not scheduled to arrive until the first quarter of FY 2005.

Supporting documentation: Cummins Engine Company Progress Report Presentations, April 2004 and September 2004.

Plan of Action: Engine efficiency will be retested with the improved heat-exchanger in the second quarter of FY 2005. Program expects the engine to meet the efficiency goal at that time.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- Demonstrate optimized emission control system that achieves 0.07 g/mile NOx and 0.01 g/mile particulate matter (PM) short-term performance in light duty vehicles (ER1-3b).
  Assessment: MET

FY 2002
- There were no related annual targets in FY 2002.

FY 2001
- Light truck demonstration resulted in a 35% increase in fuel efficiency in a sport utility vehicle.
  Assessment: MET

Associated Annual Target for FY 2004

EE GG 4.02.4 Complete R&D on technology, which, if implemented in high volume, could reduce the price of automotive-grade carbon fiber to less than $5/pound.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Commentary: To date, fully oxidized and stabilized carbon fiber precursors have been made from commercial PAN (poly-acrilonitrile textile materials) fibers using plasma assisted oxidation techniques developed at ORNL. A separate microwave assisted plasma system has also met the throughout targets for high volume carbon fiber manufacturing. Recommended "recipes" to produce carbon commodity textile acrylic tow have been established. Total system cost savings will be pursued combining plasma assisted oxidation, microwave carbonization and textile precursor technologies to yield a total finished product cost saving. Production equipment needed to practice these processes at high volumes has been identified and Kline and Company made preliminary independent determination of manufacturing costs between $4.59 and $4.93 per pound (exceeding the $5 per pound target). The FY 2004 Automotive Lightweighting Materials Program Annual Report provides details on the progress that has been made to complete the successful oxidation of PAN fiber precursor by plasma assisted processing.

Supporting Documentation: ORNL Quarterly reports, and specialized reports such as Lignin Density Measurements for Low Cost Carbon Fiber: Interim Progress Report, David Warren, ORNL, July 13, 2004.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- Complete R&D on technology, which, if implemented in high volume, could reduce the price of automotive-grade carbon fiber to less than $7/pound (ER1-3d).
  Assessment: MET

FY 2002

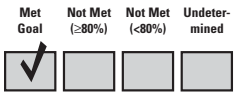
- Fabricate a sport utility vehicle chassis component using carbon fiber in a low cost molding process that is suitable for high volume production.
  Assessment: Not Met

FY 2001

- Completed explorations of four approaches to lower-cost precursors for carbon fibers; down-selected and initiated further work on the two most promising approaches.
  Assessment: MET

Associated Annual Target for FY 2004

EE GG 4.02.5



Contribute proportionately to EERE's corporate goal of reducing corporate and program uncosteds to a range of 20-25% by reducing program annual uncosteds by 10% in 2004 relative to the program uncosted baseline (2003) until the target range is met.

Commentary: The Vehicle Technologies Program exceeded its annual target of a ten percent reduction in programs adjusted obligated but uncosted. At the end of the year, the adjusted obligated uncosted (excluding congressionally directed earmarks and Formula Grant activities) was $73,102K (target was $92,625K). Reducing uncosted leads to program activities occurring sooner leading to greater savings from the program.

Supporting Documentation: Uncosted data is verified by MARS. EERE Management Action Plan FY05.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Additional Targets from 2003-2001

FY 2003

- Start identification of an advanced petroleum-based fuel formulation that enables light and heavy-duty CIDI engine/vehicle systems to meet regulated emissions levels with minimum effect of fuel economy, and perform in full compliance with specified durability requirements (ER1-3e).
  Assessment: MET

FY 2002

- Demonstrate 45% thermal efficiency for a heavy-duty diesel engine while meeting EPA 2004 emission standards.
  Assessment: MET

- Complete initial testing of light trucks with prototype diesel engines to demonstrate a 35% increase in fuel efficiency at Tier II emissions.
  Assessment: MET

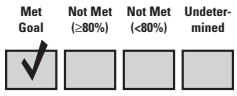
- Reduce gassing in sealed lithium ion batteries so that cells do not vent after five years of storage at full charge.
  Assessment: MET

FY 2001

- Complete explorations of lithium-polymer and lithium ion battery technologies; lithium ion was selected as the most promising approach for continued development.
  Assessment: MET

PROGRAM GOAL:

EE GG 4.03

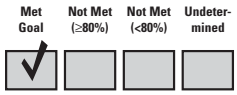


SOLAR ENERGY: The Solar Program goal is to improve performance of solar energy systems and reduce development, production, and installation costs to competitive levels, thereby accelerating both large-scale usage across the Nation and to make a significant contribution to a clean, reliable and flexible U.S. energy supply.

Commentary: The increase in conversion efficiency of commercial production crystalline silicon PV modules to 12.7 percent and thin-film PV modules to 10.1 percent maintains the program's schedule to achieve $1.75 per watt by 2006.

Associated Annual Target for FY 2004

EE GG 4.03.1



Verify, with standard laboratory measurements, U.S.-made commercial production crystalline silicon photovoltaic (PV) modules with a 12.5-percent conversion efficiency. Verify with standard laboratory measurements, U.S.-made commercial production thin-film PV modules with a 10-percent conversion efficiency.

Commentary: During the 4th quarter of FY 2004, the PV Performance Characterization group at the National Center for Photovoltaics (NCP) at NREL continued to conduct conversion efficiency testing on commercial production crystalline silicon (c-Si) modules as well as thin-film modules. The annual target for both c-Si and thin film were both successfully achieved using standard laboratory I-V tests; a conversion efficiency of 12.7% for a c-Si module was verified, and a conversion efficiency of 10.1% of a thin-film module was verified.

Supporting Documentation: Data provided from a current-voltage test run on a SBM Solar multi c-Si module run that was conducted on September 8, 2004, verified a conversion efficiency for c-Si of 12.7%. Thin-film data was provided from testing on a Global Solar CdS/Cu(In,Ga)Se2 module on September 15, 2004 that verified a conversion efficiency of 10.1%. Data based on results from the Spire 240A IV System used by the PV Cell & Module Performance Characterization Group of the National Center for Photovoltaics at NREL. NREL has submitted corresponding laboratory test documentation to the Solar Program for validation and verification purposes.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Reduce manufacturing cost of PV modules to $2.10 per watt (equivalent to $0.19 to $0.24 per kWh price of electricity from an installed solar system) (ER2-4a).
  Assessment: MET

FY 2002

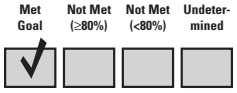
- Reduce manufacturing cost of PV modules to $2.25 per watt (equivalent to $0.20 to $0.30 per kWh price of electricity from an installed solar system).
  Assessment: MET

FY 2001

- Develop a 14% efficient stable prototype thin-film photovoltaic module.
  Assessment: MET

Associated Annual Target for FY 2004

EE GG 4.03.2 Develop conceptual designs of a low-cost polymer solar water heater capable of operation in freezing climates.



Commentary: Working with NREL, the Solar Program completed the requirements for and identification of several viable conceptual designs for low-cost polymer water heaters capable of operation in freezing climates, including heaters in the following categories: drainback; draindown; active charged system (pump); and passive (thermosiphon) system. Based on these efforts, the Solar Program established particular system design requirements that applicants will need to address in responding to the Solar Program's upcoming FY 2005 solicitation for industry-developed conceptual designs. Rather than dictate a particular design for the upcoming RFP, the Solar Program will instead set performance and operational requirements and rely on applicant inventiveness to achieve low-cost designs capable of freezing climate operation. This achievement of developing laboratory conceptual designs for low-cost, polymer solar water heaters paves the way for commercial designs and prototypes and directly supports the program goal stated in its Multi-Year Technical Plan of reducing the cost of solar energy to the point that it becomes competitive in relevant energy markets.

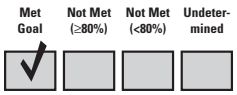
Supporting Documentation: The NREL report entitled, "Cold Climate Solar Domestic Water Heating Systems: Cost/Benefit Analysis and Opportunities for Improvements," 10/1/2004.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

EE GG 4.03.3 Contribute proportionately to EERE's corporate goal of reducing corporate and program uncosteds to a range of 20-25% by reducing program annual uncosteds by 10% in 2004 relative to the program uncosted baseline (2003) until the target range is met.



Commentary: The Solar Energy Program exceeded its annual target of a ten percent reduction in programs adjusted obligated but uncosted. At the end of the year, the adjusted obligated uncosted (excluding congressionally directed earmarks and Formula Grant activities) was $19,342K (target was $23,488K). Reducing uncosted leads to program activities occurring sooner leading to greater savings from the program.

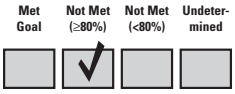
Supporting Documentation: Uncosted data is verified by MARS. EERE Management Action Plan FY05.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

PROGRAM GOAL:

EE GG 4.04

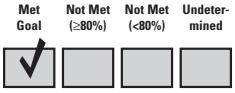


BUILDING TECHNOLOGIES: The Building Technologies Program goal is to develop cost effective tools, techniques and integrated technologies, systems and designs for buildings that generate and use energy so efficiently that buildings are capable of generating as much energy as they consume.

Commentary: In FY 2004, progress in building technologies has included: proposed standard rule makings for residential furnaces, commercial air conditions and distribution transformers; two solid state lighting solicitations that will support the 2023 goal of 200 lumen/watt; and a Building America analysis report completed for design packages targeting 40 percent whole house energy savings.

Associated Annual Target for FY 2004

EE GG 4.04.1



Initiate 5 design packages that provide promising technological solutions considering regional and housing type differences targeting 40 - 50 percent reductions in residential space conditioning loads, compared to International Energy Conservation Code (IECC) 2000, through Building America Consortia. Strategies to reduce the major loads, including energy used for hot water, lighting and clothes dryers will also be investigated.

Commentary: NREL completed the report on analysis of 5 design strategies leading to cost effective, 40% whole house energy savings as a function of region and housing type. The Building America Consortia initiated 5 design packages that provide solutions considering regional and housing type differences targeting 40-50 percent reductions in residential space conditioning loads. This leads to reaching the 2020 goal of 60-70% reduction.

Supporting Documentation: Special Reports published by NREL available on web on the design packages attaining 40-50% reduction plus details from the report, "Analysis Of System Strategies Targeting Near Term Building America Energy Performance Goals For New Single Family Homes," NREL- TP-550-36920.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Pursue six promising technical solutions considering regional and housing type differences targeting 40 percent reductions in residential space conditioning, hot water, and lighting loads. Based on Building America systems research results, develop regional Building System Performance Packages for five climate zones describing "best practices" systems that reduce space conditioning energy use by 30 percent (ER1-4a).
  Assessment: MET

FY 2002

- Increase knowledge base of residential construction industry by pursuing six lines of research investigations focusing on industry identified priorities, e.g. low cost moisture protection, right-sized hearing, ventilation and air-conditioning (HVAC) designs, super efficient distribution systems, etc.
  Assessment: MET

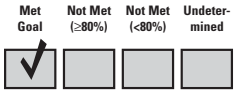
- Complete at least 850 highly resource-efficient, cost-effective homes through the Building America consortia, bringing the total number of homes built through the program to more than 4,500.
  Assessment: MET

FY 2001

- With Building America Partners, complete 3,000 energy efficient, environmentally sound high performance homes.
  Assessment: MET

Associated Annual Target for FY 2004

EE GG 4.04.4



Complete a solicitation and award five or more competitively based research awards for cost-shared research on technology (such as substrate materials and light extraction) to contribute to the goal of 160 Lumen/watt (lpw) & $11/klm of white light from solid-state devices with industry, national labs, and universities.

Commentary: The solid state lighting program completed two solicitations; one for core technology and the other for Product Development awarding 16 projects for cost-shared research on technology to contribute to the goal of 160lm/W & $11/klm of white light from solid-state laboratory devices with industry, national labs, and universities. In the Core Technology Solicitation, seven private sector institutions and four projects with national labs were selected and awarded. In the Product Development Solicitation, five company projects were selected.

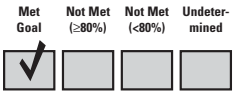
Supporting Documentation: Solicitations, applications, and awards. Additionally, the Industry Interactive Procurement System has records of the solicitations.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

EE GG 4.04.5



Prepare for DOE issuance up to four rules to amend appliance standards and test procedures for some of the following products: Residential Furnaces, Boilers, and Mobile Home Furnaces; Electrical Distribution Transformers; Commercial Unitary Air-Conditioners and Heat Pumps; and Residential Niche Product Air-Conditioners and Heat Pumps.

Commentary: DOE published five rules regarding appliance standards and test procedures. They included three Advance Notice of Proposed Rulemaking for Residential Furnaces, Boilers, and Mobile Home Furnaces; Electrical Distribution Transformers; Commercial Unitary Air-Conditioners and Heat Pumps; Standards and a Supplemental Notice of Proposed Rulemaking for Electric Distribution Transformer test procedures. In addition, the Department published a final rule regarding standards for residential central air conditioners, this eliminated the need to conduct planned rulemaking on Residential Niche Product Air Conditioners and Heat Pumps.

Supporting Documentation: Federal Register Notices: Advance Notice of Proposed Rulemaking for Residential Furnaces and Boilers Standards (July 29, 2004, 69FR45420); Advance Notice of Proposed Rulemaking for Distribution Transformers Standards (July 29, 2004, 69 FR45376); Advance Notice of Proposed Rulemaking for Commercial Unitary Air Conditioners and Heat Pumps Standards (July 29, 2004, 69FR45460); and Supplemental Notice of Proposed Rulemaking for Distribution Transformers Test Procedures (July 29, 2004, 69FR45506); and Final Rule for Residential Central Air Conditioners and Heat Pumps (August 17, 2004, 69FR50997).

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Conduct four rulemakings to amend appliance standards and test procedures (ER1-4d).
  Assessment: Met lest than 80% of the Target

FY 2002

- Publish one proposal for upgrade to the Federal Residential Building codes, and one proposal for upgrade to the Federal Commercial Building codes.
  Assessment: Not Met

FY 2001

- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

EE GG 4.04.7

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
		✓	

Contribute proportionately to EERE's corporate goal of reducing corporate and program uncosteds to a range of 20-25% by reducing program annual uncosteds by 10% in 2004 relative to the program uncosted baseline (2003) until the target range is met.

Commentary: The Building Technologies Program did not meet its annual target of a ten percent reduction in programs adjusted obligated but uncosted. At the end of the year, the adjusted obligated uncosted (excluding congressionally directed earmarks and Formula Grant activities) was $33,417K (target was $35,150K). The program remains committed to achieving the annual target of reducing uncosteds by 10%. Some of the factors that caused the milestone to be missed include: late appropriation of FY 2004 funds by Congress that adversely impacted EERE's operational activities associated with its budget execution activities; and the major realignment of the EERE field structure to create the project management center function, creating another temporary bottleneck as new systems, processes, and procedures designed to improve financial management are being put into place.

Supporting Documentation: Uncosted data is verified by MARS. EERE Management Action Plan FY 05.

Plan of Action: The program and EE management are carefully monitoring and managing the level of uncosted balances, and working actively with the programs and system support staff to address these issues and to facilitate the accomplishment of this goal. The EERE Management Action Plan FY 05 (October 2004) describes EE actions to reduce uncosteds.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Additional Targets from 2003-2001

FY 2003

- Facilitate a 10 percent increase in commercial building designs that have meaningful consideration of energy efficiency by developing improved design tools, including code compliance tools, and completing six research assisted design case studies in cooperation with industry (ER1-4b).
  Assessment: MET

- Complete investigation of five methods to increase the optimum selection of equipment components for air conditioning and heat pumps (ER1-4c).
  Assessment: MET

- Expand ZEB teams to include more climates and continue partnership with industry to more fully integrate solar electric and thermal energy into buildings (ER1-4e).
  Assessment: MET

FY 2002

- Increase the knowledge base of the residential construction industry by pursing six lines of research investigations focusing on industry identified priorities, e.g. low cost moisture protection, right-sized heating, ventilation and air-conditioning (HVAC) designs, super efficient distribution systems, etc.
  Assessment: MET

- Complete at least 850 highly resource-efficient, cost-effective homes through the Building America consortia, bringing the total number of homes built through the program to more than 4,500.
  Assessment: MET

- Publish one proposal for an upgrade to the Federal Residential Building codes, and one proposal for an upgrade to the Federal Commercial Building codes.
  Assessment: Not Met

- Establish one High Performance Buildings Roadmap implementation framework, leading to the goal of 30% more energy efficient new commercial construction compared to 1996 standard practice.
  Assessment: MET

- Issue two proposals for upgrades and five upgrades to appliance standards and test procedures.
  Assessment: MET

- Implement and improve WINDOW 5 for National Fenestration Ratings Council (NFRC) production runs; train and support NFRC simulators.
  Assessment: MET

- Conclude field demonstrations of heat pump water heaters with utility partners.
  Assessment: MET

FY 2001

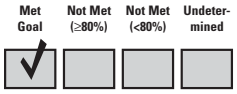
- With Building America Partners, complete 3,000 energy-efficient environmentally sound high performance homes.
  Assessment: Exceeded Goal

- Issue three proposals for upgrades and three upgrades to appliance standards and test procedures. WINDOW 5 was released and approved by National Fenestration Rating Council (NFRC); algorithms were adopted as an International Standards Organization (ISO) standard.
  Assessment: MET

- Complete Phase I field demonstrations of heat pump water heaters, with utility partners.
  Assessment: MET

PROGRAM GOAL:

EE GG 4.05

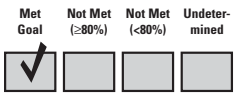


WIND ENERGY: By 2012, complete program technology research and development, collaborative efforts, and provide the technical support and outreach needed to overcome barriers – energy cost, energy market rules and infrastructure, and energy sector acceptance –to enable wind energy to compete with conventional fuels throughout the nation in serving and meeting the Nation's energy needs.

Commentary: Program made progress against the 2012 goal of reducing the cost of electricity from large wind systems in class 4 winds to 3 cents/kWh for onshore systems and 5 cents/kWh for offshore systems.

Associated Annual Target for FY 2004

EE GG 4.05.1



Wind: Complete testing of prototypes for first advanced low wind speed technology components, and complete detailed designs under first public-private partnership projects for full system low wind speed turbine development.

Commentary: Completed testing of prototypes for first advanced low wind speed technology components, and completed detailed designs under first public-private partnership project for full system low wind speed turbine development. The first low wind speed turbine full system detailed design was completed by Clipper Windpower, Inc. and accepted at a formal design review meeting held August 6-7, 2003.

Supporting Documentation: Verified by monthly reports from contractor/national labs including NREL. Determining the cost of energy (COE) for LWST goal will be derived from the impact of improvements in individual components and subsystems will be based on comparisons against a baseline turbine composite with a well-understood cost of energy. Formal design review meeting was held August 6-7, 2003.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Complete low wind speed turbine (LWST) conceptual design studies and fabricate and begin testing advanced wind turbine components optimized for low wind speed application initiated under industry (ER2-2a). **Assessment: MET**

FY 2002

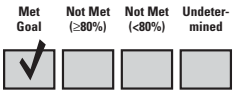
- There were no related annual targets in FY 2002.

FY 2001

- Moved advanced wind hybrid control system technology, developed jointly with USDA Agricultural Research Center, to commercial availability. **Assessment: MET**

Associated Annual Target for FY 2004

EE GG 4.05.2



Contribute proportionately to EERE's corporate goal of reducing corporate and program uncosteds to a range of 20-25% by reducing program annual uncosteds by 10% in 2004 relative to the program uncosted baseline (2003) until the target range is met.

Commentary: The Wind Program exceeded its annual target of a ten percent reduction in programs adjusted obligated but uncosted. At the end of the year, the adjusted obligated uncosted (excluding congressionally directed earmarks and Formula Grant activities) was $18,317K (target was $24,397K). Reducing uncosted leads to program activities occurring sooner leading to greater savings from the program.

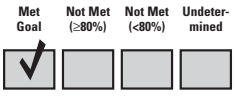
Supporting Documentation: Uncosted data is verified by MARS. EERE Management Action Plan FY 05.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

PROGRAM GOAL:

EE GG 4.06

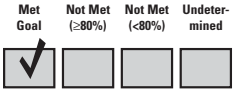


HYDROPOWER: The Hydropower Program's goal is to conduct the R&D necessary to improve hydropower's operational and environmental performance so that hydropower generation is increased because of its affordability, abundance, reliability and environmental benefits. In accomplishing this goal, the program will increase the viability of hydropower, the Nation's most widely used renewable energy source, without construction of new dams.

Commentary: The Hydropower program FY 2004 activities focused on development of advanced technologies that will have enhanced environmental performance and greater energy efficiencies.

Associated Annual Target for FY 2004

EE GG 4.06.1



Complete report comparing field tests and model results for the effects of blade strike on turbine-passed fish.

Commentary: The report, "Comparison of Blade-Strike Modeling Results with Empirical Data," comparing field tests and model results for the effects of blade-strike on turbine passed fish was completed in March 2004. Technology enhancement focuses on reduced effect of blade strike of fish and improved generation efficiency.

Supporting Documentation: Pacific Northwest National Laboratory Report PNNL-14603 dated March 2004, "Comparison of Blade-Strike Modeling Results with Empirical Data" by Gene R. Ploskey and Thomas J. Carlson. This is documented in a September 29, 2004 PNNL letter, which summarizes findings of this report.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Complete the pilot-scale testing of a fish friendly hydroelectric turbine, providing the basis for future full-scale testing at an operational site. Successful testing will provide industry with a proven design, helping attain the 2 percent mortality goal (ER2-2b).
  Assessment: MET

FY 2002

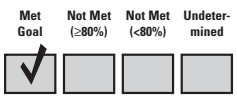
- There were no related annual targets in FY 2002.

FY 2001

- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

EE GG 4.06.2



Contribute proportionately to EERE's corporate goal of reducing corporate and program uncosteds to a range of 20-25% by reducing program annual uncosteds by 10% in 2004 relative to the program uncosted baseline (2003) until the target range is met.

Commentary: The Hydropower Program exceeded its annual target of a ten percent reduction in programs adjusted obligated but uncosted. At the end of the year, the adjusted obligated uncosted (excluding congressionally directed earmarks and Formula Grant activities) was $3,022K (target was $3,687K). Reducing uncosted leads to program activities occurring sooner leading to greater savings from the program.

Supporting Documentation: Uncosted data is verified by MARS. EERE Management Action Plan FY05.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

PROGRAM GOAL:

EE GG 4.07

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
		✓	

GEOTHERMAL TECHNOLOGY: The Geothermal Program goal is to improve performance and reduce market entry costs of geothermal energy to competitive levels. In quantitative terms, the goal is to reduce the levelized cost of power generated from conventional geothermal sources from 5-8 cents per kWh (kilowatt hour) in 2000 to 3-5 cents per kWh by 2010.

Commentary: In FY 2004, the Geothermal Technologies Program demonstrated improved performance of drag cutter drill bits when used in conjunction with a diagnostics-while-drilling data collection and control system. This improvement reduces the cost of drilling by three to four percent. In FY 2004, the Program also completed design of a small scale power plant with a mixed composition working fluid that showed a four percent improvement in power output relative to conventional pure fluid binary power plants that translates into a 0.2 cent/kWh reduction in the cost of power. The Program made measurable progress toward reducing market costs by implementing state-level technical assistance activities in a total of 14 Western states which are aimed at developing favorable regulatory, environmental, and economic conditions for new geothermal markets.

Associated Annual Target for FY 2004

EE GG 4.07.1

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
		✓	

Create an Enhanced Geothermal System (EGS) with an industry partner and test associated technology needed to operate and monitor the system.

Commentary: The initial flow testing of the reservoir was not completed and therefore, no verification of EGS creation. The third quarter milestone to complete massive hydraulic fracturing experiment that would create a reservoir at an EGS was delayed, and rescheduled for November 2004. As a result of this delay, the target was not achieved. The program used the delay to conduct work at another well to gain experience with equipment and techniques to be used during the fracturing experiment. This work also provided data for comparing the response of the reservoir under different injection conditions.

Supporting Documentation: Verified by quarterly reports from contractor/national labs (INEEL. CalPine, Ormat, and University of Utah). Verified by quarterly technical report "Creation of An EGS through Hydraulic and Thermal Stimulation" from industry partners.

Plan of Action: The activity to complete massive hydraulic fracturing experiment that would create a reservoir at an EGS is rescheduled for November 2004. Completion of initial flow testing is rescheduled for April 30, 2005.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Support industry opening and initial operation of a 1 MW small-scale geothermal power plant in the State of New Mexico (ER2-5a).
  Assessment: MET

FY 2002

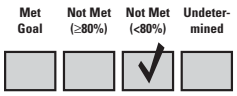
- Complete construction of a small-scale (300 kW to 1 MW) geothermal power plant for field verification.
  Assessment: MET

FY 2001

- Selected industrial partners to build two cost-shared geothermal power plants using Enhanced Geothermal System (EGS) technology.
  Assessment: MET

Associated Annual Target for FY 2004

EE GG 4.07.2



Contribute proportionately to EERE's corporate goal of reducing corporate and program uncosteds to a range of 20-25% by reducing program annual uncosteds by 10% in 2004 relative to the program uncosted baseline (2003) until the target range is met.

Commentary: The Geothermal Technology Program did not meet its annual target of a ten percent reduction in programs adjusted obligated but uncosted. At the end of the year, the adjusted obligated uncosted (excluding congressionally directed earmarks and Formula Grant activities) was $21,644K (target was $18,962K). The program remains committed to achieving the annual target of reducing uncosteds by 10%. Some of the factors that caused the milestone to be missed include: late appropriation of FY 2004 funds by Congress that adversely impacted EERE's operational activities associated with its budget execution activities; and the major realignment of the EERE field structure to create the project management center function, creating another temporary bottleneck as new systems, processes, and procedures designed to improve financial management are being put into place.

Supporting Documentation: Uncosted data is verified by MARS. EERE Management Action Plan FY 05.

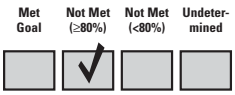
Plan of Action: The program and EE management are carefully monitoring and managing the level of uncosted balances, and working actively with the programs and system support staff to address these issues and to facilitate the accomplishment of this goal. The EERE Management Action Plan FY 05 (October 2004) describes EE actions to reduce uncosteds.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

PROGRAM GOAL:

EE GG 4.08

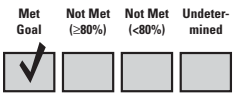


BIOMASS AND BIOREFINERY SYSTEMS R&D: Develop biorefinery-related technologies to the point that they are cost- and performance-competitive and are used by the Nation's transportation, energy, chemical and power industries to meet their market objectives. This helps the Nation by expanding clean, sustainable energy supplies while also improving the Nation's energy infrastructure and reducing our dependence on foreign oil.

Commentary: Advances and completions in the biomass targets maintain the technology road map goals needed for biomass products to move into the marketplace at competitive prices.

Associated Annual Target for FY 2004

EE GG 4.08.a



Demonstrate clean syngas production in three thermochemical conversion systems.

Commentary: NREL completed initial pilot scale testing of a tar reformer for biomass-derived syngas. In meeting this target, the program contributes to the goal of reducing the cost of cleaned and reformed biomass-derived synthesis gas. NREL operated a full stream reformer (FSR) sized to accommodate the output of a 140 kWthermal biomass gasifier-41 Normal meters cubed per hour at temperatures and pressures up to 900°C and 140 kilo-Pascal. The FSR is a 35.6 cm diameter bubbling fluidized bed with a nominal charge of 60 kg of catalyst. The FSR was operated on a product gas with 9-13% methane (dry), 1500-1900 parts per million volume benzene, 320-440 parts per million volume naphthalene, and a steam-to-carbon ration of 1.1-1.6. Both olivine and a proprietary catalyst (Potassium/Magnesium promoted Ni/a-alumina) were used. The catalyst was tested at three feed rates (10-20kg/h biomass) and four temperatures (800-875°C) over a period of nine days. The maximum destruction rates for benzene, toluene, naphthalene, cresol, phenanthrene, and total tar measured by molecular beam mass spectrometry ranged from 95-100% over the fresh or newly regenerated catalyst.

Supporting Documentation: Phillip, S., D. Carpenter, D. Dayton, C. Feik, R. French, and M. Ratcliff (2004). "Preliminary Report on the Performance of Full Stream Tar Reformer,"NREL Milestone Completion Report, ID: FY04-570, National Renewable Energy Laboratory, Golden, CO, 76p, September.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Establish testing program at three existing gasifiers at partner sites for the development and application of technology components (e.g. gas clean-up, gas engines, fuel cells, etc.) that need to be integrated with the gasification components to produce power, fuels, and chemicals (ER2-3b).
  Assessment: Met less than 80% of the Target

FY 2002

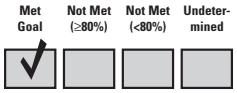
- There were no related annual targets in FY 2002.

FY 2001

- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

EE GG 4.08.b Complete testing of ethanol production from corn fiber in partnership with industry in order to achieve a 3 percent increase in ethanol production from each corn ethanol plant that successfully implements the technology without requiring additional corn feedstock.



Commentary: Completed testing of ethanol production from corn bran in bench-scale fermentation tests that demonstrated increased ethanol production relative to current corn ethanol technology. NREL reported that, Dakota Bran, a corn feedstock, was dilute-acid pretreated and the resulting hydrolysate slurry was run through two bench-scale fermentations. The Broin's bench-scale runs were based on criteria developed to ensure optimal running conditions (acid concentration, temperature, yeast concentration, etc.) based on engineering theory and experience. In addition, Archer Daniels Midland's testing of ethanol production from corn fiber supports the objective of 3 percent increase in ethanol production from corn ethanol plants. In meeting this target, the program contributes to the goal of accelerating the use of cellulosic feedstock at existing ethanol plants.

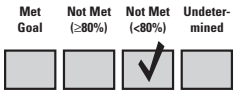
Supporting Documentation: NREL Report dated September 30, 2004. On October 6, 2004, ADM provided a technical note to the Golden Field Office.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

EE GG 4.08.c Contribute proportionately to EERE's corporate goal of reducing corporate and program uncosteds to a range of 20-25% by reducing program annual uncosteds by 10% in 2004 relative to the program uncosted baseline (2003) until the target range is met.



Commentary: The Biomass and Biorefinery Systems R&D Program did not meet its annual target of a ten percent reduction in programs adjusted obligated but uncosted. At the end of the year, the adjusted obligated uncosted (excluding congressionally directed earmarks and Formula Grant activities) was $62,235K (target was $55,299K). The program remains committed to achieving the annual target of reducing uncosteds by 10%. Some of the factors that caused the milestone to be missed include: late appropriation of FY 2004 funds by Congress that adversely impacted EERE's operational activities associated with its budget execution activities; and the major realignment of the EERE field structure to create the project management center function, creating another temporary bottleneck as new systems, processes, and procedures designed to improve financial management are being put into place.

Supporting Documentation: Uncosted data is verified by MARS. EERE Management Action Plan FY 05.

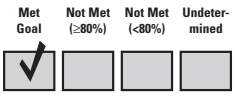
Plan of Action: The program and EE management are carefully monitoring and managing the level of uncosted balances, and working actively with the programs and system support staff to address these issues and to facilitate the accomplishment of this goal. The EERE Management Action Plan FY 05 (October 2004) describes EE actions to reduce uncosteds.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

EE GG 4.08.d



Complete validation of one new biobased product technology, with long-term potential of greater than 2 billion lbs./yr. sales, at the pilot scale for economic, technical, and product viability in partnership with industry.

Commentary: Pittsburgh State University and their industrial partner identified a soy polyol that has commercial potential. Dow Chemical's characterization of the gene promoters facilitates their team's ability to grow and develop plants that are viable for commercially producing plant oils for chemical manufacturing applications. By meeting the annual target, the program is contributing to the goal of developing cost-competitive and energy-efficient bio-based products technologies.

Supporting Documentation: Life Assessment Report. Quarterly Reports. An August 11, 2004, report to GFO from Dow Chemical. GFO received additional information on the achievement on September 30, 2004.

Related Annual Targets (FY 2003 - FY 2001)

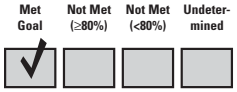
FY 2003
- In partnership with industry, complete pilot scale demonstration of two new biobased product technologies for economic, technical, and product performance (ER2-3c).
  Assessment: MET

FY 2002
- There were no related annual targets in FY 2002.

FY 2001
- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

EE GG 4.08.e



With industry partners, a new biobased product technology advances to scale-up with partners' intention to commercialize in a new industrial biorefinery by FY 2008. The biorefinery will be at pilot scale.

Commentary: With industry partners, Cargill and Almagamated, a new biobased product technology was advanced to scale-up, with partner's intended to commercialize by FY 2008. Almagamated's bio-based product technology advancements provide information that can be used to engineer scaled up designs for use in industrial applications. Cargill Dow's progress will allow their biomass technology to be scaled up by 2008. Cargill Dow has begun strain optimization and process development on C1 (proprietary designation for this strain). The strain optimization is directed at improving rate and yield. The process development is being done in 5-liter fermentors with seed propagation, batch and continuous configurations under investigation. By meeting the annual target, the program is contributing to the goal of developing cost-competitive and energy-efficient bio-based products technologies.

Supporting Documentation: Cargill Dow's quarterly report CM04011.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- A 2-cycle engine oil derived from soy oil is commercialized for the emerging bioproducts industry (ER2-3d).
  Assessment: Met less than 80% of the Target

FY 2002

- There were no related annual targets in FY 2002.

FY 2001

- There were no related annual targets in FY 2001.

Additional Targets from 2003-2001

FY 2003

- Develop an improved enzyme preparation for reducing the cost of producing ethanol from biomass. Evaluate its impact on production costs using an updated computer model of the production process (ER2-3a).
  Assessment: MET

- Complete the thermo chemical options analysis to assess various pathways to fuels (e.g., F-T, gasoline, diesel, alcohols) (ER2-3e).
  Assessment: MET

FY 2002

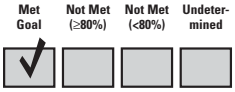
- Develop a prototype yeast capable of fermenting multiple biomass-derived sugars to meet cost goals for the ethanol/gasoline blend markets.
  Assessment: Not Met

FY 2001

- Conduct competitive solicitation and select at least one partner for demonstrating the conversion of cellulosic feedstock at a corn ethanol plant.
  Assessment: MET

PROGRAM GOAL:

EE GG 4.09

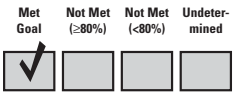


WEATHERIZATION: The mission of the Weatherization Assistance Program is to increase the energy efficiency of dwellings occupied by low-income Americans, thereby reducing their energy costs, while safeguarding their health and safety. DOE works directly with States and local governments, which contract with local governmental or non-profit agencies to deliver weatherization services.

Commentary: Weatherizing homes help to reduce the energy costs of low-income family homes.

Associated Annual Target for FY 2004

EE GG 4.09.1



Weatherize 94,450 homes with DOE funds. Cumulative total of 2.8 million homes will be weatherized with DOE funds. Cumulative total of 5.4 million homes will be weatherized with DOE and leveraged funds.

Commentary: The Weatherization Assistance Program exceeded the FY 2004 annual target by weatherizing 99,614 homes in FY 2004, reaching a cumulative total of 2.8 million homes with DOE funds and, reaching a cumulative total of 5.4 million homes with DOE and leveraged funds. Weatherization of low-income family homes helps to reduce energy costs for these families.

Supporting Documentation: Reports are submitted by the States through the WinSAGA system.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Award $223 million in FY 2003 funds through 53 Weatherization program grants, including all 50 states, to enable the direct weatherization of 93,000 homes. This will bring the cumulative number of homes weatherized to over 5.2 million (ER3-1a).
  Assessment: MET

FY 2002

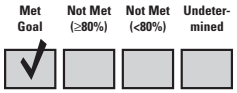
- Weatherize 105,000 homes, bringing the total number of homes weatherized to 5.1 million. The weatherization assistance program reassessed the total number of homes weatherized between FY 2001 and FY 2002.
  Assessment: MET

FY 2001

- Weatherized 75,350 homes, bringing the total number of homes weatherized to 4.8 million.
  Assessment: MET

Associated Annual Target for FY 2004

EE GG 4.09.2



Contribute proportionately to EERE's corporate goal of reducing corporate and program uncosteds to a range of 20-25% by reducing program annual uncosteds by 10% in 2004 relative to the program uncosted baseline (2003) until the target range is met.

Commentary: The Weatherization Program did contribute proportionately to EERE's corporate goal of reducing corporate and program uncosted.

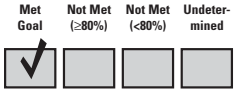
Supporting Documentation: Uncosted data is verified by MARS. EERE Management Action Plan FY 05.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

PROGRAM GOAL:

EE GG 4.10

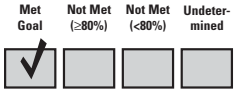


STATE ENERGY PROGRAMS: The State Energy Program goal is to strengthen and support the capabilities of States to promote energy efficiency and to adopt renewable energy technologies, helping the Nation achieve a stronger economy, a cleaner environment and greater energy security.

Commentary: The State Energy Program assisted states in developing emergency energy plans and fostered clean, reliable, and diverse energy supplies.

Associated Annual Target for FY 2004

EE GG 4.10.1



Achieve an annual energy savings of 52,406,390 source Btu's and $317,772,960 in annual energy cost savings by awarding $43,952,000 in grants to States and Territories.

Commentary: The Regional Offices and NETL received applications from all states and awarded a cumulative total of $43.952 million in State Energy Program formula grants. Awards are made in accordance with the States fiscal year requirements. In 2003, Oak Ridge National Lab released a report describing a methodology to estimate energy and cost savings from State Energy Program funded activities. Based on this methodology, the program estimates energy savings of 52.4 million source btu's and a cost savings $317.7 million. (These figures include benefits from "leveraged dollars"; benefits of direct program funding are less than one fourth of those reported.)

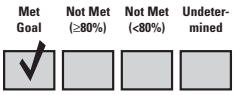
Supporting Documentation: Grants awards as reported in the CPS, State Energy Reports, Metrics Study ("Estimating Energy and Cost Savings and Emissions Reductions for the State Energy Program Based on Enumeration Indicators Data" ORNL/CON-487, January 2003.).

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

EE GG 4.10.2



Contribute proportionately to EERE's corporate goal of reducing corporate and program uncosteds to a range of 20-25% by reducing program annual uncosteds by 10% in 2004 relative to the program uncosted baseline (2003) until the target range is met.

Commentary: The State Energy Program did contribute proportionately to EERE's corporate goal of reducing corporate and program uncosted.

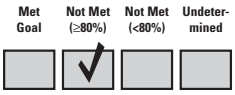
Supporting Documentation: Uncosted data is verified by MARS. EERE Management Action Plan FY 05.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

PROGRAM GOAL:

EE GG 4.11

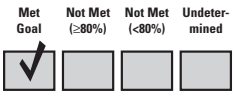


INTERGOVERNMENTAL ACTIVITIES: Accelerate the adoption of clean, efficient and domestic energy technologies through efficient intergovernmental demonstration and delivery of cost-effective energy technologies which will benefit the public through improved energy productivity and reduced demand and particularly reduce the burden of energy cost on the disadvantaged.

Commentary: The Intergovernmental programs focused on accelerating the adoption of clean, efficient and domestic energy technologies through programs that included: International Renewable Energy Program; Tribal Energy Activities; Renewable Energy Production Initiative; Energy Star; Rebuild America; Clean Cities; Commercial and Residential Codes; Inventions and Innovations; and Energy Efficiency Information Outreach.

Associated Annual Target for FY 2004

EE GG 4.11.1



International Renewable Energy will strengthen and broaden activities supporting priority agreements, e.g. expanded the harmonization of standards to additional countries, ramped up implementation of the Energy Efficiency and Village Energy initiatives. Continue to work with APEC (Asian Pacific Economic Cooperation) and NAEWG (North American Energy Working Group).

Commentary: International Renewable Energy succeeded in supporting priority agreements and providing technical support to Asian Pacific Economic Cooperation (APEC) and the North American Energy Working Group (NAEWG). The target for support for APEC Financing Workshop was met by developing a special briefing package on financing renewable energy that was delivered to the APEC energy ministers at their meeting in June 2004.

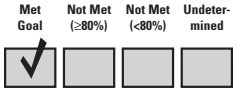
Supporting Documentation: Trip reports from national labs reports from NREL, PNNL, and LBNL. A special briefing package on financing renewable energy.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

EE GG 4.11.2



Assist over 500 new and existing Rebuild America community partnerships upgrade 70 million square feet of floor space in K-12 schools, colleges, public housing, and state/local governments reducing the average energy used in these buildings by 18%.

Commentary: Rebuild America exceeded the FY 2004 annual target by renovating 130 million square feet. This expansion of completed square feet retrofitted was due to the program emphasis on multi-family residences and colleges and universities which are self-sustaining partners with larger projects. In addition States are increasingly utilizing Rebuild America's technical assistance network. The average energy saved in Rebuild America is 18%.

Supporting Documentation: Verified by Rebuild America partners who directly input data into partner website. Data is developed in a project report available to partners and management. Reported by project, market sector, status (completed or committed), and nature of Rebuild assistance. Program conducts sample validations of partner input by sector.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Assist 450 Rebuild America community partnerships, upgrade 80 million square feet of floor space in K-12 schools, colleges, public housing, and State and local governments (ER3-1b).
  Assessment: MET

FY 2002

- Establish 40 new Rebuild America community partnerships, and assist these communities to retrofit 80 million square feet of floor space in K-12 schools, colleges, public housing, and State and local governments.
  Assessment: MET

FY 2001

- Establish 40 new Rebuild America community partnerships, and assist these communities to retrofit 80 million square feet of floor space in K-12 schools, colleges, public housing, and State and local governments.
  Assessment: MET

Associated Annual Target for FY 2004

EE GG 4.11.3

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undeter-mined
		✓	

Clean Cities will conduct 7 major workshops, award $6 million in special project funding, and report a total of 180,000 number of alternative fuel vehicles in operation in clean cities. Achieving these outcomes will result in an estimate displacement of 153 million gallons of petroleum based fuels.

Commentary: Clean Cities issued $5.4 million in Special Project Funding for 66 cost-share projects to pay the incremental costs of Alternative Fuel Vehicles (AFVs), build fueling stations, and provide coalition support. The target was not met for vehicles. In the reporting period, 172,000 AFVs were added, displacing 147 M gallons of petroleum. The program has developed an action plan which includes a strategy for increasing petroleum displacement with an expanded portfolio of transportation technologies.

Supporting Documentation: Data collected from annual survey is reported by QSS Group, Inc. who work with national directors of Clean City coalitions to disseminate the information. Meeting materials and lists of attendees. Calculations for fuel displacement are based on survey results applying fuel displacement.

Plan of Action: The program has developed an action plan included in the Clean Cities Roadmap, completed in May 2004, which includes a strategy for increasing petroleum displacement with an expanded portfolio of transportation technologies. The planning and coordination for this development have been ongoing since March 2004 and are expected to begin being implemented in FY 2005.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Achieve a total of 135,000 alternative fuel vehicles in operation in Clean Cities which will displace 180 million gallons of gasoline and diesel in a year (ER3-1c).
  Assessment: MET

FY 2002

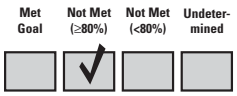
- Achieve 135,000 alternative fuel vehicles in operation in Clean Cities.
  Assessment: MET

FY 2001

- Support the annual acquisition of 12,000 alternative fuel vehicles in the Federal fleet.
  Assessment: MET

Associated Annual Target for FY 2004

EE GG 4.11.4



Recruit 500 additional retail stores, five additional utilities and 10 additional manufacturers. Add domestic hot water heaters to the program. Begin work on a Commercial Window Specification. Expand room air-conditioner program to include heating cycle. Continue outreach to non-English speaking communities and Weatherization activities.

Commentary: ENERGY STAR exceeded the annual target by recruiting over 3,300 retail stores, 5 additional utilities and 10 additional manufacturers due to signing on Brand Source, Best Buy, and Big Lots stores as partners. ENERGY STAR worked with states such as Nevada on expanding outreach to non-English speaking communities, and coordinated with the Weatherization Assistance Program on bulk CFL purchases. The Program expanded room air-conditioning to include units with a heating cycle which is expected to be approved in November 2004. The Program decided not to develop a commercial window specification due to the programmatic approach of taking a whole building approach. ENERGY STAR did not pursue developing criteria for domestic hot water heaters as the market is not developed for non-conventional technologies.

Supporting Documentation: Based on updated store lists submitted by Energy Star retail partners. In addition figures are also collected and submitted by state and local energy efficiency groups such as NYSERDA, Applied Proactive Technologies and others. After retailer and partner information is submitted, lists are cross-checked to avoid duplication. Data is entered into I-STAR database which is reported on through internal memos to program.

Plan of Action: For two of the components of the target, the program has changed direction and will not pursue developing a commercial window specification due to the programmatic approach of taking a whole building approach. Additionally, ENERGY STAR will not pursue developing criteria for domestic hot water heaters as the market is not developed for non-conventional technologies.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Recruit 375 additional Energy Star partners including retail stores, utilities, and manufacturers (ER3-1d).
  Assessment: MET

FY 2002

- Recruit 500 additional retail stores, five additional utilities, and three additional manufacturers, bringing the total number of stores marketing ENERGY STAR appliances to 7,000.
  Assessment: MET

FY 2001

- Recruit 400 new ENERGY STAR partners, bringing the total number of stores marketing ENERGY STAR appliances to 6,500.
  Assessment: Exceeded Goal

Associated Annual Target for FY 2004

EE GG 4.11.5 Contribute proportionately to EERE's corporate goal of reducing corporate and program uncosteds to a range of 20-25% by reducing program annual uncosteds by 10% in 2004 relative to the program uncosted baseline (2003) until the target range is met.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
		✓	

Commentary: The Intergovernmental Program did not meet its annual target of a ten percent reduction in programs adjusted obligated but uncosted. At the end of the year, the adjusted obligated uncosted (excluding congressionally directed earmarks and Formula Grant activities) was $52,046K (target was $54,951K). The program remains committed to achieving the annual target of reducing uncosteds by 10%. Some of the factors that caused the milestone to be missed include: late appropriation of FY 2004 funds by Congress that adversely impacted EERE's operational activities associated with its budget execution activities; and the major realignment of the EERE field structure to create the project management center function, creating another temporary bottleneck as new systems, processes, and procedures designed to improve financial management are being put into place.

Supporting Documentation: Uncosted data is verified by MARS. EERE Management Action Plan FY 05.

Plan of Action: The program and EE management are carefully monitoring and managing the level of uncosted balances, and working actively with the programs and system support staff to address these issues and to facilitate the accomplishment of this goal. The EERE Management Action Plan FY05 (October 2004) describes EE actions to reduce uncosteds.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

EE GG 4.11.6 Tribal Energy will conduct 6 technical and policy development workshops.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
		✓	

Commentary: Four technical and policy development workshops were held this year. The remaining two will be held conducted in FY 2005. Tribal Energy negotiated with the Council of Energy Resource Tribes (CERT) to conduct six regional workshops to inform Tribal leaders of the benefits and steps necessary to implement renewable energy technologies on Tribal lands. CERT was able to conduct only four regional workshops in FY 2004. The remaining workshops will be held in FY 2005.

Supporting Documentation: Records on attendance and workshop material maintained at NREL.

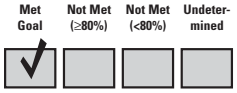
Plan of Action: The two regional workshops will be held in FY 2005.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

EE GG 4.11.7 Continue Program (National Industrial Competitiveness through Energy, Environment, and Economics – NICE3) Closeout Initiated in FY 2003.



Commentary: Progress tracked on NICE3 projects being closed out. Reports are from participants to the EERE regional offices.

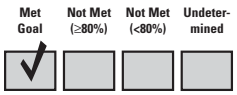
Supporting Documentation: Reports from recipients of NICE3 grants provided to Regional offices.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

EE GG 4.11.8 Provide technical assistance to States resulting in 4 States adopting upgraded 2001 and 2003 model commercial or residential building energy codes. Train 2,000 architects, engineers, builders and code officials to implement the above codes and upgraded 2004 model commercial code.



Commentary: Technical assistance was provided to New York, Pennsylvania, Nebraska, and Idaho, resulting in adopting upgraded 2001 and 2003 model commercial or residential building energy codes. There were 5,027 architects, engineers, builders and code officials trained. The adoption of incrementally increased model codes and training of architects, engineers, builders and code officials to comply with the codes, increases the baseline building stock efficiency.

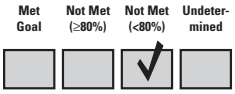
Supporting Documentation: State certifications are provided to Regional offices. Reports on training are provided by contractors and Regional Offices.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

PROGRAM GOAL:

EE GG 4.13

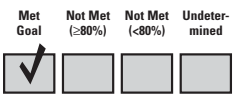


DEPARTMENTAL ENERGY MANAGEMENT PROGRAM / FEDERAL ENERGY MANAGEMENT PROGRAMS The Departmental Energy Management Program (DEMP) goal is to provide direct funding and energy efficiency related technical assistance to Departmental facilities such that the energy intensity in standard buildings is reduced by 45 percent by 2010. The Federal Energy Management Program (FEMP) goal is to provide technical and financial assistance to Federal agencies and thereby lead the Nation by example in use of energy efficiency and renewable energy. Through the Federal Government's own actions, FEMP's target is to reduce energy intensity in Federal buildings by 35% by 2010 (relative to the 1985 statutory baseline level of 138,610 Btu per square foot).

Commentary: DEMP selected 10 new energy efficiency projects that will contribute to the overall goal of reducing energy intensity at DOE facilities. FEMP provided technical and design assistance to 66 energy efficiency, renewable energy and other projects and trained 4,450 federal workers in energy management best practices.

Associated Annual Target for FY 2004

EE GG 4.13.a



Complete the selection for funding of 4 to 13 energy efficiency projects through a competitive selection process that chooses those projects with the greatest return on investment.

Commentary: DEMP has achieved its annual target by funding 10 energy efficiency projects through a competitive selection process that chooses those projects with the greatest return on investment. By selecting 10 new projects, DEMP has contributed to its overall goal of reducing the energy intensity at Department of Energy facilities.

Supporting Documentation: The source for verification is the Department's Corporate Planning System (CPS) which includes detailed information on each project selected for funding including the month the project is funded. Also, CPS generates a letter describing the funding and the project which is signed and sent to the Department of Energy facility receiving the funding. This letter is copied onto the "P" drive of the Office of Energy Efficiency and Renewable Energy, and a copy is sent to the DEMP program manager.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Complete the selection process for between four and twelve energy projects that will reduce the annual energy use in DOE facilities by 15 billion Btu's (ER1-1f).
  Assessment: MET

FY 2002

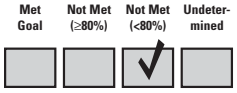
- Continue efforts to reduce energy intensity in Federal buildings by 24% by the end of FY 2002 as compared to 1985 energy use.
  Assessment: MET

FY 2001

- Continue efforts to reduce energy intensity in Federal buildings and reported the results achieved through the end of FY 1999, toward the goal of achieving a 22% reduction by the end of FY 2001 as compared to 1985 intensity. Preliminary data suggests that agencies exceeded this goal a year early, achieving a 23.6% reduction in energy intensity in 2000. **Assessment: Exceeded Goal**

Associated Annual Target for FY 2004

EE GG 4.13.b



Contribute proportionately to EERE's corporate goal of reducing corporate and program uncosteds to a range of 20-25% by reducing program annual uncosteds by 10% in 2004 relative to the program uncosted baseline (2003) until the target range is met.

Commentary: Compared to FY 2003, FEMP reduced its uncosted obligations by 3 percent in FY 2004 which is below the targeted reduction of 10 percent. However, had the amount of obligations in FY 2004 stayed at the same level as FY 2003, FEMP would have exceeded its goal by decreasing uncosted obligations by 15 percent. Also, compared to FY 2003, FEMP reduced its combined uncosted obligations and unobligated funds by 13 percent in FY 2004 which shows FEMP has achieved significant gains in moving more of its funds closer to their intended use.

Supporting Documentation: Uncosted data is verified by MARS. EERE Management Action Plan FY 05.

Plan of Action: The program and EE management are carefully monitoring and managing the level of uncosted balances, and working actively with the programs and system support staff to address these issues and to facilitate the accomplishment of this goal. The EERE Management Action Plan FY 05 (October 2004) describes EE actions to reduce uncosteds.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

EE GG 4.13.c Will achieve between $35 and $55 million in private sector, investment through Super Energy Savings Performance Contracts (ESPCs), contributing to national energy security.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
		✓	

Commentary: Because its legislative authority for ESPCs expired at the end of FY 2003 and has not yet been reinstated, FEMP did not achieve its target for FY 2004. In FY 2004, $5 million was awarded for modifications of ESPC contracts that existed prior to FY 2004. These modifications contribute to FEMP's overall goal of reducing energy intensity in Federal buildings by 35 percent in 2010 compared to the baseline year of 1985. In anticipation of reauthorization in pending legislation in FY 2004, FEMP encouraged Agencies and energy service companies to conduct preliminary work on projects for potential ESPC contracts, short of an ESPC contract being awarded. This created a "pipeline" of projects ready to be awarded when reauthorization took place. Before the end of FY 2004, enough projects were in this pipeline such that FEMP could have exceeded its goal of $35 million in private sector investment in ESPCs, if it had attained the legal authority to award ESPC contracts for those in the "pipeline".

Supporting Documentation: The source of verification for each project is the letter or portion of the contract from the Energy Service Company (ESCO) to the Federal agency receiving the award which provides details about the project including the amount that the ESCO will invest at the federal agency and the date that the contract was awarded. A copy of these letters or portions of a contract are kept at FEMP/DOE headquarters.

Plan of Action: In anticipation of reauthorization in pending legislation in early FY 2005, FEMP is encouraging Agencies and energy service companies to conduct preliminary work on projects for potential ESPC contracts, short of an ESPC contract being awarded. FEMP is ready to expedite this backlog of projects in FY 2005 once contracting authority is reinstated.

Related Annual Targets (FY 2003 - FY 2001)

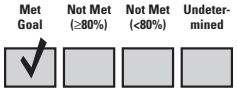
FY 2003
- Achieve between $80 and $120 million in private sector ESPC investment (ER 1-1b).
  Assessment: MET

FY 2002
- Achieve between $80 and $120 million in private sector ESPC investment.
  Assessment: MET

FY 2001
- Achieve $120 million in private sector investment through Super ESPCs.
  Assessment: MET

Associated Annual Target for FY 2004

EE GG 4.13.d Will provide technical and design assistance for 60 energy efficiency, renewable energy, Operations and Maintenance (O&M), Distributed Energy Resource (DER)/Combined Heat and Power (CHP), and water conservation projects.



Commentary: FEMP provided technical and design assistance for 66 energy efficiency, renewable energy and other projects in FY 2004, exceeding its goal of 60 projects. These projects help FEMP attain its overall goal of reducing energy intensity in federal buildings by 35 percent in 2010 as compared to the baseline year of 1985.

Supporting Documentation: The sources of verification are memos, letters or reports from DOE National Laboratories and other contractors that provide information about each of the projects started in a particular quarter within 14 days after the quarter has ended. Copies of the letters, memos and reports will be kept at DOE/FEMP headquarters. The contractors providing the technical assistance were the National Renewable Energy Laboratory, Pacific Northwest National Laboratory, Lawrence Berkeley National Laboratory, Oak Ridge National Laboratory, Sandia National Laboratory and ERM, Inc.

Related Annual Targets (FY 2003 - FY 2001)

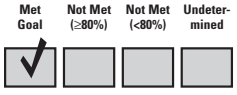
FY 2003
- Provide technical and design assistance for more than 40 energy efficiency, renewable energy, and water conservation projects; 10 will be large-scale distributed energy resources and combined heat and power projects. Report results achieved through the end of FY 2002 (ER1-1a).
  Assessment: MET

FY 2002
- Provide technical and design assistance for more than 40 energy efficiency, renewable energy, and water conservation projects; 10 will be large-scale distributed energy resources and combined heat and power projects.
  Assessment: MET

FY 2001
- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

EE GG 4.13.e Will train 4,000 Federal energy attendees in energy management best practices supporting National Energy Policy education goals.



Commentary: FEMP trained 4,450 federal workers in 28 workshops this year, exceeding the target of 4000. This training supports the FEMP goal of reducing energy intensity in federal buildings by 35 percent in 2010 compared to the baseline year of 1985.

Supporting Documentation: The sources of verification are the written memos or reports received from each DOE National Laboratory or other contractor who conducted a training workshop. These reports include the number of attendees, subject title, date and location of each workshop. The contractors providing the training were the National Renewable Energy Laboratory, Pacific Northwest National Laboratory, Lawrence Berkeley National Laboratory, Oak Ridge National Laboratory, Sandia National Laboratory and ERM, Inc.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Train 4,000 Federal energy personnel in best practices supporting National Energy Policy education goals (ER1-1e).
  Assessment: MET

FY 2002

- Train 4,000 Federal energy personnel in best practices supporting National Energy Policy education goals.
  Assessment: MET

FY 2001

- There were no related annual targets in FY 2001.

Additional Targets from 2003-2001

FY 2003

- Complete at least 35 energy assessments including SAVEnergy Audits, industrial facility assessments and operation and maintenance assessments to identify energy and cost saving opportunities (ER1-1c).
  Assessment: MET

- Integrate information on standby power into Defense Logistics Agency and General Services Administration's product schedules in accordance with E.O. 13221 (ER1-1d).
  Assessment: MET

FY 2002

- Complete at least 60 energy assessments including SAVEnergy Audits, industrial facility assessments and operation and maintenance assessments to identify energy and cost saving opportunities.
  Assessment: MET

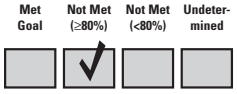
- Publishing initial listing of products that use minimal standby power by December 31, 2001, in accordance with E.O. 13221.
  Assessment: MET

FY 2001

- There were no additional targets in FY 2001.

PROGRAM GOAL:

EE GG 4.59

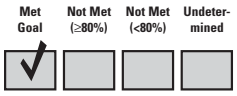


DISTRIBUTED ENERGY RESOURCES: The Distributed Energy Resources Program goal is to develop and facilitate market adoption of a diverse array of cost competitive integrated distributed generation and thermal energy technologies in homes, businesses, industry, communities, and electricity companies, increasing the efficiency of electricity generation, delivery, and use, improving electricity reliability, and reducing environmental impacts.

Commentary: To achieve this goal, the Distributed Energy Resources Program is undertaking research to improve microturbines, advanced reciprocating engines, and industrial gas turbines for power generation, as well as researching thermally activated technologies. The focus of the program is to improve the efficiency and integration of equipment that operates off of the waste heat of these power generators.

Associated Annual Target for FY 2004

EE GG 4.59.1



Complete final design and initiate field testing of low emission technology with less than 7 ppm Nox.

Commentary: The target was achieved by completing the final design and initiating field testing of the low emission gas turbine with Xonon Combustor, located at Nuovo Pignone. Achievement of this target is a key step in achieving the Distributed Energy Resources goal of developing a portfolio of distributed generation technologies that show an average 25 percent increase in efficiency and Nox emissions less than 0.15 lbs/Mwh.

Supporting Documentation: Information on year-end status was presented in the August 2004 update from Catalytica, and will also be available in the Official Quarterly Project Report.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- Complete 4000-hour field test of ceramic composite shroud components to demonstrate performance and emission benefits to a gas turbine (ER1-5b). **Assessment: MET**

FY 2002
- There were no related annual targets in FY 2002.

FY 2001
- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

EE GG 4.59.2 Complete and demonstrate heating coefficient of performance of 1.4 for commercial introduction of a thermally activated system (approximately 40 percent more efficient than a conventional heating system).

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Commentary: The target was achieved by completing and demonstrating three reversing heat pumps in Boulder City, Nevada, which achieved a heating coefficient of performance (COP) of 1.4. Achievement of this target is a key step in achieving the Distributed Energy Resources goal of demonstrating integrated combined heat and power systems that achieve a 70 percent efficiency and a payback of less than 4 years.

Supporting Documentation: Rocky Research Report Update on the High Efficiency Thermally Activated System, June 30, 2004. The October 1, 2004, Update entitled "Three Reversing Heat Pump Target Milestone Report."

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- Complete the 12 Beta Field Test Units of high efficiency natural gas fired heat pump (60 percent better than pulse combustion furnace) and install at field test sites hosted by major U.S. gas utilities (ER1-5a).
  Assessment: MET

FY 2002
- There were no related annual targets in FY 2002.

FY 2001
- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

EE GG 4.59.3 Demonstrate 6 percentage point increase in efficiency for an advanced reciprocating engine.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Commentary: Achieved target by demonstrating a 6 percentage point increase in efficiency for the Advanced Reciprocating Engine System (ARES). Caterpillar tested the ARES and realized a 44 percent heating value efficiency in extended testing under laboratory conditions, which increases the efficiency from 36% for conventional reciprocating engines, as required. Achievement of this target is a key step in achieving the Distributed Energy Resources goal of developing a portfolio of distributed generation technologies that show an average 25 percent increase in efficiency and Nox emissions less than 0.15 lbs/Mwh.

Supporting Documentation: ARES Monthly Project Report on the Advanced Gas Engine Control System, July 2004. This information is available in the Phase 1 Report for October 2004, prepared by Caterpillar.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

EE GG 4.59.4 Complete final design and initiate field testing and evaluation of a complete, fully functional integrated CHP system consisting of a turbine, absorption chiller and control system.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Commentary: The target was achieved by completing the final design and initiating field testing and evaluation of a fully functional integrated CHP system at the Ft. Bragg military base in North Carolina. Achievement of this target is a key step in achieving the Distributed Energy Resources goal of demonstrating integrated combined heat and power systems that achieve 70 percent efficiency and a payback of 4 years.

Supporting Documentation: Honeywell Monthly Update Report on integrated CHP system. This information is reported in the Honeywell Monthly Update Report for September 2004.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- There were no related annual targets in FY 2003.

FY 2002
- Demonstrate a micro-turbine package (highly efficient for reducing peak loads) at a university site.
  Assessment: MET

FY 2001
- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

EE GG 4.59.5 Contribute proportionately to EERE's corporate goal of reducing corporate and program uncosteds to a range of 20-25% by reducing program annual uncosteds by 10% in 2004 relative to the program uncosted baseline (2003) until the target range is met.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☐	☐	☑	☐

Commentary: The goal was not met in FY 2004. EERE's effort to consolidate project management functions led the Distributed Energy Program to shift project management twice during the fiscal year. The delays caused by transfers dramatically slowed the execution of funds. Now that project management is situated at NETL, we anticipate that the uncosted target will once again be met.

Supporting Documentation: Uncosted data is verified by MARS. EERE Management Action Plan FY 05.

Plan of Action: Now that project management is stable at NETL, the program expects that the uncosted target will once again be met. Therefore no Plan of Action is required to meet the target in FY05.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Additional Targets from 2003-2001

FY 2003
- Contract with three companies to support research on demonstrating a 5 percent increase in efficiency for an advanced micro-turbine system (ER1-5c).
  Assessment: MET

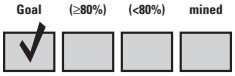
FY 2002
- There were no additional targets in FY 2002.

FY 2001
- There were no additional targets in FY 2001.

PROGRAM GOAL:

EE GG 4.60

Met Goal | Not Met (≥80%) | Not Met (<80%) | Undetermined



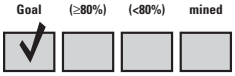
INDUSTRIAL TECHNOLOGIES: The Industrial Technologies Program goal is to partner with our most energy-intensive industries in strategic planning and energy-specific Research, Development, and Demonstration (RD&D) to develop the technologies needed to use energy efficiently in their industrial processes and cost-effectively generate much of the energy they consume. The result of these activities will save feedstock and process energy, create domestic supply, improve the environmental performance of industry, and help America's economic competitiveness.

Commentary: The long-term goal is to contribute to a decrease in the energy intensity of energy-intensive industries, and activities conduced during FY 2004 supported that goal. Six new industrial energy efficiency technologies were commercialized and 8,289 energy-intensive U.S. plants are applying EERE technologies and services to save energy.

Associated Annual Target for FY 2004

EE GG 4.60.1

Met Goal | Not Met (≥80%) | Not Met (<80%) | Undetermined



An additional 600 (leading to a cumulative 6800) energy intensive U.S. plants will apply EERE technologies and services averaging a 5 percent improvement in energy productivity per plant.

Commentary: There were an additional 2089 unique U. S. plants that applied energy efficiency and renewable energy technologies and services averaging a 5 percent improvement in energy productivity per plant. This leads to a cumulative number of 8289 plants added to date.

Supporting Documentation: Lawrence Berkeley National Laboratory and Project Performance Corporation produce a quarterly report with preliminary estimates of unique plants new to the system within 10 days after the end of the fiscal quarter, and continue to document and refine those estimates throughout the following quarters.

Related Annual Targets (FY 2003 - FY 2001)

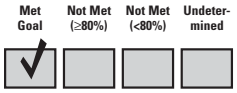
FY 2003
- 6,200 energy-intensive U.S. plants that will apply EERE technologies and services achieving up to a 15 percent improvement in energy productivity per plant (ER1-2b).
  Assessment: MET

FY 2002
- There were no related annual targets in FY 2002.

FY 2001
- Continued support for Industrial Assessment Centers operating at 26 participating universities that conducted approximately 650 combined energy, waste and productivity assessments.
  Assessment: MET

Associated Annual Target for FY 2004

EE GG 4.60.2 Commercialize four new technologies in partnership with the most energy intensive industries.



Commentary: Six new technologies were commercialized. These technological developments included some that were specific to the energy-intensive steel, chemical, and metalcasting industries, and one whose application will be more general across industries.

Supporting Documentation: Data on these commercialized technologies was collected by Pacific Northwest National Laboratory, and reported to ITP in a monthly report.

Related Annual Targets (FY 2003 - FY 2001)

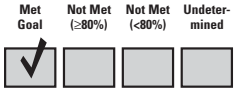
FY 2003
- Commercialize four new energy efficient technologies in partnership with the most energy intensive industries (ER1-2a).
  Assessment: MET

FY 2002
- Commercialize ten new energy efficient technologies in partnership with the most energy intensive industries.
  Assessment: MET

FY 2001
- In FY 2001, commercialized ten new technologies from both the nine vision industries as well as the crosscutting programs.
  Assessment: MET

Associated Annual Target for FY 2004

EE GG 4.60.3 Contribute proportionately to EERE's corporate goal of reducing corporate and program uncosteds to a range of 20-25% by reducing program annual uncosteds by 10% in 2004 relative to the program uncosted baseline (2003) until the target range is met.



Commentary: The Industrial Technologies Program exceeded its annual target of a ten percent reduction in programs adjusted obligated but uncosted. At the end of the year, the adjusted obligated uncosted (excluding congressionally directed earmarks and Formula Grant activities) was $40,741K (target was $70,491K). Reducing uncosted leads to program activities occurring sooner leading to greater savings from the program.

Supporting Documentation: Uncosted data is verified by MARS. EERE Management Action Plan FY 05.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Additional Targets from 2003-2001

FY 2003

- Turn over 25 percent of projects in the R&D portfolio (ER1-2c).
  Assessment: MET

- Help industry save more than 180 trillion Btu of energy worth at least $720 million (Assumes industrial average energy prices of $4.00 per million Btu) (ER1-2d).
  Assessment: MET

FY 2002

- Assist industry in saving more than 265 trillion Btu of energy, worth more than $1.6 billion.
  Assessment: MET

- Complete two showcase demonstrations of advanced energy efficient technologies at industry sites.
  Assessment: MET

- Complete 20 new Allied Partnerships (formal agreements between industry and DOE's Industrial Program) with energy intensive companies, trade organizations and other groups.
  Assessment: MET

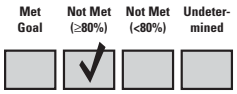
- Continue support for Industrial Assessment Centers operating at 26 participating universities that will conduct over 600 combined energy, waste, and productivity assessment days of service to manufacturing clients.
  Assessment: MET

FY 2001

- In FY 2001, Office of Industrial Technologies (OIT) helped industry save an estimated 262 trillion Btu of energy worth more than $1.6 billion.
  Assessment: MET

PROGRAM GOAL:

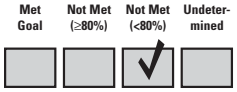
OETD GG 4.12 ELECTRIC TRANSMISSION AND DISTRIBUTION: Improve energy security by developing technologies that foster a diverse supply of reliable, affordable and environmentally sound energy by providing for reliable delivery of energy, guarding against energy emergencies, exploring advanced technologies that make a fundamental improvement in our mix of energy options, and improving energy efficiency.



Commentary: The August 14, 2003 multi-region blackout left over 50 million Americans in the dark without electricity and adequate safety, and cost the nation billions of dollars. To reduce or eliminate this kind of emergency in the future, the Office of Electrical Transmission and Distribution was created to lead a national effort to modernize and expand America's electrical delivery system. Although just beginning its critical mission, the Office has already had a direct impact on the Department's General Goal 4 to provide for national energy security.

Associated Annual Target for FY 2004

OETD GG 4.12.1 Complete testing of 10 MVA superconducting transformer in operation on the Wisconsin Electric Power Company grid.



Commentary: A team comprised by Waukesha Electric Systems (the leading US transformer manufacturer), Intermagnetics General Co. (an established manufacturer of superconducting coils), Oak Ridge National laboratory and Rochester Gas & Electric utility designed, constructed, and tested the world's largest (10 MVA) superconducting power transformer successfully at twice the rated current expected in operation on the electric grid and completed a series of low voltage tests. However, the superconducting coils in the transformer were damaged by the occurrence of electrical short circuits during operation at high voltage and testing was concluded without meeting the performance target.

Supporting Documentation: "Positive Accomplishments for 5/10 MVA Transformer Project Report" submitted by Waukesha Electric systems, SuperPower, Inc., a subsidiary of Intermagnetics Corporation in May 2004 and "High Temperature Superconducting Power Transformer Chronicle Report" issued by Waukesha Electric Systems, SuperPower, Inc., and Oak Ridge National Laboratory (2004) which has been marked as "Competition Sensitive, SuperPower Proprietary & Confidential Information, Not for Distribution or Disclosure Outside the Government."

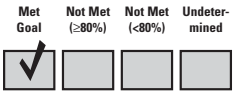
Plan of Action: A draft report from the project, "High Temperature Superconductivity Power Transformer Chronicle," has been delivered which details the design, manufacture and testing of the unit. The next step is to perform a "root cause analysis" of the damaged coils by breaking the coils open and observing where and why the short circuits occurred. The team remains committed to transformer development and intends future accomplishment of the missed milestone - after understanding the root causes of the failure and successfully completing small scale, high voltage tests that demonstrate the problem has been solved. A plan and schedule for future transformer development and achieving the missed milestone will then be developed.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

OETD GG 4.12.2 Test and evaluate the performance of a 500kW/750kWh sodium sulfur battery (first in U.S.) installed at an American Electric Power site for six months to determine technical and economic performance.



Commentary: This demo was intended to validate the sodium sulfur (NAS) battery operating characteristics in a real world application in the U.S., gain familiarity with the technology, and develop needed economic models for its use. The demo involved two NAS battery modules, each rated at 50 kW, capable of supplying 375 kWh of energy, installed at an AEP site and monitored for 18 months. After validating data collection methods during the first quarter of FY 04, three operating regimes were explored to optimize round trip efficiencies. Operating the system at 70 kW for 10 hours of peak shaving was found to maximize economic benefits compared to the other regimes at 100 kW/4 hours and 100 kW/6 hours. In addition to peak electricity use shaving (reduction), the system eliminated all of the 378 power quality events that occurred during the 18 month test period. Results are documented in a report entitled "AEP Field Demonstrations Comparisons with Emphasis on NaS."

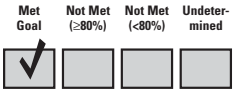
Supporting Documentation: Report entitled "AEP Field Demonstrations Comparisons with Emphasis on NaS" to be presented at the Annual Energy Storage Peer Review, Washington, DC, Nov. 10-11. A separate SAND report will be issued on the demonstration by Sandia National Laboratory.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

OETD GG 4.12.3 Install and operate a prototype wide area measurement system in the Nation's Eastern Interconnection with 12 time-synchronized monitoring instruments that feed data into two data archiving and analysis locations.



Commentary: In the Transmission Reliability Eastern Interconnection Phasor Project (EIPP) project, DOE led a working group of utilities that installed and operated a prototype wide area measurement system in the Eastern Interconnection of the United States that includes 12 time-synchronized monitoring instruments that feed data into two data archiving and analysis locations. The EIPP responds to the August 14 Blackout Final Report that calls for the adoption of better real time tools to monitor and control the power system. In this project, DOE is leading a working group that includes transmission utilities, ISOs, RTOs, NERC and other electricity stakeholders to accelerate the creation of a real time measurement network in the eastern grid. This network will measure power system parameters in real time, archive the data in a network of data concentrators, analyze the data, and provide analysis of these data in visual form to all utilities, ISOs and RTOs that are participating in the project. This information will allow utilities to view the status of the grid both within and beyond their own system, and will also allow faster operation of the "state estimator" that assess the health of the grid and its capability to withstand outage contingencies.

Supporting Documentation: The September 2004 progress report, entitled "Contributions by the Pacific Northwest National Laboratory (PNNL) to the U.S. Department of Energy (DOE) Transmission Reliability Program" as part of the Consortium for Electric Reliability Technology Solutions (CERTS).

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Additional Targets from 2003-2001

FY 2003

- Increase the capability to reproducibly fabricate a 10-meter length of Second Generation High Temperature Superconductivity (HTS) wire to carry 50 amps of electricity and 1-meter lengths that carry 100 amps from a 40-amp base (ER1-5d).
  Assessment: MET

- Support the field test of a 100kW lithium battery system for 700 hrs at a utility site (ER1-5e).
  Assessment: MET

FY 2002

- Complete initial testing of Detroit superconducting transmission cable and document operational costs and reliability.
  Assessment: Not Met

- Convene and support the principals to enable IEEE to publish the draft P1547 Standard for Distributed Resources Interconnected with Electric Power Systems.
  Assessment: MET

- Compete 300 hours of testing of the advanced bromine battery system in partnership with Detroit Edison.
  Assessment: MET

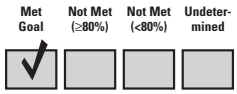
FY 2001

- Installed first-of-a-kind superconducting electrical transmission cables to replace existing delivery to an urban substation serving 14,000 customers in Detroit, Michigan and begin testing operation and reliability.
  Assessment: MET

- Document 6,000 hours (100% load) of operation of the first successful HTS' power delivery system to power an industrial use.
  Assessment: Exceeded Goal

PROGRAM GOAL:

PMA GG 4.51

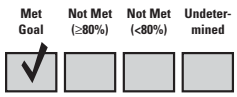


SOUTHEASTERN POWER ADMINISTRATION: Ensure Federal hydropower is marketed and delivered while passing the North American Electric Reliability Council's (NERC) Control Compliance Ratings, meeting planned repayment targets, and achieving a recordable accident frequency rate at or below our safety performance standard.

Commentary: Southeastern met the FY 04 program goal by exceeding NERC compliance ratings, meeting planned repayments to the Treasury, and exceeding safety goals. Southeastern continues to deliver Federal hydropower to its customers in an efficient, safe, and timely manner.

Associated Annual Target for FY 2004

PMA GG 4.51.1



Attain acceptable North American Electric Reliability Council (NERC) ratings for the following Control Performance Standards (CPS) measuring the balance between power generation and load: 1) CPS 1 which measures the generation/load balance and support system frequency on one minute intervals (rating >100); 2) CPS 2 which limits any imbalance magnitude to acceptable levels (rating >90).

Commentary: Due to the outstanding performance of Southeastern's operations center employees, Southeastern achieved a "pass" on all six monthly standards for CPS 1 and CPS2 which contributed to the reliable delivery of Federal hydropower to its customers. The Annual averages for CPS 1 and 2 are 174.49 and 98.94 respectively.

Supporting Documentation: Records submitted to regional and national electric reliability councils.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Ensure that the power system control area operated by the Southeastern Power Administration receives, Control Compliance Ratings of "Pass" on both of the North American Electric Reliability Council's reliability performance standards in every month (ER9-3a).
  Assessment: MET

FY 2002

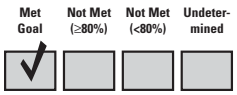
- Southeastern Power Administration will receive monthly Control Performance Ratings of "Pass" using the North American Electric Reliability Council performance standards.
  Assessment: MET

FY 2001

- Reliability performance for the Southeastern Power Administration was on-target.
  Assessment: MET

Associated Annual Target for FY 2004

PMA GG 4.51.2 Based on actual conditions, plant operations, and expenses through the 1st, 2nd, 3rd, 4th quarters of FY 2004, the Southeastern Power Administration forecasts it will meet 95% of its planned annual repayment of Federal investment by year's end.



Commentary: Results indicate that cumulative sales of electricity at the end of the 4th quarter of FY 2004 will allow Southeastern to meet its scheduled amount of repayment. The repayment requirement is based on historic average water conditions. The FY 2004 estimated repayment was greater than the amount scheduled due to an increase in tropical storm induced rainfall. Southeastern exceeded its planned annual repayment to the Treasury to repay taxpayers for their investment in Federal hydropower facilities.

Supporting Documentation: Audited accounting records and formal repayment studies.

Related Annual Targets (FY 2003 - FY 2001)

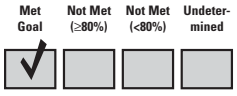
FY 2003
- Southeastern Power Administration will meet planned repayment of principal on power investment (ER9-3b).
  Assessment: MET

FY 2002
- Southeastern Power Administration will meet planned repayment of principal on power investment.
  Assessment: Not Met

FY 2001
- Meet Principal Repayment goal for Southeastern Power Administration.
  Assessment: Below Expectations

Associated Annual Target for FY 2004

PMA GG 4.51.3 Southeastern Power Administration forecasts it will meet the required repayment of Federal power investment within the required repayment period.



Commentary: Southeastern met its required repayment obligations repaying the taxpayers for their investment in Federal hydropower facilities. In FY 2004, the estimated year end repayment will meet the planned amount ($15.6 million). Planned repayments are calculated using average water conditions.

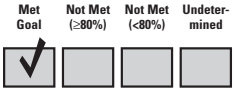
Supporting Documentation: Audited accounting records and formal repayment studies.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

PMA GG 4.51.4 Achieve a recordable accident frequency rate for recordable injuries per 200,000 hours worked of not greater than 3.3, or the Bureau of Labor Statistics' (BLS) industry rate, whichever is lower.



Commentary: Southeastern continues to meet safety requirements. Zero accidents were recorded within the fourth quarter, FY 2004. Southeastern met its annual reportable accident goal thereby providing a safe environment for its employees.

Supporting Documentation: Quarterly report submitted by the Human Resources and Administration Division to Department of Energy.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Southeastern Power Administration will achieve a safety performance of a 3.3 recordable accident frequency rate for recordable injuries per 200,000 hours worked or the Bureau of Labor Statistics' industry rate, whichever is lower. (Safety performance is measured using the recordable accident frequency rate [RAFR] for recordable injuries per 200,000 hours worked) (ER9-3c).
  Assessment: MET

FY 2002

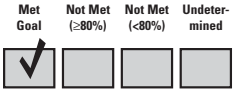
- Southeastern Power Administration will achieve a safety performance of a 3.3 recordable accident frequency rate for recordable injuries per 200,000 hours worked or the Bureau of Labor Statistics' industry rate, whichever is lower.
  Assessment: MET

FY 2001

- Meet recordable accident frequency rate for Southeastern Power Administration.
  Assessment: MET

PROGRAM GOAL:

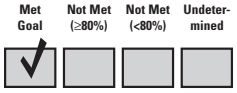
PMA GG 4.52 *SOUTHWESTERN POWER ADMINISTRATION*: Ensure Federal hydropower is marketed and delivered while complying with industry reliability standards, meeting planned and required repayment, and achieving a recordable accident frequency rate at or below our safety performance standard.



Commentary: Southwestern met the FY 04 program goal by exceeding NERC compliance ratings, meeting planned and required repayments to the Treasury, and exceeding safety goals. Southwestern continues to deliver Federal hydropower to its customers in an efficient, safe, and timely manner.

Associated Annual Target for FY 2004

PMA GG 4.52.1 Attain average North American Electric Reliability Council's (NERC) compliance ratings of 100 or higher for Control Performance Standards 1, and 90 or above for Control Performance Standard 2.



Commentary: For this year Southwestern achieved 24 "Pass" ratings. Southwestern exceeded the NERC standards of balancing generation to load with ratings of 183.82 for CPS-1 and 99.63 for CPS-2. Fourth quarter results are consistent with industry and reflect Southwestern's efforts to operate the power system efficiently with less wear on the equipment, while maintaining reliability. Southwestern uses the NERC data to gauge how well the power system is performing and to determine if operation adjustments need to be made. Southwestern's performance is important to the overall reliability of the Eastern Interconnection electrical operations.

Supporting Documentation: Monthly Resources Subcommittee CPS Reports (www.NERC.com/~filez/cpc.html).

Related Annual Targets (FY 2003 - FY 2001)

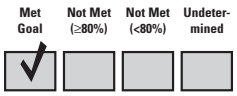
FY 2003
- Ensure that the power system control area operated by the Southwestern Power Administration receives, Control Compliance Ratings of "Pass" on both of the North American Electric Reliability Council's reliability performance standards in every month (ER9-2a).
  Assessment: MET

FY 2002
- Southwestern Power Administration will receive monthly Control Performance Ratings of "Pass" using the North American Electric Reliability Council performance standards.
  Assessment: MET

FY 2001
- Reliability Performance for Southwestern Power Administration was on-target.
  Assessment: MET

Associated Annual Target for FY 2004

PMA GG 4.52.2 Meet planned annual repayment of principal on Federal power investment.



Commentary: Southwestern planned to repay a cumulative $27.4 million on the Federal investment in FY 2004. The estimated year end repayment was $29.2 million. Planned repayment is based on annual average water conditions. In FY 2004, Southwestern incurred above average water conditions and regional temperature lower than normal. Consequently, Southwestern was able to repay to the American taxpayer an estimated 6% more than planned. Southwestern has repaid a cumulative estimated $565 million or 49% of the principal.

Supporting Documentation: Power Repayment Studies, Annual Report, Audited Financial Statements.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- Southwestern Power Administration will meet planned repayment of principal on power investment (ER9-2b).
  Assessment: Met above 80%, but below 100% of the Target

FY 2002
- Southwestern Power Administration will meet planned repayment of principal on power investment.
  Assessment: MET

FY 2001
- Planned Principal Repayment (ER9).
  Assessment: Nearly Met

Associated Annual Target for FY 2004

PMA GG 4.52.3 Repay the Federal investment within the required repayment period.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Commentary: Southwestern met all its required repayment on the power investment within the required repayment period. Southwestern repaid an estimated $1.3 million of the required repayment due on the Federal investment in FY 2004.

Supporting Documentation: Power Repayment Studies; Annual Report, Audited Financial Statements.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

PMA GG 4.52.4 Achieve a System Average Interruption Duration Index (SAIDI) of not more than 150 minutes of total preventable outages per year.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Commentary: Southwestern had less than 150 minutes of total preventable outages for the fourth quarter. Southwestern did not incur any preventable outages (outages over which Southwestern has sole control) in FY 2004 due to its constant vigil of maintaining equipment and rights-of-way, and excellent operational coordination of the power system.

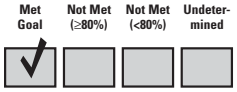
Supporting Documentation: Southwest Power Pool Outages Database, Southwestern's Official Supervisory Control and Data Acquisition (SCADA) Operational Logs.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

PMA GG 4.52.5 Achieve a recordable accident frequency rate (RAFR) for recordable injuries per 200,000 hours worked of not greater than 5.3.



Commentary: Southwestern achieved an RAFR for recordable injuries per 200,000 hours worked less than 5.3 and below the industry average. No recordable accidents occurred in the fourth quarter. Southwestern incurred four recordable accidents in FY 2004. Based on this number, Southwestern's RAFR will be 2.6 for the year with cumulative estimated hours worked of 309,122. This is well below the industry average. Since FY 2002, Southwestern has taken action to improve its safety record. This has saved on costs and improved productivity in maintaining a reliable power system.

Supporting Documentation: Medical Reports, Defense Civilian Pay System Reporting on Labor Hours, Bureau of Labor Statistics Report, Safety and Health Administration Calculation and Criteria, Southwestern's Official Safety (Incident) Report.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Southwestern Power Administration will achieve a safety performance of a 3.3 RAFR for recordable injuries per 200,000 hours worked or the Bureau of Labor Statistics' industry rate, whichever is lower. (Safety performance is measured using the recordable accident frequency rate [RAFR] for recordable injuries per 200,000 hours worked) (ER9-2c).
  Assessment: MET

FY 2002

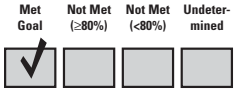
- Southwestern Power Administration will achieve a safety performance of a 3.3 RAFR for recordable injuries per 200,000 hours worked or the Bureau of Labor Statistics' industry rate, whichever is lower.
  Assessment: Not Met

FY 2001

- RAFR for the Southwestern Power Administration was on-target.
  Assessment: MET

PROGRAM GOAL:

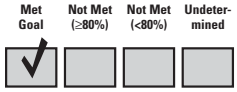
PMA GG 4.53 *WESTERN AREA POWER ADMINISTRATION*: Ensure Federal hydropower is marketed and delivered while passing the North American Electric Reliability Council's (NERC) Control Compliance Ratings, meeting planned repayment targets, and achieving a recordable accident frequency rate at or below our safety performance standard.



Commentary: Western met the FY04 program goal by exceeding NERC compliance ratings, meeting planned repayments to the Treasury, and exceeding safety goals. Western continues to deliver Federal hydropower to its customers in an efficient, safe, and timely manner.

Associated Annual Target for FY 2004

PMA GG 4.53.1



System Reliability Performance: Attain acceptable North American Electric Reliability Council (NERC) ratings for the following NERC Control Performance Standards (CPS) measuring the balance between power generation and load: 1) CPS1 which measures generation/load balance and support system frequency on one minute intervals (rating>100); and 2) CPS2 which limits any imbalance magnitude to acceptable levels (rating>90).

Commentary: Target Exceeded. All Western control areas "passed" for all months in FY 2004, exceeding the minimum requirements. Western's FY 2004 averages are: CPS1 - 184.19, CPS2 - 98.25. This measure is used to gauge power system performance using the instantaneous defference between load and generation. A control compliance rating of "pass" is achieved when a power system receives a CPS1 performance level of 100% minimum and a CPS2 performance level of 90% minimum.

Supporting Documentation: Regional monthly compliance results are published on the NERC website (http://www.nerc.com/~filez/cpc.html). The data is captured by a computer routine in each of Western's control center's Energy Management System (EMS) computers.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Ensure that the power system control area operated by the Western Area Power Administration receives, Control Compliance Ratings of "Pass" on both of the NERC's reliability performance standards in every month (ER9-4a).
  Assessment: MET

FY 2002

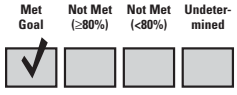
- Western Area Power Administration will receive monthly Control Performance Ratings of "Pass" using the NERC performance standards.
  Assessment: MET

FY 2001

- Meet the Reliability Performance goal for Western Area Power Administration.
  Assessment: MET

Associated Annual Target for FY 2004

PMA GG 4.53.2



System Reliability Performance: Accountable customer and/or transmission element outages will not exceed the average number of outages for the past five years.

Commentary: Target Exceeded. Western minimized the number of outages across its network contributing to more reliable deliver of Federal hydropower to its customers. Outages by month are as follows: October - 1; November - 5; December - 0; January - 5; February - 1; March - 1; April - 3; May - 1; June - 1; July - 1; August - 1; September - 1.

Supporting Documentation: Performance standard and criteria for determining accountability developed internally as part of Western Bonus Goal program (self-imposed reporting standard).

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

PMA GG 4.53.3 Repayment of Federal Power Investment Performance: Meet planned annual repayment of principal on Federal power investments.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Commentary: Western exceeded its planned repayment to the treasury repaying the taxpayers for their investment in Federal hydropower facilities. The measure is the actual annual Federal principal repayment expressed as a percent of planned annual principal repayment. Collective data for the six major Western projects through the 4th quarter of FY 2004 indicates that the total actual repayment for FY 2004 (approximately $38.2 million) is 120% of planned repayment (approximately $31.9 million) - exceeding the measure standard by 25%.

Supporting Documentation: Project power repayment studies.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- Western Area Power Administration will meet planned repayment of principal on power investment (ER9-4b).
  Assessment: MET

FY 2002
- Western Area Power Administration will meet planned repayment of principal on power investment.
  Assessment: MET

FY 2001
- Principal Repayment: Western Area Power Administration.
  Assessment: Below Expectations

Associated Annual Target for FY 2004

PMA GG 4.53.4 Recordable Accident Frequency Rate Performance: Achieve a recordable accident frequency rate for recordable injuries per 200,000 hours worked of not greater than 3.3, or the latest published Bureau of Labor Statistics' industry rate, whichever is lower.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Commentary: Target Exceeded. Western's FY 2004 rate of 1.6 is below the annual targeted frequency rate of 3.3 thereby providing a safe working environment for Western's employees. This measure is calculated by multiplying the number of Western's recordable injuries (20) by 200,000 hours and dividing that number by the total hours worked (2,441,467). Western's FY 2004 rate of 1.6 is below the annual targeted frequency rate of 3.3.

Supporting Documentation: Data collected and calculated per DOE Order 231.A. Reported on DOE Form 5484.4 and WAPA Form 5484.1.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Western Area Power Administration will achieve a safety performance of a 3.3 recordable accident frequency rate for recordable injuries per 200,000 hours worked or the Bureau of Labor Statistics' industry rate, whichever is lower. (Safety performance is measured using the recordable accident frequency rate [RAFR] for recordable injuries per 200,000 hours worked) (ER9-4c).
  Assessment: MET

FY 2002

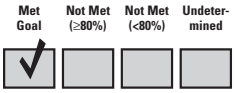
- Western Area Power Administration will achieve a safety performance of a 3.3 RAFR for recordable injuries per 200,000 hours worked or the Bureau of Labor Statistics' industry rate, whichever is lower.
  Assessment: MET

FY 2001

- Meet the RAFR for Western Area Power Administration.
  Assessment: MET

PROGRAM GOAL:

PMA GG 4.54

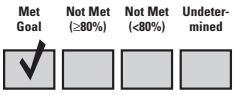


BONNEVILLE POWER ADMINISTRATION: Ensure Federal hydropower is marketed and delivered while passing the North American Electric Reliability Council's (NERC) Control Compliance Ratings, meeting planned repayment targets, and achieving a recordable accident frequency rate at or below our safety performance standard.

Commentary: Bonneville met the FY04 program goal by exceeding NERC compliance ratings, meeting planned repayments to the Treasury, and exceeding safety goals. Bonneville continues to deliver Federal hydropower to its customers in an efficient, safe, and timely manner.

Associated Annual Target for FY 2004

PMA GG 4.54.1



System Reliability Performance: Attain average North American Electric Reliability Council NERC compliance ratings for the following NERC Control Performance Standards (CPS) measuring the balance between power generation and load, including support for system frequency: (1) CPS1, which measures generation/load balance on one-minute intervals (rating =100); and (2) CPS2, which limits any imbalance magnitude to acceptable levels (rating =90).

Commentary: The average CPS1 score for FY 2004 was 198.5; the average CPS2 score for FY 2004 was 94.3. BPA is meeting these standards using its two existing Automatic Generation Control (AGC) systems. The backup AGC has been modified during the previous quarter to include a variable frequency bias to more accurately track how our Control Area responds to frequency deviation. We are monitoring the two systems continuously to insure compliance with standards without over-control. Meeting this performance target demonstrates Bonneville's continued focus on its core mission of delivering power reliably.

Supporting Documentation: Fourth Quarter FY 2004 Findings Memo, dated October 12, 2004.

Related Annual Targets (FY 2003 - FY 2001)

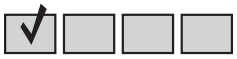
FY 2003
- Ensure that the power system control area operated by the Bonneville Power Administration receives, Control Compliance Ratings of "Pass" on both of the North American Electric Reliability Council's reliability performance standards in every month (ER9-1a).
  Assessment: MET

FY 2002
- Bonneville Power Administration will receive monthly Control Performance Ratings of "Pass" using the North American Electric Reliability Council performance standards.
  Assessment: MET

FY 2001
- Reliability Performance for Bonneville Power Administration was on-target.
  Assessment: MET

Associated Annual Target for FY 2004

PMA GG 4.54.2 Repayment of Federal Power Investment Performance: Meet planned annual repayment of principal on Federal power investments.



Commentary: Target met. Bonneville made a FY 2004 Treasury principal amortization payment of $592 million, which included $246 million of planned principal amortization and $346 million of advanced amortization. Cumulative advanced amortization at the end of FY 2004 totaled $1,146 million. Meeting this performance target demonstrates Bonneville's commitment to meeting its obligations to U.S. taxpayers. For the 21st straight year Bonneville has made its annual Treasury payment in full and on time.

Supporting Documentation: Fourth Quarter FY 2004 Findings Memo, dated October 12, 2004.

Related Annual Targets (FY 2003 - FY 2001)

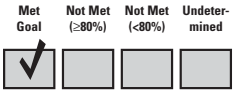
FY 2003
- Bonneville Power Administration will meet planned repayment of principal on power investment (ER9-1b).
  Assessment: MET

FY 2002
- Bonneville Power Administration will meet planned repayment of principal on power investment.
  Assessment: MET

FY 2001
- Reliability Performance for Bonneville Power Administration was on target.
  Assessment: MET

Associated Annual Target for FY 2004

PMA GG 4.54.3 Recordable Accident Frequency Rate Performance: Achieve a safety performance of a 3.3 recordable accident frequency rate (RAFR) for recordable injuries per 200,000 hours worked or the Bureau of Labor Statistics' industry rate, whichever is lower.



Commentary: Bonneville has achieved an accident frequency rate well below the target of 3.3. Bonneville continues to strive for reduced injuries through a proactive safety program. Bonneville has incorporated a safety element in its managers' and supervisors' performance plans for FY 2005. Meeting this performance target demonstrates BPA's commitment to maintaining a safe work environment.

Supporting Documentation: Fourth Quarter FY 2004 Findings Memo, dated October 12, 2004.

Related Annual Targets (FY 2003 - FY 2001)

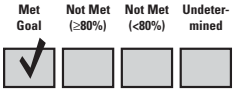
FY 2003
- Bonneville Power Administration will achieve a safety performance of a 3.3 recordable accident frequency rate for recordable injuries per 200,000 hours worked or the Bureau of Labor Statistics' industry rate, whichever is lower (ER9-1c).
  Assessment: MET

FY 2002
- Bonneville Power Administration will achieve a safety performance of a 3.3 recordable accident frequency rate for recordable injuries per 200,000 hours worked or the Bureau of Labor Statistics' industry rate, whichever is lower.
  Assessment: MET

FY 2001
- Reliability Performance for Bonneville Power Administration was on-target.
  Assessment: MET

PROGRAM GOAL:

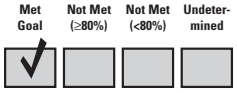
EIA GG 4.61 *ENERGY INFORMATION ADMINISTRATION (EIA)*: EIA's information program is relevant, reliable and consistent with changing industry structures, and EIA's products are accurate and timely.



Commentary: The Energy Information Administration met the FY04 program goal by exceeding targets for dissemination of relevant, reliable, and unbiased energy related information to the Congress, government officials and the general public. Informational briefings and internet related communications methodologies continue to be pursued in order to make EIA information available to the widest possible audience in a timely manner.

Associated Annual Target for FY 2004

EIA GG 4.61.1 Conduct informational briefings for high-level energy policymakers in the Administration and Congress to provide timely information and analysis on topical energy issues and situations.



Commentary: This target was met. EIA's administrator testified twice this quarter, before the House Government Reform Subcommittee on Energy Policy, Natural Resources and Regulatory Affairs on July 7, and before the House Subcommittee on Energy and Air Quality, Committee on Energy and Commerce on July 15. In addition, we had 8 other requests for information and assistance. By counting the number of briefings and reports, EIA is assessing our impact on Congress and other policy makers. Our measure of satisfaction for Congress is that we are continually invited back to testify and that specific service reports are requested.

Supporting Documentation: Text of our Congressional briefings is at www.eia.doe.gov/neic/speeches/speech1.html. Other contacts are documented in EIA's weekly reports to DOE and in reports from EIA offices.

Related Annual Targets (FY 2003 - FY 2001)

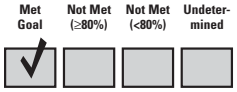
FY 2003
- Conduct informational briefings for high-level energy policymakers in the Administration and Congress to provide timely information and analysis on topical energy issues and situations (ER8-1a).
  Assessment: MET

FY 2002
- Maintain and improve web-based networks for the Energy Resources organizations to ensure wide distribution of information about Energy Resources programs, such that the average number of unique monthly users of Energy Resources Websites will continue to grow at least 20 percent per year through 2005 (from a baseline of about 71,000 per month in 1997).
  Assessment: MET

FY 2001
- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

EIA GG 4.61.2 Increase the number of unique monthly users of Energy Information Administration's (EIA) Web site by at least 20 percent per year through 2005 from a FY 1997 baseline of 37,000 monthly users sessions.



Commentary: This target was met. EIA's website had 3.5 million user sessions this past quarter. Some of our more popular sites were our Country Analysis Briefs (almost 600,00 visits) and our On-Highway Diesel Prices (over 240,000 visits.) This gives a running 12-month total of 13.8 million, up 26.7% from 10.8 million from a year ago. These are not 'unique' users, since we can not track individual users. EIA's website is our primary means of disseminating detailed data and analysis, and users constitute a wide range of both energy industry experts and the general public. Although this is largely driven by external events, EIA closely monitors the number of users as an indicator of its information dissemination effectiveness.

Supporting Documentation: EIA uses the commercial software product Webtrends to track and analyze our website usage. Summaries and product-specific usage number are posted on our internal intranet.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Increase the number of unique monthly users of EIA's Website by at least 20 percent per year through 2005 (from a baseline of about 71,000 per month in 1997) (ER8-1b).
  Assessment: MET

FY 2002

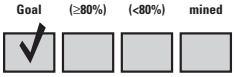
- Maintain and improve web-based networks for the Energy Resources organizations to ensure wide distribution of information about Energy Resources programs, such that the average number of unique monthly users of Energy Resources Websites will continue to grow at least 20% per year through 2005 (from a baseline of about 71,000 per month in 1997).
  Assessment: MET

FY 2001

- Achieve a growth rate of at least 20% per year in the average number of unique monthly users of EIA's website (from about 71,000 per month in 1997). For FY 2001, monthly Internet user sessions average in excess of 602,500 which represent an 87.0% increase from FY 2000.
  Assessment: MET

Associated Annual Target for FY 2004

EIA GG 4.61.3 Increase the number of citations of EIA in major media outlets by at least an average of 10 percent per year.



Commentary: EIA exceeded our target with 76 citations in the top five newspapers during the last three months. The New York Times had 12, the Washington Post had 8, Los Angeles Times had 18, Wall Street Journal had 24, and USA Today had 14. This gives a total of 259 for the fiscal year, which represents an average growth rate of 26.8% relative to the baseline. Examples of stories this past quarter which were reprinted in DOE Newsclips included Oil Explorers Searching Ever More Remote Areas which referenced EIA's long-term price projections (New York Times, 9/9, page c1), and the track of hurricane Ivan's path and major refineries (USA Today, 9/17, pg b2) and several articles on rising prices. The coverage of EIA in the 5 largest newspapers is a measure of EIA as a "wholesale" provider of information. Although this is largely driven by external events such as high prices or shortages, our continued coverage by the media is an indicator of the relevance and importance of our information.

Supporting Documentation: The search is conducted in Factiva by the DOE library and a paper listing of article titles by date by newspaper is provided to EIA.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Increase the number of citations of EIA in major media outlets by at least 10 percent per year through 2005 (from a baseline of 73 citations in major media outlets in 1999) (ER8-1c).
  Assessment: MET

FY 2002

- There were no related annual targets in FY 2002.

FY 2001

- There were no related annual targets in FY 2001.

Additional Annual Targets from 2002-2001 Assigned to Goal 4: Energy Security

FY 2002

- Complete two, and based on the technical merits of the grants, approve the continuation of 12 research and curriculum development awards funded by three-year Advanced Nuclear Medicine Initiative grants to universities, hospitals and research institutions.
  Assessment: Mixed Results

- Complete upgrades to the Fast Flux Test Facility (FFTF) fuel handling control systems and achieve readiness to initiate their validation in FY 2003.
  Assessment: MET

- Negotiate implementation of a revised Hanford Federal Facility Agreement and Consent Order milestones for FFTF deactivation.
  Assessment: MET

- Meet the milestones for legacy waste cleanup at Test Reactor Area (TRA) in the Voluntary Consent Order between the State of Idaho and DOE, and efficiently manage resources to limit growth in the backlog of maintenance to no more than 10%.
  Assessment: MET

- Develop conceptual design of a Stirling Radioisotope Power System suitable for space exploration missions.
  Assessment: MET

- Complete assessment of special purpose fission technology options required to power advanced spacecraft to the outer planets and on the surface of Mars.
  Assessment: MET

- Supply quality stable and radioactive isotopes for industrial, research, and medical applications that continue to meet customer specifications no less than 97% of the time, and maintain 95% on-time deliveries.
  Assessment: MET

FY 2001

- Completed negotiations with industrial teams selected to implement the Early Entrance Co-production Plant (EECP) projects, and initiated Phase 1 of the three-phase activity.
  Assessment: MET

- Completed laboratory evaluation of the initial set of hydrogen separation membranes.
  Assessment: MET

- Began laboratory scale test operations of a novel syngas ceramic membrane reactor to reduce gas-to-liquid fuel conversion costs, and initiated construction of first stage scale-up of the reactor.
  Assessment: MET

- Provided five grants under the Advanced Nuclear Medicine Initiative.
  Assessment: MET

- Completed the conversion and disposition of 100% of the Fermi reactor sodium coolant in storage at Argonne National Laboratory-West (ANL-W).
  Assessment: MET

- Completed draining the ERB-II primary system and process 100% of all EBR-II sodium in compliance with the Idaho National Engineering and Environment Laboratory (INEEL) Site Treatment Plan.
  Assessment: MET

- Treated a minimum of 0.5 metric tons of heavy metals (MTHM) of EBR-II spent nuclear fuel).
  Assessment: MET

- Established new international agreement on advanced accelerator applications programs with at least one country that significantly leverages financial and technical resources, to the mutual benefit of both countries, particularly in areas such as safety, fuels and materials development, and facility operations.
  Assessment: MET

- Competitively selected system integration contractor to develop a flight qualified Stirling Radioisotope Power System for future space exploration missions.
  Assessment: Nearly Met Goal

- Completed an initial assessment of special purpose fission technologies that are focused on concepts and technologies for space applications.
  Assessment: MET

- Supplied quality stable and radioactive isotopes for industrial, research, and medical applications that met customer specifications no less than 97% of the time, and maintained 95% on-time deliveries.
  Assessment: Mixed Results

General Goal 5: Science

Provide world-class scientific research capacity needed to: ensure the success of Department missions in national and energy security; advance the frontiers of knowledge in physical sciences and areas of biological, medical, environmental, and computational sciences; or provide world-class research facilities for the Nation's science enterprise.

Summary of FY 2004 Annual Performance Targets

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
22	0	1	0

FY 2004 Program Costs ($ in Millions): Goal 5 Costs: $3,196
FY 2003 Program Costs ($ in Millions): Goal 5 Costs: $3,068

PROGRAM GOAL:

SC GG 5.19

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
✓			

HIGH ENERGY PHYSICS: Understand the unification of fundamental particles and forces and the mysterious forms of unseen energy and matter that dominate the universe; search for possible new dimensions of space; and investigate the nature of time itself.

Commentary: Progress has been made towards understanding how the universe originated -- its genesis. Experiments at the HEP's accelerators continue to produced evidence for unification: the blending of today's diverse patterns of particles and interactions into a much simpler picture at high particle energies, like those that prevailed in the very early universe.

Associated Annual Target for FY 2004

SC GG 5.19.1

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
✓			

Total integrated amount of data (measured in inverse picobarnes) delivered (within 20% of baseline estimate) to the CDF and D-Zero detectors at the Tevatron. FY04 - Within 20% of a baseline estimate of 240 (192 inverse picobarnes).

Commentary: Annual target met. The cumulative total integrated amount of data in FY04 is 331 inverse picobarns, exceeding the minimum target goal of 192 inverse picobarnes.

Supporting Documentation: http://www-bd.fnal.gov/javaapplications/html_write/tables/IntegratedLumOct.jpg

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

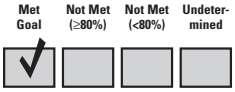
- Deliver integrated luminosity as planned 225 inverse picobarnes (pb-1) to CDF and D-zero at the Tevatron (SC 1-1a).
  Assessment: MET

FY 2002
- Deliver integrated luminosity as planned (80 pb-1) to the CDF and D-Zero at the Tevatron. Begin implementation of the second phase of accelerator upgrades: install four performance improvements to existing systems, and begin design and construction of two new systems.
  Assessment: MET

FY 2001
- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

SC GG 5.19.2



Total integrated amount of data (measured in inverse femtobarnes) delivered (within 20% of baseline estimate) to the BABAR detector at the Stanford Linear Accelerator Center (SLAC) B-factory. FY04 - Within 20% of a baseline estimate of 45 (36 inverse femtobarnes).

Commentary: Annual target met. The fourth quarter milestone of 36 was achieved, and the cumulative total integrated amount of data in FY04 is 117 inverse femtobarns, exceeding the minimum annual target goal of 45 inverse femtobarns.

Supporting Documentation: http://www-public.slac.stanford.edu/babar/perfdata.html.

Related Annual Targets (FY 2003 - FY 2001)

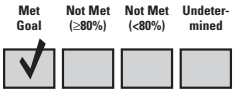
FY 2003
- Increase the total data delivered to BaBar at the SLAC B-factory by delivering 45 fb-1 of total luminosity (SC 1-2a).
  Assessment: Met less than 80% of the Target.

FY 2002
- Increase the total data recorded by BaBar at the Stanford Linear Accelerator Center (SLAC) b-factory by delivering 35 fb-1 of total luminosity.
  Assessment: MET

FY 2001
- Deliver sufficient luminosity (25 fb-1) to double total BaBar data set.
  Assessment: MET

Associated Annual Target for FY 2004

SC GG 5.19.3



Cost-weighted mean percentage variance from established cost and schedule baselines for major construction, upgrade, or equipment procurement projects. (FY04-<10%, <10%)

Commentary: Annual target met. The cost-weighted mean percentage variance from baselines for projects with Total Project Cost (TPC) > $20M in FY2004 is +1% (cost) and -2% (schedule).

Supporting Documentation: Derived from Quarterly Project Reports to SC-2.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

SC GG 5.19.4 Average achieved operation time of the scientific user facilities as a percentage of the total scheduled annual operating time. (FY04->80%)

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Commentary: Annual target met. The average achieved operation time for HEP scientific user facilities as a percentage of scheduled time in FY04 was 89%.

Supporting Documentation: Derived from letters from Lab Directors or designee. Transitioning to Web-based tracking in 2005.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Maintain and operate HEP forefront scientific facilities such that unscheduled downtime is less than 20 percent of the total scheduled operating time (SC 7-1A2).
  Assessment: MET

FY 2002

- Maintain and operate HEP forefront scientific facilities such that unscheduled downtime is less than 20 percent of the total scheduled operating time.
  Assessment: MET

FY 2001

- HEP scientific facilities were scheduled and operated such that unscheduled downtime averaged about 20% of scheduled operating time.
  Assessment: MET

Additional Targets from 2003-2001

FY 2003

- Complete research and development of two new accelerator systems for the recycler and the Tevatron electron lens (SC 1-1b).
  Assessment: Met less than 80% of the Target

- Add one new Radio Frequency RF station (1-2b).
  Assessment: MET

- Measure CP violation in B mesons with an uncertainty of +/- 0.06 (SC 1-2c).
  Assessment: MET

- Meet the completion targets for the U.S. portion of the Large Hadron Collider (LHC) project - Compact Muon Solenoid (CMS) 78 percent (SC 7-1A1a).
  Assessment: MET

- Meet the completion targets for the U.S. portion of the LHC project – A Toroidal LHC Apparatus (ATLAS) 74 percent (SC 7-1A1b).
  Assessment: MET

- Meet the completion targets for the U.S. portion of the LHC project - Accelerator 86 percent (SC 7-1A1c).
  Assessment: MET

- Demonstrate operation of advanced design accelerating structure for the Next Linear Collider (NLC) at 70 megavolts (MV)/m (SC 7-1B1).
  Assessment: MET

- Conduct, using outside experts, a review (1) of the operations and performance of the HEP - supported accelerator facility at Fermilab (Tevatron) to identify opportunities to optimize efficiency and performance (SC 7-1C).
  Assessment: MET

FY 2002

- Add one new Radio Frequency (RF) station.
  Assessment: MET

- Measure Charge Parity (CP) violation in B mesons with an uncertainty of +/- 0.12.
  Assessment: MET

- Meet the completion targets for the U.S. portion of the LHC project: Compact Muon Solenoid (CMS) - 77%; A Toroidal LHC Apparatus (ATLAS) - 72%; Accelerator - 85%.
  Assessment: Mixed Results

- Complete construction of Linac Test Area at BNL for detailed targeting & capture studies.
  Assessment: MET

- Demonstrate operation of 11.4 gigahertz (GHz) accelerating structure for an NLC at 75 MV/m without significant structural damage.
  Assessment: MET

FY 2001

- Complete first phase of upgrades to enable the Tevatron at Fermilab to run with much higher luminosity. Begin commissioning of phase-one accelerator upgrades.
  Assessment: MET

- Add one new Radio Frequency (RF) station.
  Assessment: MET

- BaBar collaboration published first unambiguous observation of Change Parity (CP) violation in B meson decays with an uncertainty of +/- 0.15.
  Assessment: MET

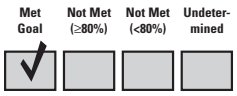
- Met on time and within budget the scheduled U.S. DOE commitments to the international Large Hadron Collider (LHC) project, as reflected in the latest international agreement and corresponding plan. The completion figures for the U.S. portion of the LHC project were: CMS 61%; ATLAS 61%; and Accelerator 68%.
  Assessment: MET

- Demonstrate that 50 MV/m accelerating gradients in 11.4 GHz Next Linear Collider (NLC) accelerating structures are sustainable without significant structure damage.
  Assessment: MET

- At Brookhaven National Laboratory (BNL), successfully complete initial tests of carbon and mercury jet targets for the next generation of proton-driven accelerators.
  Assessment: MET

PROGRAM GOAL:

SC GG 5.20

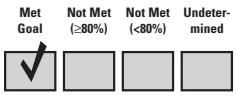


NUCLEAR PHYSICS: Understand the evolution and structure of nuclear matter, from the smallest building blocks, quarks and gluons; to the elements in the universe created by stars; to unique isotopes created in the laboratory that exist at the limits of stability, possessing radically different properties from known matter.

Commentary: Progress has been made towards understanding a possible new state of high energy density matter involving quarks and gluons via moderation of energetic "jets"; the processes in stars that create the elements including the characterization of previously unobserved neutron-rich germanium nuclei; and nuclei with radically different properties such as neutron halos (helium-6).

Associated Annual Target for FY 2004

SC GG 5.20.1



Weighted average number (within 20% of baseline estimate) of billions of events recorded at the Argonne Tandem Linac Accelerator System and Holifield Radioactive Ion Beam Facilities (HRIBF), respectively. FY04 - Baseline estimates are 25 billion & 5.3 billion events respectively.

Commentary: Annual target met - the weighted average exceeded the annual target. Have achieved 41.7 billion events at ATLAS and 3.68 billion events at HRIBF. The annual baseline estimate for ATLAS has been exceeded. HRIBF did not reach its annual goal because of a change in program direction and scientific priority- the nature of experiments approved by the Physics Advisory Committee (PAC) involved rarer type events. This resulted in fewer events recorded than estimated for the annual target. However, the weighted average exceeded the annual target.

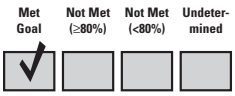
Supporting Documentation: ANL/ATLAS: Official letter from Physics Division Director Dr. Donald Geesaman submitted to NP (SC-90). Supporting email from R. Janssens of the detailed account of events for the 4th Quarter. ORNL/HRIBF: An official letter from Physics Division Director Dr. Glenn Young submitted to NP (SC-90).

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

SC GG 5.20.2



Weighted average number (within 20% of baseline estimate) of billions of events recorded by experiments in Hall A, Hall B, and Hall C, respectively, at the Continuous Electron Beam Accelerator Facility. FY04 - Baselines estimates are 2.4 billion; 7.2 billion, and 2.1 billion events respectively.

Commentary: Annual target met - Have recorded 2.3 billion events in Hall A, 9.2 billion events in Hall B, and 2.6 billion events in Hall C. Operations of all Halls exceeded the annual baseline estimate. The composite average exceeded the annual target.

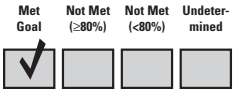
Supporting Documentation: Official letter from Laboratory Director Dr. Christoph Leemann submitted to NP (SC-90) as well as a supporting email.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

SC GG 5.20.3



Weighted average number (within 30% of baseline estimate) of millions of heavy-ion collision events recorded by the PHENIX and STAR detectors, respectively, at the Relativistic Heavy Ion Collider. FY04 - Baseline estimates are 900 million and 40 million respectively.

Commentary: Annual target met - Have recorded 1600 million events in PHENIX and 101 million events in STAR, exceeding the annual target.

Supporting Documentation: Official letter from the Associate Director of High Energy and Nuclear Physics, Dr. Tom Kirk, submitted to NP (SC-90). Supporting email from Dr. Samuel Aronson submitted to NP (SC-90) stating the number of events recorded for STAR. Supporting email from Dr. Timothy Hallman transmitting data generated from STAR's control log. Supporting memo from Dr. Ed O'Brien reporting events recorded for PHENIX. Supporting email from Dr. William Zajc summarizing the events recorded for PHENIX Run 4.

Related Annual Targets (FY 2003 - FY 2001)

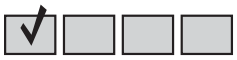
FY 2003
- Collect first data with polarized protons with the Solenoidal Tracker at RHIC (STAR), Pioneering High Energy Nuclear Interacting Experiment (PHENIX), and pp2pp detectors (SC 2-1c).
  Assessment: MET

FY 2002
- Commission polarized protons at the Relativistic Heavy Ion Collider (RHIC) for research programs directed at understanding the spin structure of the proton.
  Assessment: MET

FY 2001
- Produce first heavy-ion collisions at the Relativistic Heavy Ion Collider RHIC (construction completed FY 1999) at 10% of its design luminosity, as planned, with four experimental detectors. Publish first results of heavy-ion collisions.
  Assessment: MET

Associated Annual Target for FY 2004

SC GG 5.20.4 Average achieved operation time of the scientific user facilities as a percentage of the total scheduled annual operating time. (FY04 – >80%)



Commentary: Annual target met – NP user facilities achieved 89.7% reliability of up time/scheduled time that exceeds the annual target, >80%.

Supporting Documentation: Official letters submitted to NP (SC-90) from ANL/ATLAS (D. Geesaman), TJNAF (C. Leemann), BNL (T. Kirk) and ORNL (G. Young) reporting the final FY 2004 operating hours number of hours for the individual user facilities. Supporting worksheets from the laboratory and a composite worksheet generated by the ONP.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- Maintain and operate NP scientific user facilities so that the unscheduled operational downtime will be kept to less than 20 percent, on average, of total scheduled operating time (SC 7-2a).
  Assessment: MET

FY 2002
- Maintain and operate NP scientific user facilities so that the unscheduled operational downtime will be kept to less than 20 percent, on average, of total scheduled operating time.
  Assessment: MET

FY 2001
- Maintain and operate NP scientific user facilities so that the unscheduled operational downtime will be kept to less than 15 percent, on average, of total scheduled operating time.
  Assessment: MET

Additional Targets from 2003-2001

FY 2003

- Collect first data with the BLAST detector at MIT/Bates, studying the structure of nucleons and few body nuclei as elements of the electron beam program (SC 2-1a).
  Assessment: MET

- Map out the strange quark contribution to nucleon structure using the G-0 detector, utilizing the high intensity polarized electron beam developed at Thomas Jefferson National Accelerator Facility (TJNAF) as elements of the electron beam program (SC 2-1b).
  Assessment: MET

- Collect the first data from KamLAND, a joint U.S. - Japan experiment measuring neutrinos produced in nuclear reactors (SC 2-3a).
  Assessment: MET

- Complete preparation for tests of the prototype high-energy, high-power gas catcher for the Rare Isotope accelerator (RIA) (SC 2-3b).
  Assessment: MET

- Prepare for tests of prototype targets for the proposed Rare Isotope Accelerator (RIA) (SC 2-3c).
  Assessment: MET

- Complete initial beam emittance tests for Electron Cyclotron Resonance (ECR) ion source for RIA (SC 2-3d).
  Assessment: MET

- Complete tests for the development of the intermediate energy super-conducting Radio Frequency (RF) cavities for the RIA (SC 2-3e).
  Assessment: MET

- Upgrade the RHIC cryogenics system to eliminate seal gas compressor single point failure (SC 7-2b).
  Assessment: MET

- Meet the cost and schedule milestones for construction of facilities and Major Items of Equipment within 10 percent of baseline estimates. Specifically, complete the Solenoidal Tracker at RHIC STAR Electro-Magnetic Calorimeter (EMCAL) (SC 7-2c).
  Assessment: MET

- Initiate first round of experiments with collisions with other ions to compare to results of gold-gold collisions (SC 2-2a).
  Assessment: MET

FY 2002

- As elements of the electron beam program, (a) complete commissioning of the BLAST detector at MIT/Bates and initiate first measurements, and (b) complete fabrication, installation and commissioning of the G-0 detector, a joint National Science Foundation-DOE project, at Thomas Jefferson National Accelerator Facility (TJNAF).
  Assessment: Mixed Results

- Construct a prototype high-energy, high-power gas catcher for RIA.
  Assessment: MET

- Collect the first data from neutral current interactions from Sudbury Neutrino Observatory (SNO).
  Assessment: MET

- Complete Helium Storage addition and liquid nitrogen standby cooling system at RHIC, leading to better cost effectiveness ($0.5M savings) and operational efficiency (10% increase).
  Assessment: Mixed Results

- Meet the cost and schedule milestones for construction of facilities and Major Items of Equipment (MIE) within 10% of baseline estimates. Complete the Pioneering High Energy Nuclear Interacting Experiment (PHENIX) Muon Arm Instrumentation.
  Assessment: MET

- Complete first round of experiments at RHIC at full energy; achieve the full design luminosity (collision rate).
  Assessment: MET

FY 2001

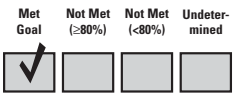
- Complete fabrication of the Bates Large Acceptance Spectrometer (BLAST) detector at Massachusetts Institute of Technology (MIT) in accordance with the project milestones.
  Assessment: MET

- Test low-energy prototype of Rare Isotope Accelerator (RIA) fast catcher and test low-beta accelerator cavities.
  Assessment: MET

- Meet the cost and schedule milestones for construction of facilities and Major Items of Equipment (MIE) within 10% of baseline estimates. Complete the Analysis System for Relativistic Heavy Ion Collider (RHIC) Detectors and RHIC Silicon Vertex Detector on schedule.
  Assessment: MET

PROGRAM GOAL:

SC GG 5.21

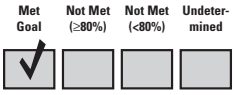


BIOLOGICAL AND ENVIRONMENTAL RESEARCH: Provide the biological and environmental discoveries necessary to clean and protect our environment, offer new energy alternatives, and fundamentally alter the future of medical care and human health.

Commentary: Progress continues to be made towards revealing the mechanisms and fundamental secrets of biological and environmental systems, leading to someday being able to manipulate matter at the micro, nano, and molecular scales; and to model and predict biological and environmental interactions on a regional and global basis.

Associated Annual Target for FY 2004

SC GG 5.21.1



Perform combined field/laboratory/modeling to determine how to interpret data at widely differing scales. Quantify contaminant immobilization and remobilization using one or a combination of the following potential pathways: natural microbial mechanisms, chemical reactions with materials, and colloid formation.

Commentary: Annual target met. A critical element of bioremediation is whether or not what works in the laboratory (where conditions are carefully controlled) also works in real world contaminated sites (where conditions are complex and often unpredictable). This measure has shown progress in moving from the lab to the field.

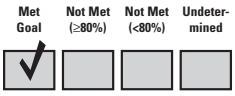
Supporting Documentation: Results on NABIR-UMTRA website: http://www.pnl.gov/nabir-umtra/.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

SC GG 5.21.2



Increase the rate of DNA sequencing – Number (in billions) of base pairs of high quality (less than one error in 10,000 bases) DNA microbial and model organism genome sequence produced annually. (FY04 – >20)

Commentary: Annual target met. 7.5Bbp of additional DNA sequenced in the fourth quarter, bringing the total for the year to 25Bbp (125% of the target). During the year, two diatoms, White Rot Fungus, a green algae, 41 microbes, and several fungi were sequenced. These organisms are relevant to DOE missions of Energy, Bioremediation and Climate Change.

Supporting Documentation: http://www.jgi.doe.gov/sequencing/statistics.html.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Increase capacity of Production Genomics Facility (PGF) to sequence 12 billion pairs of DNA per year, an increase of approximately 50% from FY 2002 (SC 3-1b).
  Assessment: MET

FY 2002

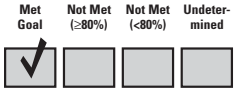
- By the end of FY 2002, the DOE Joint Genome Institute (JGI) will complete the high quality DNA sequencing of human chromosomes 16 and 19 and produce six billion base pairs of DNA sequence from model organisms (e.g., mouse, Fugu, and Ciona) to help understand the human sequence as part of the human Genome Program.
  Assessment: Not Met

FY 2001

- By the end of FY 2001, JGI will complete the sequencing and submission to public databases of 100 million finished and 250 million high quality draft base pairs of DNA, including both human and model organisms (E.G., the mouse) as part of the Human Genome Program.
  Assessment: MET

Associated Annual Target for FY 2004

SC GG 5.21.3 Improve Climate Models – Develop a coupled climate model with fully interactive carbon and sulfur cycles, as well as dynamic vegetation to enable simulations of aerosol effects, carbon chemistry and carbon sequestration by the land surface and oceans and the interactions between the carbon cycle and climate.



Commentary: Annual target met. Understanding the complexity of our global climate is critical to predicting how it might respond to human activity. The Department's climate efforts are focused on several critical aspects of the climate that also utilize our core capabilities. These areas include: the Carbon and Sulfur cycles, the effect of aerosols, Atmospheric Chemistry and Radiation effects (such as the role of clouds). This measure tracks our progress toward incorporating our research and field data into these complex climate models.

Supporting Documentation: Report on Activities Testing the Super-parameterization in the CAPT Framework by Potter et al. at the URL http://www-pcmdi.llnl.gov/projects/capt/publications.html.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Improve the precision of climate models by delivering a more realistic cloud submodel that reduces the uncertainty in calculations of the atmospheric energy budget by 10 percent (SC 3-2a).
  Assessment: MET

FY 2002

- Develop and test a fully coupled atmosphere-ocean-land-sea-ice climate model that has twice the spatial resolution of coupled models available in FY 2000 as part of the Climate Modeling and Prediction research. Support multi-disciplinary teams of scientists at multiple institutions using DOE supercomputers to perform model simulations, diagnostics and testing.
  Assessment: Mixed Results

FY 2001

- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

SC GG 5.21.4 Average achieved operation time of the scientific user facilities as a percentage of the total scheduled annual operating time. FY04 – >90%

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Commentary: Annual target met. All BER user facilities operated at greater than 90% of schedule operating time.

Supporting Documentation: BER Facility Operational Statistics Links -Center for Comparative and Functional Genomics – http://www.ornl.gov/sci/mgrf/facilities.shtml; Production Genomics Facility – http://www.jgi.doe.gov/sequencing/statistics.html; Free Air Carbon Dioxide Enrichment (FACE) Facilities – Nevada Test Site: http://www.unlv.edu/Climate_Change_Research/NDFF/performance.htm; ORNL: http://www.esd.ornl.gov/facilities/ORNL-FACE/userfacility.html; Duke: http://face.env.duke.edu/performance.cfm; Rhinelander, Wisconsin: http://aspenface.mtu.edu/performance.htm; Environmental Molecular Sciences Laboratory – http://www.emsl.pnl.gov/homes/hours.shtml; ARM Climate Research Facilities – http://www.arm.gov/acrf/opsstats.stm.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Maintain and operate the BER scientific user facilities so the unscheduled downtime on average is less than 10 percent of the total scheduled operating time (SC 7-3d).
  Assessment: MET

FY 2002

- Maintain and operate the BER scientific user facilities so the unscheduled downtime on average is less than 10 percent of the total scheduled operating time.
  Assessment: MET

FY 2001

- The BER scientific user facilities are maintained and operated so the unscheduled downtime averaged less than 10% of the total scheduled operating time.
  Assessment: MET

Associated Annual Target for FY 2004

SC GG 5.21.5 Advance blind patient sight: Complete fabrication of 60 microelectrode array for use as an artificial retina and tested in animal subject.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Commentary: Annual Target met. Sixty microelectrode array was fabricated and planned animal testing completed.

Supporting Documentation: http://www.doemedicalsciences.org/abt/retina/retinas.shtml.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Additional Targets from 2003-2001

FY 2003

- Complete the high quality DNA sequencing of human chromosome 5 (SC 3-1a).
  Assessment: MET

- Establish at least 30 diverse collaborations for high throughput DNA sequencing with scientists outside the DOE Joint Genome Institute (JGI) important for conducting Genomics and Genomes to Life research (SC 3-1c).
  Assessment: MET

- Produce draft DNA sequences of more than 30 microbes vital to future U.S. energy security and independence, carbon sequestration, and environmental cleanup (SC 3-1d).
  Assessment: MET

- Increase the spatial resolution of the atmospheric and ocean and sea ice submodels to 1.4 degrees (about 150 kilometers) and approximately 0.7 degrees (about 75 kilometers), respectively, for the fully coupled climate model (SC 3-2b).
  Assessment: MET

- Keep within 10 percent of cost and schedule milestones for upgrades and construction of scientific user facilities (SC 7-3a).
  Assessment: MET

- Begin operation of the new high performance computer at the Environmental Molecular Science Laboratory (EMSL) at the Pacific Northwest National Laboratory (PNNL) (SC 7-3b).
  Assessment: MET

- Complete construction of the Laboratory for Comparative and Functional Genomics (LCFG) at ORNL (SC-7-3c).
  Assessment: MET

FY 2002

- Produce draft DNA sequence of more than 30 microbes that cover a range of functional relevance to DOE's life and environmental sciences and security missions, including carbon sequestration, environmental cleanup, bioremediation, and bioterrorism.
  Assessment: MET

- Keep within 10% of cost and schedule milestones for upgrades and construction of scientific user facilities; begin acceptance of the new high performance computer at the Environmental Molecular Sciences Laboratory (EMSL) at the Pacific Northwest National Laboratory (PNNL); continue construction of the Laboratory for Comparative and Functional Genomics (LCFG) at ORNL.
  Assessment: MET

FY 2001

- Complete the genetic sequencing of at least three additional microbes that produce methane or hydrogen from carbonaceous sources, or that could be used to sequester carbon, as part of the Microbial Genomics and Carbon Sequestration programs.
  Assessment: MET

- Conduct five Intensive Operations Periods (IOPs) on schedule at the Atmospheric Radiation Measurement (ARM) Southern Plains site in Oklahoma. Obtain data from second station on the North Slope of Alaska, and make the third station in the Tropical Western Pacific on Christmas Island operational on schedule and within budget, in accordance with the program plan.
  Assessment: Exceeded Goal

- Upgrades and construction of scientific user facilities are kept within 10% of cost and schedule milestones. Commissioning of the protein crystallography Structural Biology User Station at the Los Alamos National Laboratory is initiated, and construction of the Center for Comparative and Functional Genomics at Oak Ridge National Laboratory is initiated.
  Assessment: MET

PROGRAM GOAL:

SC GG 5.22

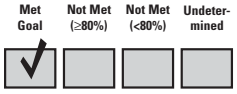
Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
✓			

BASIC ENERGY SCIENCE: Provide the scientific knowledge and tools to achieve energy independence, securing U.S. leadership and essential breakthroughs in basic energy sciences.

Commentary: Progress continues to be made towards observing and manipulating matter at the molecular scale, and understanding the behavior of large assemblies of interacting components.

Associated Annual Target for FY 2004

SC GG 5.22.1 Improve Temporal Resolution: Demonstrated first measurement of duration (measured in femtoseconds) and intensity (measured in millions photons per pulse) of an x-ray pulse. FY04 - <200, >0.005



Commentary: Annual target met. Just as film speed determines how clearly you photograph fast moving images, temporal resolution determines how well scientists can "see" fast events, such as chemical reactions and the folding of proteins, which happen on the scale of femtoseconds (1/ 1,000,000,000,000,000 of a second). This annual measure refers to the smallest time period that can be probed. The challenge is to devise probes that combine high intensity and short time duration in order to do these measurements. Results: 20 femtosecond pulses with 0.01 million photons per pulse.

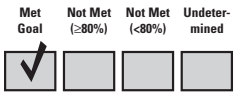
Supporting Documentation: E. A. Gibson, A. Paul, N. Wagner, R. Tobey, I. P. Christov, D. T. Attwood, E. Gullikson, A. Aquila, M. M. Murnane, and H. C. Kapteyn, "Generation of coherent soft x-rays in the water window using quasi phase-matched harmonic generation," Science, 302, 95 (2003).

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

SC GG 5.22.2 Improve Spatial Resolution: Demonstrated first measurement of spatial resolutions for imaging in the hard and soft x-ray regions, and spatial information limit for an electron microscope (measured in nanometers). FY04 – ≤115, ≤19, ≤0.08



Commentary: Annual target met. Just as the resolution of a computer screen determines the clarity of very small images, the resolution of scientific equipment determines the clarity with which scientists can "see" very small objects such as viruses or even atoms. This annual measure refers to the smallest object that can be resolved with various imaging techniques. Ultimately, we want to be able to "see" atoms and groups of atoms, which have a size on the scale of nanometers. Results: Hard x-ray - 100 nanometers; Soft x-ray - 19 nanometers; Electron microscope - 0.078 nanometers.

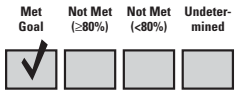
Supporting Documentation: Hard x-ray - The result was achieved at an experimental station of the Advanced Photon Source (APS) at ANL. These findings were submitted to BES by the APS. The report of the unpublished results resides at BES. Soft x-ray - The result was achieved at the Center for X-Ray Optics in the Advanced Light Source (ALS) at LBNL. These findings were submitted to BES by the ALS. The report of the unpublished results resides at BES. Electron microscope - P. D. Nellist, M. F. Chisholm, N. Dellby, O. L. Krivanek, M. F.Murfitt, Z. S. Szilagyi, A. R. Lupini, A. Borisevich, W. H. Sides Jr., S. J. Pennycook, "Direct sub-angstrom imaging of a crystal lattice," Science, 305,1741 (2004).

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

SC GG 5.22.3



Number of reacting species and billions of grid points in a three-dimensional combustion reacting flow computer simulation, as a part of the Scientific Discovery through Advanced Computing (SciDAC) perform a three-dimensional combustion reacting flow simulation involving more than 44 reacting species and 500,000 grid points.

Commentary: Annual target met. This annual measure refers to our ability to do calculations that replicate real-world conditions for combustion. Metrics for enhanced modeling capabilities are (1) the number of reacting species (the larger the number of species the more realistic the chemical model) and (2) billions of grid points in a three dimensional combustion reacting flow computer simulation (more points enable better description of the fluid dynamics). Results: 44 reacting species and 518,400 grid points.

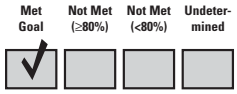
Supporting Documentation: The benchmark simulation was performed at PNNL using 256 processors and a detailed n-heptane chemical mechanism validated for high pressure ignition conditions. These findings were submitted to BES by the SciDAC project leader. The report of the unpublished results resides at BES.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

SC GG 5.22.4



Cost-weighted mean percent variance from established cost and schedule baselines for major construction, upgrade, or equipment procurement projects (Cost variance listed first). (FY04 – <10%, <10%)

Commentary: Annual target met. Results: +1.3% (cost variance) and +0.8% (schedule variance).

Supporting Documentation: The cost-weighted mean percent variances for BES construction projects are better than the established baselines as measured by the Department's established procedures for monitoring project milestones. Reports from the DOE Federal Project Directors on all BES construction projects reside in the files of the Office of Basic Energy Sciences (SC-10).

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Begin construction of one Nanoscale Science Research Center (NSRC), meeting the cost and timetables within 10 percent of the baselines given in the construction project data sheets for Project Number 03-R-312 (SC 4-2a). **Assessment: MET**

- Complete the upgrade of the SPEAR 3 storage ring at the SSRL, maintaining cost and schedule within 10 percent of baselines (SC 7-4A1).
  Assessment: MET

- Continue construction of the Spallation Neutron Source (SNS), meeting the cost and timetables within 10 percent of the baselines given in the construction project data sheet, Project Number 99-E-334. At the end of FY 2003, construction of the SNS will be 61 percent complete (SC 7-4B1).
  Assessment: MET

FY 2002

- Begin engineering and design of three NSRCs. Complete six percent of total Project Engineering Design (PED) AT LBNL, 60% at ORNL, and 24% at SNL by the end of FY 2002.
  Assessment: MET

- Continue upgrades on the major components of the SPEAR 3 storage ring at the Stanford Synchrotron Radiation Laboratory (SSRL), maintaining cost and schedule within 10% of baseline. At the end of the FY 2002, the upgrade of SPEAR 3 will be 70% complete.
  Assessment: MET

- Continue construction of the SNS, meeting the cost and timetables within 10% of the baselines in the construction project data sheet, Project number 99-E-334. At the end of FY 2002, construction of the SNS will be 47% complete.
  Assessment: MET

- Select and begin fabrication of one additional instrument for the SNS.
  Assessment: MET

FY 2001

- Meet the cost and schedule milestones for upgrade and construction of scientific user facilities, including the construction of the SNS.
  Assessment: MET

Associated Annual Target for FY 2004

SC GG 5.22.5 Average achieved operation time of the scientific user facilities as a percentage of the total scheduled annual operating time. (FY04 – >90%)

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Commentary: Annual target met. Results: 91.9% (average annual operating time at BES facilities as a percentage of scheduled time).

Supporting Documentation: Annual report of final FY 2004 operating hours submitted to BES by 7 BES user facilities (3 neutron sources and 4 light sources). These facilities reports reside in the files of the Office of Basic Energy Sciences (SC-10).

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Maintain and operate the BES scientific user facilities so the unscheduled downtime on average is less than 10 percent of the total scheduled operating time. Maintain the cost and schedule milestones within 10 percent for upgrades and construction of scientific user facilities (SC 7-4A2).
  Assessment: MET

FY 2002

- Maintain and operate the BES scientific user facilities so the unscheduled downtime on average is less than 10 percent of the total scheduled operating time. Maintain the cost and schedule milestones within 10 percent for upgrades and construction of scientific user facilities.
  Assessment: MET

FY 2001

- Maintain and operate the scientific user facilities so that the unscheduled downtime average less than 10% of the total scheduled operating time.
  Assessment: MET

Additional Targets from 2003-2001

FY 2003

- Competitively select ad peer review at least 80 percent of all new research projects, using guidelines defined in 10 CFR 605 for the university projects, and similar guidelines established by BES for the laboratory projects (SC 4-1a).
  Assessment: MET

- Competitively evaluate approximately 30 percent of ongoing projects using guidelines defined in 10 CRF 605 for the university projects, and similar guidelines established by BES for the laboratory projects (SC 4-1b).
  Assessment: MET

- As part of the continuing, high-level review of the management processes and the quality, relevance, and the national and international leadership of BES programs, review the materials sciences and engineering activities using a Basic Energy Sciences Advisory Committee (BESAC) chartered Committee of Visitors (SC 4-1c).
  Assessment: MET

- Evaluate the following ongoing efforts using BESAC and BES sponsored workshops, with the goal of directing the activities toward international leadership and relevance to emerging technologies: photovoltaics, hydrogen, electron microscopy, and catalysis (SC 4-1d).
  Assessment: MET

- Through a BESAC-charted workshop on "Basic Research Needs to Assure a Secure Energy Future," evaluate future basic research directions appropriate for all activities of the BES program (SC 4-1e).
  Assessment: MET

- Conduct project engineering design (PED) activities to establish construction baselines on the two other NSRCs (SC 4-2b).
  Assessment: MET

- Establish the instrument suites and identify fabrication capabilities for the new NSRC-based upon user community, based on input at national workshops held in late FY 2001 and FY 2002 (SC 4-2c).
  Assessment: MET

- Select and begin upgrade/fabrication of at least two instruments at the Basic Energy Sciences (BES) synchrotron light sources, based on peer review of submitted proposals, to keep the facilities at the forefront of science. Because the lifetime of an instrument is about 7-10 years, this addresses the need to renew instruments on a regular basis (SC 4-3a).
  Assessment: MET

- Establish collaborative, national Research & Development programs for common needs at the BES synchrotron light sources, e.g., for detectors and other components (SC 4-3b).
  Assessment: MET

- Select and begin fabrication of one additional instrument for the Spallation Neutron Source (SNS) (SC 7-4B2).
  Assessment: MET

- Select and being upgrade/fabrication of one instrument each at the High Flux Isotope Reactor and the Manual Lujan, Jr. Neutron Scattering Center. Commitment at the Lujan Center is conditional upon Los Alamos Neutron Science Center (LANSC) demonstrating reliable operations, as determined by a Basic Energy Science Advisory Committee (BESAC) review to be conducted in FY 2003 (SC 7-4B3).
  Assessment: MET

FY 2002

- Competitively select ad peer review at least 80 percent of all new research projects, and evaluate approximately 30% of ongoing projects using guidelines defined in 10 CFR 605 for the university projects, and similar guidelines established by BES for the laboratory projects.
  Assessment: MET

- As part of the continuing, high-level review of management processes and the quality, relevance, and national and international leadership of BES programs, review chemical sciences activities using a BECAS-chartered Committee of Visitors.
  Assessment: MET

- Evaluate the following ongoing efforts using Basic Energy Science Advisory Committee (BESAC) and BES sponsored workshops, with the goal of direction, the activities toward international leadership and relevance to emerging technologies: superconductivity. Publish results and continue to structure BES programs in accordance with these results.
  Assessment: MET

- Award 40 grants to universities and six projects at DOE laboratories in selected areas of nanoscale science, engineering, and technology.
  Assessment: MET

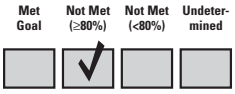
FY 2001

- Use expert advisory committees and rigorous peer review committees to ascertain that the research performed by investigators in universities and DOE laboratories is focused and outstanding. An additional indicator of the success of our scientific research is recognition through the awards received by our researchers and by the broader scientific community.
  Assessment: MET

- Initiate 76 grants to universities (from 417 grant applications) and 12 projects at DOE laboratories (from 46 Field Work Proposals) in selected areas of nanoscale science, engineering, and technology.
  Assessment: MET

PROGRAM GOAL:

SC GG 5.23

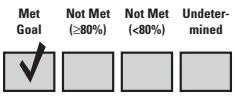


ADVANCED SCIENTIFIC COMPUTING RESEARCH PROGRAM: Deliver forefront computational and networking capabilities to scientists nationwide that enable them to extend the frontiers of science, answering critical questions that range from the function of living cells to the power of fusion energy.

Commentary: Progress continues to be made towards making scientific computing a true third pillar of discovery, joining theory and experiment as a standard tool that researchers rely upon to make scientific progress.

Associated Annual Target for FY 2004

SC GG 5.23.1



Maintain Procurement Baselines. Percentages within (1) original baseline cost for completed procurements of major computer systems or network services, and (2) original performance baseline versus integrated performance over the life of the contracts. (- FY04 – <10%, 10%)

Commentary: Annual target met. There were no procurements of major computer systems in FY04. The number of major procurements in a given year is small; therefore, many quarters do not include major procurements. There are some major procurements that were scheduled for FY04, that have been moved to FY05. We will continue to follow this annual target, with milestones into FY05.

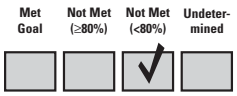
Supporting Documentation: LBNL and ORNL Accounting Systems.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

SC GG 5.23.2



Focus usage of the primary supercomputer at the National Energy Research Scientific Computing Center (NERSC) on capability computing. Percentage of the computing time used that is accounted for by computations that require at least 1/8 of the total resource. (- FY04 – 50%)

Commentary: Annual target not met, result 47% for the year. However, the Quarterly Milestone was met. Actual figure in the fourth quarter of FY04 was 66.1%.

Supporting Documentation: NERSC Webpage. http://www.nersc.gov.

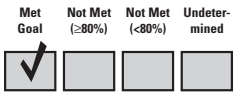
Plan of Action: Starting June 1, 2004, large runs were only being charged for 50% of the hours used. This action lead to a FY04 fourth quarter result of 66% usage. Will continue this policy, along with other INCITE efforts for FY05. However, based on FY04 experience, will lower annual goal from 50% to 40% of NERSC usage is associated with programs using at least 1/8 of the machine.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Associated Annual Target for FY 2004

SC GG 5.23.3



Improve Computational Science Capabilities. Average annual percentage increase in the computational effectiveness (either by simulating the same problem in less time or simulating a larger problem in the same time) of a subset of application codes within the Scientific Discovery through Advanced Computing (SciDAC) effort. (FY04 – >50%)

Commentary: Annual target met. Selected suite of SciDAC applications has been benchmarked to determine initial performance and current capability. Measured increases in effectiveness ranged from 28% to 360% with an average increase of approximately 200%.

Supporting Documentation: Test reports on selected codes.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Additional Targets from 2003-2001

FY 2003

- Complete the definitive analysis of the advantages and issues associated with lightweight kernel operating systems, rather than full kernels for the compute nodes of extreme-scale scientific computers, resolving a critical issue for the future of high performance computers in the U.S. (SC 5-1a).
  Assessment: MET

- Begin installation of next generation National Energy Research Scientific Computing Center (NERSC) computer, NERSC-4, that will at least double the capability available to solve leading edge scientific problems (SC 5-2a).
  Assessment: MET less than 80% of the Target

- Initiate at least five competitively selected interdisciplinary research teams to provide computational science and applied mathematics advances that will accelerate biological discovery in microbial systems or develop the next generation of computational tools required for nanoscale science, based on peer review of submitted proposals (SC 5-2b).
  Assessment: MET

- Complete the review of ASCR high performance computing facilities by the Advanced Scientific Computing Advisory Committee (ASCAC) and implement action plans to respond to recommendations (SC 7-5b).
  Assessment: MET

- Maintain and operate facilities, including NERSC and Energy Sciences Network (ESnet), so the unscheduled downtime on average is less than 10 percent of the total scheduled operating time (SC 7-5a).
  Assessment: MET

FY 2002

- Complete the development of the Cougar lightweight kernel for clusters of Alpha processor-based computers, and begin the assessment of scalability and performance for selected applications.
  Assessment: MET

- Achieve operation of the IBM-SP computer at 5.0 teraflop "peak" performance. These computational resources will be integrated by a common high performance file storage system that facilitates interdisciplinary collaborations. Transfer the users with largest data processing and storage needs to the IBM-SP from the previous generation Cray T3E.
  Assessment: MET

- Deliver preliminary report on Advanced Scientific Computing Advisory Committee (ASCAC) review of ASCR high performance computing facilities.
  Assessment: MET

- Maintain and operate facilities, including NERSC and ESnet, so the unscheduled downtime on average is less than 10% of the total scheduled operating time.
  Assessment: MET

FY 2001

- Initiate project to understand the advantages and issues associated with lightweight kernel operating systems rather than full kernels for the compute nodes of extreme-scale scientific computers.
  Assessment: MET

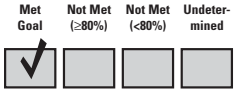
- Initiate the review of ASCR high performance computing facilities by the ASCAC.
  Assessment: MET

- Operate facilities, including the National Energy Research Scientific Computing Center (NERSC) and ESnet, within budget while meeting user needs and satisfying overall SC program requirements. NERSC delivers 3.6 teraflop capability at the end of FY 2001 to support DOE's science mission.
  Assessment: Exceeded Goal

- Expand and increase access to published and preprinted scientific and technical information via cost-effective, specialized information retrieval systems, resulting in a 25% increase in users served.
  Assessment: Exceeded Goal

PROGRAM GOAL:

SC GG 5.24

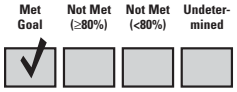


FUSION ENERGY SCIENCES PROGRAM: Answer the key scientific questions and overcome enormous technical challenges to harness the power that fuels a star, realizing by the middle of this century a landmark scientific achievement by bringing "fusion power to the grid."

Commentary: Progress continues to be made towards developing a science-based solution that harnesses fusion energy to power our industries and homes.

Associated Annual Target for FY 2004

SC GG 5.24.1



Average achieved operation time of the major national fusion facilities as a percentage of the total planned operation time. (FY04 – >90%)

Commentary: Annual target met. Results: DIII-D--Yes. Operated for 7.2 weeks this quarter, completing a total of 18.2 weeks for all of FY 2004. This exceeds the planned 18 weeks of operation. C-Mod--Yes. Completed 19 weeks of operations, exceeding the target of 18. NSTX--Yes. Operated for 5.1 weeks and achieved a total of 21.1 weeks, exceeding the goal of 18 weeks.

Supporting Documentation: http://www.ofes.fusion.doe.gov/ProgramTargets/ProgramTargets.htm.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Keep deviations in weeks of operation for each major facility within 10 percent of the approved plan (SC 7-6b).
  Assessment: MET less than 80% of the target.

FY 2002
- Keep deviations in weeks of operation for each major facility within 10 percent of the approved plan.
  Assessment: MET

FY 2001
- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

SC GG 5.24.2 Cost-weighted mean percent variance from established cost and schedule baselines for major construction, upgrade, or equipment procurement projects. (FY04 – <10%,<10%)

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Commentary: Annual target met. Results: The NCSX MIE cost and schedule variance for FY 2004 was approximately 5% for both cost and schedule, which met the FY 2004 Joule Target of <10%. The final designs for the Vacuum Vessel Subassembly and the Modular Coil Winding Forms were also completed, and Critical Decision (CD)-3 "Start of Construction" was approved.

Supporting Documentation: http://www.ofes.fusion.doe.gov/ProgramTargets/ProgramTargets.htm.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- Keep deviations in cost and schedule for upgrades and construction of scientific user facilities within 10 percent of approved baselines (SC 7-6a).
  Assessment: MET

FY 2002
- Keep deviations in cost and schedule for upgrades and construction of scientific user facilities within 10 percent of approved baselines.
  Assessment: MET

FY 2001
- There were no related annual targets in FY 2001.

Additional Targets from 2003-2001

FY 2003
- Complete installation of internal coils for feedback control of plasma instabilities on DIII-D (SC 6-1a).
  Assessment: MET

- Conduct a first set of experiments demonstrating the effectiveness of these coils in controlling plasma instabilities, and compare the results with theoretical predictions (SC 6-1b).
  Assessment: MET

- Produce high temperature plasmas with five megawatt of Ion Cyclotron Radio Frequency (ICRF) power for pulse lengths of 0.5 seconds in the Alcator C-Mod. Assess the stability and confinement properties of these plasmas, which would have collisionalities in the same range as that expected for the burning plasma regime (SC 6-1c).
  Assessment: MET

- Complete the testing of the High-Power Prototype advanced ion-cyclotron radio frequency antenna that will be used at the Joint European Torus (JET) (SC 6-2a).
  Assessment: MET

- Complete preliminary experimental and modeling investigations of nano-scale thermodynamic, mechanical, and creep-rupture properties of nano-composited ferritic steels (SC 6-2b).
  Assessment: MET

- Complete the National Compact Stellarator Experiment (NCSX) Conceptual Design, and begin the Preliminary Design (SC 7-6c).
  Assessment: MET

FY 2002

- Use recently upgraded plasma microwave heating system and new sensors on DIII-D to study feedback stabilization of disruptive plasma oscillations.
  Assessment: MET

- Successfully demonstrate innovative techniques for initiating and maintaining current in a spherical torus.
  Assessment: MET

- Complete design and fabrication of the High-Power Prototype advanced ion-cyclotron radio frequency antenna that will be used at the Joint European Torus (JET).
  Assessment: Mixed Results

- Complete measurements and analysis of thermal creep of Vanadium Allow (V-4Cr-4Ti) in vacuum and lithium environments; determine controlling creep mechanisms and access operating temperature limits.
  Assessment: MET

- Successfully complete within cost and in a safe manner all TFTR decontamination and decommissioning activities.
  Assessment: MET

FY 2001

- Complete, by June 2001, the 6 MW power upgrade of the DIII-D microwave system, and initiated experiments with it to control and sustain plasma current profiles, with the goal of maintaining improved confinement of plasma energy for longer periods of time.
  Assessment: Below Expectations

- Improve nonlinear magnetohydrodynamics codes to be capable of computing the effect of realistic resistive walls and plasma rotation on advanced Tokamak pressure limits.
  Assessment: MET

- Evaluate first physics results from the innovative Electric Tokamak at the University of California Los Angeles (UCLA) to study fast plasma rotation and associated radial electric fields due to radio frequency - drive, in order to enhance plasma pressure in sustained, stable plasmas.
  Assessment: MET

- Initiate a new U.S.-Japan collaborative program for research on enabling technologies, materials, and engineering science for an attractive fusion energy source.
  Assessment: MET

- Complete the DOE-Japan Atomic Energy Research Institute (JAERI) collaboration on fusion plasma chamber exhaust processing in the Tritium Systems Test Assembly (TSTA) facility at Los Alamos National Laboratories (LANL).
  Assessment: MET

- By June 2001, enter into a new NSF/DOE Partnership in Basic Plasma Science and Engineering to provide continuity after the existing agreement.
  Assessment: Not MET

- Achieve planned cost and schedule performance for dismantling, packaging, and offsite shipping of the Tokamak Fusion Test Reactor (TFTR) systems.
  Assessment: MET

- Keep deviations in cost and schedule for upgrades and construction of scientific user facilities within 10% of approved baselines.
  Assessment: MET

- Keep deviations in weeks of operation for each major facility within ten percent of the approved plan.
  Assessment: MET

General Goal 6: Environmental Management

Accelerate cleanup of nuclear weapons manufacturing and testing sites, completing cleanup of 108 contaminated sites by 2025.

Summary of FY 2004 Annual Performance Targets

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
5	1	3	0

FY 2004 Program Costs ($ in Millions): Goal 6 Costs: $6,283
FY 2003 Program Costs ($ in Millions): Goal 6 Costs: $6,287

PROGRAM GOAL:

EM GG 6.18

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
		✓	

ENVIRONMENTAL MANAGEMENT: Based on EM's accelerated risk reduction and site closure initiative, EM is targeting 89 and 100 geographic sites to be completed by the end of FY 2006 and FY 2012, respectively.

Commentary: FY04 targets were exceeded for four measures: packaging of plutonium metal or oxide for long-term storage, packaging of spent nuclear fuel for final disposition, disposal of low-level waste and low-level mixed waste, and release site completions demonstrating EM's commitment toward accelerating site cleanup. EM conversely had four measures for which the targets were not met. One measure, radioactive facility completions, was listed as yellow, and three measures were listed as red: packaging of bulk plutonium or uranium residues for disposition, closure of liquid waste tanks, and shipment of transuranic (TRU) waste to the Waste Isolation Pilot Plant (WIPP) for final disposition.

For the radioactive facility completion measure, EM was one facility shy of meeting its FY 2004 target. However, EM is cumulatively on track with its lifecycle schedule for this measure.

For packaging of plutonium or uranium residues, EM is actually on track to complete this measure in accord with its life-cycle schedule since Hanford's accelerated work schedule resulted in work planned for FY04 to be completed in FY03.

Regarding closure of the waste tanks, DOE was unable to perform any work due to the Waste Incidental to Reprocessing (WIR) lawsuit. However, on November 5, 2004, the 9th Circuit Court of Appeals overturned the District Court's decision and directed the Court to dismiss the lawsuit. In addition, the FY 2005 National Defense Authorization Act allows DOE to continue tank waste cleanup at the Savannah River Site and Idaho National Laboratory.

With respect to the shipment and disposition of TRU waste, most of the negative variance results from suspension of TRU waste shipments from Idaho due to certification and procedure implementation issues, and from Los Alamos National Laboratory due to waste characterization issues. Both sites worked with the Carlsbad Field Office to resolve the issues and were able to resume TRU waste shipments by the third quarter of FY04. While Rocky Flats, Hanford and Savannah River Site are ahead of schedule for this measure, the EM Complex was not able to recover schedule in FY04. None-the-less, EM's legacy TRU waste shipment and disposition project is still on track for completion by FY 2010.

Associated Annual Target for FY 2004

EM GG 6.18.1 Package 1,323 containers of plutonium metal or oxide for long-term storage, bringing the total number of containers packaged to 5,872.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
✓			

Commentary: In FY 2004, 1,620 containers of plutonium metal or oxide were packaged for long-term storage. The EM Complex met its target for FY04, and in fact completed more work than planned at Savannah River Site. In addition, EM has been packaging more waste per container than originally planned. Work at Richland has been completed for this measure. Accomplishment of this measure will result in the Department meeting its goals for accelerated closure.

Supporting Documentation: Data Acquisition Systems Printout of Canisters Inspected. [UCNI documentation also available at secured locations.]

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- Package 2,836 containers of plutonium metals or oxide for long-term storage (EM 1 -3a).
  Assessment: MET

FY 2002
- Stabilize 110 containers of plutonium metals/oxides and 17,225 kilograms bulk of plutonium residues.
  Assessment: MET

FY 2001
- Stabilize 510 containers of plutonium metals/oxides and 29,456 kilograms bulk of plutonium residues.
  Assessment: Below Expectations

Associated Annual Target for FY 2004

EM GG 6.18.2 Package 254 kilograms of bulk plutonium or uranium residues for disposition, bringing the total kilograms packaged to 107,913.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
		✓	

Commentary: In FY 2004, 79 kilograms of bulk plutonium or uranium residues were packaged for disposition. While Joule reports this target as not being met, EM is on track with the lifecycle schedule for this measure since in FY 2003, Hanford accelerated and completed the remaining lifecycle work for this metric. With completion of all scheduled lifecycle work in FY 2003, the representation in Joule of a FY 2004 first quarter milestone of 176 for Hanford was no longer accurate and overestimated the amount of work EM planned to do in FY04. EM's internal configuration controlled annual target for FY 2004 of 78 kg bulk at Savannah River Site was accomplished in FY04. Accomplishment of this measure will result in the Department meeting its goals for accelerated closure.

Supporting Documentation: Process Ledger combined with Facility Inventory.

Plan of Action: No action plan is needed since Hanford completed all remaining work for this measure ahead of schedule during FY 2003, which resulted in variances for FY 2004. Savannah River completed its scheduled FY 2004 work as planned.

Related Annual Targets (FY 2003 - FY 2001)

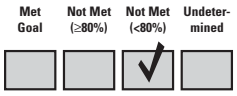
FY 2003
- Package 934 kilograms of plutonium or uranium residues for disposition (EM 1-3c).
  Assessment: MET

FY 2002
- Related FY 2002 targets are included in the "Related Annual Targets" for FY 2004 target EM GG 6.18.1.

FY 2001
- Related FY 2001 targets are included in the "Related Annual Targets" for FY 2004 target EM GG 6.18.1.

Associated Annual Target for FY 2004

EM GG 6.18.3 Close 9 liquid waste tanks, bringing the total number of tanks closed to 11.



Commentary: In FY 2004, no liquid waste tanks were closed. EM did not meet its target. The negative variance is due to the Waste Incidental to Reprocessing (WIR) lawsuit, which is preventing the closure of tanks. Not accomplishing this measure as scheduled, could result in the Department not meeting its goals for accelerated cleanup.

Supporting Documentation: Written verification from South Carolina Department of Health and Environmental Control (SCDHEC) Regulator documenting approval of closed/emptied tank.

Plan of Action: The Department appealed the 2003 Idaho District Court decision. On November 5, 2004, the 9th Circuit Court of Appeals overturned the District Court's decision and directed the Court to dismiss the lawsuit. In addition, the FY 2005 National Defense Authorization Act allows DOE to continue tank waste cleanup at the Savannah River Site and the Idaho National Laboratory.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- Close one liquid waste tank (EM 1-2b).
  Assessment: Met less than 80% of the Target

FY 2002
- There were no related annual targets in FY 2002.

FY 2001
- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

EM GG 6.18.4 Packaged 633 metric tons of spent nuclear fuel for disposition, bringing the total number of metric tons packaged to 2,079.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Commentary: In FY 2004, 649 metric tons of spent nuclear fuel were packaged for disposition. While increasingly degraded fuel encountered at Hanford contributed to increased production time, EM implemented procedural changes and was able to meet the FY04 target. Accomplishment of this measure will result in the Department meeting its goals for accelerated cleanup.

Supporting Documentation: Nuclear Material Item Transfer forms.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- Package 857 metric tons of heavy metal of spent nuclear fuel for disposition (EM 1-3d).
  Assessment: Met at or above 80%, but less than 100% of the Target

FY 2002
- Move to dry storage 601 metric tons of heavy metal (MTHM) of spent nuclear fuel (SNF).
  Assessment: Mixed Results

FY 2001
- Move to dry storage 195 metric tons of heavy metal (MTHM) of spent nuclear fuel (SNF).
  Assessment: Exceeded Goal

Associated Annual Target for FY 2004

EM GG 6.18.5 Ship 12,952 cubic meters of transuranic (TRU) waste for disposition, bringing the total number of cubic meters shipped to 27,044.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☐	☐	☑	☐

Commentary: In FY 2004, 7,061 cubic meters of TRU waste was shipped for disposition. Most of the negative variance results from Idaho's suspension of TRU waste shipments from the Advanced Mixed Waste Treatment Project (AMWTP) shortly after receiving waste shipment certification in March of FY 2004. The suspension resulted from certification and procedure implementation issues. After performing a root cause analysis and working with the Carlsbad Field Office (CBFO) to resolve certification and procedure implementation issues, Idaho's AMWTP received approval to begin shipping TRU waste to WIPP and became fully operational in the 3rd quarter of FY 2004.

Los Alamos National Laboratory (LANL) resumed shipments of TRU waste to WIPP in the 3rd quarter of FY 2004. LANL worked with the Central Characterization Project (CCP) at LANL, run by the CBFO to rewrite procedures and train personnel to perform to the CCP procedures. LANL successfully completed the recertification audit conducted by CBFO and the Environmental Protection Agency (EPA)at the end of April 2004.

Rocky Flats, Hanford, and Savannah River are ahead of schedule.

While the measure was not accomplished in FY04, the Department is on track to meets its goals for accelerated cleanup.

Supporting Documentation: Off-site shipping manifests.

Plan of Action: While the EM complex was not able to recover schedule in FY04, EM's Legacy TRU Waste project is still on track for completion by FY 2010.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- Ship 4,135 cubic meters of transuranic waste to the Waste Isolation Pilot Plant (WIPP) (EM 1-2d).
  Assessment: MET

FY 2002
- Ship 4,709 cubic meters of TRU waste to WIPP for disposal.
  Assessment: MET

FY 2001
- Ship 2,425 cubic meters of TRU waste to WIPP for disposal.
  Assessment: Below Expectations

Associated Annual Target for FY 2004

EM GG 6.18.6

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Dispose of 89,815 cubic meters of low-level waste (LLW) and mixed low-level waste (MLLW), bringing the total number of cubic meters disposed to 492,383.

Commentary: In FY 2004, 212,905 cubic meters of low-level waste and mixed low-level waste were disposed. The EM Complex met its FY 2004 target and is cumulatively ahead of its life-cycle schedule for this measure. This acceleration is largely due to Rocky Flats having disposed of more than double its planned volume of low-level and low-level mixed waste. Several other sites are also ahead of schedule including Oak Ridge and Idaho. Accomplishment of this measure will result in the Department meeting its goals for accelerated cleanup.

Supporting Documentation: Off-site shipping manifests.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- Dispose of approximately 78,388 cubic meters of low-level waste/mixed low-level waste (EM 1-2e).
  Assessment: MET

FY 2002
- Dispose of approximately 8,446 cubic meters of MLLW.
  Assessment: Mixed Results
- Treat approximately 2,765 cubic meters of MLLW.
  Assessment: Mixed Results
- Dispose of approximately 76,655 cubic meters of LLW.
  Assessment: MET

FY 2001

- Dispose of approximately 8,271 cubic meters of MLLW.
  Assessment: Below Expectations

- Treat approximately 4,814 cubic meters of MLLW.
  Assessment: Nearly Met Goal

- Dispose of approximately 47,908 cubic meters of LLW.
  Assessment: Exceeded Goal

Associated Annual Target for FY 2004

EM GG 6.18.7 Complete 45 radioactive facilities, bringing the total number of facilities completed to 193.

Commentary: In FY 2004, 44 radioactive facilities were completed. While the EM Complex was one facility shy of meeting its FY 2004 target, it is cumulatively on track with the lifecycle schedule for this measure. Maintaining the lifecycle schedule for this measure will result in the Department meeting its goals for accelerated cleanup.

Supporting Documentation: Completion report delivered to State and Federal regulatory agencies.

Plan of Action: EM will continue to focus its efforts and resources on accelerating completion of radioactive facilities in FY 2005 and beyond in order to maintain its lifecycle schedule.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Complete 10 radioactive facilities (EM 1-1d).
  Assessment: MET

FY 2002

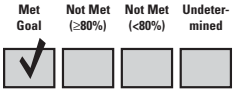
- There were no related annual targets in FY 2002.

FY 2001

- There were no related annual targets in FY 2001.

Associated Annual Target for FY 2004

EM GG 6.18.8 Complete 200 release sites, bringing the total number of release sites completed to 5,388.



Commentary: In FY 2004, 300 release sites were completed. The EM Complex met its FY04 target and is cumulatively ahead of its lifecycle schedule for this measure. This acceleration is largely due to accelerating release site completions at Rocky Flats, Hanford, and Sandia. Accomplishment of this measure will result in the Department meeting its goals for accelerated cleanup.

Supporting Documentation: Completion report delivered to State and Federal regulatory agencies.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003
- Complete 193 release sites (EM 1-1b).
  Assessment: MET

FY 2002
- Complete 113 release sites.
  Assessment: MET

FY 2001
- Complete 196 release sites.
  Assessment: Nearly met

Additional Targets from 2003-2001

FY 2003
- Complete remediation at two additional geographic sites, the Maxey Flats Disposal Site in Kentucky and the Salmon Site in Mississippi, increasing the total completed to 77 of the 114 geographic sites (EM 1-1a).
  Assessment: Met less than 80% of the Target

- Complete two nuclear facilities (EM 1-1c).
  Assessment: MET

- Complete 43 industrial facilities (EM 1-1e).
  Assessment: MET

- Eliminate 700,000 gallons of liquid waste (EM1-2a).
  Assessment: Met less than 80% of the Target.

- Package 130 containers of high-level waste for final disposition (EM 1-2c).
  Assessment: Met at or above 80%, but less than 100% of the Target

- Package 283 containers of enriched uranium for long-term storage (EM1-3b).
  Assessment: Met less than 80% of the Target

- Package 1,815 metric tons of depleted and other uranium for disposition (EM 1-3e).
  Assessment: MET

FY 2002
- Complete remediation at one additional geographic site, the Weldon Spring Site in Missouri.
  Assessment: MET

- Conduct a top-to-bottom review of the Environmental Management program to ensure a proper and clear focus of the mission programmatic goals and objectives.
  Assessment: MET

- Update EM Infrastructure Restoration Plan to support 10 year facilities and infrastructure planning.
  Assessment: MET

- Complete action addressing safety and health issues at Paducah from 1990 forward (Phase 1).
  Assessment: MET

- Complete 42 facility decommissioning projects.
  Assessment: MET

- Deactivate 30 facilities.
  Assessment: MET

- Produce 205 canisters of HLW.
  Assessment: Not Met

FY 2001

- Complete remediation at three geographic sites.
  Assessment: MET

- Complete actions addressing safety and health issues at Paducah from 1990 forward (Phase I).
  Assessment: MET

- Complete 28 facility decommissioning.
  Assessment: MET

- Deactivate 20 facilities.
  Assessment: Exceeded Goal

- Produce 225 canisters of HLW.
  Assessment: MET

PROGRAM GOAL:

LM/WT EQ 4.1

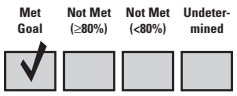
Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

LEGACY MANAGEMENT: Minimize the social and economic impacts on individuals and communities caused by changes in the Department's work force by (1) providing 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 community to diversify the economy and employ displaced workers.

Commentary: The Office of Legacy Management's target in FY04, relating to the creation and retention of jobs in communities impacted by the Department's change in workforce, was exceeded. This demonstrates the Departments resolve to ensure that the economic impacts to local communities and individual workers are minimized to the extent possible. The Department has put forth much effort to foster new business and economic development in the communities in which it is reducing its presence as a result of completing environmental cleanup and changing mission requirements.

Associated Annual Target for FY 2004

LM/WT EQ 4.1a Support local community transition activities that will create or retain, cumulatively, between 30,500 and 31,000 private sector jobs by the end of FY 2004.



Commentary: The Worker and Community Transition Program has exceeded its FY04 target of saving or retaining jobs in the communities affected by DOE's work force actions for a cumulative total over ten years of 34,700 jobs. This directly contributes to the minimization of social and economic impacts to individuals and communities by creating and retaining jobs in the community to diversify the economy and employ displaced workers.

Supporting Documentation: Supporting documentation for the reported number of jobs is contained in the report "Semi-Annual Report, FY 2004" which provides a project-by-project report of the number of jobs created or retained. This documentation is retained in the Office of Legacy Management.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

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General Goal 7: Nuclear Waste

License and construct a permanent repository for nuclear waste at Yucca Mountain and begin acceptance of waste by 2010.

Summary of FY 2004 Annual Performance Targets

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
2	0	0	0

FY 2004 Program Costs ($ in Millions): Goal 7 Costs: $530
FY 2003 Program Costs ($ in Millions): Goal 7 Costs: $421

PROGRAM GOAL:

RW GG 7.25 *NUCLEAR WASTE DISPOSAL*: License and construct a permanent repository for nuclear waste at Yucca Mountain and begin acceptance of waste by 2010.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
✓			

Commentary: OCRWM continues to make progress toward the goal of opening a deep geologic repository and beginning waste acceptance. The Department intends to submit to the NRC a license application for the Yucca Mountain repository as soon as possible after we have resolution on the approach to address the lack of an EPA Standard. The opening date of the repository will depend on a number of factors, including: the implementation of an EPA Standard, the ability to begin early construction of site support facilities/utilities, and an adequate funding profile.

Associated Annual Target for FY 2004

RW GG 7.25.1 Complete draft license application (September 30, 2004).

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
✓			

Commentary: A draft License Application (LA) was produced by DOE's contractor on July 26, 2004. The creation of an initial draft LA in FY 2004 was a critical first step towards our ultimate goal of submitting a final LA to NRC because it permits OCRWM to review the numerous diverse chapters as part of a comprehensive document. DOE's initial review of the draft LA provided by the contractor suggests that there is additional significant work to be done before a license application can be submitted to the NRC. In addition, because of the invalidation of the EPA Standard, it has become clear that completing a full draft license application that would meet NRC requirements by December 2004 is not possible at this time because key aspects of the standards against which the repository is to be licensed are yet to be determined. OCRWM will continue to work with its contractor to refine the application and prepare a final draft.

Supporting Documentation: The July 26, 2004 letter to John Arthur from John Mitchell, President and General Manager of Bechtel/SAIC Company, LLC, transmitting a draft License Application.

Related Annual Targets (FY 2003 - FY 2001)

FY 2003

- Complete additional testing and analysis required to support license application design (RW 2-1a).
  Assessment: Met less than 80% of the Target

- Complete development of repository conceptual design and request Acquisition Executive approval to start preliminary design, which will be used in the license application (RW 2-1b).
  Assessment: MET

- Complete and issue updated Total System Life Cycle Cost and Fee Adequacy reports in preparation for license application (RW 2-1c).
  Assessment: MET

FY 2002

- Submit a Final Environmental Impact Statement to the President as required by the Nuclear Waste Policy Act (NWPA).
  Assessment: MET

- Begin development of updated Total System Life Cycle Cost and Fee Adequacy Reports.
  Assessment: MET

FY 2001

- Complete the scientific and technical documents that will provide the technical basis for a possible site recommendation.
  Assessment: MET

- Complete and issue Total System Life Cycle Cost and Fee Adequacy reports.
  Assessment: MET

Associated Annual Target for FY 2004

RW GG 7.25.2 Approve the Transportation Project Plan (September 30, 2004) for internal use by the Director of the National Transportation Program.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☑	☐	☐	☐

Commentary: Issuance of the Office of National Transportation (ONT) Project Plan culminates a year-long effort to identify describe the major transportation projects, subprojects and supporting activities; key milestones, and associated funding profiles. The Plan is an important tool for effective implementation and management of the National Transportation Project, monitoring its progress, preparing for CD-2, and facilitating the further planning required to support initiation of waste acceptance. The Plan establishes an "operating baseline" for the cost and schedule components of the project which will suffice for management control purposes at this stage of the Program.

Supporting Documentation: The September 30, 2004 memorandum from Victor Trebules to Gary Lanthrum, Director, Office of National Transportation, that transmits and approves the "Office of National Transportation, Transportation Project Plan, Revision 0" and its supporting attachment.

Related Annual Targets (FY 2003 - FY 2001)

There were no related annual targets in FY 2003 - 2001.

Additional Targets from 2003-2001

FY 2003

- Develop and issue the OCRWM Transportation Strategic Plan (RW 2-2b).
  Assessment: Met less than 80% of the Target

FY 2002

- Submit a Site Recommendation Report to the President.
  Assessment: MET

- Issue Nuclear Waste Policy Act Section 180(c) Notice of Revised Proposed Policy and Procedures for public comment.
  Assessment: Not Met

- Issue draft request for proposals for waste acceptance and transportation services.
  Assessment: MET

FY 2001

- Conduct statutory hearings in the vicinity of Yucca Mountain to inform the residents that the site is under consideration, and to receive comments regarding a possible site recommendation.
  Assessment: MET

- Update all process models and conduct a total system performance assessment for use in the site recommendation.
  Assessment: MET

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Status of Unmet FY 2003 Performance Goals

Goal 1: Nuclear Weapons Stewardship

Measure (PAR)	Description of Goal	FY 2003 PAR (Page No.)	Crosswalk to FY 2004 Target
NS 1-1b	Meet all annual weapons maintenance, refurbishment, and dismantlement schedules developed jointly by the DOE and DOD.	83	DP GG 1.27

Status: Unmet. The unmet deliverables pertained to the W80 Life Extension Program (LEP). On March 17, 2004, the Nuclear Weapons Council approved a rebaselined W80 LEP and revised schedule. The W80 LEP is now scheduled for completion in 2015. **Plan of Action:** Carry out W80 LEP according to the nuclear Weapons Council's revised schedule.

NS 1-2a	Meet the critical FY 2003 Campaign performance targets contained in the NNSA Future-Year Nuclear Security Plan (FYNSP).	85	DP GG 1.28

Status: Partially Met. Of the 57 critical FY 2003 Campaign deliverables contained in the NNSA FYNSP, 54 were completed, 2 were cancelled and one was downsized. Digital Radiography and Computerized Tomography for pit characterization) was cancelled when the related project (Materials Stewardship) was cancelled; and one (Finalize design criteria in support of the subprojects making up the Special Materials Capability Project) was cancelled when the Materials Campaign was cancelled as part of a realignment of responsibilities. The downsized deliverable, "complete measurements of neutron capture cross sections on 234U and 236U, using the Dance Detector system over the late time neutron energy range" has been deferred to FY 2005.

Goal 2: Nuclear Non-Proliferation

NS 2-2a	Expedite the retrieval of spent nuclear fuel from Central Asia.	93	NN GG 2.44

Status: Unmet. A new Russian law requires an environmental impact statement (EIS) before the fuel can be returned to Russia. The Russian Federation is currently working to complete the EIS that includes any impact of the transportation routes through neighboring countries and is not expected to be completed until the beginning of fiscal year (FY) 2005. **Plan of Action:** The first spent nuclear fuel shipment will begin first quarter FY 2005, and be completed in the second quarter FY 2005; assuming the EIS is completed on schedule.

NS 2-3a	Complete Title II (detailed) design of the Mixed Oxide Fuel Fabrication Facility (MOX FFF) for disposition of excess U.S. weapons-grade plutonium, and commence down blending of off-specification highly enriched uranium at the Savannah River Site.	95	NN GG 2.47.3

Status: Unmet. Title II design of the US MOX FFF is now scheduled to be completed during the first quarter of FY 2005. While the exact timeframe for resolving the liability issue with Russia is uncertain, we are optimistic that an agreement will be reached in time to enable construction of the U.S.

and Russian MOX FFFs in May 2005. State and DOE have established interim arrangements with the French Government to facilitate the transfer of limited design information to permit licensing, but not construction, of the Russian MOX facility. **Plan of Action:** NNSA and Duke, Cogema, Stone & Webster (DCS) have established a task force to identify and implement actions necessary to ensure completion of 100% of the licensable design by the end of FY05/1Q.

NS 2-3b	Install Material Protection Control and Accountability (MPC&A) upgrades on nuclear weapons and materials, eliminate weapons-usable materials, and consolidate the number of storage locations for weapons-usable materials into fewer building and sites to improve security in Russia.	96	NN GG 2.46

Status: Met. The FY2003 annual target for NS 2-3b (Install MPC&A upgrades on nuclear weapons and materials, eliminate weapons-usable materials, and consolidate the number of storage locations for weapons-usable materials into fewer building and sites to improve security in Russia) was fully met during FY2004 when the program achieved the remaining targets of 16.5% of the 27 MTs of HEU weapons-usable material was converted to LEU and MPC&A radiation equipment was installed at 46 border sites in Russia.

NS 2-4a	Successfully complete and close down the Soviet-designed reactor safety program.	98	NN GG 2.44

Status: Unmet. Sixteen projects have been completed in FY 2004. Plan of Action: The remaining four projects are expected to be completed in the first quarter of FY 2005. These four projects are the RBMK Safety Parameter Display System, Ignalina Safety Parameter Display System, Novovoronezh Safety Parameter Display System; and Russian circuit breakers. These projects are funded with FY 2003 uncosted balances. Source of Information: PNNL monthly status report.

Goal 4: Energy Security

ER 1-4d	Conduct four rulemakings to amend appliance standards and test procedures.	119	EE GG 4.04.5

Status: Unmet. Three rulemakings were conducted (Commercial Unitary Central Air Conditioning, Distribution Transformers, and Residential Furnaces). The fourth rulemaking is no longer required due to a court case supporting the reinstatement of the 13 SEER regulations for niche products. The court case was argued on January 29, 2003 and decided on January 13, 2004. The 13 SEER regulations were reinstated.

ER 2-3b	Establish testing program at three existing gasifiers at partner sites for the development and application of technology components e.g. gas clean-up, gas engines, fuel cells, etc.) that need to be integrated with the gasification components to produce power, fuels, and chemicals.	129	EE GG 4.08.a

Status: Met. Testing programs at three gasifier partner's sites (NREL, Community Power Corporation, and Iowa State University) were established.

ER 2-3d	A 2-cycle engine oil derived from soy oil is commercialized for the emerging bioproducts industry.	130	EE GG 4.08.e

Status: Met. The Commercialization of a soy-based two cycle engine began with the commercial introduction of the AquaLogic 460 in the first quarter of FY 2004.

ER 5-1d	Reduce the number of dry holes drilled in frontier areas, and increase near-term energy security through field testing (three projects) improved oil recovery techniques, seismic (one project), data acquisition (two projects); interpretation (one project) and streamflood simulation (one project) in existing light and heavy oil reservoirs at sites ranging from Alaska to Utah. Initiate full-scale field test of newly developed vibration sonic tool.	155	FE GG 4.57

Status: Unmet. At the end of FY 2003, this target was deficient in two areas. The first deficiency occurred because the operator did not get approval for the Bartlesville formation in the Woolaroc Field, Osage County, OK project from the EPA and therefore the project was shut down. In the first quarter of FY 2004, the horizontal waterflood milestone was completed, all 3 horizontal wells have been drilled and the project is on line. Furthermore, the EPA approved the project on December 2003. All actions for this target have been met.

The second deficiency involved the development of a vibration tool for oil reservoir stimulation. The testing of the prototype was not successful in that it became irretrievably stuck in the hole just prior to the evaluation phase of the test. It was abandoned and the company had no more money (neither did DOE) to build another tool and retest it. No further actions for this unmet target are planned.

ER 6-1b	Add 39.8 million barrels (cumulative from April 2002). EOY crude oil inventory will equal 628 million barrels.	163	FE GG 4.58.1

Status: Met. Target of 628 MMB was achieved during the first quarter of FY 2004 when 14 million barrels of oil were added to the Strategic Petroleum Reserve, bringing the total to 638 MMB.

ER 7-1b	Following a competitive process, award at least one industry cost-shared cooperative agreement for technology development and regulatory demonstration activities.	166	NE GG 4.14.1

Status: Met. In November, 2003, the Department issued a competitive solicitation requesting proposals from industry for cost-shared technology development and regulatory demonstration activities. In May 2004, the Department announced an award selection for the Tennessee Valley Authority (TVA) to conduct these activities.

ER 7-4b	Keep cost and schedule milestones for upgrades and construction of key nuclear facilities within 10 percent of approved baselines.	176	NE GG 4.17.2

Status: Unmet. In December, 2003, the Baseline Change Proposal changing the work scope to eliminate Phase 3 was submitted to NE headquarters and approved. Upgrade and construction projects were executed in FY 2004 in accordance with the approved FY 2004 baseline and were within 10 percent of project cost and schedule.

ER 9-2b	Southwestern Power Administration will meet planned repayment of principal on power investment.	184	PMA GG 4.52.2

Status: Unmet. Southwestern's final audited financial statement that includes both the U.S. Army Corps of Engineers and Southwestern's power costs indicated that planned repayment of the Federal power investment was not achieved. Failure to achieve this performance target was due to below average water conditions in the region. **Plan of Action**: Southwestern's future ability to meet this target is dependent on both annual rainfall levels and approved rate adjustments. Southwestern has completed annual power repayment studies for its three power systems and has determined that an increase in revenue is necessary to meet repayment requirements for two of the systems. A Federal Register notice has been issued for public comment. At the end of the public comment period, Southwestern will develop a final rate proposal for the Deputy Secretary of Energy's interior approval and for final approval by the Federal Energy Regulatory Commission. New rates will go into effect January 1, 2005.

Goal 5: Science

SC 1-1b	Complete research and development of two new accelerator systems for the recycler and the Tevatron electron lens.	195	SC GG 5.19

Status: Met. This target was met in FY 2004. The Tevatron Electron Lens task was complete in 2003 and is working as planned. The recycler system was installed in FY 2003, but not commissioned in FY 2003 due to vacuum problems. The recycler system is now complete and has begun operations.

SC 1-2a	Increase the total data delivered to BaBar at the SLAC B-factory be delivering 45 fb-1 of total luminosity.	196	SC GG 5.19.2

Status: Met. The total data delivered to the BaBar detector system in FY 2004 is on pace to exceed the FY 2003 target of 45 fb-1 of total luminosity.

SC 5-2a	Begin installation of next generation NERSC computer, NERSC-4, that will at least double the capability available to solve lading edge scientific problems.	217	SC GG 5.23

Status: Unmet. This project was redirected. A less costly solution of upgrading the existing computer was implemented resulting in more than doubling the capability available to scientists.

SC 7-6b	Keep deviations in weeks of operation for each major facility within 10 percent of the approved plan.	236	SC GG 5.24.1

Status: Unmet. An improved coil design for NSTX was thoroughly reviewed by an external committee and repairs were completed in January 2004. NSTX began operation again at the end of January. All three major fusion facilities are on pace to attain planned operating weeks in FY 2004.

Goal 6: Environmental Management

EM 1-1a	Complete remediation at two additional geographic sites, the Maxey Flats Disposal Site in Kentucky and the Salmon Site in Mississippi, increasing the total completed to 77 of the 114 geographic sites.	239	EM GG 6.18

Status: Unmet. EM has yet to make up the 1 site shortfall (Salmon Site) from its FY03 annual target. While site remediation is complete, EM's criterion for completion and close-out is regulator approval. EM-1 approved the site closure documents and sent the package to the State of Mississippi in May 2004 for approval. State approval is expected in FY05. The delay in this measure will not

impact the lifecycle completion of this activity. **Plan of Action:** The site is currently working with the State of Mississippi in receiving its approval of the cleanup and transfer of the site to the appropriate party.

EM 1-2a Eliminate 700,000 gallons of liquid waste. 243 EM GG 6.18

Status: Unmet. As a result of the Waste Incidental to Reprocessing (WIR) litigation, EM has not yet begun work on this task and therefore has not made up any of the 700,000 gallon shortfall from its FY03 annual target. In FY03, U.S. District Court for the District of Idaho ruled against the Department with respect to the Department's classification of tank waste as "incidental waste," ruling that it violates the Nuclear Waste Policy Act. DOE directed the contractor to stop efforts to close the tanks, and to instead focus efforts on accelerated cleaning of additional emptied liquid waste tanks to prepare them for eventual closure. **Plan of Action:** The Department appealed the 2003 Idaho District Court decision. On November 5, 2004, the 9th Circuit Court of Appeals overturned the District Court's decision and directed the Court to dismiss the lawsuit. In addition, the FY 2005 National Defense Authorization Act provides a statutory mechanism which allows DOE to resume tank waste cleanup at the Savannah River Site and the Idaho National Laboratory.

EM 1-2b Close one liquid waste tank. 244 EM GG 6.18.3

Status: Unmet. As a result of the WIR litigation, EM has not yet begun work on this task and therefore has not made up the 1 tank shortfall from its FY03 annual target. In FY03, U.S. District Court for the District of Idaho ruled against the Department with respect to the Department's classification of tank waste as "incidental waste," ruling that it violates the Nuclear Waste Policy Act. DOE directed the contractor to stop efforts to close tanks, and to instead focus efforts on accelerated cleaning of additional emptied liquid waste tanks to prepare them for eventual closure. **Plan of Action:** The Department appealed the 2003 Idaho District Court decision. On November 5, 2004, the 9th Circuit Court of Appeals overturned the District Court's decision and directed the Court to dismiss the lawsuit. In addition, the FY 2005 National Defense Authorization Act provides a statutory mechanism which allows DOE to resume tank waste cleanup at the Savannah River Site and the Idaho National Laboratory.

EM 1-2c Package 130 containers of high-level waste for final disposition. 244 EM GG 6.18

Status: Unmet. In FY04, EM has made up 10 of the 15 container shortfall from the FY03 target, leaving a shortfall balance of 5 containers of high-level waste to package for final disposition in order to meet its FY03 target. Note that despite fewer than 130 canisters being produced in FY03, actions taken during the year by Savannah River Site resulted in increased canister waste loading. As a result, the 115 canisters produced had a waste loading of 143 equivalent canisters. Therefore, even though the number of containers produced in FY03 was 15 less than target, in terms of waste equivalency, the target would have been exceeded by 13 canisters. **Plan of Action:** EM plans to continue to accelerate work for this metric and will make up the remaining FY03 shortfall of 5 containers in FY05.

EM 1-3b Package 283 containers of enriched uranium for long-term storage. 249 EM GG 6.18

Status: Met. In FY04, EM has made up the 82 container shortfall from its FY03 annual target by exceeding its FY04 target by 249 containers.

EM 1-3d	Package 857 metric tons of heavy metal of spent nuclear fuel for disposition.	250	EM GG 6.18.4

Status: Unmet. In FY04, EM has made up 16 of the 49 MTHM shortfall from its FY03 annual target leaving a shortfall balance of 33 MTHM of spent nuclear fuel to package for disposition in order to meet its FY03 target. **Plan of Action:** EM will continue packaging of spent nuclear fuel at Hanford in FY05 and will make up the remaining FY03 shortfall of 33 MTHM.

Goal 7: Nuclear Waste

RW 2-1a	Complete additional testing and analysis required to support license application design.	252	RW GG 7.25.1

Status: Unmet. This test was not completed in the first quarter of FY04, and it has not been rescheduled. In view of budgetary limitations, all of the planned activities in support of LA were reviewed and it was determined that, while we had hoped and planned to perform the test, it was not absolutely critical to LA submittal, and available funds went to activities that were. The test may be conducted in the future if it is necessary to develop supplemental information during the NRC's LA review, but there are not current plans to do so.

RW 2-2b	Develop and issue the OCRWM Strategic Transportation Plan.	255	RW GG 7.25

Status: Met. The Plan was issued and widely distributed on November 18, 2003.

Performance Deficiencies for Management-Related Annual Targets

CM 2-1d	Improve and Maintain the Department's Secure Telecommunication Capability.	77

Status: Unmet. However, this project will be completed following new phone deliveries that are expected in the third quarter of FY 2005. To complete this target, 25% of STU III secure telephones were to be replaced with more advanced phones by the end of FY 2003. However, due to a delayed appropriation in FY 2004, this project was not funded until February 2004. GSA has ordered the new phones and the OCIO is currently awaiting the deliveries that have a 9 to 12 month lead time.

CM 2-1e	OCIO Staff Skill Sets.	77

Status: Met. To complete this target, 100% of the OCIO staff were to receive Individual Development Plan (IDP) training and training plans were to be developed to address 25% of the common themes identified within the employee IDPs. IDP training was completed for all OCIO employees in the 1st quarter of 2004. Skills needs assessments (SNAs) required for each organization were delayed while discussions with Union and Labor Relations personnel were held to establish preparation guidelines for the SNAs. Upon conclusion of these discussions, IDPs were prepared by employees, approved by management, and a training plan was completed to address 25% of the IDP common themes in the 2nd quarter of 2004. This completes OCIO actions associated with this target.

CM 2-1f	Centralization of IT Operations.	78

Status: Unmet. This mission was transferred to the Office of Legacy Management. To complete this target, the Department was to establish a central repository of closure site records. Responsibility for establishing this facility was transferred from the OCIO to the Office of Legacy Management (LM)

in the 3rd quarter of FY 2003. Since the transfer, LM received a Critical Decision Zero approval in the 2nd quarter of FY 2004 for a FAST Federal Records Storage Capability.

CM 2-1h Strengthen Cyber Security Posture. 79

Current Status: Met. To complete this target, the OCIO was to conduct monthly vulnerability scans of all IT assets, and by the end of FY 2003, implement the Department's Headquarters Program Cyber Security Plan (PCSP). Monthly vulnerability scans were conducted. However, implementation of the PCSP (as evidenced by PCSP sign-off by the CIO) was not achieved until the 1st quarter of FY 2004. This completes OCIO actions associated with this target.

CM 1-2b Identify Future Studies. 79

Current Status: Unmet. Due to the need to resolve DOE management concerns involving implementation of OMB Revised Circular A-76, the principals, DOE and OMB, agreed to partition efforts associated with this target into three new more focused targets addressing A-76 studies, Performance Work Statements, and a Preplanning Study Phase for FY 2004 (ME 1-2a, ME 1-2b, and ME 1-2c).

CM 1-4b Department Strategic Plan. 80

Current Status: Met. As part of the Department's efforts to cascade Strategic Planning goals throughout all levels of the Department, PA&E is overseeing the implementation of the Performance Management Framework. A critical step in the implementation was to issue guidance to programs so they could complete their Program Plans. Program Plans document how each program will accomplish the goals and objectives of the DOE Strategic Plan. Program Plan Guidance was issued in the 1st quarter of 2004. Program plans issued by GPRA unit were submitted to PA&E in the 2nd Quarter of 2004 for evaluation.

CM 5-1b DOE Strategic Plan for Security. 81

Status: Unmet. The 25-Year Security Strategic Plan is currently under review by the two Under Secretaries. SSA had obtained concurrences from all offices subordinate to the Under Secretaries and was awaiting concurrence from the Under Secretaries themselves. However, SSA understands that the Under Secretaries would like to review the Plan in light of recent security incidents and to provide comments for possible modification to ensure the Plan is current. **Plan of Action**: Publish the Plan as soon as senior DOE management approval is obtained and concurrence is received.

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Management-Related Annual Targets

The Department's Strategic and General Goals are accomplished throughout the fiscal year not only through the efforts of the major program offices in the Department, but with additional effort from staff offices that support the programs in carrying out the missions. The Department's staff offices perform critical functions necessary for successfully achieving the Department's programmatic goals and functions. These functions including managing information technology, ensuring sound legal advice and fiscal stewardship, developing and implementing uniform program policy and procedures, maintaining and supporting our workforce, safeguarding our work spaces, and providing Congressional and public liaison.

To accomplish these management objectives, the Department monitored its performance against 29 annual targets related to programs managed by the Office of the Chief Information Officer (CIO), the Office of Environment, Safety and Health (EH), the Office of Management, Budget and Evaluation (OMBE), and the Office of Security (SO). With the exception of the six targets specified below, the Department's performance against its management-related targets was rated at 100%.

Office	Target Number in Joule	Annual Target

CIO CM2-1d Advocate and implement E-government citizen service delivery by improving delivery of IT services.

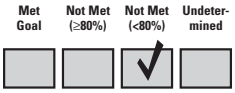
Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☐	☑	☐	☐

Commentary: The annual target was not met. To complete this performance target, OCIO was to complete the eXCITE transition in 2 program offices. The OCIO fully transitioned the Hearings and Appeals Program Office but only completed 65% of the General Counsel Program Office (GC). The Office of the General Counsel is being jointly supported by OCIO and GC support staff with no adverse user impact. The OCIO completed 9 of 10 eXCITE migrations during the fiscal year with the Office of General Council being the only remaining office within the Department yet to complete the migration. With the advent of the eXCITE program, the Department of Energy will realize over a 50% reduction in IT user support costs.

Supporting Documentation: Transmittal of migration completion by Hearings and Appeals Customer Account Manager.

Plan of Action: A plan for completion of the General Counsel (GC) eXCITE migration has been established. In summary, the Office of General Counsel has 556 remaining users to be migrated to the eXCITE Common Operating Environment (COE). For these remaining migrations, the OCIO eXCITE Team is prepared to: 1) Conduct migrations at a rate of 10 per day per the Microsoft project schedule described in the plan either during or after business hours at the discretion of GC. 2) Leave a day between migrations for follow up with users that have just been migrated, so an eXCITE Migration Team member can visit the user to assure all applications and functionality have returned. 3) The OCIO eXCITE Team will continue to utilize the automated Altiris tool as the migration method.

OMBE ME 1-1c Improve Departmental Human Capital Management by implementing comprehensive human resources strategies which will continue the streamlining efforts of the DOE hiring process at HQ through process re-engineering, improved automated recruitment, and other means that reduce the time it takes to issue selection certificates by 20 percent from the FY 2003 baseline.

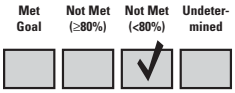


Commentary: A new OPM requirement to implement a 45-day hiring model has superceded previously submitted target for this goal. The DOE tracking system was modified to accommodate OPM's requirements. Implementing guidance and reporting requirements were developed and distributed on September 23, 2004 via email. Data from this process will be analyzed and used in efforts to meet OPM's requirements. The thrust for this goal was changed as a result of the need to implement the OPM 45-day hiring model. Throughout FY 2005, DOE will work toward achieving this 45-day goal.

Supporting Documentation: September 23, 2004 email.

Plan of Action: Develop baseline number of days to hire and compare to 45 day goal.

OMBE ME 1-3c Meet major milestones for the implementation of the Integrated Management Navigation System (I-MANAGE) Standard Accounting and Reporting System (STARS), Standard Budget System (SBS), and I-MANAGE Data Warehouse (IDW) projects.



Commentary: Although the I-Manage implementation schedule was delayed, considerable development and testing was achieved which will contribute to completing the revised schedule and implementation of an integrated financial management system for the Department.

The STARS Project completed two rounds of user acceptance testing. The User Acceptance testing was important in determining the quality of the final STARS product. Using predetermined Success Criteria measured against the User Acceptance Testing results, a STARS Policy Go/No-Go decision was made on August 16, 2004, to delay the STARS deployment.

Supporting Documentation: Mr. C. Simpson email August 17, 2004, 7:54am.

Plan of Action: (1) Conduct pre-deployment activities leading to STARS implementation in Q1, FY 2005. Assess results of an independent Verification and Validation review of the new STARS project plan. Complete deployment in April 2005; 2) Complete SBS design baseline following the selection of the software; 3) Complete IDW/STARS reporting users acceptance testing by the end of Q2 FY 2005; and 4) Conduct user training in IDW/STARS reporting capabilities by the end of Q2 FY 2005.

OMBE ME 1-4a Complete all FY 2004 actions in the FMFIA corrective action plan for the departmental challenge of performance management, thereby eliminating the challenge and the reportable condition for FY 2004.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
			✓

Commentary: The Office of Program Analysis and Evaluation (PA&E) put forth three actions in FY 2004 to address the issues identified in the Reportable Condition. First, the Deputy Secretary issued a memorandum directing program and staff offices to establish or strengthen their internal controls and to ensure data accuracy, proper and available supporting documentation, and well-defined performance measures. Second, PA&E implemented the Performance Management Standard Operating Procedure that provides guidance to the PA&E analysts with regard to submitting, tracking, reviewing, and reporting corporate performance measurement information. And finally, Performance Management training conducted in FY 2004 was provided to the program offices to address the evaluation of their internal controls and performance measurement reporting.

Supporting Documentation: Includes the quarterly DOE course offering announcements, the FMFIA corrective action plan, and the Office of Inspector General Special Report "Management Challenges at the Department of Energy" DOE/IG-0626, dated November 2003. Future documentation for determining the results is the FY 2005 Performance and Accountability Report.

Plan of Action: The status of the reportable condition on performance measurement reporting will not be known until the publishing of the FY 2004 Performance and Accountability Report in FY 2005. If the condition is eliminated, the Department will continue to implement and strengthen the policies and procedures that were developed in FY 2004 to eliminate the reportable condition identified in the FY 2003 Performance and Accountability Report. Failure to eliminate this reportable condition will require the Department to reexamine the causes for the condition's persistence and then develop and implement corrective actions in FY 2005.

SO CM 5-1a Implement increased security protective measures for DOE facilities in the National Capital area including the installation of automated access control systems at the Forrestal and Germantown facilities; the installation of permanent vehicle barriers along Independence Avenue; and initiate the pole wrap project at the Forrestal facility.

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
	✓		

Commentary: Enhancements to physical security, personnel accountability, and technical security systems have resulted in improved operational readiness, improved emergency management and response capabilities, and overall enhanced protection for employees, contractors, and visitors at all Headquarters facilities. Eleven of twelve milestones were completed for successful accomplishment of the annual target. Due to delays in getting contracts placed through the Corps of Engineers, the pole wrap design package was not submitted to the General Services Administration and the National Capital Planning Commission by the end of FY 04.

Supporting Documentation: Includes project completion and acceptance documents and the Statement of Work contained in the Memorandum of Agreement between DOE and the Corps of Engineers.

Plan of Action: Complete and submit the pole wrap design documents to the General Services Administration and the National Capital Planning Commission. Planned Completion Date: end of 1Q FY05.

SO CM 5-1d

Met Goal	Not Met (≥80%)	Not Met (<80%)	Undetermined
☐	☐	☑	☐

Complete and submit for issuance a draft Safeguards and Security (S&S) policy by September 30, 2004, which will focus on required outputs, where appropriate, as opposed to the specific measures to be employed throughout the DOE complex.

Commentary: The consolidation of 27 Safeguards and Security policy documents into an umbrella Order and 7 topical Manuals promotes ease of reference, eliminates conflicts and redundancies in policy, and focuses on performance measures over procedural compliance, where appropriate. Three of four milestones were completed. Comments received on the draft streamlined policy documents are currently being resolved.

Supporting Documentation: Includes the draft umbrella Order and 7 Manuals and comments received during the comment period.

Plan of Action: Resolve all comments and submit (thru the Directives process) the final policy documents for issuance by September 2005.

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U.S. Department of Energy

Performance and Accountability Report

Fiscal Year 2004

FINANCIAL RESULTS

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Message from the Chief Financial Officer

I am pleased to report that for the sixth consecutive year, the Department of Energy has received an unqualified opinion on its consolidated financial statements. The audit was performed by the public accounting firm KPMG LLP, working for the Department's Inspector General. This unqualified opinion provides assurance that the consolidated financial statements fairly present the Department's financial position and results of operations. These statements were prepared in accordance with standards developed by the Federal Accounting Standards Advisory Board and requirements established by the Office of Management and Budget and the Government Management Reform Act of 1994. In addition to receiving an unqualified opinion, we resolved our previously identified reportable condition related to the quality and accuracy of our performance information and have made significant progress in addressing our remaining reportable condition related to unclassified network security. Overall, the audit of the consolidated financial statements confirms our assessment that the Department of Energy maintains effective financial management controls, as no material weaknesses were identified by the auditors.

The Department had an exceptional year. In fiscal year 2004, the Office of Management and Budget announced that the Department of Energy is one of the top cabinet-level agencies in demonstrating progress in implementing the President's Management Agenda. This recognition signifies that the Department has institutionalized sound management practices and focused leadership efforts on organizing for and managing by results. We also successfully met the Office of Management and Budget's challenge to issue our Performance and Accountability Report by November 15, 2004. This accelerated issuance places information on the full extent of our program achievements and financial activities in the hands of our managers and stakeholders a full month earlier than last year.

We completed an evaluation of our financial management system in fiscal year 2004, which provided assurance that our system is in general conformance with governmental requirements. However, we plan to implement a new core financial system and data warehouse in fiscal year 2005 to serve as the cornerstone for enhanced integration of financial and performance information, increased data integrity and internal controls, and improved access to financial information. During this year, we also completed a competitive sourcing study of our financial services function and have just implemented the Department's winning bid. Through consolidation and specialization, this change will create significant efficiencies in operations.

Our commitment to the American people is to manage their resources wisely and effectively. I believe you will find this Performance and Accountability Report demonstrates that the Department of Energy takes this responsibility seriously and, through a sustained focus on results, is working diligently to ensure that taxpayers' dollars are well managed. We expect and look forward to continued improvement in meeting our commitment to the American people in the years to come.

Susan J. Grant
November 15, 2004

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Consolidated and Combined Financial Statements

The Department's financial statements have been prepared to report the financial position and results of operations of the Department of Energy, pursuant to the requirements of the Chief Financial Officers Act of 1990, the Government Management Reform Act of 1994, and the Office of Management and Budget's (OMB) Bulletin No. 01-09, "Form and Content of Agency Financial Statements."

The responsibility for the integrity of the financial information included in these statements rests with the management of the Department of Energy. The audit of the Department's principal financial statements was performed by an independent certified public accounting firm selected by the Department's Office of Inspector General. The auditors' report issued by the independent certified public accounting firm is included in this report.

The following provides a brief description of the nature of each required financial statement.

The *Consolidated Balance Sheets* describe the assets, liabilities, and net position components of the Department.

The *Consolidated Statements of Net Cost* summarizes the Department's operating costs by the seven long-term general goals identified in the Department's FY 2004 Strategic Plan. The Consolidated Statements of Net Cost also reports "Net Cost of Transferred Operations." This amount represents the cost of functions incurred by the Department for programs that were transferred to the Department of Homeland Security as of March 1, 2003, in accordance with the Homeland Security Act of 2002.

All operating costs reported reflect full costs, including all direct and indirect costs, consumed by a program or responsibility segment. The full costs are reduced by earned revenues to arrive at net costs. The Net Cost of Operations is reported on the *Consolidated Statements of Net Cost and also on the Consolidated Statements of Financing.*

The *Consolidated Statements of Changes in Net Position* identify appropriated funds used as a financing source for goods, services, or capital acquisitions. This statement presents the accounting events that caused changes in the net position section of the Consolidated Balance Sheets from the beginning to the end of the reporting period.

The *Combined Statements of Budgetary Resources* identify the Department's budget authority. Budget authority is the authority that Federal law gives to agencies to incur financial obligations that will eventually result in outlays or expenditures. Specific forms of budget authority that the Department receives are appropriations, borrowing authority, contract authority, and spending authority from offsetting collections. The *Combined Statements of Budgetary Resources* provides information on budgetary resources available to the Department during the year and the status of those resources at the end of the year. Detail on the amounts shown in the *Combined Statements of Budgetary Resources* is included in the Required Supplementary Information section on the schedule *Budgetary Resources by Major Account.*

The *Consolidated Statements of Financing* reconcile the obligations incurred to finance operations with the net cost of operations. Obligations incurred include amounts of orders placed, contracts awarded, services received, and similar transactions that require payment during the same or future period. Obligations incurred link the *Combined Statements of Budgetary Resources to the Consolidated Statements of Financing.*

The *Consolidated Statements of Custodial Activities* identify revenues collected by the Department on behalf of others. These revenues primarily result from power marketing administrations that sell power generated by hydroelectric facilities owned by the Corps of Engineers and the Bureau of Reclamation.

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Principal Statements

U. S. Department of Energy
Consolidated Balance Sheets

As of September 30, 2004 and 2003
($ in millions)

	2004	2003
ASSETS (Note 2)		
Intragovernmental		
Fund Balance with Treasury (Note 3)	$ 15,606	$ 14,824
Investments, Net (Note 4)	20,532	18,849
Accounts Receivable, Net (Note 5)	563	490
Regulatory Assets (Note 6)	4,613	4,690
Other	13	7
Total Intragovernmental	$ 41,327	$ 38,860
Investments, Net (Note 4)	256	256
Accounts Receivable, Net (Note 5)	4,062	4,389
Inventory, Net (Note 7)		
Strategic Petroleum and Northeast Home Heating Oil Reserves	18,148	16,818
Nuclear Materials	21,722	22,144
Other	436	453
General Property, Plant, and Equipment, Net (Note 8)	22,333	21,257
Regulatory Assets (Note 6)	5,741	4,954
Other (Note 9)	5,283	5,524
Total Assets	$ 119,308	$ 114,655
LIABILITIES (Note 10)		
Intragovernmental		
Accounts Payable	$ 101	$ 123
Debt (Note 11)	7,357	7,538
Appropriated Capital Owed (Note 12)	3,111	2,906
Deferred Revenues and Other Credits (Note 13)	149	158
Other (Note 14)	262	271
Total Intragovernmental	$ 10,980	$ 10,996
Accounts Payable	3,383	3,087
Debt (Note 11)	6,531	6,443
Deferred Revenues and Other Credits (Note 13)	20,235	18,040
Environmental Liabilities (Note 15)	181,742	183,434
Pension and Other Actuarial Liabilities (Note 16)	10,530	9,926
Other (Note 14)	4,367	3,110
Contingencies and Commitments (Note 17)	1,943	2,881
Total Liabilities	$ 239,711	$ 237,917
NET POSITION		
Unexpended Appropriations	$ 8,784	$ 8,900
Cumulative Results of Operations	(129,187)	(132,162)
Total Net Position	$ (120,403)	$ (123,262)
Total Liabilities and Net Position	$ 119,308	$ 114,655

The accompanying notes are an integral part of these statements

U. S. Department of Energy
Consolidated Statements of Net Cost

For Years Ended September 30, 2004 and 2003

($ in millions)

	2004	2003
GENERAL GOALS		
Nuclear Weapons Stewardship:		
Program Costs	$ 6,220	$ 5,214
Nuclear Nonproliferation:		
Program Costs	$ 1,101	$ 968
Naval Reactors:		
Program Costs	740	687
Less: Earned Revenues (Note 18)	(8)	(22)
Net Cost of Naval Reactors	$ 732	$ 665
Energy Security:		
Program Costs	6,378	6,235
Less: Earned Revenues (Note 18)	(4,089)	(4,626)
Net Cost of Energy Security	$ 2,289	$ 1,609
World-Class Scientific Research Capacity:		
Program Costs	$ 3,196	$ 3,068
Environmental Management:		
Program Costs	6,283	6,287
Less: Earned Revenues (Note 18)	(153)	(160)
Net Cost of Environmental Management	$ 6,130	$ 6,127
Nuclear Waste:		
Program Costs	530	421
Less: Earned Revenues (Note 18)	(322)	(326)
Net Cost of Nuclear Waste	$ 208	$ 95
Net Cost of General Goals	$ 19,876	$ 17,746
OTHER PROGRAMS:		
Reimbursable Programs:		
Program Costs	2,738	2,351
Less: Earned Revenues (Note 18)	(2,757)	(2,330)
Net Cost of Reimbursable Programs	$ (19)	$ 21
Other Programs: (Note 19)		
Program Costs	758	724
Earned Revenues (Note 18)	(303)	(222)
Net Cost of Other Programs	$ 455	$ 502
Costs Applied to Reduction of Legacy Environmental Liabilities (Note 20)	(6,667)	(6,242)
Costs Not Assigned (Note 21)	8,277	(17,049)
Net Cost of Continuing Operations	$ 21,922	$ (5,022)
Net Cost of Transferred Operations (Note 22)	-	44
Net Cost of Operations	$ 21,922	$ (4,978)

The accompanying notes are an integral part of these statements

U.S. Department of Energy
Consolidated Statements of Changes in Net Position

For Years Ended September 30, 2004 and 2003
($ in millions)

	2004	2003
CUMULATIVE RESULTS OF OPERATIONS:		
Beginning Balance	$ (132,162)	$ (159,316)
Budgetary Financing Sources:		
Appropriations Used	23,109	21,374
Nonexchange Revenues	13	20
Donations, Financial	1	-
Transfers - In/Out Without Reimbursement, Budgetary	(260)	(8)
Other Financing Sources:		
Transfers - In/Out Without Reimbursement, Nonbudgetary	1,031	982
Imputed Financing from Costs Absorbed by Others	1,011	(178)
Other Gains and Losses	(8)	(14)
Total Financing Sources	$ 24,897	$ 22,176
Net Cost of Operations	(21,922)	4,978
Ending Balance - Cumulative Results of Operations	$ (129,187)	$ (132,162)
UNEXPENDED APPROPRIATIONS:		
Beginning Balance	$ 8,900	$ 8,206
Budgetary Financing Sources Related to Appropriations:		
Appropriations Received	23,173	22,248
Appropriations Transferred - In/Out	11	(26)
Other Adjustments	(191)	(154)
Appropriations Used	(23,109)	(21,374)
Total Financing Sources Related to Appropriations	$ (116)	$ 694
Ending Balance - Unexpended Appropriations	$ 8,784	$ 8,900

The accompanying notes are an integral part of these statements

U. S. Department of Energy
Combined Statements of Budgetary Resources

For Years Ended September 30, 2004 and 2003

($ in millions)

	2004	2003
BUDGETARY RESOURCES		
Budget Authority		
Appropriations Received	$ 24,190	$ 23,044
Borrowing and Contract Authority	1,681	673
Net Transfers	(85)	(246)
Unobligated Balance		
Beginning of Period (Note 24)	3,576	3,151
Net Transfers, Actual	(2)	74
Spending Authority from Offsetting Collections		
Earned		
Collected	7,003	6,744
Receivable from Federal Sources	23	75
Change in Unfilled Customer Orders		
Advances Received	(40)	99
Without Advances from Federal Sources	985	560
Recoveries of Prior Year Obligations	32	218
Authority Temporarily Not Available	(101)	(90)
Authority Permanently Not Available	(739)	(949)
Total Budgetary Resources (Note 24)	$ 36,523	$ 33,353
STATUS OF BUDGETARY RESOURCES		
Obligations Incurred		
Direct	$ 23,878	$ 22,732
Exempt from Apportionment	4,547	3,483
Reimbursable	4,062	3,530
Total Obligations Incurred (Note 24)	$ 32,487	$ 29,745
Unobligated Balances Available		
Apportioned Available	2,538	1,790
Exempt from Apportionment	12	15
Unobligated Balances Not Available (Note 24)	1,486	1,803
Total Status of Budgetary Resources	$ 36,523	$ 33,353
RELATIONSHIP OF OBLIGATIONS TO OUTLAYS		
Obligated Balance - Beginning of Period	$ 11,506	$ 11,198
Obligated Balance, Transferred	-	(20)
Obligated Balance, Net of Transfers - Beginning of Period	$ 11,506	$ 11,178
Obligated Balance - End of Period		
Accounts Receivable	$ (636)	$ (612)
Unfilled Customer Orders from Federal Sources	(3,708)	(2,723)
Undelivered Orders	10,361	9,893
Accounts Payable	6,886	4,948
	$ 12,903	$ 11,506
Outlays		
Disbursements	$ 30,050	$ 28,564
Collections	(6,963)	(6,843)
Subtotal	$ 23,087	$ 21,721
Less: Offsetting Receipts	(3,161)	(2,379)
Net Outlays	$ 19,926	$ 19,342

The accompanying notes are an integral part of these statements

U.S. Department of Energy
Consolidated Statements of Financing
For Years Ended September 30, 2004 and 2003
($ in millions)

	2004	2003
RESOURCES USED TO FINANCE ACTIVITIES:		
Budgetary Resources Obligated:		
Obligations Incurred	$ 32,487	$ 29,745
Less: Spending Authority from Offsetting Collections and Recoveries	(8,003)	(7,696)
Obligations, Net of Offsetting Collections and Recoveries	$ 24,484	$ 22,049
Offsetting Receipts	(3,161)	(2,379)
Net Obligations	$ 21,323	$ 19,670
Other Resources:		
Imputed Financing from Costs Absorbed by Others	1,011	(179)
Transfers-In/Out	1,031	982
Nuclear Waste Fund Offsetting Receipts, Deferred (Note 23)	2,095	1,177
Other	(8)	14
Net Other Resources Used to Finance Activities	$ 4,129	$ 1,994
Total Resources Used to Finance Activities	$ 25,452	$ 21,664
RESOURCES USED TO FINANCE ITEMS NOT PART OF THE NET COST OF OPERATIONS:		
Change in Resources Obligated for Goods/Services/Benefits Ordered But Not Yet Provided	$ 506	$ (206)
Resources that Finance the Acquisition of Assets	(4,436)	(4,511)
Resources that Fund Expenses Recognized in Prior Periods	(7,298)	(6,191)
Budgetary Offsetting Collections and Receipts that Do Not Affect the Net Cost of Operations	87	220
Other Resources and Adjustments	(1,813)	(981)
Total Resources Used to Finance Items Not Part of the Net Cost of Operations	$ (12,954)	$ (11,669)
Total Resources Used to Finance the Net Cost of Operations	$ 12,498	$ 9,995
NET COST OF ITEMS THAT DO NOT REQUIRE OR GENERATE RESOURCES IN CURRENT PERIOD:		
Components Requiring or Generating Resources in Future Periods:		
Increases/(Decreases) in Unfunded Liability Estimates (Note 25)	$ 7,557	$ (16,847)
Increase in Exchange Revenue Receivable from the Public	3	(19)
Total Components Requiring or Generating Resources in Future Periods	$ 7,560	$ (16,866)
Components Not Requiring or Generating Resources:		
Depreciation and Amortization	$ 1,539	$ 1,576
Revaluation of Assets and Liabilities	(161)	(149)
Other	486	466
Total Components Not Requiring or Generating Resources	$ 1,864	$ 1,893
Total Net Cost of Items that Do Not Require or Generate Resources in Current Period	$ 9,424	$ (14,973)
NET COST OF OPERATIONS	$ 21,922	$ (4,978)

The accompanying notes are an integral part of these statements

U.S. Department of Energy
Consolidated Statements of Custodial Activities

For Years Ended September 30, 2004 and 2003
($ in millions)

	2004	2003
SOURCES OF COLLECTIONS		
Cash Collections (Note 26)		
Interest	$ 3	$ 4
Federal Energy Regulatory Commission	75	20
Power Marketing Administration Custodial Revenue	624	512
Total Cash Collections	$ 702	$ 536
Accrual Adjustment	4	12
Total Revenue	$ 706	$ 548
DISPOSITION OF REVENUE		
Transferred to Others		
Department of the Treasury	(521)	(482)
Army Corps of Engineers	(7)	(7)
Bureau of Reclamation	(144)	(50)
Others	(9)	(3)
Increase in Amounts to be Transferred	(25)	(6)
Net Custodial Activity	$ -	$ -

The accompanying notes are an integral part of these statements

Notes to the Consolidated and Combined Financial Statements

1. Summary of Significant Accounting Policies

A. Basis of Presentation

These consolidated and combined financial statements have been prepared to report the financial position and results of operations of the U.S. Department of Energy (the Department). The statements were prepared from the books and records of the Department in accordance with generally accepted accounting principles applicable to Federal entities.

B. Description of Reporting Entity

The Department is a cabinet level agency of the Executive Branch of the U.S. Government. The Department is not subject to Federal, state, or local income taxes. The Department's headquarters organizations are located in Washington, D.C., and Germantown, Maryland, and consist of an executive management structure that includes the Secretary; the Deputy Secretary; the Under Secretary for Energy, Science and Environment; the Under Secretary for National Nuclear Security / Administrator for National Nuclear Security Administration; Secretarial staff organizations; and program organizations that provide technical direction and support for the Department's principal programmatic missions. The Department also includes the Federal Energy Regulatory Commission, which is an independent regulatory organization responsible for setting rates and charges for the transportation and sale of natural gas and for the transmission and sale of electricity and the licensing of hydroelectric power projects.

The Department has a complex field structure comprised of operations offices, field offices, power marketing administrations (Bonneville Power Administration, Southeastern Power Administration, Southwestern Power Administration, and Western Area Power Administration), laboratories, and other facilities. The majority of the Department's environmental cleanup, energy research and development, and testing and production activities are carried out by major contractors. These contractors operate, maintain, or support the Department's Government-owned facilities on a day-to-day basis and provide other special work under the direction of field organizations. The Department indemnifies these contractors against financial responsibility from nuclear accidents under the provisions of the Price-Anderson Act.

These contractors have unique contractual relationships with the Department. In most cases, their charts of accounts and accounting systems are integrated with the Department's accounting system through a home office-branch office type of arrangement. Additionally, the Department is responsible for funding certain defined benefit pension plans, as well as postretirement benefits such as medical care and life insurance, for the employees of these contractors. As a result, these statements reflect not only the costs incurred by these contractors, but also include certain contractor assets (i.e., employee advances and prepaid pension costs) and liabilities (i.e., accounts payable, accrued expenses including payroll and benefits, and pension and other actuarial liabilities) that would not be reflected in the financial statements of other Federal agencies that do not have these unique contractual relationships.

C. Basis of Accounting

Transactions are recorded on an accrual accounting basis and a budgetary basis. Under the accrual method, revenues are recognized when earned, and expenses are recognized when liabilities are incurred, without regard to receipt or payment of cash. Budgetary accounting facilitates compliance with legal constraints and controls over the use of Federal funds. All material intra-departmental balances and transactions have been eliminated in the *Consolidated Balance Sheets, Consolidated Statements of Net Cost,*

Consolidated Statements of Changes in Net Position, Consolidated Statements of Financing, and Consolidated Statements of Custodial Activities. The *Combined Statements of Budgetary Resources* are prepared on a combined basis and do not include intra-departmental eliminations.

D. Fund Balance with Treasury

Funds with the Department of the Treasury (Treasury) primarily represent appropriated and revolving funds that are available to pay current liabilities and finance authorized purchases. Disbursements and receipts are processed by Treasury, and the Department's records are reconciled with those of Treasury (see Note 3).

E. Investments, Net

All investments are reported at cost net of amortized premiums and discounts as it is the Department's intent to hold the investments to maturity. Premiums and discounts are amortized using the effective interest yield method (see Note 4).

F. Accounts Receivable, Net

The amounts due for non-intragovernmental (non-Federal) receivables are stated net of an allowance for uncollectable accounts. The estimate of the allowance is based on past experience in the collection of receivables and an analysis of the outstanding balances (see Note 5).

G. Inventory, Net

Stockpile materials are recorded at historical cost in accordance with SFFAS No. 3, *Accounting for Inventory and Related Property*, except for certain nuclear materials identified as surplus or excess to the Department's needs. These nuclear materials are recorded at their net realizable value (see Note 7).

H. General Property, Plant, and Equipment, Net

Property, plant, and equipment that are purchased, constructed, or fabricated in-house, including major modifications or improvements, are capitalized at cost. The Department's property, plant, and equipment capitalization threshold is $25,000, except for the power marketing administrations, which use thresholds ranging from $5,000 to $10,000. The capitalization threshold for internal use software is $750,000, except for the power marketing administrations, which use thresholds ranging from $5,000 to $100,000 (see Note 8).

Costs of construction are capitalized as construction work in process. Upon completion or beneficial occupancy or use, the cost is transferred to the appropriate property account. Property, plant, and equipment related to environmental management facilities storing and processing the Department's environmental legacy wastes are not capitalized.

Depreciation expense is generally computed using the straight line method. The units of production method is used only in special cases where applicable, such as depreciating automotive equipment on a mileage basis and construction equipment on an hourly use basis. The ranges of service lives are generally as follows:

Structures and Facilities 25 - 50 years
ADP Software 3 - 7 years
Equipment 5 - 40 years
Land and land rights duration of period or 50 years, whichever is less

I. Liabilities

Liabilities represent amounts of monies or other resources likely to be paid by the Department as a result of a transaction or event that has already occurred. However, no liability can be paid by the Department absent an authorized appropriation. Liabilities for which an appropriation has not been enacted are, therefore, classified as not covered by budgetary resources (see Note 10), and there is no certainty that the appropriations will be enacted. Also, liabilities of the Department arising from other than contracts can be abrogated by the Government acting in its sovereign capacity.

J. Accrued Annual, Sick, and Other Leave

Federal employees' annual leave is accrued as it is earned, and the accrual is reduced annually for actual leave taken. Each year, the accrued annual leave balance is adjusted to reflect the latest pay rates. To the extent that current or prior year appropriations are not available to fund annual leave earned but not taken, funding will be obtained from future financing sources. Sick leave and other types of nonvested leave are expensed as taken.

K. Retirement Plans

Federal Employees

There are two primary retirement systems for Federal employees. Employees hired prior to January 1, 1984, may participate in the Civil Service Retirement System (CSRS). On January 1, 1984, the Federal Employees Retirement System (FERS) went into effect pursuant to Public Law 99-335. Most employees hired after December 31, 1983, are automatically covered by FERS and Social Security. Employees hired prior to January 1, 1984, elected to either join FERS and Social Security or remain in CSRS. A primary feature of FERS is that it offers a savings plan to which the Department automatically contributes one percent of pay and matches any employee contribution up to an additional four percent of pay. For most employees hired since December 31, 1983, the Department also contributes the employer's matching share for Social Security. The Department does not report CSRS or FERS assets, accumulated plan benefits, or unfunded liabilities, if any, applicable to its employees. Reporting such amounts is the responsibility of the Office of Personnel Management and the Federal Employees Retirement System. The Department does report, as an imputed financing source and a program expense, the difference between its contributions to Federal employee pension and other retirement benefits and the estimated actuarial costs as computed by the Office of Personnel Management.

Contractor Employees

Most of the Department's contractors maintain a defined benefit pension plan under which they promise to pay employees specified benefits, such as a percentage of the final average pay for each year of service. The Department's cost under the contracts includes reimbursement of annual employer contributions to the pension plans.

Each year an amount is calculated for employers to contribute to the pension plan to ensure the plan assets are sufficient to provide for the full accrued benefits of contractor employees in the event that the plan is terminated. The level of contributions is dependent on actuarial assumptions about the future, such as the interest rate, employee turnover and deaths, age of retirement, and salary progression. The Department reports assets and liabilities of these pension plans as if it were the plan sponsor (see Note 16).

L. Net Cost of Operations

Program costs are summarized in the *Consolidated Statements of Net Cost* by the seven long-term general goals identified in the Department's FY 2004 Strategic Plan. Program costs reflect full costs including all direct and indirect costs consumed by these general goals. Full costs are reduced by exchange (earned) revenues to arrive at net operating cost (see Notes 18 and 19). The general goals are summarized below.

• Nuclear Weapons Stewardship – Ensure that our nuclear weapons continue to serve their essential deterrence role by maintaining and enhancing the safety, security, and reliability of the U.S. nuclear weapons stockpile.

• Nuclear Nonproliferation – Provide technical leadership to limit or prevent the spread of materials, technology, and expertise relating to weapons of mass destruction; advance the technologies to detect the proliferation of weapons of mass destruction worldwide; and eliminate or secure inventories of surplus materials and infrastructure usable for nuclear weapons.

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

• Energy Security – Improve energy security by developing technologies that foster a diverse supply of reliable, affordable, and environmentally sound energy by providing for reliable delivery of energy, guarding against energy emergencies, exploring advanced technologies that make a fundamental improvement in our mix of energy options, and improving energy efficiency.

• World-Class Scientific Research Capacity – Provide world-class scientific research capacity needed to: ensure the success of Department missions in national and energy security; advance the frontiers of knowledge in physical sciences and areas of biological, medical, environmental, and computational sciences; or provide world-class research facilities for the Nation's science enterprise.

• Environmental Management – Accelerate cleanup of nuclear weapons manufacturing and testing sites, completing cleanup of 108 contaminated sites by 2035.

• Nuclear Waste – License and construct a permanent repository for nuclear waste at Yucca Mountain and begin acceptance of waste by 2010.

During FY 2003 the Department transferred several operating components to the Department of Homeland Security as required by the Homeland Security Act of 2002. The costs incurred by the Department for these functions prior to their transfer are summarized in the *Consolidated Statements of Net Cost* as "Net Cost of Transferred Operations" (see Note 22).

M. Revenues and Other Financing Sources

The Department receives the majority of the funding needed to perform its mission through Congressional appropriations. These appropriations may be used, within statutory limits, for operating and capital expenditures. In addition to appropriations, financing sources include exchange and non-exchange revenues, imputed financing sources, and custodial revenues.

Exchange and Non-Exchange Revenues: In accordance with Federal Government accounting standards, the Department classifies revenues as either exchange (earned) or non-exchange. Exchange revenues are those that derive from transactions in which both the Government and the other party receive value (see Note 18). Non-exchange revenues derive from the Government's sovereign right to demand payment, including fines and penalties. These revenues are not considered to reduce the cost of the Department's operations and are reported on the *Consolidated Statements of Changes in Net Position*.

Imputed Financing Sources: In certain instances program costs of the Department are paid out of funds appropriated to other Federal agencies. For example, certain costs of retirement programs are paid by the Office of Personnel Management, and certain legal judgments against the Department are paid from the Judgment Fund maintained by Treasury. When costs that are directly attributable to the Department's operations are paid by other agencies, the Department recognizes these amounts on the *Consolidated Statements of Net Cost*. In addition, these amounts are recognized as imputed financing sources on the *Consolidated Statements of Changes in Net Position* and the *Consolidated Statements of Financing*.

Custodial Revenues: The Department collects certain revenues on behalf of others which are designated as custodial revenues. The Department incurs virtually no costs to generate these revenues, nor can it use these revenues to finance its operations. These revenues are returned to Treasury and others and are reported on the *Consolidated Statements of Custodial Activities* (see Note 26).

N. Use of Estimates

The Department has made certain estimates and assumptions relating to the reporting of assets and liabilities and the disclosure of contingent assets and liabilities to prepare these consolidated financial statements. Actual results could differ from these estimates.

O. Comparative Data

Certain FY 2003 amounts have been reclassified to conform to the FY 2004 presentation.

2. Non-Entity Assets (in millions)

	FY 2004	FY 2003
Intragovernmental		
Fund balance with Treasury		
Naval Petroleum Reserve Deposit Fund (Note 14)	$ 323	$ 323
Elk Hills School Land Fund (Note 14)	118	154
Investments - Petroleum Pricing Violation Escrow Fund (Notes 4 and 14)	251	260
Subtotal	$ 692	$ 737
Investments - Petroleum Pricing Violation Escrow Fund (Notes 4 and 14)	256	256
Accounts receivable - Petroleum Pricing Violation Escrow Fund (Notes 5 and 14)	16	16
Inventories - Department of Defense stockpile oil (Notes 7 and 14)	106	106
Other	3	2
Total non-entity assets	$ 1,073	$ 1,117
Total entity assets	118,235	113,538
Total assets	$ 119,308	$ 114,655

Assets in the possession of the Department that are not available for its use are considered non-entity assets.

Naval Petroleum Reserve Deposit Fund

The balance in this fund represents proceeds from the sale of the Naval Petroleum Reserve at Elk Hills that are being held until final disposition in accordance with the Decoupling Agreement. Approximately $288 million is being held for a contingency payment to Chevron, Inc., pending the outcome of equity finalization. The remaining $35 million is reserved for anticipated adjustments to Occidental's final payment and for possible reimbursement to the investment banker for an advance on its commission.

Petroleum Pricing Violation Escrow Fund

The Petroleum Pricing Violation Escrow Fund represents custodial receipts collected as a result of agreements or court orders with individuals or firms that violated petroleum pricing and allocation regulations during the 1970s. These receipts are invested in Treasury securities and certificates of deposit at minority-owned financial institutions pending determination by the Department as to how to distribute the fund balance.

3. Fund Balance With Treasury (in millions)

Fiscal Year 2004	Appropriated Funds	Revolving Funds	Special Funds	Other Funds	Total
Unobligated budgetary resources					
Available	$ 2,348	$ 97	$ 105	$ -	$ 2,550
Unavailable (Note 24)	132	1,354	-	-	1,486
Obligated balance not yet disbursed					
Undelivered orders	9,980	43	333	5	10,361
Unfilled customer orders	(3,702)	-	(6)	-	(3,708)
Receivables for reimbursements earned	(380)	(249)	(7)	-	(636)
Accounts payable and deposit fund liabilities	4,615	2,086	185	402	7,288
Other adjustments					
Appropriations not available pursuant to law, and contract authority	97	(1,201)	-	-	(1,104)
Unavailable receipt accounts	-	-	1,000	-	1,000
Budgetary resources invested in Treasury securities					
Nuclear Waste Fund	-	-	(159)	-	(159)
Uranium Enrichment D&D Fund	-	-	(122)	-	(122)
U.S. Enrichment Corporation revolving fund	-	(1,350)	-	-	(1,350)
Total FY 2004 Fund Balance with Treasury	**$ 13,090**	**$ 780**	**$ 1,329**	**$ 407**	**$ 15,606**
Fiscal Year 2003					
Unobligated budgetary resources					
Available	$ 1,582	$ 89	$ 134	$ -	$ 1,805
Unavailable (Note 24)	498	1,305	-	-	1,803
Obligated balance not yet disbursed					
Undelivered orders	9,645	29	214	5	9,893
Unfilled customer orders	(2,709)	-	(14)	-	(2,723)
Receivables for reimbursements earned	(270)	(337)	(5)	-	(612)
Accounts payable and deposit fund liabilities	3,825	985	139	377	5,326
Other adjustments					
Appropriations not available pursuant to law, and contract authority	87	(203)	-	-	(116)
Unavailable receipt accounts	-	-	1,043	-	1,043
Budgetary resources invested in Treasury securities					
Nuclear Waste Fund	-	-	(130)	-	(130)
Non-Defense Environmental Services	(163)	-	-	-	(163)
U.S. Enrichment Corporation revolving fund	-	(1,302)	-	-	(1,302)
Total FY 2003 Fund Balance with Treasury	**$ 12,495**	**$ 566**	**$ 1,381**	**$ 382**	**$ 14,824**

4. Investments, Net (in millions)

Pursuant to statutory authorizations, the Department invests monies in Treasury securities and commercial certificates of deposit that are secured by the Federal Deposit Insurance Corporation. The Department's investments primarily involve the Nuclear Waste Fund (NWF) and the Uranium Enrichment Decontamination and Decommissioning (D&D) Fund. Fees paid by owners and generators of spent nuclear fuel and high-level radioactive waste and fees collected from domestic utilities are deposited into the respective funds. Funds in excess of those needed to pay current program costs are invested in Treasury securities.

Upon privatization of the United States Enrichment Corporation (USEC) on July 28, 1998, OMB and Treasury designated the Department as successor to USEC for purposes of disposition of balances remaining in the USEC Fund. Funds in excess of those needed to liquidate USEC liabilities are invested in Treasury securities.

	Face	Unamortized Premium (Discount)	Investments Net	Unrealized Market Gains	Market Value
Fiscal Year 2004					
Intragovernmental Non-Marketable					
Nuclear Waste Fund	$ 30,518	$ (15,342)	$ 15,176	$ 1,553	$ 16,729
D&D Fund	3,657	98	3,755	57	3,812
U.S. Enrichment Corporation	1,350	-	1,350	1	1,351
Petroleum Pricing Violation Escrow Fund	252	(1)	251	-	251
Subtotal	$ 35,777	$ (15,245)	$ 20,532	$ 1,611	$ 22,143
Non-intragovernmental Marketable Securities					
Petroleum Pricing Violation Escrow Fund	256	-	256	-	256
Total FY 2004 investments	**$ 36,033**	**$ (15,245)**	**$ 20,788**	**$ 1,611**	**$ 22,399**
Fiscal Year 2003					
Intragovernmental Non-Marketable					
Nuclear Waste Fund	$ 25,882	$ (12,062)	$ 13,820	$ 1,202	$ 15,022
D&D Fund	3,410	35	3,445	132	3,577
U.S. Enrichment Corporation	1,302	22	1,324	1	1,325
Petroleum Pricing Violation Escrow Fund	261	(1)	260	-	260
Subtotal	$ 30,855	$ (12,006)	$ 18,849	$ 1,335	$ 20,184
Non-intragovernmental Marketable Securities					
Petroleum Pricing Violation Escrow Fund	256	-	256	-	256
Total FY 2003 investments	**$ 31,111**	**$ (12,006)**	**$ 19,105**	**$ 1,335**	**$ 20,440**

5. Accounts Receivable, Net (in millions)

	FY 2004			FY 2003		
	Receivable	Allowance	Net	Receivable	Allowance	Net
Intragovernmental	$ 563	$ -	$ 563	$ 490	$ -	$ 490
Non-intragovernmental						
Nuclear Waste Fund	2,955	-	2,955	2,966	-	2,966
Uranium Enrichment D&D Fund	563	-	563	731	-	731
Power marketing administrations	483	(74)	409	635	(73)	562
Petroleum Pricing Violation Escrow Fund	2,074	(2,058)	16	2,074	(2,058)	16
Credit programs	55	(26)	29	55	(26)	29
Other	185	(95)	90	145	(60)	85
Subtotal	$ 6,315	$ (2,253)	$ 4,062	$ 6,606	$ (2,217)	$ 4,389
Total accounts receivable	**$ 6,878**	**$ (2,253)**	**$ 4,625**	**$ 7,096**	**$ (2,217)**	**$ 4,879**

Intragovernmental accounts receivable primarily represent amounts due from other Federal agencies for reimbursable work performed pursuant to the Economy Act, Atomic Energy Act, and other statutory authority, as well as interest earned on investments held in Treasury securities.

Non-intragovernmental receivables primarily represent amounts due for NWF and D&D Fund fees. NWF receivables are supported by contracts and agreements with owners and generators of spent nuclear fuel and high-level radioactive waste that contribute resources to the fund. D&D Fund receivables from public utilities are supported by public law. Other receivables due from the public include reimbursable work billings and other amounts related to trade receivables, and other miscellaneous receivables.

The Petroleum Pricing Violation Escrow Fund receivables result from agreements or court orders with individuals or firms that violated petroleum pricing and allocation regulations during the 1970s. The majority of these receivables are with individuals or firms that are in bankruptcy, or collection action is being taken by the Department of Justice. Many cases handled by the Department of Justice will result in complete write-offs or settlement agreements for amounts significantly less than the original agreement. Allowance accounts have been established to reflect the realistic potential for recovery of amounts owed. The methodology used to calculate the allowance accounts was derived through an intensive analysis of each case. The receivables were categorized based on the status of the case, the financial condition of the debtor, the collections received to date, and any pertinent information from the Office of General Counsel related to each case. Based on this analysis and categorization, percentages for the probability of collection were determined. The allowance account includes interest receivable of $1,540 million as of September 30, 2004 and 2003.

6. Regulatory Assets (in millions)

	FY 2004	FY 2003
Intragovernmental		
Appropriation refinancing asset	$ 4,613	$ 4,690
Non-intragovernmental		
Non-operating regulatory assets	$ 3,990	$ 4,038
Investor Owned Utilities Exchange Benefits	988	-
Conservation and fish and wildlife projects	453	503
Other regulatory assets	310	413
Subtotal	$ 5,741	$ 4,954
Total regulatory assets	$ 10,354	$ 9,644

The Department's power marketing administrations record certain amounts as assets in accordance with Statement of Financial Accounting Standards (SFAS) No. 71, *Accounting for the Effects of Certain Types of Regulation*. The provisions of SFAS No. 71 require that regulated enterprises reflect rate actions of the regulator in their financial statements, when appropriate. These rate actions can provide reasonable assurance of the existence of an asset, reduce or eliminate the value of an asset, or impose a liability on a regulated enterprise.

In order to defer incurred costs under SFAS No. 71, a regulated entity must have the statutory authority to establish rates that recover all costs. Rates so established must be charged to and collected from customers. Due to increasing competitive pressures, Bonneville Power Administration (BPA) may be required to seek alternative solutions in the future to avoid raising rates to a level that is no longer competitive. If BPA's rates should become market-based, SFAS No. 71 would no longer be applicable, and all of the above costs deferred under that standard would be expensed.

Appropriation Refinancing Asset

The BPA Appropriations Refinancing Act of 1996, 16 U.S.C. 8381, required that historic interest rates set on the Federal Columbia River Power System (FCRPS) capital appropriations, which BPA is obligated to set rates to recover, be reset and assigned prevailing market rates and the unpaid balance as of September 30, 1996 be reduced by a matching amount. These appropriations include the unpaid balance of capital appropriations of the power generating assets of the Corps of Engineers (Corps) and the Bureau of Reclamation associated with the FCRPS. The Corps and the Bureau of Reclamation continue to own and operate these assets, with BPA having the responsibility to recover the costs of the assets from power ratepayers. BPA established an intragovernmental regulatory asset representing the repayment amount of the transmission and power generating assets that will be recovered in BPA rates. This regulatory asset is being amortized over 68 years. BPA recognized annual amortization costs of $77 million in FY 2004 and FY 2003.

In accordance with SFAS No. 71, offsetting regulatory assets are recognized which represent the ability of BPA to repay this appropriated capital from the proceeds of power sales generated from the Corps and Bureau of Reclamation assets.

Non-Operating Regulatory Assets

BPA has acquired all or part of the potential generating capability of four terminated nuclear power plants. The Government's contracts require BPA to pay all or part of the annual projects' budgets, including debt service of the terminated plants. These projects' current and future costs are recovered through BPA's rates. The *Consolidated Balance Sheets* include a regulatory asset and an offsetting related debt.

IOU Exchange Benefits

A regulatory asset for investor owned utilities (IOU) exchange benefits was recorded pursuant to FY 2004 contracts and amendments with BPA customers. IOU exchange benefits consist of future payments to be made to BPAs investor owned utilities to be passed on to the utilities' small-farm and residual customers. The regulatory asset has an offsetting liability on the balance sheet, as these amounts will be collected in future rates (see Note 13).

Conservation and Fish and Wildlife Projects

The conservation projects consist of BPA power resource acquisitions resulting from funded customer investment in conservation measures. The fish and wildlife projects consist of facilities funded by BPA for the protection of fish and wildlife, and the mitigation of losses attributed to the development and operation of hydroelectric projects on the Columbia River and its tributaries pursuant to Section 4(h) of the Pacific Northwest Electric Power Planning and Conservation Act, 16 U.S.C. 839. BPA pays for the facilities and recovers the costs in rates but does not retain ownership of the facilities. Amortization of capitalized conservation and fish and wildlife costs is computed on a straight-line method based on estimated service lives, which are up to 20 years for conservation and 15 years for fish and wildlife.

Other Regulatory Assets

Other regulatory assets consist of intangible conservation measures for which there is an offsetting liability on the balance sheet as these amounts will be collected in future rates; settlement agreements resulting from terminated power purchase and sale contracts for which costs will be recovered in power rates; bond premiums amortized over the life of the new debt instruments; and deferred contributions for under funded post retirement benefit programs that will be recovered in future rates.

7. Inventory, Net

Inventory includes stockpile materials consisting of crude oil held in the Strategic Petroleum Reserve, the Northeast Home Heating Oil Reserve, nuclear materials, highly enriched uranium, and other inventory consisting primarily of operating materials and supplies.

Strategic Petroleum Reserve

The Strategic Petroleum Reserve consists of crude oil stored in salt domes, terminals, and pipelines. As of September 30, 2004, and September 30, 2003, the Reserve contained crude oil with a historical cost of $18,071 million and $16,741 million, respectively. The reserve provides a deterrent to the use of oil as a political instrument and provides an effective response mechanism should a disruption occur. Oil from the reserve may be sold only with the approval of Congress and the President of the United States. Included in the Strategic Petroleum Reserve is crude oil held for future Department of Defense (DOD) use. The FY 1993 Defense Appropriations Act authorized the Department to acquire, transport, store, and prepare for ultimate drawdown of crude oil for DOD. The crude oil purchased with DOD funding is commingled with the Department's stock and is valued at its historical cost of $106 million as of September 30, 2004 and 2003 (see Notes 2 and 14).

Northeast Home Heating Oil Reserve

The Northeast Home Heating Oil Reserve was established in FY 2000 pursuant to the Energy Policy and Conservation Act. As of September 30, 2004 and 2003, the reserve contained petroleum distillate in the New England, New York, and New Jersey geographic area valued at its historical cost of $77 million.

Nuclear Materials

Nuclear materials include weapons and related components, including those in the custody of the Department of Defense under Presidential Directive, and materials used for research and development purposes. Certain surplus plutonium carried at zero value (a provision for disposal is included in environmental liabilities) has significant arms control/nonproliferation value and is instrumental to the U.S in ensuring that Russia continues towards the disposition of its weapons grade plutonium.

The Office of Nuclear Energy, Science and Technology has inventories amounting to a total of 19,755 metric tons of uranium hexafluoride. This total is segmented into three separate stockpiles. First, the Department in 1996 received from USEC a transfer of 5,521 metric tons of uranium associated with the natural uranium component of low-enriched uranium delivered under the U.S./Russia HEU Agreement in 1995 and 1996. Only 3,293 metric tons remain in the Department's inventories because 2,228 metric tons were sold consistent with section 3112 of the USEC Privatization Act.

The second stockpile of uranium, amounting to 11,000 metric tons, was purchased from Russia for $325 million consistent with P.L. 105-277. This material is the natural uranium component of low enriched uranium delivered under the U.S./Russia HEU Agreement in 1997 and 1998. Final disposition of the material will not occur until after 2009 based upon an international agreement between the U.S. and Russia that requires the Department to maintain a 22,000 metric ton stockpile, and restricts the entry of the uranium into the commercial market until 2009.

The remaining uranium inventory stockpile of 5,462 metric tons is also restricted from sale into the commercial market until 2009. A limited sample and analysis indicates that a portion of the Department's stockpile of uranium hexafluoride may have technetium exceeding nuclear fuel specifications. If confirmed, the market value of the uranium, of which the carrying value exceeds $197 million, would be significantly reduced.

The nuclear materials inventory includes numerous items for which future use and disposition decisions have not been made. Decisions for most of these items will be made through analysis of the economic benefits and costs, and the environmental impacts of the various use and disposition alternatives. The carrying value of these items is not significant to the nuclear materials stockpile inventory balance. The Department will recognize disposition liabilities and record the material at net realizable value when disposal as waste is identified as the most likely alternative and disposition costs can be reasonably estimated. Inventory values are reduced by costs associated with decay or damage.

Highly Enriched Uranium

The Nuclear Weapons Council declared in December 1994, leading to the Secretary of Energy's announcement in February 1996, that 174.3 metric tons of the Department's highly enriched uranium (HEU) were excess to national security needs. Most of this material will be blended for sale as low-enriched uranium (LEU) and used over time as commercial nuclear reactor fuel to recover its value. The remaining portion of the material is already in the form of irradiated fuel or other waste forms, which require no processing prior to disposal. A provision for disposal of irradiated fuel is included in environmental liabilities. The carrying value of HEU for which the LEU blending product will have levels of contamination exceeding nuclear fuel specifications has been reduced to zero. A disposition liability for the estimated costs to process this "off-spec" material is included in environmental liabilities. Most of the "off-spec" material will be blended to LEU for use in Tennessee Valley Authority nuclear power reactors. Estimates of revenues and processing costs for surplus HEU were updated during FY 2004. Net revenues from sales of the remaining surplus HEU are expected to exceed the carrying value of the surplus HEU.

8. General Property, Plant and Equipment, Net (in millions)

	FY 2004			FY 2003		
	Acquisition Costs	Accumulated Depreciation	Net Book Value	Acquisition Costs	Accumulated Depreciation	Net Book Value
Land and land rights	$ 1,530	$ (758)	$ 772	$ 1,480	$ (731)	$ 749
Structures and facilities	32,402	(21,736)	10,666	31,986	(21,514)	10,472
Internal use software	381	(130)	251	297	(90)	207
Equipment	14,496	(9,928)	4,568	14,772	(10,294)	4,478
Natural resources	65	(9)	56	60	(9)	51
Construction work in process	6,020	-	6,020	5,300	-	5,300
Total property, plant and equipment	$ 54,894	$ (32,561)	$ 22,333	$ 53,895	$ (32,638)	$ 21,257

9. Other Non-Intragovernmental Assets (in millions)

	FY 2004	FY 2003
Purchased Generating Capability	$ 2,368	$ 2,328
Prepaid pension plan costs (Note 16)	$ 1,892	$ 2,296
Oil due from others	200	440
Prepayments	331	288
Other	492	172
Total other non-intragovernmental assets	**$ 5,283**	**$ 5,524**

Purchased Generating Capability

Through contracts, BPA has acquired all or part of the generating capability of both a nuclear power plant and a hydroelectric project. The contracts require BPA to pay operating expenses and debt service for these facilities. The *Consolidated Balance Sheets* include an offsetting related debt for these amounts.

Oil Due from Others

The Department has a Royalty-In-Kind exchange arrangement with the Department of the Interior's Mineral Management Service (MMS) to receive crude oil from Gulf of Mexico Federal offshore leases. The oil from the MMS offshore leases was exchanged for other crude oil (exchange oil) of differing quality to be delivered to the Strategic Petroleum Reserve. As a result of companies deferring the delivery of some of the exchange oil, the Department earned additional oil as a premium. The amount of oil due from others primarily represents the value of the deferred exchange and premium barrels of oil as of September 30, 2004 and 2003.

10. Liabilities Not Covered By Budgetary Resources (in millions)

Intragovernmental		FY 2004	FY 2003
Appropriated capital owed	(Note 12)	$ 3,111	$ 2,906
Other		15	14
Total intragovernmental		$ 3,126	$ 2,920
Deferred revenues	(Note 13)		
Nuclear Waste Fund		18,145	16,932
Occupational illness program – Subtitle D	(Notes 14 and 21)	810	-
Environmental liabilities	(Note 15)	179,005	180,999
Pension and other actuarial liabilities	(Note 16)	10,530	9,926
Other liabilities			
Environment, safety and health compliance activities	(Note 14)	1,180	820
Accrued annual leave for Federal employees		109	105
Other		250	83
Contingencies and Commitments	(Note 17)	1,943	2,881
Total liabilities not covered by budgetary resources		$ 215,098	$214,666
Total liabilities covered by budgetary resources		24,613	23,251
Total liabilities		$ 239,711	$237,917

11. Debt (in millions)

	FY 2004			FY 2003		
	Beginning Balance	Net Borrowings	Ending Balance	Beginning Balance	Net Borrowings	Ending Balance
Intragovernmental						
Borrowing from Treasury	$ 2,698	$ 202	$ 2,900	$ 2,770	$ (72)	$ 2,698
Refinanced appropriations	2,715	(314)	2,401	3,064	(349)	2,715
Capitalization adjustment	2,125	(69)	2,056	2,193	(68)	2,125
Subtotal	$ 7,538	$ (181)	$ 7,357	$ 8,027	$ (489)	$ 7,538
Non-intragovernmental						
Non-Federal projects	6,443	88	6,531	6,302	141	6,443
Total debt	**$ 13,981**	**$ (93)**	**$ 13,888**	**$ 14,329**	**$ (348)**	**$ 13,981**

Borrowing from Treasury

To finance its capital programs, the BPA is authorized by Congress to issue to Treasury up to $4,450 million of interest-bearing debt with terms and conditions comparable to debt issued by U.S. Government corporations. A portion ($1,250 million) is reserved for conservation and renewable resource loans and grants. As of September 30, 2004, of the total $2,900 million of outstanding debt, $780 million were conservation and renewable resource loans and grants (including Corps, Bureau of Reclamation and U.S. Fish and Wildlife capital investments). The weighted average interest rates for Treasury borrowings as of September 30, 2004 and 2003, were 4.87 percent and 5.32 percent, respectively. The average interest rate of BPA's borrowings from the Treasury exceeds the rate that could be obtained currently. As a result, the fair value of BPA's long-term debt, based on discounting future cash flows using rates offered by Treasury as of September 30, 2004 and 2003, for similar maturities, exceeds carrying value by approximately $224 million and $304 million, respectively. BPA's policy is to refinance debt that is callable when associated benefits exceed costs of refinancing.

Refinanced Appropriations

As discussed in Note 6, BPA refinanced the unpaid capital appropriations as of September 30, 1996. The weighted average interest rate on outstanding appropriations was 7.0 percent as of September 30, 2004 and September 30, 2003. The remaining period of repayment on refinanced appropriations is 32 years. Repayment amounts were determined based on the date the facility was placed in service using the weighted average service life of the associated investment, not to exceed 50 years.

Capitalization Adjustment

The amount of appropriations refinanced as a result of the BPA Appropriations Refinancing Act of 1996 was $6.6 billion. After refinancing, the appropriations outstanding were $4.1 billion. The difference between the appropriated debt before and after the refinancing was recorded as a capitalization adjustment. This adjustment is being amortized over 40 years of which 32 years remain. Amortization of the capitalization adjustment was $69 million during FY 2004 and $68 million during FY 2003. The weighted average interest rate was 7.0 percent as of September 30, 2004 and 2003.

Non-Federal Projects

As discussed in Notes 6 and 9, the non-Federal projects debt represents the BPA's liability to pay all or part of the annual budgets, including debt service, of the generating capability of five operating and non-operating nuclear power plants as well as several hydroelectric projects.

The following table summarizes future principal payments required for the debt described above:

(in millions)

Fiscal Year	Borrowing from Treasury	Refinanced Appropriations	Capitalization Adjustment	Non-Federal Projects
2005	$ 529	$ 2	$ 65	$ 237
2006	515	16	65	255
2007	516	24	65	297
2008	365	11	65	306
2009	150	10	65	312
2010+	825	2,338	1,731	5,124
Total	**$ 2,900**	**$ 2,401**	**$ 2,056**	**$ 6,531**

12. Appropriated Capital Owed

Appropriated capital owed represents the balance of appropriations provided to the Department's power marketing administrations for construction and operation of power projects which will be repaid to Treasury's General Fund and the Department of the Interior's (Interior) Reclamation Fund. The amount owed also includes accumulated interest on the net unpaid Federal investment in the power projects. The Federal investment in these facilities is to be repaid within 50 years from the time the facilities are placed in service or are commercially operational. Replacements of Federal investments are generally to be repaid over their expected useful service lives. There is no requirement for repayment of a specific amount of Federal investment on an annual basis.

Each of the power marketing administrations, except the BPA, receives an annual appropriation to fund operation and maintenance expenses. These appropriated funds are repaid to Treasury and Interior from the revenues generated from the sale of power and transmission services. To the extent that funds are not available for payment, such unpaid annual net deficits become payable from the subsequent years' revenues prior to any repayment of Federal investment. The Department treats these appropriations as a borrowing from Treasury and Interior, and as such, the *Consolidated Statements of Changes in Net Position* do not reflect these funds as appropriated capital used.

Except for the appropriation refinancing asset described in Notes 6 and 11, the Department's financial statements do not reflect the Federal investment in power generating facilities owned by the Department of Defense, Army Corps of Engineers; the Department of the Interior, Bureau of Reclamation; and the Department of State, International Boundary and Water Commission. The Department's power marketing administrations are responsible for collecting, and remitting to Treasury, revenues resulting from the sale of hydroelectric power generated by these facilities (see Note 26).

13. Deferred Revenues and Other Credits (in millions)

	FY 2004	FY 2003
Intragovernmental	$ 149	$ 158
Non-intragovernmental		
Nuclear Waste Fund (Note 10)	$ 18,145	$ 16,932
Power marketing administrations	1,895	896
Reimbursable work advances	183	170
Other	12	42
Subtotal	$ 20,235	$ 18,040
Total deferred revenues	**$ 20,384**	**$ 18,198**

Nuclear Waste Fund

NWF revenues are accrued based on fees assessed against owners and generators of high-level radioactive waste and spent nuclear fuel and interest accrued on investments in Treasury securities. These revenues are recognized as a financing source as costs are incurred for NWF activities. Annual adjustments are made to defer revenues that exceed the NWF expenses.

Power Marketing Administrations

The power marketing administrations' deferred revenues primarily represent amounts paid to BPA from participants under various alternating current intertie capacity agreements and load diversification fees paid to BPA by various customers. These one-time payments cover the remaining term of the customer's existing contractual agreement and are recognized as revenues as contract commitments are satisfied. Also included in Deferred Revenues and Other Credits is BPA's offset to IOU Exchange Benefits (see Note 6.)

14. Other Liabilities (in millions)

Intragovernmental	FY 2004	FY 2003
Oil held for Department of Defense (Notes 2 and 7)	$ 106	$ 106
Other	156	165
Total other intragovernmental liabilities	$ 262	$ 271
Non-intragovernmental		
Environment, safety and health compliance activities (Notes 10 and 25)	$ 1,180	$ 820
Occupational illness program – Subtitle D (Notes 10, 21 and 25)	810	-
Accrued payroll and benefits	961	975
Petroleum Pricing Violation Escrow Fund (Note 2)	523	532
Naval Petroleum Reserve Deposit Fund (Note 2)	323	323
Elk Hills School Land Fund (Note 2)	118	154
Other	452	306
Subtotal	$ 4,367	$ 3,110
Total other liabilities	$ 4,629	$ 3,381

Environment, Safety and Health Compliance Activities

The Department's environment, safety, and health liability represents those activities necessary to bring facilities and operations into compliance with existing environmental safety and health (ES&H) laws and regulations (e.g., Occupational Safety and Health Act; Clean Air Act; Safe Drinking Water Act). Types of activities included in the estimate relate to the following: upgrading site-wide fire and radiological programs; nuclear safety upgrades; industrial hygiene and industrial safety; safety related maintenance; emergency preparedness programs; life safety code improvements; and transportation of radioactive and hazardous materials. The estimate covers corrective actions expected to be performed in future years for programs outside the purview of the Department's Environmental Management (EM) Program. ES&H activities within the purview of the EM program are included in the environmental liability estimate. The FY 2004 change in the ES&H liability is due to (1) additional corrective actions, activities, or programs that are required to improve the facilities' state of compliance and move them toward full compliance, or conformance with all applicable ES&H laws, regulations, agreements, and the Department's orders; (2) revised cost estimates for existing ES&H activities; and (3) costs of work performed during the year.

Occupational Illness Program – Subtitle D

Under Subtitle D of the Energy Employees' Occupational Illness Compensation Act of 2000 (Compensation Act), the Department has provided assistance to contractor employees who developed work-related illnesses as a result of exposure to radiation and toxic substances. The Department has assisted these workers and their survivors by providing them access to panels of occupational medicine physicians, who have documented the causes of the illnesses, in particular, whether the illnesses are work-related. The results of these reviews have been used to help support the workers' claims for State Workers' Compensation benefits. The National Defense Authorization Act for Fiscal Year 2005, enacted in October 2004, clarified the amounts that will be payable under the program, which will be administered by the Department of Labor under a new Subtitle E of the Compensation Act. Using estimates developed by the Congressional Budget Office, the Department has recorded a liability for the program, which will be transferred to the Department of Labor during FY 2005.

Accrued Payroll and Benefits

Accrued payroll and benefits represent amounts owed to the Department's Federal and contractor employees.

Elk Hills School Land Fund

This balance represents the portion of the Naval Petroleum Reserve at Elk Hills' sales proceeds being retained for future disbursements to the State of California pending authorization of the Congress. In FY 2004 and FY 2003, the Department made a $36 million payment pursuant to a legislative directive.

Other Liabilities

This balance consists primarily of liabilities associated with other deposit funds, suspense accounts, receipts due to Treasury, and contract advances.

15. Environmental Liabilities (in millions)

	FY 2004	FY 2003
Environmental Management Program	$ 112,826	$ 113,412
Legacy environmental liabilities - other	17,462	18,794
Total legacy environmental liabilities	$ 130,288	$ 132,206
Active and surplus facilities	30,409	30,086
High-level waste and spent nuclear fuel disposition	14,942	14,919
Other	6,103	6,223
Total environmental liabilities	$ 181,742	$ 183,434
Amount funded by current appropriations	(2,737)	(2,435)
Total unfunded environmental liabilities	$ 179,005	$ 180,999
Changes in environmental liabilities		
Total environmental liabilities, beginning balance	$ 183,434	$ 209,629
Changes to environmental liability estimates		
Legacy environmental liabilities	4,990	(19,885)
Active and surplus facilities	418	542
High-level waste and spent nuclear fuel disposition	391	443
Other	212	(135)
Total changes in estimates (Notes 21 and 25)	$ 6,011	$ (19,035)
Operating expenditures related to remediation activities (Note 20)	(6,667)	(6,242)
Capital expenditures related to remediation activities	(1,036)	(918)
Total environmental liabilties	**$ 181,742**	**$ 183,434**

During World War II and the Cold War, the United States developed a massive industrial complex to research, produce, and test nuclear weapons. The nuclear weapons complex included nuclear reactors, chemical processing buildings, metal machining plants, laboratories, and maintenance facilities that manufactured tens of thousands of nuclear warheads and conducted more than one thousand nuclear explosion tests.

At all sites where these activities took place, some environmental contamination occurred. This contamination was caused by the production, storage, and use of radioactive materials and hazardous chemicals, which resulted in contamination of soil, surface water, and groundwater. The environmental legacy of nuclear weapons production also includes thousands of contaminated buildings and large volumes of waste and special nuclear materials requiring treatment, stabilization, and disposal. Approximately one-half million cubic meters of radioactive high-level, mixed, and low-level wastes must be stabilized, safeguarded, and dispositioned, including a quantity of plutonium sufficient to fabricate thousands of nuclear weapons.

Assumptions and Uncertainties

Estimating the Department's environmental cleanup liability requires making assumptions about future activities and is inherently uncertain. The future course of the Department's environmental management program will depend on a number of fundamental technical and policy choices, many of which have not been made. The cost and environmental implications of alternative choices can be profound. For example, many contaminated sites and facilities could be restored to a pristine condition suitable for any desired use; they could also be restored to a point where they pose no near-term health risks to surrounding communities but are essentially surrounded by fences and left in place. Achieving pristine conditions would have a higher cost but may, or may not, warrant the costs and potential ecosystem disruption, or be legally required. The baseline estimates reflect applicable local decisions and expectations as to the extent of cleanup and site and facility reuse, which include consideration of Congressional mandates, regulatory direction, and stakeholder input.

The environmental liability estimates are dependent on annual funding levels and achievement of work as scheduled. Higher funding tends to accelerate cleanup work and reduce cleanup costs; lower funding tends to delay work and increase costs. Congressional appropriations at lower than anticipated levels or unplanned delays in project completion would cause increases in life-cycle costs. The environmental liability estimates include contingency estimates intended to account for the uncertainties associated with the technical cleanup scope of the program.

The liabilities as of September 30, 2004 and 2003, are stated in FY 2004 dollars and FY 2003 dollars, respectively, as required by generally accepted accounting standards for Federal entities. Future inflation could cause actual costs to be substantially higher than the recorded liability.

Components of the Liability

Environmental Management Program Estimates

The Department's Office of Environmental Management (EM) is responsible for managing the legacy of contamination from the nuclear weapons complex. As such, EM manages thousands of contaminated facilities formerly used in the nuclear weapons program, oversees the safe management of vast quantities of radioactive waste and nuclear materials, and is responsible for the cleanup of large volumes of contaminated soil and water. The FY 2004 EM life-cycle cost estimate reflect a strategic vision to complete this cleanup mission by 2035 and achieve substantial cost savings compared to earlier estimates. This strategy provides for a site-by-site projection of the work required to complete all EM projects, while complying with regulatory agreements, statutes, and regulations. Each project baseline estimate includes detailed projections of the technical scope, schedule, and costs at each site for the cleanup of contaminated soil, groundwater, and facilities; treating, storing, and disposing of wastes; and managing nuclear materials. The baseline estimates also include costs for related activities such as landlord responsibilities, program management, and legally prescribed grants and cooperative agreements for participation and oversight by native American tribes, regulatory agencies, and other stakeholders.

During FY 2002, EM completed a Top-to-Bottom Review (Review) to find efficient and cost effective ways to achieve greater real cleanup and risk reduction. The review's major observation was that EM has been oriented towards managing risks rather than actually reducing the risks to the public, workers, and the environment. Based upon the Review's recommendations, EM undertook a number of management reforms to restructure and focus the cleanup program. These reforms include: 1) redefining and aligning acquisition strategies, 2) revitalizing human capital 3) implementing a new budget structure that clearly identifies risk reduction and closure activities, and 4) implementing a strict configuration control system of key management parameters of the cleanup program. This fundamental restructuring and focusing of the cleanup program enabled EM to reduce the FY 2003 life-cycle cost estimate significantly. In FY 2004 progress towards improving efficiency and management of the program continued. Field offices have now prepared technical baselines that describe in detail the activities, schedule and resources required to complete the EM cleanup mission at the respective sites. In addition, EM has implemented an earned value management reporting system to ensure that cleanup progress remains on schedule and within budget. Achievement of accelerated cleanup goals is largely contingent upon receipt of funding, yet to be approved by Congress, during FY 2005 and succeeding years. In addition to the assumptions and uncertainties discussed above, the following key assumptions and uncertainties relate to the EM baseline estimates:

- The Department has identified approximately 10,400 potential release sites from which contaminants could migrate into the environment. Although virtually all of these sites have been at least partially characterized, final remedial action and/or regulatory decisions have not been made for many sites. Site specific assumptions regarding the amount and type of contamination and the remediation technologies that will be utilized were used in estimating the environmental liability related to these sites.
- Cost estimates for management of the Department's high-level waste are predicated upon assumptions as to the timing and rate of acceptance of the waste by the first geological repository. Delays in opening the repository could cause EM project costs to increase.
- Estimates are based on remedies considered technically and environmentally reasonable and achievable by local project managers and appropriate regulatory authorities.
- Estimated cleanup costs at sites for which there is no current feasible remediation approach are excluded from the baseline estimates, although applicable stewardship and monitoring costs for these sites are included. The cost estimate would be higher if some remediation were assumed for these areas. However, because the Department has not identified effective remedial technologies for these sites, no basis for estimating costs is available. An example of a site for which cleanup costs are excluded is the nuclear explosion test area at the Nevada Test Site.
- The Low-Level Radioactive Waste Policy Amendments Act of 1985 assigned responsibility to the Department for the disposal of certain low-level wastes, generated by the Department and others, that are not suitable for near-surface disposal. The Department has not determined a disposal path and has therefore included only storage and monitoring costs for these wastes in the liability. The disposal costs for these wastes are not expected to be material in relation to the Department's environmental liabilities.

Changes to the EM baseline estimates during FY 2004 and FY 2003 resulted from inflation adjustments to reflect constant dollars for the current year; improved and updated estimates for the same scope of work; revisions in acquisition strategies, technical approach or scope; regulatory changes; cleanup activities performed; additional scope and transfers out of the EM baseline estimates, and additions for facilities transferred from the active and surplus category discussed below.

Legacy Environmental Liabilities - Other

These liabilities are comprised of the estimated cleanup and post-closure responsibilities, including surveillance and monitoring activities, soil and groundwater remediation, and disposition of excess materials for sites after the EM program activities have been completed. The costs for these post-closure activities are estimated for a period of 75 years, i.e., through 2079. Some post-cleanup monitoring and other long-term stewardship activities are expected to continue beyond 2079, but the Department believes the costs of these activities cannot reasonably be estimated.

Active and Surplus Facilities

This liability includes anticipated remediation costs for active and surplus facilities managed by the Department's ongoing program operations and which will ultimately require stabilization, deactivation, and decommissioning. The estimate is largely based upon a cost-estimating model which extrapolates stabilization, deactivation, and decommissioning costs from facilities included in the EM baseline estimates to those active and surplus facilities with similar characteristics. Site-specific estimates are used when available. Cost estimates for active and surplus facilities are updated each year to reflect current year constant dollars; the transfer of cleanup and management responsibilities for these facilities by other programs to EM, as discussed above; changes in facility size or contamination assessments; and estimated cleanup costs for newly contaminated facilities. For facilities newly contaminated since FY 1997, cleanup costs allocated to future periods and not included in the liability amounted to $357 million at September 30, 2004, and $297 million at September 30, 2003.

High-Level Waste and Spent Nuclear Fuel Disposition

The Nuclear Waste Policy Act of 1982 established the Department's responsibility to provide for permanent disposal of the Nation's high-level radioactive waste and spent nuclear fuel. The Act requires all owners and generators of high-level nuclear waste and spent nuclear fuel, including the Department, to pay their respective shares of the full cost of the program. To that end, the Act establishes a fee on owners and generators that the Department must collect and annually assess to determine its adequacy. The Department's liability reflects its share of the estimated future costs of the program based on its inventory of high-level waste and spent nuclear fuel, plus the unfunded portion of actual costs incurred to date and the accrued interest on the unfunded costs. The Department's liability does not include the portion of the cost attributable to other owners and generators.

Changes to the high-level waste and spent nuclear fuel disposition liability during FY 2004 and FY 2003 resulted from inflation adjustments to reflect current year constant dollars, revisions in technical approach or scope, changes in the Department's allocable percentage share of future costs, and actual costs incurred by the Department that were allocated to the Department's share of the liability.

Other Environmental Liabilities

Other environmental liabilities consist of liabilities for disposition of surplus plutonium, depleted uranium, and highly enriched uranium.

16. Pension and Other Actuarial Liabilities (in millions)

	FY 2004	FY 2003
Contractor pension plans	$ 1,939	$ 1,823
Contractor postretirement benefits other than pensions	8,471	7,978
Contractor disability and life insurance plans	25	23
Federal Employees' Compensation Act	95	102
Total pension and other actuarial liabilities	**$ 10,530**	**$ 9,926**

Most of the Department's contractors have defined benefit pension plans under which they promise to pay specified benefits to their employees, such as a percentage of the final average pay for each year of service. The Department's cost under the contracts includes reimbursement of annual contractor contributions to these pension plans. The Department's contractors also sponsor postretirement benefits other than pensions (PRB) consisting of predominantly postretirement health care benefits. The Department approves the contractors' pension and postretirement benefit plans and is ultimately responsible for the allowable costs of funding the plans.

The Department reimburses its major contractors for employee disability insurance plans, and estimates are recorded as unfunded liabilities for these plans.

Contractor Pension Plans

The Department follows SFAS No. 87, Employers' Accounting for Pensions, for contractor employees for whom the Department has a continuing pension obligation. As of September 30, 2004, the measurement date, the Department has prepaid pension costs of $1,902 million before minimum liability adjustment and $1,887 after minimum liability adjustment; and accrued pension costs of $1,054 million before minimum liability adjustment and $1,939 million after minimum liability adjustment. The Department has a continuing obligation for a variety of contractor-sponsored pension plans (39 qualified and 6 nonqualified). In this regard, benefit formulas consist of final average pay (30 plans), career average pay (8 plans), dollar per month of service (6 plans), and one defined contribution plan with future contributions for retired employees. Fifteen of the plans cover nonunion employees only; 11 cover union employees only; and 19 cover both union and nonunion employees.

For qualified plans, the Department's current funding policy is for contributions made to a trust during a plan year for a separate defined benefit pension plan to not exceed the greater of (1) the minimum contribution required by Section 302 of the Employee Retirement Income Security Act (ERISA) or (2) the amount estimated to eliminate the unfunded current liability as projected to the end of the plan year. The term "unfunded current liability" refers to the unfunded current liability as defined in Section 302(d)(8) of ERISA. For nonqualified plans, the funding policy is pay-as-you-go.

Plan assets generally include cash and equivalents, stocks, corporate bonds, government bonds, real estate, venture capital, international investments, and insurance contracts. There are three plans that have securities of the employer or related parties included in the plan assets. The total amount invested in such securities is $27 million.

Assumptions and Methods - In order to provide consistency among the Department's various contractors, certain standardized actuarial assumptions were used. These standardized assumptions include the discount rates, mortality assumptions, and an expected long-term rate of return on plan assets, salary scale, and any other economic assumption consistent with an expected long-term inflation rate of 3.0 percent for the

entire U.S. economy with adjustments to reflect regional or industry rates as appropriate. In most cases, ERISA valuation actuarial assumptions for demographic assumptions were used.

The following specific assumptions and methods were used to determine the net periodic pension cost. The weighted average discount rate was 6.00 percent for FY 2004 and 6.50 percent for FY 2003; the average long-term rate of return on assets was 7.77 percent in FY 2004 and 7.90 percent in FY 2003; and the average rate of compensation increase was 4.4 percent in FY 2004 and 4.6 percent in FY 2003. The average long-term rate of return on assets shown above is the average rate for all of the contractor plans. Each contractor develops its own average long-term rate of return on assets based on the specific investment profile of the specific plans it sponsors. Therefore, there is no one overall approach to setting the rate of return for all of the contractors' plans.

The weighted average discount rates used to determine the benefit obligations as of September 30, 2004 and 2003, were 5.75 percent and 6.00 percent, respectively.

Straight line amortization of unrecognized prior service cost over the average remaining years of service of the active plan participants and the minimum amortization of unrecognized gains and losses were used. The transition obligation was amortized over the greater of 15 years or the average remaining service.

Contractor Postretirement Benefits Other Than Pensions

The Department follows SFAS No. 106, *Employers' Accounting for Postretirement Benefits Other Than Pensions*, for contractor employees for whom the Department has a continuing obligation. SFAS No. 106 requires that the cost of PRB be accrued during the years that the employees render service. As of September 30, 2004 and 2003, the measurement dates, the Department has an accrued PRB liability of $8,471 million and $7,978 million, respectively. Generally, the PRB plans are unfunded, and the Department's funding policy is to fund on a pay-as-you-go basis. There are six contractors, however, that are prefunding benefits in part as permitted by law. The Department's contractors sponsor a variety of postretirement benefits other than pensions. Benefits consist of medical (39 contractors), dental (20 contractors), life insurance (23 contractors), and Medicare Part B premium reimbursement (6 contractors). Thirty-eight of the contractors sponsor a traditional indemnity plan, a PPO, an HMO, or similar plan. Seventeen of these also have a point of service plan, an HMO, or similar plan. One additional contractor has only a point of service plan, an HMO, or similar plan.

Assumptions and Methods - In order to provide consistency among the Department's various contractors, certain standardized actuarial assumptions were used. These standardized assumptions include medical and dental trend rates, discount rates, and mortality assumptions.

The following specific assumptions and methods were used in determining the PRB estimates. The medical trend rates for a point of service plan, an HMO, a PPO, or similar plan, grade from 10.0 percent in 2004 down to 5.5 percent in 2012 and later. The medical trend rates for a traditional indemnity plan, or similar plan, grade from 11.0 percent in 2004 down to 5.5 percent in 2012 and later. The dental trend rates at all ages grade down from 7.0 percent in 2004 to 5.0 percent in 2012 and later.

The weighted average discount rates of 6.00 percent for FY 2004 and 6.50 percent for FY 2003, and the average long-term rate of return on assets of 6.58 percent in FY 2004 and 7.46 percent in FY 2003 were used to determine the net periodic postretirement benefit cost. The rate of compensation increase was the same rate as each contractor used to determine pension contributions. The average long-term rate of return on assets shown above is the average rate for all of the contractor plans. Each contractor develops its own average long-term rate of return on assets based on the specific investment profile of the specific plans it sponsors. Therefore, there is no one overall approach to setting the rate of return for all of the contractors' plans.

The weighted average discount rates used to determine the benefit obligation as of September 30, 2004 and 2003, were 5.75 percent and 6.00 percent, respectively.

Straight line amortization of unrecognized prior service cost over the average remaining years of service to full eligibility for benefits of the active plan participants and the minimum amortization of unrecognized gains and losses were used. The Department chose immediate recognition of the transition obligation existing at the beginning of FY 1994.

On December 8, 2003, the President signed into law the Medicare Prescription Drug, Improvement and Modernization Act of 2003. The law provides for a Federal subsidy to sponsors of retiree healthcare benefit plans that provide a benefit at least actuarially equivalent to the benefit established by the law. There are currently 27 contractors that have concluded that their plans are at least actuarially equivalent. There are 6 plans that do not benefit retirees over 65, and 2 plans have determined they are not actuarially equivalent. These eight plans have not reflected any change due to the Act. Four plans were unable at this time to determine the effect of the Act. For the 27 plans that are at least actuarially equivalent, the Department has reflected the impact of the subsidy as an unrecognized gain, which reduced the benefit obligation by $948 million as of September 30, 2004. The net periodic benefit cost for FY 2004 was reduced by $123 million due to the impact of the Act. This impact includes a reduction in service cost of $15 million, a reduction in interest cost of $34 million, and an additional amortized gain of $74 million. Final authoritative guidance, when issued by the Centers for Medicare and Medicaid Services, could require the Department to re-determine the impact of this legislation.

	Pension Benefits		Other Postretirement Benefits	
(in millions)	2004	2003	2004	2003
Reconciliation of funded status				
Accumulated benefit obligation	$ 21,700	$ 19,600		
Effect of future compensation increases	3,797	3,450		
Benefit obligation	$ 25,497	$ 23,050	$10,070	$ 9,877
Plan assets	21,380	19,402	158	156
Funded status	$ (4,117)	$ (3,648)	$ (9,912)	$ (9,721)
Unrecognized net (asset)/obligation at transition	(749)	(869)		
Unrecognized prior service cost	962	984	(367)	(232)
Unrecognized actuarial (gain)/loss	4,752	5,007	1,813	1,979
Net amount recognized	$ 848	$ 1,474	$ (8,466)	$ (7,974)
Minimum liability adjustment	(900)	(1,005)	-	-
Prepaid/(accrued) benefit cost after minimum liability	$ (52)	$ 469	$ (8,466)	$ (7,974)
Total prepaid benefit cost after minimum liability	1,887	2,292	5	4
Total (accrued) benefit cost after minimum liability	$ (1,939)	$ (1,823)	$ (8,471)	$ (7,978)
Components of net periodic costs				
Service costs	$ 749	$ 646	$ 236	$ 226
Interest costs	1,394	1,308	561	553
Expected return on plan assets	(1,519)	(1,452)	(11)	(11)
Net amortization	274	173	55	85
Impact of curtailment or special termination benefits	9	29	(2)	-
Total net periodic costs	$ 907	$ 704	$ 839	$ 853
Contributions and benefit payments				
Employer contributions	$ 279	$ 167	$ 342	$ 264
Participant contributions	3	4	59	57
Benefit payments	986	863	412 *	331 *

* Includes $11 million paid from plan assets for both 2004 and 2003.

(in millions)	Pension Benefits	Other Postretiremernt Benefits
Expected contributions for fiscal year ending 9/30/2005		
Employer contributions	$277	$304
Participant contributions	3	63

		Other Postretirement Benefits		
(in millions)	Pension Benefits	Gross Payment	Less Federal Medicare Subsidy	Net Payment
Estimated future benefit payments				
Fiscal Year 2005	$1,015	$356	$0	$356
Fiscal Year 2006	1,088	397	13	384
Fiscal Year 2007	1,180	435	30	405
Fiscal Year 2008	1,189	471	34	437
Fiscal Year 2009	1,270	509	38	471
Fiscal Year 2010 to 2014	7,867	3,111	235	2,876

The chart below shows the average target allocation for the 38 pension benefit plans and six other postretirement benefit plans with assets. The average actual fiscal year 2004 and 2003 allocations of assets are also shown.

Pension Benefits

Asset Category	Target Allocation	Percent of Plan Assets at September 30, 2004	Percent of Plan Assets at September 30, 2003
Cash and equivalents	1.1%	4.6%	5.6%
Government bonds	12.7%	9.2%	10.0%
Corporate bonds	17.8%	16.1%	17.0%
Domestic equities	44.1%	43.5%	44.9%
International equities	9.7%	9.5%	5.0%
Real Estate	1.5%	1.0%	2.2%
Insurance contracts (general accounts)	11.7%	12.3%	11.7%
Insurance contracts (separate accounts)	0.0%	2.6%	2.6%
Employer securities	0.2%	0.2%	0.3%
Other	1.2%	1.0%	0.7%
Total	100%	100%	100%

Other Postretirement Benefits

Asset Category	Target Allocation	Percent of Plan Assets at September 30, 2004	Percent of Plan Assets at September 30, 2003
Cash and equivalents	0.0%	1.0%	0.6%
Government bonds	8.0%	4.4%	11.0%
Corporate bonds	0.0%	0.0%	5.0%
Domestic equities	12.0%	14.6%	3.4%
International equities	0.0%	0.0%	0.0%
Real Estate	0.0%	0.0%	0.0%
Insurance contracts (general accounts)	60.0%	60.0%	60.0%
Insurance contracts (separate accounts)	0.0%	0.0%	0.0%
Employer securities	0.0%	0.0%	0.0%
Other	20.0%	20.0%	20.0%
Total	100%	100%	100%

Each contractor develops its own investment policies and strategies for the plans it sponsors. Therefore, there is no one overall investment policy for the contractors' plans. Generally, their objectives provide for benefit security for plan participants through the maximization of total returns while limiting risk and providing liquidity coverage of benefit payments.

17. Contingencies and Commitments (in millions)

		FY 2004	FY 2003
Spent nuclear fuel litigation		$ 1,920	$ 2,000
Waste Incidental to Reprocessing Litigation	(Notes 21 and 25)	-	850
Other		23	31
Total contingencies and commitments		**$ 1,943**	**$ 2,881**

The Department is a party in various administrative proceedings, legal actions, and tort claims which may ultimately result in settlements or decisions adverse to the Federal Government. The Department has accrued contingent liabilities where losses are determined to be probable and the amounts can be estimated. Other significant contingencies exist where a loss is reasonably possible or where a loss is probable and an estimate cannot be determined. In some cases, a portion of any loss that may occur may be paid from Treasury's Judgment Fund (Judgment Fund). The Judgment Fund is a permanent, indefinite appropriation available to pay judgments against the Government for which the Department, unless required by law, is not required to reimburse from its appropriated funds. The following are significant contingencies:

- *Spent Nuclear Fuel Litigation* - In accordance with the Nuclear Waste Policy Act of 1982 (NWPA), the Department entered into contracts with more than 45 utilities in which, in return for payment of fees into the Nuclear Waste Fund, the Department agreed to begin disposal of spent nuclear fuel (SNF) by January 31, 1998. Because the Department has no facility available to receive SNF under the NWPA, the Department has been unable to begin disposal of the utilities' SNF as required by the contracts. Significant litigation has ensued as a result of this delay.

  To date, that litigation has conclusively established that the Department's obligation to begin disposal of SNF is legally binding notwithstanding the lack of a facility to receive SNF. Currently, four suits have been settled and 60 suits by nuclear utilities, in which they collectively seek $6.18 billion for breach of contract, remain pending in the Court of Federal Claims. The industry is reported to estimate that damages for all utilities with which the Department has contracts will be at least $50 billion. The Department, however, believes that the industry estimate is highly inflated and that, if the Department prevails on some key disputed issues, the actual total damages suffered by all utilities as a result of the delay in beginning SNF disposal is probably in the range of between $2 billion and $3 billion and has recorded a liability for the low end of that range, less $80 million that has been paid to date.

  Liability is certain, and in most of the pending cases, orders have been entered affirming the Government's liability. The only outstanding issue is ascertaining the actual amount of damages. At this time, it is uncertain whether damages would be paid from the Judgment Fund, the Nuclear Waste Fund, or some other source.

- *Waste Incidental to Reprocessing (WIR) Litigation* – In July 2003, a Federal District Court in Idaho ruled that the Department's plan to classify a portion of its tank waste as other than high-level waste would violate provisions of the Nuclear Waste Policy Act of 1982. As a result, in FY 2003 the Department recorded a provision for the estimated cost impact of delays in its high-level waste program pending resolution of this litigation. The FY 2005 National Defense Authorization Act, enacted in October 2004, contains a provision that clarifies and resolves the Department's tank waste classification authority for the Savannah River Site in South Carolina and the Idaho National Engineering and Environmental Laboratory in Idaho. However, this legislation did not resolve the tank waste classification issue for the Hanford Site in Washington.

  On November 5, 2004, the 9th U.S. Circuit Court of Appeals overturned the District Court's decision and directed the Court to dismiss the lawsuit. Additional legal challenges to the Department's waste

classification authority are possible. Nonetheless, the Department believes that cost impacts to its tank waste program are unlikely, and has removed the previously recorded provision for program delays from its consolidated financial statements as of September 30, 2004. If future legal challenges arise and are successful, the potential exists for significant increases to the Department's environmental liabilities.

- *Alleged Exposures to Radioactive and/or Toxic Substances* - A number of class action and/or multiple plaintiff tort suits have been filed against the Department's current and former contractors in which the plaintiffs seek damages for alleged exposures to radioactive and/or toxic substances as a result of the historic operations of the Department's nuclear facilities. The most significant of these cases arise out of past operations of the facilities at Rocky Flats, Colorado; Hanford, Washington; Paducah, Kentucky; Portsmouth (Piketon) and Mound, Ohio; and Brookhaven, New York. Collectively, damages sought in these cases exceed $119 billion. In addition, current and former contractors of the Department face class action lawsuits alleging exposure by contractor employees to toxic dust at the Yucca Mountain site.

  These cases are being vigorously defended, and, while in some cases proceedings are not far enough advanced to evaluate their likely outcome, in some of these cases substantially all of the plaintiffs' claims have been dismissed by the courts, and the likelihood of an unfavorable outcome is remote. Accordingly, the Department believes that, to the extent that there is a reasonable possibility of an unfavorable outcome in any of these cases, any liability that might ultimately be imposed would be significantly less than what the plaintiffs seek. No related liabilities are recorded in the Department's financial statements.

- *Offsite Waste Litigation* – The State of Washington and interest groups have filed complaints in District Court seeking to prevent shipment of radioactive waste by the Department to the Hanford site. In May 2003, the Court issued a preliminary injunction against shipments of transuranic waste and the State has filed a motion to expand the preliminary injunction to include offsite low-level and mixed low-level wastes. In addition, on November 2, 2004, voters in the State of Washington approved Initiative 297, which seeks to prevent the Department from shipping offsite waste to the Hanford site until existing waste at the site is cleaned up. The impact of this litigation and the approval of Initiative 297 on the costs of the Department's cleanup program are uncertain, and as a result no provision for additional costs is included in the consolidated financial statements.

- *Depleted Uranium* – The Department has entered into settlements with the states of Kentucky and Ohio regarding the management of depleted uranium hexafluoride. The Kentucky settlement has been challenged by a lawsuit seeking to require the Department to manage the depleted uranium as hazardous waste under the Resource Conservation and Recovery Act of 1976. If the Department were required to manage this material in accordance with RCRA, it may have to make significant capital improvements and undertake additional recurring monitoring and inspection activities. The Department believes that it will be successful in defending against the lawsuit and will not be required to manage the depleted uranium as RCRA waste, and has included no provision for the costs of doing so in its consolidated financial statements.

- *Uranium Enrichment Services Pricing* - This litigation concerns whether electric utilities that purchased uranium enrichment services from the Department are entitled to retroactive price reductions based on the alleged inclusion of inappropriate costs in the prices the Government charged for enrichment services. Six complaints have been filed involving the claims of 35 utilities. In aggregate, the pending cases seek approximately $1,058 million. In 2003, the Court of Federal Claims entered judgment in favor of the United States in the lead case. That judgment, however, was vacated by the Court of Appeals for the Federal Circuit during FY 2004 and the case was remanded to the Court of Federal Claims for further proceedings. No related liabilities are recorded in the Department's financial statements.

- *Yucca Mountain Repository* – In July 2004, the U.S. Court of Appeals in Washington, D.C. vacated a standard promulgated by the Environmental Protection Agency for the protection of the environment from

offsite releases of radioactive material from the Yucca Mountain repository. The EPA standard required the Department to limit offsite releases from the repository for 10,000 years. The Court held that EPA violated the Energy Policy Act of 1992, which required the agency to issue standards for Yucca Mountain based upon and consistent with findings by the National Academy of Sciences, whose report issued in 1995 stated that the radiation hazard from the repository might continue for a much longer period. The standard for protection from radiation is one of the criteria that the Nuclear Regulatory Commission will consider in its evaluation of a license application for the repository.

An NRC pre-licensing hearing panel has vacated a certification by the Department that all available licensing documentation was submitted in June 2004 to the NRC licensing support network. The Department expects to certify or re-certify the documentation prior to submitting the license application. In addition, the State of Nevada has filed a lawsuit challenging the Department's Record of Decision on the mode of transportation and selection of a rail corridor for disposal of radioactive waste at the repository.

The impact of the matters discussed in the two preceding paragraphs upon NRC's evaluation of a license application and upon the Department's schedule to open the repository is unknown.

- *Termination of a Fixed-Price Remediation Subcontract at the Idaho National Engineering and Environment Laboratory (INEEL)* - In 1998, DOE's former Management and Operating contractor for INEEL, Lockheed Martin Idaho Technologies Co. (LMITCO), terminated the Pit 9 Comprehensive Demonstration Project Subcontract with Lockheed Martin Advanced Environmental Systems, Inc. (LMAES) for default and thereafter filed suit against LMAES in the United States District Court for the District of Idaho seeking return of $54 million LMITCO had advanced for that subcontract and for other additional remedies. In response, LMAES filed a counterclaim against LMITCO for $317 million. A bench trial before the District Court concluded in November 2003, and in November 2004, the court issued its decision rejecting LMAES' counterclaim and concluding that LMITCO had properly terminated the Pit 9 subcontract for default and that, pursuant to its guarantee of performance, LMAES is required to return over $54 million in advance payments made to it by LMITCO, together with interest at the rate of 12% per annum beginning July 1, 1998. The court further held that LMAES is responsible for the reasonable estimate of nearly $12 million for Decontamination and Decommissioning (D&D) costs. The court reserved a ruling on attorneys' fees and costs. Exclusive of attorneys' fees, LMAES ' liability under the decision amounts to approximately $107. At this time it is uncertain whether LMAES will appeal the decision to the U.S. Court of Appeals for the 9th Circuit.

- *Purchase/Sales Commitments and Irrigation Assistance*

  The PMAs have entered into various agreements for power and transmission purchases and sales that vary in length but generally do not exceed 20 years. Current rates recover the additional costs of the obligations. The sales commitments are arrangements to sell expected surplus generating capabilities at future dates and the purchase commitments are to purchase power at future dates when the PMAs forecasts a shortage of generating capability and prices are favorable. These contracts maximize revenues on estimated surplus volumes.

  As directed by legislation, BPA is required to make cash distributions to Treasury for original construction costs of certain Pacific Northwest irrigation projects that have been determined to be beyond the irrigators' ability to pay. These irrigation distributions do not specifically relate to power generation and are required only if doing so does not result in an increase to power rates. Accordingly, these distributions are not considered to be regular operating costs of the power program and are treated as distributions from accumulated net revenues (expenses) when paid.

The following table summarizes future purchase power/sales commitments and irrigation assistance.

(in millions)

Fiscal Year	Purchase Power	Sales Commitments	Irrigation Assistance
2005	$ 657	$ 2,279	$ -
2006	597	2,117	-
2007	111	1,554	-
2008	68	1,563	3
2009	64	1,562	7
2010+	132	3,140	658
Total	**$ 1,629**	**$ 12,215**	**$ 668**

18. Earned Revenues (in millions)

	FY 2004	FY 2003
Naval Reactors		
Intragovernmental	$ (8)	$ (22)
Energy Security		
Public	$ (4,013)	$ (4,566)
Intragovernmental	(76)	(60)
Total Energy Security	(4,089)	(4,626)
Environmental Management		
Public	$ (16)	$ (16)
Intragovernmental	(137)	(144)
Total Environmental Management	(153)	(160)
Nuclear Waste		
Public	$ (722)	$ (723)
Intragovernmental	(812)	(792)
Less Deferred Revenue Adjustment	1,212	1,189
Total Nuclear Waste	(322)	(326)
Reimbursable Programs		
Public	$ (404)	$ (392)
Intragovernmental	(2,353)	(1,938)
Total Reimbursable Programs	(2,757)	(2,330)
Other Programs		
Federal Energy Regulatory Commission		
Public (Note 19)	$ (213)	$ (203)
Other		
Public	(90)	(19)
Total Other Programs	(303)	(222)
Total earned revenues	**$ (7,632)**	**$ (7,686)**

Energy Security

These revenues primarily result from the Department's power marketing activities. The Department's four power marketing administrations market electricity generated primarily by Federal hydropower projects. Preference for the sale of power is given to public bodies and cooperatives. Revenues from selling power and transmission services are used to repay Treasury annual appropriations and maintenance costs, repay the capital investments with interest, and assist capital repayment of other features and certain projects. Revenues collected by the Southeastern, Southwestern, and Western Area power marketing administrations on behalf of other agencies are reported as custodial activity (see Note 26).

Environmental Management

These revenues primarily result from assessed fees to domestic utilities to pay for the costs for decontamination and decommissioning DOE's gaseous diffusion facilities used for uranium enrichment services. Revenue from assessments against domestic utilities is recognized when such assessments are authorized by legislation. Revenue recognized includes known adjustments for transfers between utilities and other reconciliation adjustments. Increases in current and future assessments due to changes in the Consumer Price Index are recognized in each fiscal year as such changes occur. Interest earned on accumulated funds in excess of those needed to pay current program costs totaled $131 million and $135 million for September 30, 2004 and 2003, respectively.

Nuclear Waste

The Nuclear Waste Policy Act of 1982 requires the Department to assess fees against owners and generators of high-level radioactive waste and spent nuclear fuel to fund the costs associated with management and disposal activities under the Act. Fees of $736 million and $728 million were assessed as of September 30, 2004 and 2003, respectively. Interest earned on fees owed and on accumulated funds in excess of those needed to pay current program costs totaled $799 million and $787 million for FY 2004 and FY 2003, respectively. Adjustments are made annually to defer the recognition of revenues until earned (i.e., as costs are incurred for the Civilian Radioactive Waste Management program).

Reimbursable Programs

The Department performs work for other Federal agencies and private companies on a reimbursable work basis and on a cooperative work basis. The Department also has entered into cooperative research and development agreements to increase the transfer of Federally funded technologies to the private sector for the benefit of the U.S. economy.

The Department's policy is to establish prices for materials and services provided to public entities at the Department's full cost. In some cases, the full cost information reported by the Department in accordance with SFFAS 4, *Managerial Cost Accounting Concepts and Standards for the Federal Government*, exceeds revenues. This results from implementation of provisions contained in the Economy Act of 1932, as amended; the Atomic Energy Act of 1954, as amended; and the National Defense Authorization Act for Fiscal Year 1999, which provide the Department with the authority to charge customers an amount less than the full cost of the product or service. Costs attributable to generating intragovernmental reimbursable program revenues were $2,341 million and $1,949 million for FY 2004 and FY 2003, respectively.

Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission (FERC) is an independent regulatory organization within the Department that regulates essential aspects of electric, natural gas and oil pipeline, and non-Federal hydropower 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 it ensures that hydropower licensing, administration, and safety actions are consistent with the public interest. FERC assesses most of its administrative program costs as an annual charge to each regulated entity.

19. Supporting Schedule of Net Costs for Other Programs (in millions)

	FY 2004		FY 2003	
Federal Energy Regulatory Commission				
Program costs - public	$ 213		$ 203	
Less earned revenues (Note 18)	(213)		(203)	
		$ -		$ -
Inspector General		41		36
Environment Safety and Health		162		138
Other Defense Activities		298		302
Other programs - public				
Program costs	$ 44		$ 45	
Less earned revenues (Note 18)	(90)		(19)	
		(46)		26
Total net cost for other programs		**$ 455**		**$ 502**

20. Costs Applied to Reduction of Legacy Environmental Liabilities

Costs applied to reduction of legacy environmental liabilities are current year operating expenditures for the remediation of contaminated facilities and wastes generated from past operations. These amounts are excluded from current year program expenses since the expense was accrued in prior years when the Department recorded the environmental liabilities.

21. Costs Not Assigned (in millions)

	FY 2004	FY 2003
Change in unfunded environmental liability estimates (Note 15)	$ 6,011	$ (19,035)
Changes in contractor pension and PRB estimates (Notes 9 & 16)	1,013	1,224
Waste Incidental to Reprocessing Litigation (Note 17)	(850)	850
Change in unfunded safety and health liabilities (Note 14)	360	84
Change in occupational illness program -		
Subtitle B	846	(267)
Subtitle D (Notes 10 & 14)	810	-
Radiation Exposure Compensation Act	-	-
Other	87	95
Total	**$ 8,277**	**$ (17,049)**

Compensation Program for Occupational Illnesses

Subtitle B

Public Law 106-398, the Energy Employees Occupational Illness Compensation Program Act of 2000, authorized compensation for certain illnesses suffered by employees of the Department, its predecessor agencies, and contractors who performed work for the nuclear weapons program. Subtitle B covers illnesses associated with exposure to radiation, beryllium, or silica. In general, each eligible employee or survivors of deceased employees will receive compensation for the disability or death of that employee in the amount of $150,000 plus the costs of medical care. A supplement to the Radiation Exposure Compensation Act (RECA) beneficiaries is also available in the amount of $50,000. The law makes future payments under this program the responsibility of the Department of Labor. Therefore, the remaining liability is not recorded by the

Department. The amount of the change in total liability is recognized by the Department as an imputed cost and as an imputed financing source. During FY 2004 the amount of the liability increased by $846 million.

Radiation Exposure Compensation Act

On October 15, 1990, the Radiation Exposure Compensation Act (RECA) was enacted providing for payments to individuals who contracted certain cancers and other serious diseases presumably as a result of their exposures to radiation released during above ground nuclear weapons tests or as a result of their employment associated with the uranium mining industry during the Cold War era. RECA provided that the Department of Justice administer the program. This program is similar to the Compensation Program for Occupational Illnesses noted above. The remaining liability under the RECA program is not recorded by, and is not the responsibility of, the Department. There was no change in the accrued liability during FY 2004. The amount of the change in this accrued liability in FY 2003 was not calculated by the Department of Justice but was not considered material.

22. Net Cost of Transferred Operations

The Homeland Security Act of 2002 created the Department of Homeland Security (DHS) to prevent terrorist attacks within the United States and to reduce the vulnerabilities of the Unites States to terrorism. In accordance with the Homeland Security Act of 2002, the Department transferred certain functions to DHS as of March 1, 2003. The cost of these functions prior to their transfer to DHS is reported as "Net Cost of Transferred Operations" on the *Consolidated Statements of Net Cost*. The specific functions transferred include:

- The National Infrastructure Simulation and Analysis Center and other elements of the Energy Security and Assurance Program;
- The chemical and biological national security and supporting programs and activities of the nonproliferation and verification research and development program;
- The nuclear smuggling programs and activities within the proliferation detection program of the nonproliferation and verification research and development program;
- The nuclear assessment program activities within the assessment, detection, and cooperation program of the international materials protection and cooperation program;
- Life sciences activities of the biological and environmental research program related to microbial pathogens;
- The Environmental Measurements Laboratory;
- The advanced scientific computing research program activities at Lawrence Livermore National Laboratory.

23. Nuclear Waste Fund Offsetting Receipts, Deferred

The Department defers the recognition of revenues related to the fees paid by owners and generators of spent nuclear fuel, and the interest earned on the invested balance of these funds, to the extent that the receipts exceed current year costs for developing and managing a permanent repository for spent nuclear fuel generated by civilian reactors. In addition, market value adjustments for Treasury securities of the Nuclear Waste Fund are not recognized as revenues in the current period unless redeemed by the Department. The gross amount of receipts, interest collected, and the market value adjustments for zero coupon bond investments are reported as offsetting receipts on the *Consolidated Statements of Financing*. Therefore, a reconciling amount is reported for that portion of the offsetting receipts for which revenues are not recognized in the current period.

24. Statement of Budgetary Resources (in millions)

The *Statement of Budgetary Resources* is presented on a combined, rather than a consolidated, basis in accordance with OMB guidance.

Details of Obligations Incurred:

	FY 2004	FY 2003
Direct, subject to apportionment	$ 23,878	$ 22,732
Direct, not subject to apportionment	4,547	3,483
Reimbursable, subject to apportionment	4,062	3,530
Total obligations incurred	**$ 32,487**	**$ 29,745**

Adjustments to Beginning Balances of Budgetary Resources:

	FY 2004	FY 2003
Prior year unobligated balance, net - end of period		
Available, apportioned	$ 1,790	$ 1,501
Exempt from apportionment	15	9
Not available	1,803	1,642
Total - prior year unobligated balance	$ 3,608	$ 3,152
Other Adjustments	(32)	(41)
Prior year balance temporarily not available pursuant to public law	-	40
Current year unobligated balance, start of period	**$ 3,576**	**$ 3,151**

Unobligated Balances Not Available:

	FY 2004	FY 2003
United States Enrichment Corporation Fund	$ 1,350	$ 1,301
Reimbursable work/collections in excess of amount anticipated	119	299
Prior year deobligations in excess of apportioned amount	4	194
Expired appropriations and other amounts not apportioned	13	9
Total unobligated balances not available	**$ 1,486**	**$ 1,803**

Unobligated balances not available represent budgetary resources that have not been apportioned to the Department.

Reconciliation to the Budget:

	FY 2004			FY 2003		
	Budgetary Resources	Obligations Incurred	Outlays	Budgetary Resources	Obligations Incurred	Outlays
Combined Statement of Budgetary Resources	$ 36,523	$ 32,487	$ 23,087	$ 33,353	$ 29,745	$ 21,721
OMB adjustments made to exclude United States Enrichment Corporation	(1,350)	-	48	(1,301)	-	43
Expired accounts	(7)	-	-	(9)	-	-
Other	-	-	-	(7)	1	(1)
Budget of the United States Government	$ 35,166	$ 32,487	$ 23,135	$ 32,036	$ 29,746	$ 21,763

The FY 2004 *Combined Statement of Budgetary Resources* final reconciliation will be done once the President's Budget is published in February 2005. The FY 2003 *Combined Statement of Budgetary Resources* is reconciled to the President's Budget that was published in February 2004.

25. Increases/(Decreases) in Unfunded Liabilities (in millions)

	FY 2004	FY 2003
Change in unfunded environmental liability estimates (Note 15)	$ 6,011	$ (19,035)
Change in contractor net pension and PRB liabilities (Notes 9 and 16)	1,013	1,224
Waste Incidental to Reprocessing Litigation (Note 17)	(850)	850
Change in unfunded safety and health liabilities (Note 14)	360	84
Compensation program for occupational illnesses - Subtitle D (Notes 14 and 21)	810	-
Change in other unfunded liabilities	213	30
Total increases/(decreases) in unfunded liabilities	**$ 7,557**	**$ (16,847)**

26. Custodial Activities (in millions)

	FY 2004	FY 2003
Cash Collections		
Power marketing administrations	$ 624	$ 512
Petroleum Pricing Violation Escrow Fund	3	4
Other	75	20
Total cash collections for custodial activities	**$ 702**	**$ 536**

Power Marketing Administrations

The Southeastern, Southwestern, and Western Area Power Marketing Administrations are responsible for collecting and remitting to the Department of the Treasury revenues attributable to the hydroelectric power projects owned and operated by the Department of Defense, Army Corps of Engineers; the Department of Interior, Bureau of Reclamation; and the Department of State, International Boundary and Water Commission. These revenues are reported as custodial activities of the Department.

Petroleum Pricing Violation Escrow Fund

Custodial revenues for the Petroleum Pricing Violation Escrow Fund result primarily from interest earned from investment of the fund balance, which is invested in U.S. Treasury Bills and certificates of deposit with minority owned financial institutions, pending determination of the disposition of the funds. Funds are disbursed to individuals and groups who are able to provide proof of financial injury related to the violations of Petroleum Pricing Regulations during the 1970s and early 1980s. The Department also distributes funds to the U.S. Treasury and to the States, Possessions, and Territories of the United States.

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Consolidating Schedules

Consolidating Schedules - Balance Sheets

As of September 30, 2004 and 2003
($ in millions)

	FY 2004			
	Federal Energy Regulatory Commission	Power Marketing Administrations	All Other DOE Programs	Eliminations
ASSETS				
Intragovernmental				
Fund Balance with Treasury	$ 105	$ 1,046	$ 14,455	$ -
Investments, Net	-	-	20,532	-
Accounts Receivable, Net	-	24	1,538	(999)
Regulatory Assets	-	4,613	-	-
Other	-	4	38	(29)
Total Intragovernmental	$ 105	$ 5,687	$ 36,563	$ (1,028)
Investments, Net	-	-	256	-
Accounts Receivable, Net	34	385	3,643	-
Inventory, Net				
Strategic Petroleum & Northeast Home Heating Oil Reserves	-	-	18,148	-
Nuclear Materials	-	-	21,722	-
Other	-	95	341	-
General Property, Plant, and Equipment, Net	8	5,647	16,678	-
Regulatory Assets	-	5,741	-	-
Other	-	3,085	2,198	-
Total Assets	$ 147	$ 20,640	$ 99,549	$ (1,028)
LIABILITIES				
Intragovernmental				
Accounts Payable	$ 3	$ 16	$ 228	$ (146)
Debt	-	7,357	-	-
Appropriated Capital Owed	-	3,111	-	-
Deferred Revenues and Other Credits	-	105	926	(882)
Other	55	54	153	-
Total Intragovernmental	$ 58	$ 10,643	$ 1,307	$ (1,028)
Accounts Payable	6	221	3,156	-
Debt	-	6,531	-	-
Deferred Revenues and Other Credits	-	1,895	18,340	-
Environmental Liabilities	-	-	181,742	-
Pension and Other Actuarial Liabilities	-	51	10,479	-
Other	62	189	4,116	-
Contingencies and Commitments	-	-	1,943	-
Total Liabilities	$ 126	$ 19,530	$ 221,083	$ (1,028)
NET POSITION				
Unexpended Appropriations	$ 18	$ 4	$ 8,762	$ -
Cumulative Results of Operations	3	1,106	(130,296)	-
Total Net Position	$ 21	$ 1,110	$ (121,534)	$ -
Total Liabilities and Net Position	$ 147	$ 20,640	$ 99,549	$ (1,028)

See independent auditors' report.

	FY 2003				
Consolidated	Federal Energy Regulatory Commission	Power Marketing Administrations	All Other DOE Programs	Eliminations	Consolidated
$ 15,606	$ 88	$ 846	$ 13,890	$ -	$ 14,824
20,532	-	-	18,849	-	18,849
563	-	31	1,532	(1,073)	490
4,613	-	4,690	-	-	4,690
13	-	4	35	(32)	7
$ 41,327	$ 88	$ 5,571	$ 34,306	$ (1,105)	$ 38,860
256	-	-	256	-	256
4,062	40	531	3,818	-	4,389
18,148	-	-	16,818	-	16,818
21,722	-	-	22,144	-	22,144
436	-	99	354	-	453
22,333	11	5,385	15,861	-	21,257
5,741	-	4,954	-	-	4,954
5,283	-	2,702	2,822	-	5,524
$ 119,308	$ 139	$ 19,242	$ 96,379	$ (1,105)	$ 114,655
$ 101	$ 1	$ 37	$ 102	$ (17)	$ 123
7,357	-	7,538	-	-	7,538
3,111	-	2,906	-	-	2,906
149	-	105	1,141	(1,088)	158
262	42	63	166	-	271
$ 10,980	$ 43	$ 10,649	$ 1,409	$ (1,105)	$ 10,996
3,383	6	234	2,847	-	3,087
6,531	-	6,443	-	-	6,443
20,235	-	896	17,144	-	18,040
181,742	-	-	183,434	-	183,434
10,530	-	58	9,868	-	9,926
4,367	68	59	2,983	-	3,110
1,943	-	-	2,881	-	2,881
$ 239,711	$ 117	$ 18,339	$ 220,566	$ (1,105)	$ 237,917
$ 8,784	$ 15	$ 10	$ 8,875	$ -	$ 8,900
(129,187)	7	893	(133,062)	-	(132,162)
$ (120,403)	$ 22	$ 903	$ (124,187)	$ -	$ (123,262)
$ 119,308	$ 139	$ 19,242	$ 96,379	$ (1,105)	$ 114,655

See independent auditors' report.

Consolidating Schedules of Net Cost

For Years Ended September 30, 2004 and 2003
($ in millions)

	FY 2004			
	Federal Energy Regulatory Commission	Power Marketing Administrations	All Other DOE Programs	Eliminations
GENERAL GOALS				
Nuclear Weapons Stewardship:				
Program Costs	$ -	$ -	$ 6,220	$ -
Nuclear Nonproliferation:				
Program Costs	$ -	$ -	$ 1,101	$ -
Naval Reactors:				
Program Costs	-	-	740	-
Less: Earned Revenues	-	-	(8)	-
Net Cost of Naval Reactors	$ -	$ -	$ 732	$ -
Energy Security:				
Program Costs	-	3,722	2,723	(67)
Less: Earned Revenues	-	(4,107)	(34)	52
Net Cost of Energy Security	$ -	$ (385)	$ 2,689	$ (15)
World-Class Scientific Research Capacity:				
Program Costs	-	-	3,196	-
Environmental Management:				
Program Costs	-	-	6,732	(449)
Less: Earned Revenues	-	-	(153)	-
Net Cost of Environmental Management	$ -	$ -	$ 6,579	$ (449)
Nuclear Waste:				
Program Costs	-	-	530	-
Less: Earned Revenues	-	-	(196)	(126)
Net Cost of Nuclear Waste	$ -	$ -	$ 334	$ (126)
Net Cost of General Goals	$ -	$ (385)	$ 20,851	$ (590)
OTHER PROGRAMS:				
Reimbursable Programs:				
Program Costs	-	-	2,738	-
Less: Earned Revenues	-	-	(2,757)	-
Net Cost of Reimbursable Programs	$ -	$ -	$ (19)	$ -
Other Programs				
Program Costs	213	-	642	(97)
Less: Earned Revenues	(213)	-	(187)	97
Net Cost of Other Programs	$ -	$ -	$ 455	$ -
Costs Applied to Reduction of Legacy Environmental Liabilities	-	-	(6,667)	-
Costs Not Assigned	-	-	8,151	126
Net Cost of Continuing Operations	$ -	$ (385)	$ 22,771	$ (464)
Net Cost of Transferred Operations	-	-	-	-
Net Cost of Operations	$ -	$ (385)	$ 22,711	$ (464)

See independent auditors' report.

	FY 2003				
Consolidated	Federal Energy Regulatory Commission	Power Marketing Administrations	All Other DOE Programs	Eliminations	Consolidated
$ 6,220	$ -	$ -	$ 5,214	$ -	$ 5,214
$ 1,101	$ -	$ -	$ 968	$ -	$ 968
740	-	-	687	-	687
(8)	-	-	(22)	-	(22)
$ 732	$ -	$ -	$ 665	$ -	$ 665
6,378	-	3,894	2,392	(51)	6,235
(4,089)	-	(4,552)	(112)	38	(4,626)
$ 2,289	$ -	$ (658)	$ 2,280	$ (13)	$ 1,609
3,196	-	-	3,068	-	3,068
6,283	-	-	6,720	(433)	6,287
(153)	-	-	(160)	-	(160)
$ 6,130	$ -	$ -	$ 6,560	$ (433)	$ 6,127
530	-	-	421	-	421
(322)	-	-	(157)	(169)	(326)
$ 208	$ -	$ -	$ 264	$ (169)	$ 95
$ 19,876	$ -	$ (658)	$ 19,019	$ (615)	$ 17,746
2,738	-	-	2,351	-	2,351
(2,757)	-	-	(2,330)	-	(2,330)
$ (19)	$ -	$ -	$ 21	$ -	$ 21
758	203	-	609	(88)	724
(303)	(202)	-	(108)	88	(222)
$ 455	$ 1	$ -	$ 501	$ -	$ 502
(6,667)	-	-	(6,242)	-	(6,242)
8,277	-	-	(17,218)	169	(17,049)
$ 21,922	$ 1	$ (658)	$ (3,919)	$ (446)	$ (5,022)
-	-	-	44	-	44
$ 21,922	$ 1	$ (658)	$ (3,875)	$ (446)	$ (4,978)

See independent auditors' report.

Consolidating Schedules of Changes in Net Position

For Years Ended September 30, 2004 and 2003
($ in millions)

	FY 2004			
	Federal Energy Regulatory Commission	Power Marketing Administrations	All Other DOE Programs	Eliminations
CUMULATIVE RESULTS OF OPERATIONS:				
Beginning Balance	$ 7	$ 893	$ (133,062)	$ -
Budgetary Financing Sources:				
Appropriations Used	(3)	6	23,106	-
Nonexchange Revenues	-	-	13	-
Donations, Financial	-	-	1	-
Transfers - In/Out Without Reimbursement, Budgetary	-	(178)	(82)	-
Other Financing Sources:				
Transfers - In/Out Without Reimbursement, Nonbudgetary	(9)	-	1,040	-
Imputed Financing from Costs Absorbed by Others	8	-	1,003	-
Other	-	-	456	(464)
Total Financing Sources	$ (4)	$ (172)	$ 25,537	$ (464)
Net Cost of Operations	-	385	(22,771)	464
Ending Balance - Cumulative Results of Operations	$ 3	$ 1,106	$ (130,296)	$ -
UNEXPENDED APPROPRIATIONS:				
Beginning Balance	$ 15	$ 10	$ 8,875	$ -
Budgetary Financing Sources Related to Appropriations:				
Appropriations Received	-	-	23,173	-
Appropriations Transferred - In/Out	-	-	11	-
Other Adjustments	-	-	(191)	-
Appropriations Used	3	(6)	(23,106)	-
Total Financing Sources Related to Appropriations	$ 3	$ (6)	$ (113)	$ -
Ending Balance - Unexpended Appropriations	$ 18	$ 4	$ 8,762	$ -

See independent auditors' report.

	FY 2003				
Consolidated	Federal Energy Regulatory Commission	Power Marketing Administrations	All Other DOE Programs	Eliminations	Consolidated
$ (132,162)	$ 27	$ 218	$ (159,561)	$ -	$ (159,316)
23,109	(3)	-	21,377	-	21,374
13	-	-	20	-	20
1	-	-	-	-	-
(260)	-	20	(28)	-	(8)
1,031	(11)	(4)	997	-	982
1,011	10	1	(189)	-	(178)
(8)	(15)	-	447	(446)	(14)
$ 24,897	$ (19)	$ 17	$ 22,624	$ (446)	$ 22,176
(21,922)	(1)	658	3,875	446	4,978
$ (129,187)	$ 7	$ 893	$ (133,062)	$ -	$ (132,162)
$ 8,900	$ -	$ 11	$ 8,195	$ -	$ 8,206
23,173	-	-	22,248	-	22,248
11	-	(1)	(25)	-	(26)
(191)	12	-	(166)	-	(154)
(23,109)	3	-	(21,377)	-	(21,374)
$ (116)	$ 15	$ (1)	$ 680	$ -	$ 694
$ 8,784	$ 15	$ 10	$ 8,875	$ -	$ 8,900

See independent auditors' report.

Combining Schedules of Budgetary Resources

For Years Ended September 30, 2004 and 2003
($ in millions)

	FY 2004			
	Federal Energy Regulatory Commission	Power Marketing Administrations	All Other DOE Programs	Combined
BUDGETARY RESOURCES				
Budget Authority				
Appropriations Received	$ 3	$ 215	$ 23,972	$ 24,190
Borrowing and Contract Authority	-	1,681	-	1,681
Net Transfers	-	(74)	(11)	(85)
Unobligated Balance				
Beginning of Period	4	176	3,396	3,576
Net Transfers, Actual	-	-	(2)	(2)
Spending Authority from Offsetting Collections				
Earned				
Collected	204	3,948	2,851	7,003
Receivable from Federal Sources	-	(86)	109	23
Change in Unfilled Customer Orders				
Advances received	-	(39)	(1)	(40)
Without Advances from Federal Sources	-	(8)	993	985
Recoveries of Prior Year Obligations	-	-	32	32
Authority Temporarily Not Available	-	-	(101)	(101)
Authority Permanently Not Available	-	(482)	(257)	(739)
Total Budgetary Resources	$ 211	$ 5,331	$ 30,981	$ 36,523
STATUS OF BUDGETARY RESOURCES				
Obligations Incurred				
Direct	$ 205	$ 247	$ 23,426	$ 23,878
Exempt from Apportionment	-	4,356	191	4,547
Reimbursable	-	568	3,494	4,062
Total Obligations Incurred	$ 205	$ 5,171	$ 27,111	$ 32,487
Unobligated Balances Available				
Apportioned Available	6	160	2,372	2,538
Exempt from Apportionment	-	-	12	12
Unobligated Balances Not Available	-	-	1,486	1,486
Total Status of Budgetary Resources	$ 211	$ 5,331	$ 30,981	$ 36,523
RELATIONSHIP OF OBLIGATIONS TO OUTLAYS				
Obligated Balance - Beginning of Period	$ 24	$ 870	$ 10,612	$ 11,506
Obligated Balance, Transferred	-	-	-	-
Obligated Balance, Net of Transfers - Beginning of Period	$ 24	$ 870	$ 10,612	$ 11,506
Obligated Balance - End of Period				
Accounts Receivable	$ -	$ (256)	$ (380)	$ (636)
Unfilled Customer Orders from Federal Sources	-	(8)	(3,700)	(3,708)
Undelivered Orders	12	164	10,185	10,361
Accounts Payable	14	2,182	4,690	6,886
	$ 26	$ 2,082	$ 10,795	$ 12,903
Outlays				
Disbursements	$ 204	$ 4,052	$ 25,794	$ 30,050
Collections	(205)	(3,910)	(2,848)	(6,963)
Subtotal	$ (1)	$ 142	$ 22,946	$ 23,087
Less: Offsetting Receipts	(19)	(531)	(2,611)	(3,161)
Net Outlays	$ (20)	$ (389)	$ 20,335	$ 19,926

See independent auditors' report.

FY 2003			
Federal Energy Regulatory Commission	Power Marketing Administrations	All Other DOE Programs	Combined
$ 3	$ 193	$ 22,848	$ 23,044
-	673	-	673
-	(128)	(118)	(246)
2	157	2,992	3,151
-	-	74	74
192	4,066	2,486	6,744
-	38	37	75
-	84	15	99
-	9	551	560
-	-	218	218
-	-	(90)	(90)
-	(796)	(153)	(949)
$ 197	$ 4,296	$ 28,860	$ 33,353
$ 193	$ 233	$ 22,306	$ 22,732
-	3,344	139	3,483
-	543	2,987	3,530
$ 193	$ 4,120	$ 25,432	$ 29,745
4	176	1,610	1,790
-	-	15	15
-	-	1,803	1,803
$ 197	$ 4,296	$ 28,860	$ 33,353
$ 34	$ 637	$ 10,527	$ 11,198
-	-	(20)	(20)
$ 34	$ 637	$ 10,507	$ 11,178
$ -	$ (342)	$ (270)	$ (612)
-	(16)	(2,707)	(2,723)
11	170	9,712	9,893
13	1,058	3,877	4,948
$ 24	$ 870	$ 10,612	$ 11,506
$ 203	$ 3,841	$ 24,520	$ 28,564
(192)	(4,150)	(2,501)	(6,843)
$ 11	$ (309)	$ 22,019	$ 21,721
(23)	(612)	(1,744)	(2,379)
$ (12)	$ (921)	$ 20,275	$ 19,342

See independent auditors' report.

Consolidating Schedules of Financing

For Years Ended September 30, 2004 and 2003
($ in millions)

	FY 2004			
	Federal Energy Regulatory Commission	Power Marketing Administrations	All Other DOE Programs	Eliminations
RESOURCES USED TO FINANCE ACTIVITIES:				
Budgetary Resources Obligated:				
Obligations Incurred	$ 205	$ 5,171	$ 27,111	$ -
Less: Spending Authority from Offsetting Collections and Recoveries	(204)	(3,815)	(3,984)	-
Obligations, Net of Offsetting Collections and Recoveries	$ 1	$ 1,356	$ 23,127	$ -
Offsetting Receipts	(19)	(531)	(2,611)	-
Net Obligations	$ (18)	$ 825	$ 20,516	$ -
Other Resources:				
Imputed Financing from Costs Absorbed by Others	7	-	1,004	-
Transfers-In/Out	(9)	-	1,040	-
NWF Offsetting Receipts, Deferred	-	-	2,095	-
Other	-	-	7	(15)
Net Other Resources Used to Finance Activities	$ (2)	$ -	$ 4,146	$ (15)
Total Resources Used to Finance Activities	$ (20)	$ 825	$ 24,662	$ (15)
RESOURCES USED TO FINANCE ITEMS NOT PART OF THE NET COST OF OPERATIONS:				
Change in Resources Obligated for Goods/Services/Benefits Ordered But Not Yet Provided	$ (1)	$ (42)	$ 549	$ -
Resources that Finance the Acquisition of Assets	-	(542)	(3,894)	-
Resources that Fund Expenses Recognized in Prior Periods	-	-	(7,298)	-
Budgetary Offsetting Collections and Receipts that Do Not Affect the Net Cost of Operations	19	291	517	(740)
Other Resources and Adjustments	(3)	(1,673)	(302)	165
Total Resources Used to Finance Items Not Part of the Net Cost of Operations	$ 15	$ (1,966)	$ (10,428)	$ (575)
Total Resources Used to Finance the Net Cost of Operations	$ (5)	$ (1,141)	$ 14,234	$ (590)
NET COST OF ITEMS THAT DO NOT REQUIRE OR GENERATE RESOURCES IN CURRENT PERIOD:				
Components Requiring or Generating Resources in Future Periods:				
Decreases in Unfunded Liability Estimates	$ 1	$ 178	$ 7,252	$ 126
Increase in Exchange Revenue Receivable from the Public	-	3	-	-
Total Components Requiring or Generating Resources in Future Periods:	$ 1	$ 181	$ 7,252	$ 126
Components Not Requiring or Generating Resources:				
Depreciation and Amortization	$ 2	$ 447	$ 1,090	$ -
Revaluation of Assets and Liabilities	-	-	(161)	-
Other	2	128	356	-
Total Components Not Requiring or Generating Resources	$ 4	$ 575	$ 1,285	$ -
Total Net Cost of Items that Do Not Require or Generate Resources in Current Period	$ 5	$ 756	$ 8,537	$ 126
NET COST OF OPERATIONS	$ -	$ (385)	$ 22,771	$ (464)

See independent auditors' report.

	FY 2003				
Consolidated	Federal Energy Regulatory Commission	Power Marketing Administrations	All Other DOE Programs	Eliminations	Consolidated
$ 32,487	$ 193	$ 4,120	$ 25,432	$ -	$ 29,745
(8,003)	(192)	(4,197)	(3,307)	-	(7,696)
$ 24,484	$ 1	$ (77)	$ 22,125	$ -	$ 22,049
(3,161)	(23)	(612)	(1,744)	-	(2,379)
$ 21,323	$ (22)	$ (689)	$ 20,381	$ -	$ 19,670
1,011	10	1	(190)	-	(179)
1,031	(11)	(4)	997	-	982
2,095	-	-	1,177	-	1,177
(8)	15	(1)	13	(13)	14
$ 4,129	$ 14	$ (4)	$ 1,997	$ (13)	$ 1,994
$ 25,452	$ (8)	$ (693)	$ 22,378	$ (13)	$ 21,664
$ 506	$ (2)	$ 29	$ (233)	$ -	$ (206)
(4,436)	-	(408)	(4,103)	-	(4,511)
(7,298)	-	-	(6,191)	-	(6,191)
87	23	414	520	(737)	220
(1,813)	(7)	(758)	(351)	135	(981)
$ (12,954)	$ 14	$ (723)	$ (10,358)	$ (602)	$ (11,669)
$ 12,498	$ 6	$ (1,416)	$ 12,020	$ (615)	$ 9,995
$ 7,557	$ -	$ 15	$ (17,031)	$ 169	$ (16,847)
3	(10)	(10)	1	-	(19)
$ 7,560	$ (10)	$ 5	$ (17,030)	$ 169	$ (16,866)
$ 1,539	$ 4	$ 428	$ 1,144	$ -	$ 1,576
(161)	-	-	(149)	-	(149)
486	1	325	140	-	466
$ 1,864	$ 5	$ 753	$ 1,135	$ -	$ 1,893
$ 9,424	$ (5)	$ 758	$ (15,895)	$ 169	$ (14,973)
$ 21,922	$ 1	$ (658)	$ (3,875)	$ (446)	$ (4,978)

See independent auditors' report.

Consolidating Schedules of Custodial Activities

For Years Ended September 30, 2004 and 2003
($ in millions)

	FY 2004			
	Federal Energy Regulatory Commission	Power Marketing Administrations	All Other DOE Programs	Eliminations
SOURCES OF COLLECTIONS				
Cash Collections				
Interest	$ -	$ -	$ 3	$ -
Federal Energy Regulatory Commission	75	-	-	-
Power Marketing Administration Custodial Revenue	-	624	-	-
Total Cash Collections	$ 75	$ 624	$ 3	$ -
Accrual Adjustment	6	(5)	3	-
Total Revenue	$ 81	$ 619	$ 6	$ -
DISPOSITION OF REVENUE				
Transferred to Others				
Department of the Treasury	(26)	(485)	(10)	-
Army Corps of Engineers	(7)	-	-	-
Bureau of Reclamation	(6)	(138)	-	-
Others	(3)	-	(6)	-
(Increase)/Decrease in Amounts to be Transferred	(39)	4	10	-
Net Custodial Activity	$ -	$ -	$ -	$ -

See independent auditors' report.

	FY 2003					
Consolidated	Federal Energy Regulatory Commission	Power Marketing Administrations	All Other DOE Programs	Eliminations	Consolidated
$ 3	$ -	$ -	$ 4	$ -	$ 4
75	20	-	-	-	20
624	-	512	-	-	512
$ 702	$ 20	$ 512	$ 4	$ -	$ 536
4	16	(7)	3	-	12
706	$ 36	$ 505	$ 7	$ -	$ 548
(521)	(5)	(469)	(8)	-	(482)
(7)	(7)	-	-	-	(7)
(144)	(6)	(44)	-	-	(50)
(9)	(2)	1	(2)	-	(3)
(25)	(16)	7	3	-	(6)
$ -	$ -	$ -	$ -	$ -	$ -

FINANCIAL RESULTS

See independent auditors' report.

Required Supplementary Stewardship Information for Research and Development (unaudited)

The Department of Energy is the single largest Federal government supporter of basic research in the physical sciences in the United States, providing more than 40 percent of total Federal funding. It oversees, and is the principal Federal funding agency of, the Nation's research programs in high energy physics, nuclear physics and fusion energy sciences. Our diverse research portfolio supports tens of thousands of principal investigators, post-doctoral students and graduate students tackling some of the most challenging scientific questions of our era.

In accordance with Statement of Federal Financial Accounting Standard Number 8 - "Supplementary Stewardship Reporting Chapter 7 - Research and Development," the Department reports the following expenses for research and development programs that are intended to increase or maintain national economic productive capacity or yield other future benefits. Investments in research and development refer to those expenses incurred to support the search for new or refined knowledge and ideas and for the application or use of such knowledge and ideas for the development of new or improved products or processes with the expectation of maintaining or increasing national economic productive capacity or yielding other future benefits.

Supplementary Stewardship Reporting on Research and Development Costs for Fiscal Years ending September 30 (in millions)

	FY 2004 Direct Cost	FY 2004 Depreciation & Other Managerial Cost	FY 2004 Total Cost	FY 2003 Direct Cost	FY 2003 Depreciation & Other Managerial Cost	FY 2003 Total Cost
BASIC						
Nuclear Nonproliferation	$13.2	$1.0	$14.2	$10.1	$1.5	$11.6
Energy Security						
Energy Efficiency	30.3	4.6	34.9	24.0	3.5	27.5
Fossil Energy	7.1	.8	7.9	10.0	1.2	11.2
Power Marketing Administration**	3.4	-	3.4	3.3	-	3.3
World-Class Scientific Research	2,581.3	583.4	3,164.7	2,448.0	594.0	3,042.0
Environmental Management	-	-		-	-	-
TOTAL BASIC	**$2,635.3**	**$589.8**	**$3,225.1**	**$2,495.4**	**$600.2**	**$3,095.6**

* FY 2001 & FY 2000 information provided via crosswalk from previous report format utilizing responsibility segments.
** Full R&D investments for the Power Marketing Administrations are included under direct costs of the Energy Security Goal.

Direct Cost	FY2002 Depreciation & Other Managerial Cost	Total Cost	Direct Cost	FY2001 * Depreciation & Other Managerial Cost	Total Cost	Direct Cost	FY2000 * Depreciation & Other Managerial Cost	Total Cost
$8.4	$1.3	$9.7	$15.5	$1.7	$17.2	$13.5	$1.4	$14.9
30.2	5.4	35.6	26.2	8.0	34.2	27.9	4.4	32.3
5.9	1.5	7.4	7.0	2.0	9.0	5.3	1.4	6.7
3.2	-	3.2	3.0	-	3.0	1.3	-	1.3
2,598.0	506.0	3,104.0	2,204.8	392.0	2,596.8	2,096.0	328.6	2424.6
-	-	-	33.8	6.1	39.9	39.5	6.6	46.1
$2,645.7	**$514.2**	**$3,159.9**	**$2,290.3**	**$409.8**	**$2,700.1**	**$2,183.5**	**$342.4**	**$2,525.9**

Supplementary Stewardship Reporting on Research and Development Costs for Fiscal Years ending September 30 (in millions)

	Direct Cost	FY 2004 Depreciation & Other Managerial Cost	Total Cost	Direct Cost	FY 2003 Depreciation & Other Managerial Cost	Total Cost
APPLIED						
Nuclear Weapons Stewardship	$1,888.0	$405.0	$2,293.0	$1,660.5	$454.5	$2,115.0
Nuclear Nonproliferation	60.4	4.4	64.8	95.2	13.8	109.0
Energy Security						
Energy Efficiency	202.4	20.1	222.5	169.7	21.9	191.6
Fossil Energy	176.5	19.5	196.0	186.7	21.7	208.4
Nuclear Energy	74.3	6.5	80.8	12.3	1.2	13.5
Electric Transmissions and Distribution	18.7	2.1	20.8	-	-	-
Power Marketing Administration**	11.8	-	11.8	11.4	-	11.4
World-Class Scientific Research	3.1	0.5	3.6	2.9	0.5	3.4
Environmental Management	28.1	4.1	32.2	23.4	4.4	27.8
Nuclear Waste	65.3	1.8	67.1	75.8	1.0	76.8
Other Defense Activities	12.0	5.4	17.4	-	-	-
TOTAL APPLIED	**$2,540.6**	**$469.4**	**$3,010.0**	**$2,237.9**	**$519.0**	**$2,756.9**
DEVELOPMENT						
Nuclear Weapons Stewardship	$543.4	$121.0	$664.4	$734.3	$221.5	$955.8
Nuclear Nonproliferation	49.4	3.1	52.5	66.1	9.9	76.0
Naval Reactors	667.1	17.7	684.8	621.8	16.3	638.1
Energy Security						
Energy Efficiency	422.1	41.8	463.9	352.4	42.8	395.2
Fossil Energy	192.9	20.8	213.7	202.1	23.0	225.1
Nuclear Energy	20.6	1.6	22.2	16.0	2.4	18.4
Electric Transmissions and Distribution	38.0	3.2	41.2			
Power Marketing Administration**	8.8	-	8.8	8.7	-	8.7
Environmental Management	65.5	9.6	75.1	54.7	10.3	65.0
Nuclear Waste	-	-	-	-	-	-
Other Defense Activities	26.3	12.4	38.7	32.0	15.3	47.3
TOTAL DEVELOPMENT	**$2,034.1**	**$231.2**	**$2,265.3**	**$2,088.1**	**$341.5**	**$2,429.6**
TOTAL RESEARCH AND DEVELOPMENT	**$7,210.0**	**$1,290.4**	**$8,500.4**	**$6,821.4**	**$1,460.7**	**$8,282.1**

* FY 2001& FY 2000 information provided via crosswalk from previous report format utilizing responsibility segments.

**Full R&D investments for the Power Marketing Administrations are included under direct costs of the Energy Security Goal.

Direct Cost	FY 2002 Depreciation & Other Managerial Cost	Total Cost	Direct Cost	FY 2001 * Depreciation & Other Managerial Cost	Total Cost	Direct Cost	FY 2000 * Depreciation & Other Managerial Cost	Total Cost
$1,700.0	$379.6	$2,079.6	$1,416.2	$222.5	$1,638.7	$1,213.0	$128.1	$1,341.1
72.2	11.0	83.2	75.9	7.4	83.3	$66.1	7.4	73.5
180.4	11.8	192.2	231.7	24.3	256.0	208.0	26.0	234.0
131.6	10.3	141.9	133.0	35.3	168.3	120.0	31.0	151.0
20.9	5.0	25.9	26.8	2.8	29.6	-	-	-
-	-	-	-	-	-	-	-	-
11.1	-	11.1	10.8	-	10.8	10.5	-	10.5
37.9	4.3	42.2	81.0	1.1	82.1	75.7	4.2	79.9
89.9	20.8	110.7	77.7	15.5	93.2	72.2	12.0	84.2
62.5	2.6	65.1	60.4	3.1	63.5	58.7	4.7	63.4
-	-	-	-	-	-	-	-	-
$2,306.5	**$445.4**	**$2,751.9**	**$2,113.5**	**$312.0**	**$2,425.5**	**$1,824.2**	**$213.4**	**$2,037.6**
$726.6	$175.7	$902.3	$643.3	$201.7	$845.0	$547.5	$50.8	$598.3
83.8	13.3	97.1	79.1	7.4	86.5	88.9	10.1	99.0
653.0	16.6	669.6	604.5	40.9	645.4	633.5	59.9	693.4
403.5	30.3	433.8	461.0	51.7	512.7	444.8	44.6	489.4
167.6	17.4	185.0	157.6	36.9	194.5	150.5	41.9	192.4
-	-	-	-	-	-	19.0	2.9	21.9
-	-	-	-	-	-	-	-	-
8.7	-	8.7	8.4	-	8.4	9.6	-	9.6
134.8	31.2	166.0	116.6	23.2	139.8	108.3	17.9	126.2
-	-	-	-	-	-	7.6	2.1	9.7
4.3	0.5	4.8	30.3	12.1	42.4	6.5	0.3	6.8
$2,182.3	**$285.0**	**$2,467.3**	**$2,100.8**	**$373.9**	**$2,474.7**	**$2,016.2**	**$230.5**	**$2,246.7**
$7,134.5	**$1,244.6**	**$8,379.1**	**$6,504.6**	**$1,095.7**	**$7,600.3**	**$6,023.9**	**$786.3**	**$6,810.2**

Research and Development Activities and Significant Accomplishments By General Goal:

Nuclear Weapons Stewardship: *Applied & Development*
Defense Program activities (1) providing the scientific understanding and engineering development capabilities necessary to support near-term and long-term requirements of the nuclear stockpile; (2) providing scientific understanding of the nuclear package of the weapons systems in order to sustain our ability to certify the nuclear weapons stockpile, support stockpile refurbishment and life extension and to provide capabilities and components necessary to support maintenance and refurbishment in the absence of nuclear testing; and (3) activities ensuring the weapons complex and its facilities and infrastructure are in place to manufacture and certify the 21st century nuclear weapons stockpile.

The applied research and development program of the advanced simulation and computing campaign helps to support the nuclear weapons stewardship goal by ensuring that our nuclear weapons will continue to serve their essential deterrence role. One key goal of the National Nuclear Security Administration is to predict, with confidence, the behavior of nuclear weapons through comprehensive, science based simulations. This will require leading edge, high-end simulation capabilities necessary to meet weapons assessment and certification requirements. Such capabilities include developing weapon codes, weapon science, platforms, computer facilities and the necessary support to make the system operate together. This requires developing high-speed computer platforms with capability measured in trillion of operations per second (Teraflops). The Department intends to have n individual platform capable of performing 100 Teraflop of advanced computations in operation by 2005. For FY 2004, the Department committed to deliver a platform that can perform 40 Teraflops, that is 10 TeraBytes memory and 240 Terabytes storage. However, testing a new chip design has taken longer than planned and has delayed the delivery and operation of the 40 Teraflops platform. At the completion of FY 2004 maximum individual computing capability remains at 20 Teraflops.

Nuclear Nonproliferation: *Basic, Applied & Development*
Activities conducted to provide the science and technology required for treaty monitoring and material control, as well as early detection and characterization of the proliferation of weapons of mass destruction and special nuclear materials and improving the technologies leading to major improvements in responding to chemical and biological attacks.

Under the Department's goal to have all worldwide fissile nuclear materials under controls acceptable to the United States by 2025, nonproliferation verification research and development program will develop new technologies to improve our detection and monitoring capabilities. Advanced radiation and remote sensing technologies will be developed and evaluated through customized tests which challenge and characterize their operating parameters. For FY 2004, the Department committed to seven of such technologies intended to improve the accuracy in detecting the early stages of nuclear weapons programs. The Department exceeded this target and conducted nine tests during FY 2004.

Naval Reactors: *Development*
Activities included development, demonstration, improvement, and safe operation of nuclear propulsion plants and reactor cores for application to submarines and surface ships.

The next generation submarine reactor plant design applied research and development program helps to provide the Navy with safe, militarily effective nuclear propulsion plants. For FY 2004, the Department committed to one hundred percent completion of the next generation plant design. The target was met, the VIRGINIA is in final sea trials and scheduled for commissioning in early FY 2005.

ENERGY SECURITY

Energy Efficiency and Renewable Energy: *Basic, Applied & Development*
Activities (1) conducted in solar technologies; (2) conducted in geothermal technologies; (3) conducted in wind and hydropower technologies; (4) conducted in hydrogen and fuel cell technologies for transportation, stationary, and portable application; (5) related to energy conservation for the building sector, including residential building, commercial building, and retrofit technologies; (6) related to distributed energy technologies; (7) related to biomass technologies; (8) related to implementation of energy efficiency and renewable energy in the federal sector; (9) conducted in support of energy conservation and energy supply for the industry sector; (10) conducted in support of energy conservation for the transportation sector, including automotive alternative fuels and electric vehicles; and, (11) related to activities in energy conservation and renewable energy for Intergovernmental activities including the State Energy Program and Weatherization Program.

The Department will improve energy security by developing technologies that foster a diverse supply of reliable, affordable and environmentally sound energy by providing for reliable delivery of energy, guarding against energy emergencies, exploring advanced technologies that make a fundamental improvement in our mix of energy options. The hydrogen technology program is one such example. This program will research, develop and validate hydrogen production, delivery and storage for transportation and stationary applications. This program is also a key component of the President's Hydrogen Fuel Initiative, allowing the Nation to move forward and achieve a vision of a diverse, secure and emissions-free future. Research under this program is targeted to reduce the cost of distributed production of hydrogen from natural gas, enable cost competitive production from renewables and provide storage technology. By 2010, the Department would like to bring down the cost of the hydrogen equivalent of a gallon of gas to $1.50. For FY 2004, the department committed to complete research for natural gas-to-hydrogen production and dispensing component development and fabrication towards achieving 5,000 pounds per square inch hydrogen for $3.00 per gallon of gas equivalent at the station (untaxed and without co-production of electricity). The Department did not meet this target in FY 2004. Process engineering, controls engineering, safety reviews and operability reviews have begun and final system deployment is expected in the third quarter of 2005.

Fossil Energy: *Basic, Applied & Development*
Activities (1) related improving acceptable technology for converting coal to liquid and gaseous fuels, improving methods for direct combustion of coal, and advancing power conversion systems for generating electricity from coal; (2) carried out in support of natural gas recovery; (3) conducted to support advanced technologies for the petroleum and oil from oil shale recovery of oil and natural gas, technologies and development in drilling, offshore oil production and refining, and characterization and utilization research; and, (4) carried out as a result of cooperative research awards from competitive solicitations initiated under the Fossil Energy Federal/State Program as well as other research activities relating to mining research.

Nuclear Energy: *Applied & Development*
Activities carried out to address key issues affecting the future of Nuclear Energy and ensuring current nuclear plants can continue to operate up to and beyond their initial license period. Including, the deployment of the next generation nuclear energy system, development and demonstration on the feasibility of nuclear energy for the large scale, emission-free production of hydrogen and innovative research and development on advanced fuel cycle technologies and electrometallurgical treatment of the Department's sodium-bonded spent nuclear fuel.

Power Marketing Administration: *Basic, Applied & Development*
Research activities primarily supporting the Fish and Wildlife programs at Bonneville Power Administration.

Electric Transmission and Distribution: *Applied & Development*
Research and development activities addressing high temperature superconductivity, transmission reliability, electric distribution transformation, and innovative energy storage.

World-Class Scientific Research Capacity: *Basic & Applied*
Research in the areas of (1) advanced scientific computing relevant to the complex problems of the Department and providing world class supercomputer and networking facilities for scientists; (2) basic energy sciences including nuclear sciences, materials sciences, chemical sciences, engineering geosciences, energy biosciences, advanced energy projects and advanced mathematical sciences; (3) biological and environmental research needed to identify, understand, and anticipate the long term health and environmental consequences of energy production, development, and use; (4) fusion energy sciences including broad-based, fundamental research efforts aimed at producing knowledge on fusion; (5) high energy physics activities directed at understanding the nature of matter and energy; (6) nuclear physics activities directed at understanding the fundamental forces and particles of nature as manifested in nuclear matter; and, (7) small business innovative research/technology transfer support for energy related technologies that will significantly benefit US businesses, a technology transfer initiative.

In an effort to provide world-class scientific research, the Department has developed a high energy physics program designed to understand the universe at a more basic level, searching for possible new dimensions of space. High energy physics experiments involve precise measurements of phenomena buried in a background of noise or conventional physics processes. Such particle interaction is measured by luminosity, specifically the chance that a proton will collide with an antiproton, the higher the luminosity, the greater the chance of massive particle production. Integrated luminosity integrates out the time dependence in order to get a total number of events. To achieve high integrated luminosity, as many particles as possible must be placed into the detector. Scientists are eager to increase the integrated luminosity (measured in inverse picobarns) and produce more collisions increasing the chance of observing new particle reactions. For FY 2004 the Department committed to deliver within 20 percent of the baseline estimate of 240 inverse picobarns of integrated data. The Department delivered 331 inverse picobarns of integrated data during FY 2004.

Environmental Management: *Applied & Development*
Technology development activities (1) to support site closure through technical support and quick response highly focused science and technology projects and (2) develop and provide the scientific and technical rationale to support development of alternative approaches and step improvements for high risk/high cost baseline estimates.

Nuclear Waste: *Applied*
Activities conducted on the long-term storage of high level nuclear waste at a permanent underground repository.

Other Defense Activities: *Applied & Development*
Activities related to systems development that may be used or shared with other federal agencies and private industry as well as activities related to the protection of the nation's energy infrastructure.

Required Supplementary Information (unaudited)

This section of the report provides required supplementary information (RSI) for the Department on deferred maintenance, budgetary resources by major budget account and intra-governmental balances.

Deferred Maintenance

Deferred maintenance information is a requirement under SFFAS No.6, *Accounting for Property, Plant and Equipment* and SFFAS No.14, *Amendments to Deferred Maintenance* which requires deferred maintenance to be disclosed as of the end of each fiscal year. Deferred maintenance is defined in SFFAS No.6 as "maintenance that was not performed when it should have been or was scheduled to be and which, therefore, is put off or delayed for a future period." Estimates were developed for:

Buildings and Other Structures and Facilities	$3,804 million
Capital Equipment	$61 million
TOTAL	$3,865 million

Buildings, and Other Structures and Facilities

The condition assessment survey (periodic inspections) method was used in measuring a deferred maintenance estimate for buildings and other structures and facilities except for some structures and facilities where a physical barrier was present (e.g., underground pipe systems). In those cases, where a deficiency is identified during normal operations and correction of the deficiency is past due, a deferred maintenance estimate would be applicable. Also, where appropriate, results from previous condition assessments have been adjusted to estimate current plant conditions. Deferred maintenance for excess property was reported only in situations where maintenance is needed for worker and public health and safety concerns.

In accordance with standards identified in the National Association of College and University Business Officers, in "Managing the Facilities Portfolio", the acceptable operation conditions standard is equal to a Facility Condition Index (FCI) of < 5 percent.

As of September 30, 2004, an amount of $3,804 million of deferred maintenance was estimated to be required to return the facilities to acceptable operating condition. The percentage of active buildings above acceptable operating condition is estimated at 69 percent.

Capital Equipment

Pursuant to the cost/benefit considerations provided in SFFAS No.6, the Department has determined that the requirements for deferred maintenance reporting on personal property (capital equipment) is not applicable to property items with an acquisition cost of less than $100,000, except in situations where maintenance is needed to address worker and public health and safety concerns.

Various methods were used for measuring deferred maintenance and determining acceptable operating condition for the Department's capital equipment including periodic condition assessments, physical inspections, review of work orders, manufacturer and engineering specification, and other methods, as appropriate.

An amount of $61 million of deferred maintenance was estimated to be needed as of September 30, 2004, to return capital equipment assets to acceptable operating condition.

Budgetary Resources by Major Account
For the Year Ended September 30, 2004
($ in millions)

	Fossil Energy R&D 89-0213	Energy Conservation 89X0215	Science 89X0222	Energy Supply 89-0224	Weapons Activities 89-0240
BUDGETARY RESOURCES					
Budgetary Authority	$ 667	$ 879	$ 3,544	$ 748	$ 6,250
Unobligated Balance, Net - Beginning of Period	388	27	27	119	534
Spending Authority from Offsetting Collections	-	(1)	-	808	2,863
Recoveries of Prior Year Obligations	4	2	2	4	1
Authority Temporarily Not Available	-	-	-	-	-
Authority Permanently Not Available	(8)	(11)	(21)	(10)	(37)
Total Budgetary Resources	$ 1,051	$ 896	$ 3,552	$ 1,669	$ 9,611
STATUS OF BUDGETARY RESOURCES					
Obligations Incurred	$ 506	$ 880	$ 3,539	$ 1,603	$ 8,766
Unobligated Balances Available	543	15	13	63	731
Unobligated Balances Not Available	2	1		3	114
Total Status of Budgetary Resources	$ 1,051	$ 896	$ 3,552	$ 1,669	$ 9,611
RELATIONSHIP OF OBLIGATIONS TO OUTLAYS					
Obligated Balance, Net - Beginning of Period	$ 468	$ 664	$ 1,859	$ 497	$ 1,890
Obligated Balance, Net - End of Period	$ 478	$ 617	$ 2,059	$ 583	$ 1,575
Outlays	491	926	3,336	706	6,218
Less: Offsetting Receipts	-	-	-	-	-
Net Outlays	$ 491	$ 926	$ 3,336	$ 706	$ 6,218

	Other Defense Activities 89-0243	**Defense Environmental Services 89X0249**	**Defense Site Acceleration Completion 89-0251**	**Defense Nuclear Nonproliferation 89-0309**	**Naval Reactors 89X0314**
BUDGETARY RESOURCES					
Budgetary Authority	$ 701	$ 989	$ 5,642	$ 1,375	$ 767
Unobligated Balance, Net -Beginning of Period	32	61	96	301	2
Spending Authority from Offsetting Collections	-	-	-	-	-
Recoveries of Prior Year Obligations	3	2	1	5	-
Authority Temporarily Not Available	-	-	-	-	-
Authority Permanently Not Available	(4)	(21)	(33)	(8)	(5)
Total Budgetary Resources	$ 732	$ 1,031	$ 5,706	$ 1,673	$ 764
STATUS OF BUDGETARY RESOURCES					
Obligations Incurred	$ 712	$ 941	$ 5,681	$ 1,166	$ 762
Unobligated Balances Available	19	89	25	502	2
Unobligated Balances Not Available	1	1	-	5	-
Total Status of Budgetary Resources	$ 732	$ 1,031	$ 5,706	$ 1,673	$ 764
RELATIONSHIP OF OBLIGATIONS TO OUTLAYS					
Obligated Balance, Net - Beginning of Period	$ 429	$ 330	$ 2,486	$ 964	$ 211
Obligated Balance, Net - End of Period	$ 461	$ 298	$ 2,536	$ 966	$ 246
Outlays	677	972	5,630	1,158	727
Less: Offsetting Receipts	-	-	-	-	-
Net Outlays	$ 677	$ 972	$ 5,630	$ 1,158	$ 727

	Bonneville Power Administration 89X4045	Western Area Power Administration 89X5068	United States Enrichment Corporation Fund 95X4054	All Other Appropriations	Combined Statement of Budgetary Resources
BUDGETARY RESOURCES					
Budgetary Authority	$ 1,607	$ 178	$ -	$ 2,439	$ 25,786
Unobligated Balance, Net Beginning of Period	-	111	1,301	575	3,574
Spending Authority from Offsetting Collections	3,229	357	48	667	7,971
Recoveries of Prior Year Obligations	-	-	1	7	32
Authority Temporarily Not Available	-	-	-	(101)	(101)
Authority Permanently Not Available	(481)	(1)	-	(99)	(739)
Total Budgetary Resources	$ 4,355	$ 645	$ 1,350	$ 3,488	$ 36,523
STATUS OF BUDGETARY RESOURCES					
Obligations Incurred	$ 4,355	$ 559	$ -	$ 3,017	$ 32,487
Unobligated Balances Available	-	86	-	462	2,550
Unobligated Balances Not Available	-	-	1,350	9	1,486
Total Status of Budgetary Resources	$ 4,355	$ 645	$ 1,350	$ 3,488	$ 36,523
RELATIONSHIP OF OBLIGATIONS TO OUTLAYS					
Obligated Balance, Net - Beginning of Period	$ 617	$ 202	$ 1	$ 888	$ 11,506
Obligated Balance, Net - End of Period	$ 1,804	$ 220	$ -	$ 1,060	$ 12,903
Outlays	(61)	184	(48)	2,171	23,087
Less: Offsetting Receipts	(63)	-	-	(3,098)	(3,161)
Net Outlays	$ (124)	$ 184	$ (48)	$ (927)	$ 19,926

Schedule of Intragovernmental Amounts
For Fiscal Year 2004
($ in millions)

Intragovernmental Assets:

Agency	Fund Balance with Treasury	Investments	Accounts Receivable	Regulatory Assets	Other
U.S. Treasury	$ 15,606	$ 20,532	$ 112	$ 4,613	$ 5
Defense Agencies	-	-	227	-	5
Department of the Interior	-	-	6	-	-
Department of Homeland Security	-	-	34	-	-
Tennessee Valley Authority	-	-	44	-	-
Health & Human Services	-	-	14	-	-
Other	-	-	126	-	3
Total intragovernmental assets	$ 15,606	$ 20,532	$ 563	$ 4,613	$ 13

Intragovernmental Liabilities:

Agency	Accounts Payable	Debt	Appropriated Capital Owed	Deferred Revenues	Other
U.S. Treasury	$ 17	$ 7,357	$ 3,111	$ 94	$ 91
Defense Agencies	35	-	-	15	106
Department of Agriculture	2	-	-	-	-
Department of the Interior	7	-	-	6	40
General Services Administration	13	-	-	3	-
Office of Personnel Management	15	-	-	-	7
Department of State	1	-	-	4	-
Other	11	-	-	27	18
Total intragovernmental liabilities	$ 101	$ 7,357	$ 3,111	$ 149	$ 262

Intragovernmental Earned Revenues, Costs, Transfers, and Non-Exchange Revenues:

Agency	Earned Revenues	Costs	Transfers (Out)-Custodial	Transfers In/(Out) - Other	Non-Exchange Revenues
Defense Agencies	$ 1,453	$ 102	$ (7)	$ -	$ -
U.S. Treasury	906	508	(521)	(94)	13
Department of Health & Human Services	152	38	-	-	-
National Aeronautics and Space Administration	126	2	-	-	-
Nuclear Regulatory Commission	78	4	-	(33)	-
Department of Homeland Security	241	3		-	-
Department of the Interior	26	38	(144)	1,094	-
Office of Personnel Management	4	255	-	-	-
General Services Administration	8	99	-	-	-
Tennessee Valley Authority	43	34	-	-	-
Other	349	143	(9)	(171)	-
Total	$ 3,386	$ 1,226	$ (681)	$ 796	$ 13

Auditors' Report

Memorandum from the Inspector General

Department of Energy
Washington, DC 20585

November 9, 2004

MEMORANDUM FOR THE SECRETARY

FROM: Gregory H. Friedman
Inspector General

SUBJECT: INFORMATION: Report on the Department of Energy's Fiscal Year 2004 Consolidated Financial Statements

This is to inform you that the Department's consolidated financial statements for Fiscal Year 2004 have received an unqualified audit opinion. This achievement is especially noteworthy considering the significant challenges associated with meeting the Government-wide accelerated reporting date of November 15, 2004. To meet this demanding schedule, the Department established and adhered to a stringent internal financial reporting schedule throughout the year. Although faced with a number of competing demands associated with competitive sourcing and financial systems development, Headquarters and field financial managers and staff were successful in meeting each of its reporting milestones. The high level of cooperation and the continuing excellent working relationship between the Department's managers and the Office of Inspector General (OIG) permitted the expeditious and successful resolution of all problems that could have threatened the reporting schedule.

The audit disclosed that the Department met the challenges posed in the President's Management Agenda by improving financial reporting and successfully eliminating the previous year's reportable condition on performance measurement. Although the Department made considerable progress towards resolving the prior year's reportable condition in unclassified information system security, the audit revealed that the condition continues to exist. Specifically, the Department has certain network vulnerabilities and general access control weaknesses that could put the integrity of financial system data at risk. The Department generally concurred with the audit findings and initiated or agreed to initiate specific corrective actions.

The Department is responsible for the preparation of the statements and the OIG is responsible for the audit. The OIG contracted with the auditing firm of KPMG LLP to conduct the audit. KPMG is responsible for expressing an opinion on the Department's consolidated financial statements and reporting on applicable internal controls, and compliance with laws, regulations, contracts and grant agreements.

The audit of the Department's statements was conducted pursuant to the Government Management and Reform Act of 1994. The objective of the Act is to improve financial practices in the Federal Government by issuing audited financial statements for each agency. The OIG monitored KPMG's audit progress and reviewed the audit report and related documentation to ensure compliance with generally accepted Government auditing standards. The OIG, however, did not express an independent opinion on the Department's financial statements.

I would like to thank all elements of the Department for their courtesy and cooperation during the conduct of the audit.

Attachment

cc: Deputy Secretary
Under Secretary for Energy, Science and Environment
Administrator, National Nuclear Security Administration
Director, Office of Management, Budget and Evaluation/Chief Financial Officer

Audit Report: DOE/OAS-FS-05-01

KPMG

2001 M Street, NW
Washington, DC 20036

INDEPENDENT AUDITORS' REPORT

The Inspector General, United States Department of Energy and
Secretary, United States Department of Energy:

We have audited the accompanying consolidated balance sheets of the United States Department of Energy (Department) as of September 30, 2004 and 2003, and the related consolidated statements of net cost, changes in net position, financing, and custodial activities, and the related combined statements of budgetary resources (hereinafter referred to as "consolidated financial statements"), for the years then ended. The objective of our audits was to express an opinion on the fair presentation of these consolidated financial statements. In connection with our audits, we also considered the Department's internal control over financial reporting and tested the Department's compliance with certain provisions of applicable laws, regulations, contracts, and grant agreements that could have a direct and material effect on its consolidated financial statements.

As described in our opinion on the consolidated financial statements, we did not audit the fiscal year 2004 or 2003 financial statements of Bonneville Power Administration or Western Area Power Administration, whose Department-related financial data as of and for the years ended September 30, 2004 and 2003 are included in the accompanying consolidated financial statements, or the fiscal year 2004 financial statements of Southwestern Power Administration or Southeastern Power Administration, whose Department-related financial data as of and for the year ended September 30, 2004 are included in the accompanying consolidated financial statements. Those statements were audited by other auditors whose reports have been furnished to us and were considered in forming our overall opinion on the Department's consolidated financial statements.

Summary

As stated in our opinion on the consolidated financial statements, based upon our audits and the reports of other auditors, we concluded that the Department's consolidated financial statements as of and for the years ended September 30, 2004 and 2003, are presented fairly, in all material respects, in conformity with accounting principles generally accepted in the United States of America.

Our opinion emphasizes that the cost estimates supporting the Department's environmental remediation liabilities are based upon assumptions regarding future actions and decisions, many of which are beyond the Department's control.

Independent Auditors' Report, Continued

Our consideration of internal control over financial reporting resulted in one matter, related to unclassified network and information systems security, being identified as a reportable condition. However, this reportable condition is not believed to be a material weakness.

The results of our tests of compliance with certain provisions of laws, regulations, contracts, and grant agreements disclosed no instances of noncompliance or other matters that are required to be reported herein under *Government Auditing Standards*, issued by the Comptroller General of the United States, or Office of Management and Budget (OMB) Bulletin No. 01-02, *Audit Requirements for Federal Financial Statements*.

The following sections discuss our opinion on the Department's consolidated financial statements, our consideration of the Department's internal control over financial reporting, our tests of the Department's compliance with certain provisions of applicable laws and regulations, management's responsibilities, and our responsibilities.

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of the United States Department of Energy as of September 30, 2004 and 2003, and the related consolidated statements of net cost, changes in net position, financing, and custodial activities, and the related combined statements of budgetary resources, for the years then ended.

We did not audit the fiscal year 2004 or 2003 financial statements of Bonneville Power Administration or Western Area Power Administration, whose Department-related financial data as of and for the years ended September 30, 2004 and 2003 are included in the accompanying consolidated financial statements, or the fiscal year 2004 financial statements of Southwestern Power Administration or Southeastern Power Administration, whose Department-related financial data as of and for the year ended September 30, 2004 are included in the accompanying consolidated financial statements. When combined and compared to the Department's consolidated financial statements, the financial data for these entities represent 17 percent of total assets; 54 percent of total earned revenues; and 13 percent of total program costs for as of and for the year ended September 30, 2004, and 17 percent of total assets; 58 percent of total earned revenues; and 15 percent of total program costs as of and for the year ended September 30, 2003, respectively. Those financial statements were audited by other auditors whose reports have been furnished to us, and our opinion, insofar as it relates to the fiscal year 2004 and 2003 amounts included for Bonneville Power Administration and Western Area Power Administration, and the fiscal year 2004 amounts included for Southwestern Area Power Administration and Southeastern Power Administration, is based solely upon the reports of the other auditors.

In our opinion, based upon our audits and the reports of other auditors, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the United States Department of Energy as of September 30, 2004 and 2003, and its net costs, changes in net position, budgetary resources, reconciliation of net costs to budgetary obligations, and custodial activities for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

Independent Auditors' Report, Continued

As discussed in Notes 15 and 17 to the consolidated financial statements, the cost estimates supporting the Department's environmental remediation liabilities of $182 billion and $183 billion as of September 30, 2004 and 2003, respectively, are based upon assumptions regarding future actions and decisions, many of which are beyond the Department's control.

The information in the Management's Discussion and Analysis, Required Supplementary Stewardship Information, and Required Supplementary Information sections of the Department's *Fiscal Year 2004 Performance and Accountability Report* is not a required part of the consolidated financial statements, but is supplementary information required by accounting principles generally accepted in the United States of America or OMB Bulletin No. 01-09, *Form and Content of Agency Financial Statements*. We have applied certain limited procedures, which consisted principally of inquiries of management regarding the methods of measurement and presentation of this information. However, we did not audit this information and, accordingly, we express no opinion on it.

Our audits were conducted for the purpose of forming an opinion on the consolidated financial statements taken as a whole. The information in the Consolidating Schedules section of the Department's *Fiscal Year 2004 Performance and Accountability Report* is presented for purposes of additional analysis of the consolidated financial statements, rather than to present the financial position, net costs, changes in net position, budgetary resources, reconciliation of net costs to budgetary obligations, and custodial activities of the Department's components individually. The information in the Consolidating Schedules section has been subjected to the auditing procedures applied in the audits of the consolidated financial statements and, in our opinion, based upon our audits and the reports of other auditors, is fairly stated in all material respects in relation to the consolidated financial statements taken as a whole. The information in the Performance Results section and the Appendices is presented for purposes of additional analysis and is not a required part of the financial statements. This information has not been subjected to the auditing procedures, except for the testing of controls over selected performance measures, described in the Responsibilities section of this report, and, accordingly, we express no opinion on it.

Internal Control over Financial Reporting

Our consideration of internal control over financial reporting would not necessarily disclose all matters in the internal control over financial reporting that might be reportable conditions. Under standards issued by the American Institute of Certified Public Accountants, reportable conditions are matters coming to our attention relating to significant deficiencies in the design or operation of the internal control over financial reporting that, in our judgment, could adversely affect the Department's ability to record, process, summarize, and report financial data consistent with the assertions by management in the consolidated financial statements.

Material weaknesses are reportable conditions in which the design or operation of one or more of the internal control components does not reduce to a relatively low level the risk that misstatements, in amounts that would be material in relation to the financial statements being

audited, may occur and not be detected within a timely period by employees in the normal course of performing their assigned functions.

In our fiscal year 2004 audit, we noted the following matter, described in more detail in Exhibit I, involving internal control over financial reporting and its operation that we consider to be a reportable condition. However, this reportable condition is not believed to be a material weakness.

> ***Unclassified Network and Information Systems Security*** – We noted network vulnerabilities and weaknesses in access and other security controls in the Department's unclassified computer information systems. The identified weaknesses and vulnerabilities, although less frequent and less severe than in prior years, increase the risk that malicious destruction or alteration of data or unauthorized processing could occur. The Department should fully implement policies and procedures to improve its network and information systems security.

A summary of the status of the prior year reportable conditions is included as Exhibit II.

We will report on other matters involving internal control over financial management systems and its operation, and internal control over financial reporting and its operation, in separate letters.

Compliance and Other Matters

The results of our tests of compliance with certain provisions of laws, regulations, contracts, and grant agreements, described in the Responsibilities section of this report, exclusive of those referred to in the *Federal Financial Management Improvement Act of 1996* (FFMIA), disclosed no instances of noncompliance or other matters that are required to be reported herein under *Government Auditing Standards* and OMB Bulletin No. 01-02.

The results of our tests of FFMIA disclosed no instances in which the Department's financial management systems did not substantially comply with the three requirements discussed in the Responsibilities section of this report.

Responsibilities

Management's Responsibilities. The *Government Management Reform Act of 1994* (GMRA) requires each Chief Financial Officers (CFO) Act agency to report annually to Congress on its financial status and any other information needed to fairly present its financial position and results of operations. To meet the GMRA reporting requirements, the Department prepares annual consolidated financial statements.

Management is responsible for the consolidated financial statements, including:

- Preparing the consolidated financial statements in conformity with accounting principles generally accepted in the United States of America;

Independent Auditors' Report, Continued

- Establishing and maintaining internal controls over financial reporting, and preparing Management's Discussion and Analysis (including the performance measures), Required Supplementary Stewardship Information, and Required Supplementary Information; and

- Complying with laws, regulations, contracts, and grant agreements, including FFMIA.

In fulfilling this responsibility, estimates and judgments by management are required to assess the expected benefits and related costs of internal control policies. Because of inherent limitations in internal control, misstatements due to error or fraud may nevertheless occur and not be detected.

Auditors' Responsibilities. Our responsibility is to express an opinion on the fiscal year 2004 and 2003 consolidated financial statements of the Department based upon our audits and the reports of other auditors. We conducted our audits in accordance with auditing standards generally accepted in the United States of America, the standards applicable to financial audits contained in *Government Auditing Standards,* and OMB Bulletin No. 01-02. Those standards and OMB Bulletin No. 01-02 require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement.

An audit includes:

- Examining, on a test basis, evidence supporting the amounts and disclosures in the consolidated financial statements;

- Assessing the accounting principles used and significant estimates made by management; and

- Evaluating the overall consolidated financial statement presentation.

We believe that our audits and the reports of other auditors provide a reasonable basis for our opinion.

In planning and performing our fiscal year 2004 audit, we considered the Department's internal control over financial reporting by obtaining an understanding of the Department's internal control, determining whether internal controls had been placed in operation, assessing control risk, and performing tests of controls to determine our auditing procedures for the purpose of expressing our opinion on the consolidated financial statements. We limited our internal control testing to those controls necessary to achieve the objectives described in *Government Auditing Standards* and OMB Bulletin No. 01-02. We did not test all internal controls relevant to operating objectives as broadly defined by the *Federal Managers' Financial Integrity Act of 1982*. The objective of our audit was not to provide assurance on internal control over financial reporting. Consequently, we do not provide an opinion thereon.

As required by OMB Bulletin No. 01-02, we considered the Department's internal control over the Required Supplementary Stewardship Information by obtaining an understanding of the Department's internal control, determining whether these internal controls had been placed in

Independent Auditors' Report, Continued

operation, assessing control risk, and performing tests of controls. Our procedures were not designed to provide assurance on internal control over the Required Supplementary Stewardship Information and, accordingly, we do not provide an opinion thereon.

As further required by OMB Bulletin No. 01-02 with respect to internal control related to performance measures determined by management to be key and reported in Management's Discussion and Analysis, we obtained an understanding of the design of significant internal controls relating to the existence and completeness assertions. Our procedures were not designed to provide assurance on internal control over performance measures and, accordingly, we do not provide an opinion thereon.

As part of obtaining reasonable assurance about whether the Department's fiscal year 2004 consolidated financial statements are free of material misstatement, we performed tests of the Department's compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of consolidated financial statement amounts, and certain provisions of other laws and regulations specified in OMB Bulletin No. 01-02, including certain provisions referred to in FFMIA. We limited our tests of compliance to the provisions described in the preceding sentence, and we did not test compliance with all laws, regulations, contracts, and grant agreements applicable to the Department. Providing an opinion on compliance with laws, regulations, contracts, and grant agreements was not an objective of our audit and, accordingly, we do not express such an opinion.

Under OMB Bulletin No. 01-02 and FFMIA, we are required to report whether the Department's financial management systems substantially comply with (1) Federal financial management systems requirements, (2) applicable Federal accounting standards, and (3) the United States Government Standard General Ledger at the transaction level. To meet this requirement, we performed tests of compliance with FFMIA Section 803(a) requirements.

Distribution

This report is intended for the information and use of the Department's management, the Department's Office of Inspector General, OMB, the Government Accountability Office, and the United States Congress, and is not intended to be used and should not be used by anyone other than these specified parties.

KPMG LLP

November 4, 2004, except as to Note 17, which is as of November 5, 2004

Unclassified Network and Information Systems Security

The Department maintains a series of interconnected unclassified networks and information systems. Federal and Departmental directives require the establishment and maintenance of security over unclassified information systems, including financial management systems. Past audits identified significant weaknesses in selected systems and devices attached to the computer networks at some Department sites. The Department has implemented corrective actions to improve network security at the sites we, and the Department's Office of Independent Oversight and Performance Assurance (OA), reviewed in prior years. However, we and the OA continued to identify network security weaknesses at sites reviewed in fiscal year 2004, although the frequency and severity of those weaknesses were less than in prior years. Significant improvements are still needed in the areas of password management, configuration management, and restriction of network services.

Our fiscal year 2004 audit also disclosed weaknesses in access controls at several sites, similar to our prior year findings. Specifically, we noted weaknesses in physical access controls, monitoring of networks for questionable activity, password security, and review and approval of user access privileges. Further, the Department's Office of Inspector General also reported deficiencies in the Department's network and information system risk management, configuration management, and access controls in its evaluation report on *The Department's Unclassified Cyber Security Program*, dated September 2004. This report included an examination of non-financial systems.

The Department has acknowledged the need to improve its information systems security and other information technology controls. In fiscal year 2004, the Department's Chief Information Officer continued the implementation of initiatives to identify the root causes of the control weaknesses and to develop new policies and procedures to strengthen controls and reduce network vulnerabilities. Once fully implemented, these policies and procedures should strengthen the Department's cyber security program.

The identified weaknesses and vulnerabilities increase the risk that malicious destruction or alteration of data or unauthorized processing could occur. Because of our concerns, we performed supplemental procedures and identified compensating controls that mitigate the potential effect of these security weaknesses on the integrity of the Department's financial systems.

Recommendation:

While considerable progress has been achieved, continued focus is needed to resolve the network vulnerability and access control weaknesses described above. Therefore, we recommend that the Department's Chief Information Officer, in conjunction with program officials, fully implement policies and procedures to ensure that the Federal information security standards are met and that its networks and information systems are adequately protected against unauthorized access.

Detailed recommendations to address the issues discussed above have been separately reported to the Office of the Chief Information Officer.

Management's Response:

Management has prepared an official response presented as a separate attachment to this report. In summary, management agreed with our findings and its comments were responsive to our recommendation.

Independent Auditors' Report
Exhibit II – Status of Prior Year Audit Findings

Reportable Conditions from Fiscal Year 2003 (with parenthetical disclosure of year first reported)	Status at September 30, 2004
1. Unclassified Information Systems Security (1999)	Still reported in Exhibit I as a reportable condition.
2. Performance Measurement Reporting (1997)	Closed.

Department of Energy
Washington, DC 20585

November 8, 2004

KPMG LLP
2001 M Street, NW
Washington, DC 20036

I am providing this letter in connection with your audit of the United States Department of Energy (Department) consolidated balance sheets as of September 30, 2004 and 2003, and the related consolidated statements of net costs, changes in net position, financing, and custodial activities, and the related combined statements of budgetary resources, for the years then ended. We have reviewed your Independent Auditors' Report and provide the following response to your recommendation.

Reportable Condition: Unclassified Network and Information Systems Security

Auditors' Recommendation:

While considerable progress has been achieved, continued focus is needed to resolve network vulnerability and access control weaknesses. Therefore, we recommend that the Department's Chief Information Officer, in conjunction with program officials, fully implement policies and procedures to ensure that the Federal information security standards are met and that networks and information systems are adequately protected against unauthorized access.

Management Response:

The Chief Information Officer (CIO) concurs with the auditors' recommendation to fully implement policy and procedures to improve cyber security, targeting the areas of access control and configuration management. The Department has made considerable progress in closing policy gaps in FY 2004, and is moving forward to ensure policy is being consistently implemented through defined procedures throughout the system lifecycle. The CIO will obtain the full audit findings, including supporting documentation and testing information, and develop a detailed action plan that includes resources and milestones for correcting specifically identified weaknesses.

The CIO is reorienting the Office of Cyber Security programs and priorities to reduce cyber security vulnerabilities across the Department enterprise. This action will include leveraging a number of existing program successes while realigning our focus around critical areas of risk and vulnerability management. Particular emphasis will be given to improving configuration management controls across the enterprise, strengthening access controls, and harmonizing configuration control and patch management processes.

The Office of the Chief Information Officer's (OCIO) Extended Common Integrated Technology Environment (eXCITE) initiative is providing the foundation for configuration management. The eXCITE initiative provides common desktop and hosted application environments that are maintained with proactive configuration management

policies, procedures, and automated tools. eXCITE incorporates strict change control and patch management procedures to ensure availability is not compromised by controls implementation. eXCITE also reinforces access control at the desktop. While eXCITE is initially being rolled out at headquarters, the goal is to extend these services and practices across the Department enterprise.

OCIO is coordinating with program offices to develop a Departmental strategy to meet the requirements outlined in Homeland Security Presidential Directive 12 (HSPD-12). HSPD-12 requires Federal agencies to provide a common identification standard for Federal and contractor employees that will also provide both logical and physical access controls within the Department. Through this initiative, OCIO will ensure that access controls and authentication and authorization elements of identity management are joined to improve the Department's overall access infrastructure.

The OCIO is also working with program offices to evaluate the implementation of the Center for Internet Security operating system and application benchmarks to establish Department-wide, minimum cyber security configuration requirements. Minimum security configurations are required by the Federal Information Security Management Act, and are a requisite component of the OCIO's strategy to reduce vulnerabilities.

The leadership of the Department of Energy is committed to improving the cyber security posture of its information systems, including its financial systems.

Sincerely,

Susan J. Grant
Chief Financial Officer

Inspector General's Summary of Management and Performance Challenges

For the past several years, the Office of Inspector General has identified what it considers to be the most significant management and performance challenges facing the Department of Energy. This annual effort, now codified as part of the Reports Consolidation Act of 2000, reflects new work performed by the Office of Inspector General, assesses the agency's progress in addressing previously identified challenges, and considers emerging issues facing the Department.

In 2004, we identified six management challenges and categorized them as either mission-related or internal control. National Security, Environmental Cleanup, and Stockpile Stewardship were classified as mission-related challenges. These challenges represent risks that are inherent to the Department's complex operations and are likely to persist well into the future, in part, because they involve factors that are outside of the Department's direct control. We identified Contract Administration, Project Management, and Information Technology as internal control challenges. These challenges relate to the Department's management processes for achieving its missions and, if not addressed, may impede the Department's ability to carry out its program responsibilities and to ensure the integrity of its operations.

We noted that senior Department leadership has continued its robust initiative, started in March 2003, to address and, if possible, resolve our identified management challenges. The Deputy Secretary, as the leader of this initiative, has been personally invested in its operation, working with the Under Secretaries and Assistant Secretaries to achieve progress. Based on our analysis of this effort, if this initiative continues with the personal involvement of the Department's senior leadership, the risks associated with the identified management challenges should be reduced.

Although the Department has taken significant positive steps, we continue to consider these six challenges to be the most serious risks facing the Department in 2005 and beyond. For the most part, these challenges are not amenable to near-term resolution and can only be addressed by a concerted, persistent effort, resulting in progress over a long period of time. The Inspector General looks forward to working with the Department's senior staff in a continuing effort to improve Department programs and operation, particularly as they relate to the management challenge areas.

As was the case in 2004, we have included energy supply, worker and community safety, and performance management on our "watch list" of operational and programmatic functions. Although these functions do not warrant classification as a management challenge, in our opinion, they need to be closely monitored by Department management.

Summaries of our six management challenges and our assessment of the Department's progress in addressing these challenges are as follows:

Mission-Related Challenges

- **NATIONAL SECURITY**

The Department's facilities and activities represent a critical component of national security. The Department must ensure that its most sensitive materials, facilities, and information are secure and protected from groups or countries hostile to the U.S. Recent incidents, such as two zip discs containing classified material not being located in a July 2004 inventory at Los Alamos National Laboratory, and our audits and inspections have demonstrated the need for continued vigilance and emphasis on security issues within the Department. For example, our reviews identified weaknesses in classified computer security, reporting of security incidents, and the readiness of protective forces. We also reported concerns about the Department's program to recover foreign research reactor spent fuel containing highly enriched uranium produced in the U.S. We noted that the Department has continued to make

progress in addressing security issues. For example, during FY 2004, Design Basis Threat implementation plans were approved for each National Nuclear Security Administration (NNSA) site and the Secretary announced major security initiatives designed to bolster protections for the Department's sensitive information and facilities housing special nuclear material.

• **ENVIRONMENTAL CLEANUP**

The Department faces the complex and costly tasks of cleaning up sites that supported nuclear weapons production activities and disposing of related nuclear waste. This long-term effort will require the continued attention of Department management as well as significant resources to resolve issues such as those pointed out in our audit work. For example, we reported that the Department had not made significant progress in its efforts to remediate groundwater at the Hanford Site. The Department must also deal with external factors such as the challenge to the Department's planned method for disposing of Waste Incidental to Reprocessing as well as funding, regulatory, and legal issues that could impact the acceptance of waste at the Yucca Mountain nuclear waste repository. In FY 2004, the Department has continued to make strides in addressing the inherent risks associated with this challenge. For example, the Office of Environmental Management (EM) issued its Office of Environmental Management Closure Planning Guidance to turn initiatives from its Top-to-Bottom-Review into formal processes needed to complete its cleanup program by 2035.

• **STOCKPILE STEWARDSHIP**

The Department's Stockpile Stewardship Program is responsible for maintaining the safety, reliability, and performance of the nation's nuclear weapons stockpile in the absence of underground nuclear testing. Our past work found that the Department has had difficulty with the efficiency of its operations, administrative processes, and the ability to conduct timely studies of weapons systems. Our work in FY 2004 identified concerns such as the absence of essential project management tools in the Enhanced Test Readiness Program and the delays in completing essential milestones for the Enhanced Surveillance Campaign, an essential program designed to provide advance warning of manufacturing and aging defects that could affect the nuclear weapons stockpile. To its credit, NNSA management has initiated corrective actions intended to improve management processes over planning and budgeting, information management, acquisitions, and human resources which directly impact the operations of the Stockpile Stewardship Program.

Internal Control Challenges

• **CONTRACT ADMINISTRATION**

Effective contract oversight is an ongoing challenge that the Department will continue to face since the Department places significant reliance on contractors and grantees to accomplish its missions. Our reviews in FY 2004 identified oversight weaknesses for areas such as contractor claimed costs, purchase cards, and subcontracts. As we reported in 2004, the Department's Chief Financial Officer, at the request of the Deputy Secretary, has developed a corrective action plan to address major areas of contract administration. In addition, the Department established a Blue Ribbon Commission to examine the use of competition at Department laboratories, and program offices have taken actions to address contract administration issues.

• **PROJECT MANAGEMENT**

To accomplish its missions, the Department undertakes numerous multi-million dollar construction and operating projects, many of which are unique and complex. Our reviews in FY 2004 identified the need for improvements in oversight to ensure that the Department's project management principles are extended to operating projects and projects are effectively accomplishing their goals. In response to criticisms in past years concerning weaknesses in project management, Department leadership has initiated a number of significant corrective actions, such as the project management career development program and certification of project directors. Additionally, some Departmental organizations

have initiated project management reforms such as EM's closure planning guidance to identify, plan, and accomplish cleanup activities in accordance with the Department's principles for project management.

• INFORMATION TECHNOLOGY

Information Technology remains a management challenge as the Department works towards fully implementing the requirements of the Clinger-Cohen Act of 1996. As in past years, our reviews have highlighted internal control weaknesses that impact the improvement of information technology systems. For example, we found that Department contractors were not always on track to deliver effective information technology systems on time or at expected cost. Also, our annual evaluation, required by the Federal Information Security Management Act, identified weaknesses in the Department's unclassified cyber security program. To its credit, the Chief Information Officer and senior-level Departmental management officials have focused their attention on addressing information technology issues.

Other Statutory Reporting

Management's Response to Audit Reports

Pursuant to the Inspector General Act Amendments of 1988 (Public Law 100-504), agency heads are to report to Congress on the status of final action taken on audit report recommendations. This report complements a report prepared by the Department's Office of Inspector General that provides information on audit reports issued during the period and on the status of management decisions made on Inspector General audit reports.

Inspector General Audit Reports

The Department responds to audit reports by evaluating the recommendations they contain, formally responding to the Inspector General (IG), and implementing agreed upon corrective actions. In some instances, we are able to take corrective action immediately and in others, action plans with long-term milestones are developed and implemented. The audit resolution and follow-up process is an integral part of the Department's effort to deliver its priorities more effectively and at the least cost. Actions taken by management on audit recommendations increase both the efficiency and effectiveness of our operations and strengthen our standards of accountability. The Inspector General Act, as amended, requires that we report on the status of our progress in implementing these corrective actions. We are fulfilling this requirement by providing the information for the entire fiscal year in this section.

During Fiscal Year 2004, the Department took final action on 88 IG reports with the agreed upon actions including final action on eight IG operational, financial, and pre-award audit reports with funds put to better use. At the end of the period, 94 reports awaited final action.

Status of Final Action on IG Audit Reports for FY 2004

The following chart provides more detail on the audit reports with open actions and the dollar value of recommendations and funds "put to better use" that were agreed to by management.

Audit Reports	Number of Reports	Agreed-Upon Funds Put to Better Use ($ in Millions)
Pending final action at the beginning of the period	120	$ 3,680
With actions agreed upon during the period	62	$ .079
Total pending final action	182	$ 3,680
Achieving final action during the period	88	$ 2,580 *
Requiring final action at the and of the period	94	$ 1,099

* Reflects a single Agreed Upon Funds Put to Better Use also included in the Office of Inspector General's semi-annual report.

INSPECTOR GENERAL'S CONTRACT AUDIT REPORTS

To begin this period, final action had not been taken on four Inspector General contract audit reports. Final action was taken on three such report during the fiscal year. At the end of the Fiscal Year, there is one contract audit report pending final action.

CONTRACT AUDIT REPORTS STATISTICAL TABLE

For the Period October 1, 2003 through September 30, 2004

Total Number of IG Contract Audit Reports (Contract and Financial Assistance) and the dollar value of disallowed costs:

	Number of Reports	Disallowed Costs*
Contract audit reports with management decisions on which final action had not been taken at the beginning of the period	4	N/A
Contract audit reports issued on which management decisions were made during the period	0	N/A
Total contract audit reports pending final action during the period	4	N/A
Contract audit reports on which final action was taken during the period		
Recoveries	1	$16,053
Reinstatements	2	$4,353,785
Totals	3	$4,369,838
Contract audit reports needing final action at the end of the period	1	0

* The amount of costs questioned in the audit report with which the contracting officer concurs and has disallowed as a claim against the contract. Recoveries of disallowed costs are usually obtained by offset against current claims for payment and subsequently used for payment of other eligible costs under the contract.

Government Accountability Office Audit Reports

The U.S. Government Accountability Office (GAO) audits are a major component of the Department's audit follow-up program. At the beginning of fiscal year 2004 there were 27 GAO audit reports awaiting final action. During fiscal year 2004, the Department was issued 41 additional final GAO audit reports. Of the 41 final reports, 18 required tracking of corrective actions and 23 did not because the report did not include actions to be taken by the Department. We completed agreed upon corrective actions on 9 audit reports. At the end of FY 2004, there were 36 GAO reports awaiting final action.

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U.S. Department of Energy

Performance and Accountability Report

Fiscal Year 2004

APPENDICES

Glossary of Acronyms

****A****

ABWR .....Advanced Boiling Water Reactor
AFCI.....Advanced Fuel Cycle Initiative
AFV .....Alternative Fuel Vehicles
ALRC.....Albany Research Center
Am .....Americium
AMWTP .....Advanced Mixed Waste Treatment Project
ANL-W .....Argonne National Laboratory –West
APEC .....Asian Pacific Economic Cooperation
APP .....Annual Performance Plan
AP600.....Advanced Pressurized Water Reactor 600
ARES .....Advanced Reciprocating Engine System
ARM.....Atmospheric Radiation Measurement
ASC .....Advanced Simulation and Computing Campaign
ASCAC .....Advanced Scientific Computing Advisory Committee
ASCI.....Advanced Simulation and Computing Initiative
ASCR .....Advanced Scientific Computing Research
ATLAS .....A Toroidal LHC Apparatus

****B****

BDMS.....Blend-Down Monitoring Systems
BER.....Biological and Environmental Research
BES .....Basic Energy Sciences
BESAC .....Basic Energy Sciences Advisory Committee
BLS .....Bureau of Labor and Statistics
BNL .....Brookhaven National Laboratory
BOP .....Balance of Plant
BTU .....British Thermal Unit
BWR.....Boiling Water Reactor

****C****

C2 .....Command and Control
CALM .....Capability for Advanced Loading Missions
CANDU.....Canada Deuterium Uranium
CAP .....Corrective Action Plan
CAR .....Cooperative Automotive Research
CBC .....Consolidated Business Center
CBFO .....Carlsbad Field Office
CCPI.....Clean Coal Power Initiative
CD .....Critical Decision
CEBAF.....Continuous Electron Beam Accelerator Facility
CERT .....Council of Energy Resource Tribes
CERTS .....Consortium for Electric Reliability Technology Solution
CF .....Carbon Fibers
CFD .....Computational Fluid Dynamics
CFF.....Container Firing Facility
CHP .....Combined Heat and Power

Cm .....Curium
CMRR .....Chemistry and Metallurgy Research Facility Replacement
CMS .....Compact Muon Solenoid
CO2 .....Carbon Dioxide
COE .....Cost of Energy
COL .....Construction and Operating License
COMETS .....Crude Oil Movement and Event Tracking System
CP.....Charge-Parity
CPS.....Control Performance Standards
CQPR.....Consolidated Quarterly Performance Results
CRADA .....Cooperative Research and Development Agreement
CREM .....Controlled Removable Electronic Media

****D****

DARHT .....Dual-Axis Radiographic Hydrotest
DBT .....Design Basis Threat
DEMP .....Departmental Energy Management Program
DER .....Distributed Energy Resource
DG .....Distributed Generation
DNA.....Deoxyribonucleic Acid
DNS .....Defense Nuclear Security
DOD.....Department of Defense
DOE .....Department of Energy
DP.....Defense Programs
DRAAG.....Design Review and Acceptance Group
DSP.....Defense Support Program
DSW.....Directed Stockpile Work

****E****

ECP .....Electrochemical Plant
EDU .....Engineering Development Units
EECP .....Early Entrance Co-Production Plant
EER.....Engineering Evaluation Release
EERE .....Office of Energy Efficiency and Renewable Energy
EGS.....Enhanced Geothermal System
EIA .....Energy Information Administration
EIPP .....Eastern Interconnection Phasor Project
EIS .....Environmental Impact Statement
EM .....Office of Environmental Management/Environmental Management
EMCAL .....Electro-Magnetic Calorimeter
EMSL .....Environmental Molecular Science Laboratory
EPA.....Environmental Protection Agency
EPR.....European Pressurized Water Reactor
EPRI .....Electric Power Research Institute
ERB-II.....Experimental Breeder Reactor II
ERDS .....Emergency Response Database System
ESnet .....Energy Sciences Network
ESPC .....Energy Savings Performance Contract
EWGPP .....Elimination of Weapons Grade Plutonium Production

F

FCE.....Fuel Cell Energy
FCI .....Facility Condition Index
FE .....Office of Fossil Energy
FEMP .....Federal Energy Management Program
FERC .....Federal Energy Regulatory Commission
FES .....Fusion Energy Sciences
FFMIA .....Federal Financial Management Improvement Act
FFTF.....Fast Flux Test Facility
FIRP .....Facilities and Infrastructure Recapitalization Program
FMFIA .....Federal Manager's Financial Integrity Act
FNAL.....Fermi National Accelerator Laboratory
FSED .....Full-Scale Engineering Development
FUSRAP.....Formerly Utilized Sites Remedial Action Program
FXR.....Flash X-Ray
FYNSP .....Future-Year Nuclear Security Program

G

GAO.....Government Accountability Office
g/bhp-hr .....Grams per Brake-Horsepower-Hour
GHASTLI .....Gas Hydrate and Sediment Test Laboratory Instrument
GHz .....Gigahertz
GPRA.....Government Performance and Results Act
GPS.....Global Positioning System
GSF.....Gross Square Feet

H

H2.....Hydrogen
HEP .....High Energy Physics
HEU .....Highly Enriched Uranium
Hg.....Mercury
HLW.....High-Level Radioactive Waste
HP .....High Pressure
HRIBF .....Holifield Radioactive Ion Beam Facility
HT .....High Temperature
HTHP.....High Temperature-High Pressure
HTS .....High Temperature Superconductivity
HVAC .....Heating, Ventilation, and Air Conditioning

I

IA .....Implementing Agreement
IAEA .....International Atomic Energy Agency
ICBM .....Intercontinental Ballistic Missiles
ICF .....Inertial Confinement Fusion
ICRF.....Ion Cyclotron Radio Frequency
IDW .....I-MANAGE Data Warehouse
IECC.....International Energy Conservation Code
IG .....Inspector General
IGCC .....Integrated Gasification Combined Cycle
I-MANAGE.....Integrated Management Navigation System
INEEL .....Idaho National Engineering and Environmental Laboratory
INL.....Idaho National Laboratory

IOP .....Intensive Operations Period
IPHE.....International Partnership for the Hydrogen Economy
IPIA .....Improper Payments Information Act
IPIS.....Integrated Pit Inspection Station
IPP .....Initiatives for Proliferation Prevention
ISO .....International Standards Organization
ISTC .....International Science and Technology Center
ITER .....International Thermonuclear Experimental Reactor
ITM.....Ion Transport Membrane

****J****
JAERI .....Japan Atomic Energy Research Institute
JASPER .....Joint Actinide Shock Physics Experimental Research
JET .....Joint European Torus
JGI .....Joint Genome Institute
JIP .....Joint Industry Projects

****K****
KW .....Kilowatt

****L****
LA.....License Application
LANL.....Los Alamos National Laboratory
LANSC .....Los Alamos Neutron Science Center
LCFG .....Laboratory for Comparative and Functional Genomics
LEP.....Life Extension Program
LEU .....Low-Enriched Uranium
LHC .....Large Hadron Collider
LIGA .....Lithoraphy Galvanoformung Abformung (German)
LLW .....Low Level Waste
LM .....Legacy Management
LSN .....License Support Network
LWR .....Light Water Reactor
LWST .....Low Wind Speed Turbine

****M****
MARS .....Management and Reporting System
MCFC .....Molten Carbonate Fuel Cell
MCO .....Multi-Canister Overpack
MESA.....Microsystem and Engineering Science Application
MIDCARB.....Midcontinent Interactive Digital Carbon Atlas and Relational Database
MIE.....Major Items of Equipment
MIT.....Massachusetts Institute of Technology
MLLW .....Mixed Low-Level Waste
MOX.....Mixed-Oxide Fuel
MPC&A.....Material Protection Control and Accountability
MPF .....Modern Pit Facility
MRI .....Magnetic Resonance Imaging
MSP .....Managed Staffing Plan
MT .....Metric Tons
MTHM.....Metric Tons of Heavy Metal
MV .....Megavolts
MW .....Megawatt

N

NAAQS .....National Ambient Air Quality Standards
NAEWG .....North American Energy Working Group
NASA .....National Aeronautics and Space Administration
NATCARB .....National Carbon Sequestration Database and Geographic Information System
NCSX .....National Compact Stellarator Experiment
NCTS .....NIF Cryogenic Target System
NE .....Office of Nuclear Energy, Research, and Technology
NEP .....National Energy Policy
NERC .....North American Electric Reliability Council
NERI .....Nuclear Energy Research Initiative
NERSC .....National Energy Research Scientific Computing Center
NESS .....Nuclear Explosive Safety Study
NETL .....National Energy Technology Laboratory
NFRC .....National Fenestration Rating Council
NGA .....Next Generation Computer Architecture
NGNP .....Next Generation Nuclear Plant
NICE3 .....National Industrial Competitiveness through Energy, Environment, and Economics
NIF .....National Ignition Facility
NLC .....Next Linear Collider
NNSA .....National Nuclear Security Administration
NOx .....Nitrous Oxide
NP .....Nuclear Physics
NPR .....Nuclear Posture Review
NRC .....Nuclear Regulatory Commission
NSRC .....Nanoscale Science Research Center
NTS .....Nevada Test Site
NWC .....Nuclear Weapons Council
NWIR .....Nuclear Weapons Incident Response
NWPA .....Nuclear Waste Policy Act

O

OA .....Office of Independent Oversight and Performance Assurance
OCRWM .....Office of Civilian Radioactive Waste Management
ODP .....Ocean Drilling Program
OETD .....Office of Electric Transmission and Distribution
OIT .....Office of Industrial Technologies
O&M .....Operation and Maintenance
OMB .....Office of Management and Budget
OMBE .....Office of Management, Budget and Evaluation
ONT .....Office of National Transportation
ORNL .....Oak Ridge National Laboratory
OSRP .....Off-Site Source Recovery Program

P

PAC .....Physics Advisory Committee
PAR .....Performance and Accountability Report
PART .....Program Assessment Rating Tool
PB-1 .....Inverse Picobarnes
PCD .....Production Control Document
PDCF .....Pit Disassembly and Conversion Facility

PED .....Project Engineering Design
PGF .....Production Genomics Facility
PM .....Particulate Matter
PMA.....President's Management Agenda
PNNL.....Pacific Northwest National Laboratory
Pu .....Plutonium
PV.....Photovoltaic
PWR.....Pressurized Water Reactor

****Q****

QCD.....Quantum Chromodynamics
QMU .....Quantitative Margins and Uncertainties

****R****

RAFR .....Recordable Accident Frequency Rate
RAP .....Radiological Assistance Program
RBMK .....Reactor Bolshoi Moshchnosti Kanalnyi
R&D .....Research and Development
RD&D .....Research, Development, and Demonstration
RDD .....Radiological Dispersal Devices
REM .....Roentgen Equivalent Man
RERTR .....Reduced Enrichment Research and Test Reactor
RF .....Radio Frequency
RHIC .....Relativistic Heavy Ion Collider
RIA.....Rare Isotope Accelerator
RIAR .....Scientific Research Institute of Atomic Reactors (Russian)
RNEP .....Robust Nuclear Earth Penetrator
RREF .....Risk Reduction Efficiency Factor
RTBF .....Readiness in Technical Base and Facilities
RTI .....Russian Transition Initiative
RTO .....Regional Transmission Organization

****S****

SABRS .....Space and Atmospheric Burst Reporting System
SAIDI.....System Average Interruption Duration Index
SBS .....Standard Budget System
SC.....Office of Science
SCDHEC .....South Carolina Department of Health and Environmental Control
SCE.....Sub-Critical Experiment
SciDAC .....Scientific Discovery through Advanced Computing
SECA .....Solid State Energy Conversion Alliance
SGT.....Safeguard Transporters
SLAC .....Stanford Linear Accelerator Center
SLBM .....Sea-Launched Ballistic Missile
SLD .....Second Line of Defense
SMV .....Special Monitoring Visits
SNF .....Spent Nuclear Fuel
SNL .....Sandia National Laboratory
SNO .....Sudbury Neutrino Observatory
SNS.....Spallation Neutron Source
SOFC .....Solid Oxide Fuel Cell
SPR.....Strategic Petroleum Reserve

SRR.....Seismic Research Review
SRS .....Savannah River Site
SSP .....Stockpile Stewardship Program
SSRL.....Stanford Synchrotron Radiation Laboratory
STA.....Secure Transportation Asset
STARS .....Standard Accounting and Reporting System
STS .....Stockpile to Target Sequence
SWSA 4 .....Solid Waste Storage Area 4

****T****

TEF .....Tritium Extraction Facility
TeraOPS.....Trillions of Operations per Second
TFTR .....Tokamak Fusion Test Reactor
TGA .....Thermogravimetric Analyzer
THF .....Tetrahydrofuran
TJNAF .....Thomas Jefferson National Accelerator Facility
TMO.....Transparency Monitoring Office
TPBARS.....Tritium-Producing Burnable Absorber Rods
TPC .....Total Project Cost
TRA .....Test Reactor Area
TRU .....Transuranic
TSTA .....Tritium Systems Test Assembly
TTC .....Transformational Technology Core
TVA .....Tennessee Valley Authority

****U****

UCLA.....University of California Los Angeles
UEIP.....Ural Electrochemical Integrated Plant
UP.....University Program
UREX .....Uranium Extraction Plus
USEC .....United States Enrichment Corporation
USG .....United States Government
USIC.....United States Industry Coalition

****V****

VNIIEF.....All-Russian Scientific Research Institute of Experimental Physics (Russian)
VVER .....Water-cooled, Water-moderated Energy Reactor (Russian)

****W****

WIPP .....Waste Isolation Pilot Plant
WIR .....Waste Incidental to Reprocessing
WMD .....Weapons of Mass Destruction

****X****

****Y****

****Z****

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Improper Payments Information Act Reporting Details

1. Risk Assessment & Program Inventory

Federal agencies are required to review all programs and activities they administer and identify those which may be susceptible to significant erroneous payments. Based on these reviews, each agency must develop projections of annual improper payment rates and establish a program inventory to include programs subject to "significant risk."

After completing a review of all Departmental payments, it was determined that DOE does not have any payment programs subject to significant risk. The Department does not have any of the major benefit or entitlement programs normally associated with high risk of improper payments, and the review indicated that all payments remitted by, or on behalf of DOE, were similar in character and risk.

The Department's overall improper payment rate is .09 percent, well below the 2.5 percent risk threshold. Because no Departmental programs are subject to significant risk and all payments are similar in character, it was determined that a single Departmental rate, inclusive of all DOE elements, would be used to measure and monitor improper payment risk.

While the Department has no specific programs required to be separately identified in a "Program Inventory," since FY 2002, all of our administrative payments have been grouped and tracked in four major categories. These categories are: vendor/contractor, travel, payroll[1] , and other. Erroneous payment data for each of these four categories is collected and reported quarterly by each of the Department's Federal payment centers including our power marketing administrations and the Federal Energy Regulatory Commission, and by each of our major facilities management contractors that operate our laboratory and production facilities.

2. Statistical Sampling Methodology

While the Department has no specific program inventory subject to the statistical sampling requirement, statistical sampling is utilized at Departmental payment sites to project erroneous payments in each of the four categories identified above. Quarterly, each payment site identifies its erroneous payment rates by reviewing a statistically valid sample[2] of payment activity and projecting results to the universe of payments or by evaluating data from local systems that have the capability of tracking and reporting on actual erroneous payment activity for a given period. In addition, payment sites may use a variety of other tools and techniques for reviewing erroneous payments including payment audits, data mining and the use of audit sampling software.

3. Corrective Action

The Department has maintained its improper payment percentage at an extremely low level, well below the 2.5% threshold for at-risk programs. Based on this level of performance, no specific Departmental corrective actions have been identified. However, the Department continues to monitor payment activity and requires individual payment sites whose local rate exceeds 1/10 of 1 percent to identify and track corrective actions to reduce the rate. Sites who approach or exceed 1 percent must prepare a formal corrective action plan to be tracked centrally at Headquarters. Currently the vast majority of sites are below these targets. The sites above target have identified appropriate corrective actions.

[1] Due to the outsourcing of the Department's payroll function, erroneous payment data for Federal payroll activities is not available pending a determination by our service provider on how to satisfy the erroneous payment reporting requirements for all their customer agencies. Federal payroll payments generally represent about 2.8% of total payments made by the Department.

[2] Departmental guidance requires samples to provide a 95 percent assurance level.

4. Improper Payment Outlook

As noted in the chart below, the Department's extremely low improper payment rate minimizes the Department's opportunities for future reductions and increases the likelihood of rate fluctuations as very small variations in erroneous payment dollars drives more significant changes when viewed as a rate.

Improper Payment Reduction Outlook
FY 2003 – FY 2007 ($ in millions)

Class of Payment/Program	FY 04 Outlays/Payments	FY 04 IP%	FY 04 IP$	FY 05 IP%	FY 06 IP%	FY 07 IP%
Payroll	$ 7,320	.05	3.8	<.25	<.25	<.25
Travel	$ 363	.17	0.6	<.25	<.25	<.25
Vendors	$15,604	.10	15.8	<.25	<.25	<.25
Other	$ 352	.01	0.1	<.25	<.25	<.25

Note: Federal payroll not included due to outsourcing of this function. See footnote 1 on page one of this appendix.

5. Recovery Auditing

P.L. 107–107, "National Defense Authorization Act for FY 2002," requires agencies that enter into contracts with a total value in excess of $500 million in a fiscal year to carry out a cost effective program for identifying overpayments to contractors, and for recovering amounts overpaid. OMB memorandum M-03-07, "Programs to Identify and Recover Erroneous Payments," requires agencies to review their contractor payments for errors resulting in overpayments (recovery audit), take action to recover those overpayments, and report the results of these activities to OMB on an annual basis.

In March of 2004, the Department issued "Implementation Guidance for Recovery Audit Programs" to ensure well coordinated recovery auditing activities across the DOE complex. Various tools and techniques were utilized in performing recovery audits including statistical sampling, data mining, payment audits and hiring of a recovery auditing contractor[3]. The data resulting from our recovery audit activities is summarized above.

Recovery Auditing Statistics
FY 2003 ($ in millions)

Contractor Payments Reviewed	$ 11,944
Contractor Overpayments Identified	$ 6.0
Overpayments Recovered	$ 6.0
Overpayments Pending Recovery	$ 0.0
Overpayments Not Recoverable	$ 0.0
Total Cost of Recovery Audit Program	$ 0.4
Departmental Costs	$ 0.4
Recovery Auditing Contractor Costs	$ .02

[3] A commercial recovery audit firm was utilized at one of the Department's major facilities management contractors. Overall the audit identified minimal overpayments and the total cost of identification and recovery exceeded the amounts recovered, supporting the Department's initial assessment of limited risk and our approach of in-house recovery activities.

6. Management Accountability

The Department has established a specific "Proud-to-Be" goal for the PMA related to monitoring improper payment activity. Specifically, we have committed to taking actions to reduce the erroneous payment percentage at sites with rates exceeding 1/10 of 1 percent. Individual payment sites whose local rate exceeds this target are required to identify and track corrective actions to reduce the rate. Sites who approach or exceed 1 percent must prepare a formal corrective action plan to be tracked centrally at Headquarters. Senior management performance plans are tied to accomplishment of PMA objectives and, therefore, a direct link has been established to foster an environment of management accountability.

7. Information systems

DOE believes its information systems are adequate for maintaining improper payment rates at targeted levels consistent with sound financial management.

8. Legislative barriers

The Department has identified no legislative barriers that limit our ability to minimize improper payments.

9. Additional Comments

None

We welcome your comments on how we can improve the Department of Energy's Performance and Accountability Report.

Please provide comments and requests for additional copies to:

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