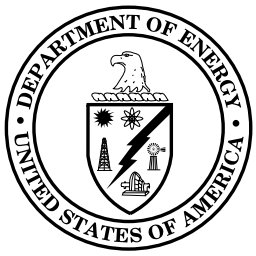
DOE/ME-0009
Volume 9

DEPARTMENT OF ENERGY

ANNUAL PERFORMANCE PLAN for FY 2003



SECRETARY OF ENERGY
SPENCER ABRAHAM

Editor's Notes

DOE's Inspector General and the Power Marketing Administrations are included in this plan. However, the Federal Energy Regulatory Commission (FERC) has prepared separate GPRA documents. See their web page at: http://www.ferc.gov/about/mission/mission_intro.htm.

This plan was prepared by the Office of Program Analysis and Evaluation in the Office of the Management, Budget and Evaluation/CFO with input from all offices within DOE. The DOE point of contact for this document is Suneel Kapur at (202) 586-0110, suneel.k.kapur@hq.doe.gov

This document will be available on the World Wide Web at http://www.mbe.doe.gov/crorg/me20.htm.

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DEPARTMENT OF ENERGY

OVERVIEW

This is the Department of Energy's sixth Annual Performance Plan. It allows Congress and the public to examine the results the Department proposes to deliver for the requested FY 2003 budget. This year's performance plan has been prepared under the Government Performance and Results Act of 1993 ("GPRA" or the "Results Act") and in accordance with Office of Management and Budget (OMB) guidance. This year's performance plan includes 5 years of performance information. It has *"proposed"* performance goals for FY 2003, "*revised final*" performance goals for FY 2002, and related goals for FY 2001, FY 2000 and FY 1999. The plan is one of the three recurring documents required by the Results Act, namely the Strategic Plan, Annual Performance Plan, and the Annual Performance and Accountability Report. Together, they create a continuing cycle of planning, program execution, and reporting. In order to appropriately reflect the priorities of the current Administration, this Annual Performance Plan revises the goals and objectives outlined in the Department's September 2000 Strategic Plan.

This year, following the Administration's lead on Management Reform, DOE has integrated its performance measures with the Budget. As such, this Annual Performance Plan is an executive level summary of the detailed Budget.

We have organized program level performance goals ("Program Strategic Performance Goals" or "PSPGs") by the programs that fund the work, directly linking resources to results. These performance goals give us a basis to separate long-term, "outcome-oriented" performance indicators from annual, "output-oriented" targets. As in the past, we appreciate the comments and constructive feedback we receive from Congress, the General Accounting Office (GAO), and OMB, as part of our continued commitment to making this a useful tool in managing our work in delivering the products and services for the taxpayers.

The Mission of the Department of Energy is:

To foster a secure and reliable energy system that is environmentally and economically sustainable; to be a responsible steward of the Nation's nuclear weapons; to clean up our own facilities; and to lead in the physical sciences and advance the biological, environmental and computational sciences; and provide premiere instruments of science for the Nation's research enterprise.

To implement this mission, the resources requested for FY 2003 are: $21.9 billion.

INTRODUCTION

Results for Resources

Our government is committed to improving accountability to the taxpayers through implementation of the Government Performance and Results Act of 1993 (the "Results Act" or GPRA). This law requires agencies to develop long-range strategic plans, annual performance plans, and annual performance reports. This Annual Performance Plan has been prepared to meet the law's requirements: (1) establishing performance goals that include the level of performance to be achieved written in meaningful, objective, quantifiable, and measurable form; (2) briefly describing the resources required to meet those performance goals; (3) describing how performance will be measured and compared with the goals; and, (4) describing how the DOE will verify and validate the measured results. The President's Office of Management and Budget (OMB) has issued guidance to agencies for preparing these plans, but has provided flexibility in choosing the appropriate format.

The Department of Energy's FY 2003 Annual Performance Plan reflects the initial phase of integrating budget and performance, one of the five initiatives addressed under President Bush's Management Agenda. In this plan, for the first time, the process for establishing goals and measures was fully aligned with the budget development process.

Consistency with the Strategic Plan and Relationship to the Budget

DOE intends to maintain a close relationship between the Strategic Plan, the Annual Performance Plan (APP), and the Budget; however, the Department's Strategic Plan published in September 2000 is no longer relevant since it does not reflect the priorities identified in President Bush's Management Agenda, the 2001 National Energy Policy, OMB's R&D project investment criteria, or the new policies that will be developed to address an ever-evolving and challenging terrorism threat. The Department began the development of a new Strategic Plan due for publication in the Fall of 2002. To maintain continuity of our approach that links performance goals and annual targets to higher level Departmental goals and Strategic Objectives, the Department developed a revised set of Strategic Objectives in the same structure as the September 2000 Strategic Plan.

This Annual Performance Plan begins with the Department's *mission statement*. The mission is accomplished through five *Department Goals*. Each department goal is supported by *Strategic Objectives*. These are in turn supported by *Program Strategic Performance Goals (PSPGs),* which are implemented through *GPRA Program Activities*.

Performance Measurement Terminology

Department Goal is a long-term outcome-oriented statement written in a manner that allows quantifiable measurement of progress. The Department has established five goals, one for each of the five mission areas: National Nuclear Security, Energy Resources, Science, Environmental Quality, and Corporate Management.

Strategic Objective is a major accomplishment that significantly contributes to a particular department goal. Strategic objectives are written as measurable and achievable by a specific date.

Program Strategic Performance Goal (PSPG) is a quantified statement of the intended outcome or output from a major program during the next 5 years (or a longer period that is appropriate for the program) toward a particular strategic objective and department goal.

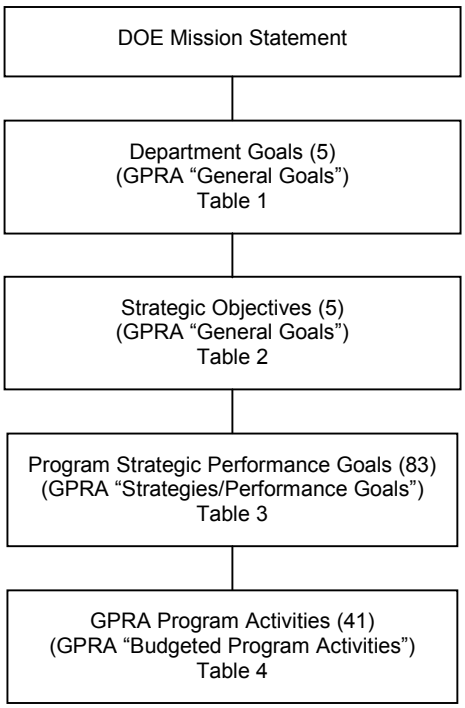
Annual Performance Targets are measures of program/subprogram outputs toward the PSPG. These are specific statements of fiscal year goals. They must be presidential, specific, quantifiable, meaningful, achievable, comprehensive, concisely written for taxpayers, and auditable. In this performance plan we present annual targets for 5 years, FY 1999-FY 2003. For the budget year, FY 2003, annual targets are *"proposed targets."* For FY 2002, these targets are *"revised final"* because they revise the proposed targets in the FY 2002 Annual Performance Plan based on actual budget appropriations. For FY 1999 to FY 2001, "*related results"* are included to provide a trend of performance information in accordance with OMB Circular A-11 guidance.

Performance Indicator is a quantitative measure of longer-term progress toward the goal. A performance indicator demonstrates the effectiveness or efficiency of achieving intended outputs or outcomes. Some examples of performance indicators are: product unit cost, planned versus actual milestones, energy use per square foot in buildings, and citation of DOE research (by fiscal year) in published literature. Appendix D gives a list of all the performance indicators included in this APP with a brief description for each indicator.

As shown in the figure below, the mission is implemented through five department goals. Each department goal is supported by a unique set of four to nine strategic objectives. Each strategic objective is implemented through a unique set of one to nine program strategic performance goals. Work toward the program strategic performance goals receives funding though 41 GPRA program activities. One program strategic performance goal receives funding under only one program activity.

The GPRA program activities are aligned with the Department's FY 2003 Budget Request and contain annual performance targets by fiscal year. This approach allows us to clearly link annual performance with annual budget resources and the strategic plan objectives. We believe this method of linkage allows a clear relationship among budget resources, performance goals, and the Strategic Plan.

Department of Energy
Performance Plan Hierarchy



Tables 1 through 4, located at the end of this introduction, list the Department goals, strategic objectives, program strategic performance goals, and GPRA program activities for the Department of Energy. There is a clear hierarchy among these levels from the Department's mission to the GPRA program activities.

This hierarchical relationship to the Strategic Plan is encoded in the reference numbering of each level. Department goals are coded with two letters: NS for National Nuclear Security, ER for Energy Resources, etc. The strategic objectives are numbered sequentially within each goal, i.e., ER1, ER2, etc. The program strategic performance goals are numbered to indicate the department goal, the strategic objective, and the sequential number of the program strategic performance goal, e.g., ER1-1. The GPRA program activities are not numbered because they support multiple program strategic performance goals that can support different strategic objectives in different department goals.

Organization of this Plan and Presentation Format

To meet the GPRA requirements to identify performance goals for each program activity, the basic building blocks of this plan are the GPRA program activities. GPRA program activities are presented in the department goal section they primarily support.

The GPRA program activities are logical groupings of budget line items that make up the Program and Financing (P&F) accounts in the President's budget. Aggregating, disaggregating, or both as appropriate to link resources to a logical set of performance goals form the logical groupings.

In the chapters that follow, we associated each GPRA program activity with the program strategic performance goals (PSPGs) supported by that activity. Then for each PSPG, we list one or more performance indicators the Department will use to measure long-term progress. Development of good performance indicators is a work-in-progress at the Department. During the coming year, the Department will work to refine these performance indicators, establish baselines for those indicators, and begin development of trend charts. Appendix D gives a compilation of performance indicators included in this plan for each PSPG.

Following the presentation of the indicators, we present a 5 year, (FY 1999-FY 2003), side-by-side presentation of annual performance results and targets. For

FY 1999, FY 2000, and FY 2001, we have included annual targets and their assessments to provide context for targets in FY 2002 and FY 2003.

A complete description of results for these targets can be found in the Department's Performance and Accountability Report for FY 2001. Where available, we have included past results even when no targets had been established.

Next, we discuss Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluation. The Means and Strategies section includes a discussion of human capital, and information technology resources necessary to achieve these results. The discussion also includes special skills, major construction projects, or new information systems to be employed.

The Collaboration Activities section includes descriptions of significant collaboration (funds, people, work, etc.) from organizations external to DOE that support the program or the performance measures. It also describes how this program supports the performance goals of another agency, as appropriate.

External Factors Affecting Performance includes descriptions of industry-specific business conditions, necessary legislation, necessary technological development, or other external-to-DOE factors that would affect the level of performance on the performance goals.

Validation and Verification includes information on the sources of the data, the baseline used for the performance target, frequency of data collection, where/how the data will be stored, and how the data will be verified for accuracy.

Planned Program Evaluation describes program-level evaluations planned during the coming and budget year.

Consultation

In preparing this performance plan, we are incorporating improvements based on the GAO and Congressional feedback on the FY 1999 through FY 2002 Annual Performance Plans. The general format of the plan is same as the FY 2002 plan, which was developed in consultation with Congressional staff. Consultation with Congress on the content of this plan will be conducted through the Congressional review of the budget.

The Department recognizes that the preparation of this Annual Performance Plan is an inherently governmental function. As such, only Federal employees developed the content of the plan, and no non-Federal parties made any contribution.

Improvements in the FY 2003 Plan

The FY 2003 Annual Performance Plan reflects the initial phase of implementing budget and performance integration, one of the five initiatives under the President's Management Agenda. The Department made progress in four key areas:

(1) Alignment of performance goals with budget accounts.
(2) Quantifiable/quantified performance goals.
(3) Accountability at all levels of the Department.
(4) Revised criteria for assessing the extent to which the goals were met.

Program Strategic Performance Goals (PSPGs) provide a direct linkage between this Annual Performance Plan and the major program accounts in the Department's budget. PSPGs presented in this plan are also included in the Department's Budget except for a few program areas where PSPGs in the budget were developed at lower levels than the major program and were therefore consolidated.

The Department made significant progress in making performance goals and targets specific and quantifiable. Our performance goals and targets are improved from prior years. Further, the Department continues to build on the improvements made last year in our FY 2002 annual performance plan. Our FY 2003 performance measures are presented along side the FY 2002, FY 2001, FY 2000, and FY 1999, measures making the progress in each area clear and succinct.

In the area of accountability, the Department has clearly laid down a framework of responsibility for the accomplishment of goals. Accountability means two things. First, line managers own specific corporate-level and program-level goals and they are responsible for achieving those goals. Second, the budget is aligned with the organization so that it is obvious that the accountable manager has control of the resources necessary to achieve the assigned goal.

Criteria for our Assessing our Results

We have revised the terms and criteria for assessment of past performance. Our previous assessment terms-Exceeded Goal, Met Goal, Nearly Met Goal, and

Below Expectation - were changed because the criteria used to determine the level of achievement using those terms was subjective and inconsistent. Our revised terms for FY 2002 reporting will be:

Green: Results were acceptable, i.e. 100 percent of the target as defined was met.
Yellow: Results were mixed, i.e. target was achieved late, but before the end of fiscal year, or the target was only partially met (80-99 percent)
Red: Results were unacceptable, i.e. results were less than 80 percent of the target by the end of fiscal year.

Next Steps for this Plan

This Performance Plan accompanies the Department's FY 2003 performance based budget. Although not required under GPRA, but allowed by OMB, the Department will develop a revised performance plan for FY 2003 based on the appropriated budget and submit it as part of the FY 2004 Annual Performance Plan. The revised performance plan for FY 2003 will contain the proposed FY 2003 performance goals in this Plan for those activities that are fully funded and will adjust those performance goals that are funded at a level different from the proposed budget.

The Department intends to track progress on a quarterly basis and report to the public and Congress annually as required by the Results Act, Government Management Reform Act of 1994, Reports Consolidation Act of 2000, and the DOE Organization Act of 1977.

Validation and Verification of Performance

Validation and verification (V&V) of the Department's performance will be accomplished by periodic reviews, certifications, and audits. Because of the size and diversity of the Department's portfolio, V&V is supported by extensive automated systems, external expert analysis, and management reviews. Detailed discussions of V&V follow the description of performance goals and measures for each GPRA Program Activity in this Annual Performance Plan.

For the overall Agency, the Office of Program Analysis and Evaluation (PA&E) in the Office of Management, Budget and Evaluation, issues GPRA guidance on reporting in the Spring when the staff begins to report on the mid-year status. DOE's end-of-year reporting process includes certifications by heads of organizational elements regarding the accuracy of reported results. The results are reviewed for quality and completeness by PA&E, as well as are reviewed and audited by the Office of the Inspector General. Multiple data sources exist within the program offices performing the work, the National Laboratories, or our contractors. The performance reporting process requires that heads of Departmental elements report the status of the revised final performance measures and ensure that the information provided is accurate and complete.

The Department has been using a computer system called SOLOMON to collect and present results and performance since FY 1995. SOLOMON is a World-Wide-Web-based system that allows remote data entry, monitoring, and oversight. Data entry is controlled through a password system that provides an auditable record of changes. Program offices and managers directly update results and performance assessments during the year and the end-of-year information is used for analysis and preparation of the Performance and Accountability Report. In FY 2002, the Department acquired new commercial software for performance tracking. The new system, "JOULE," is being implemented at the pilot level and will be ready for full implementation by the end of FY 2002.

In accordance with the Federal Managers' Financial Integrity Act of 1992 (FMFIA), the Department will continue evaluations of its management controls in effect during the fiscal year. Our evaluations include an assessment of whether the management controls of the Department were 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 potential for waste, fraud, abuse, or mismanagement of assets was minimized.

The Inspector General audits the reporting of Departmental perfomance and financial information. For FY 1996, FY 1997, FY 1999, FY 2000, and FY 2001 the Department received unqualified audit opinions. For FY 1998, the IG's opinion was qualified due to weaknesses in the controls over the Department's environmental liabilities estimation process. The Inspector General continues to note concerns with the presentation of the overview and quality of our performance measures. We believe we have made significant progress in establishing better measures in the FY 2003 plan.

Management Challenges

The Department has been identifying for the President, Congress, and ultimately the public, areas of vulnerability in the operations of Government. DOE's internal control process has been established to identify Departmental Management Challenges and develop plans to address them, under FMFIA. In FY 2002 the internal controls committee added Performance Management as a new management challenge. The Department's performance management processes need to be improved in order to ensure that our programmatic activities are results driven and focused on achieving valid outcome-oriented goals.

In this plan we have included performance measures for the planned FY 2002 and FY 2003 milestones addressing the Department's Management Challenges. This Annual Performance Plan identifies performance goals from corrective action plans for Departmental challenges with "*(FMFIA)*" on the page numbers noted with the challenge in Appendix C. In addition to those performance goals annotated with "*(FMFIA)*," programs often have other actions which are related to a management challenge but are not annotated because they are not part of the formal corrective action plan.

Waivers

The Department intends to continue to combine performance reporting with its financial statements. The Department's Performance and Accountability Report, prepared in accordance with the Reports Consolidation Act of 2000, will also meet the requirements for an annual performance report in accordance with the Results Act. The Department has made no request for waivers of administrative requirements to provide managerial flexibility.

Resource Requirements

The Department will only achieve its established goals and objectives with adequate financial, human, infrastructure, and technical resources. Financial resources appropriated by Congress have supported the Department's tradition of scientific excellence as evidenced by our innovative solution to some of the most important scientific, national security, energy, and environmental challenges facing America's future.

For FY 2003 the Department is requesting $21.9 billion. This investment of 3 percent of the total discretionary Federal spending serves vital National interests of pushing the frontiers of science for National Security, Energy, and Environment. Our programs promote scientific progress; advance peace; ensure the availability of secure, clean, and efficient energy resources for the Nation's economic future; clean up the legacy of the Cold War; and strengthen safety and health programs across the DOE complex.

Our human resources include both Federal and contractor personnel. The requested funding includes the cost of 16,906 Full Time Equivalent (FTE) Federal personnel and about 101,000 contractor personnel. Since 1995, the Department has experienced a 26-percent reduction in the workforce. 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. The Department continues to face significant skills gaps within the scientific and technical areas and an aging workforce.

In order to meet the Nation's needs for cutting-edge science, DOE must periodically replace or make major upgrades to aging or outdated major experimental facilities. These needs will be weighed against the benefits from cost-effective modifications to existing facilities to ensure that the maximum national benefits are derived from existing infrastructure—this recognizes, however, that many of these science facilities have a finite useful life.

Undoubtedly, further advances in computation and communication will aide the continuing push toward a more seamless, connected science establishment. Opportunities for laboratory collaboration, remote experimentation, scientific simulation as a potential substitute for more costly experimentation, and sharing and access to vast quantities of scientific data and information will continue to place demands on computation and communication capabilities within the science programs.

Table 1. The Department's 5 Goals and Requested Budget

Department Goal	FY 2002 Comparable Appropriations ($ in millions)	FY 2003 Budget Request ($ in millions)
National Nuclear Security (NS): Strengthen United States security through the military application of nuclear energy and by reducing the global threat from terrorism and weapons of mass destruction. (DP, NN, NR)	7,606	8,039
Energy Resources (ER): Increase global energy security, maintain energy affordability, and reduce adverse environmental impacts associated with energy production, distribution, and use by developing and promoting advanced energy technologies, policies, and practices that efficiently increase domestic energy supply, diversity, productivity, and reliability. **(**EE, FE, NE, PMAs, EIA)	2,753	2,666
Science (SC): Deliver the scientific knowledge and discoveries for DOE's applied missions; advance the frontiers of the physical sciences and areas of the biological, environmental and computational sciences; and, provide world-class research facilities and essential scientific human capital to the Nation's overall science enterprise. (SC)	3,289	3,293
Environmental Quality (EQ): Aggressively clean up the environmental legacy of nuclear weapons and civilian nuclear research and development programs at 114 of the Department's sites; permanently dispose of the Nation's radioactive wastes; minimize the social and economic impacts to individual workers and their communities resulting from departmental activities; and, ensure the health and safety of DOE workers, the public, and protection of the environment. (EM, RW, EH, WT)	7,228	7,397
Corporate Management (CM): Demonstrate excellence in the management of the Department's human, financial, physical and information assets. Successfully implement each of DOE's requirements in the President's Management Agenda; demonstrate measured progress in resolving DOE's management challenges; and resolve all management recommendations from DOE's IG and GAO within 3 years of issuance. (CI, CN, EA, ED, GC, HG, IN, IG, ME, OA, PI, SO, S1) [The funds shown for Corporate Management include Departmental staff and support offices, with adjustments for revenues]	460	521
Total:	**21,335**	**21,917**

Table 2. The Department's 32 Strategic Objectives

National Nuclear Security	
NS1	Maintain and enhance the safety, security, and reliability of the nation's nuclear weapons stockpile to counter the threats of the 21st century. (DP)
NS2	Detect, prevent, and reverse the proliferation of weapons of mass destruction while promoting nuclear safety worldwide. (NN)
NS3	Provide the Navy with safe, militarily effective nuclear propulsion plants and ensure their continued safe and reliable operation. (NR)
NS4	Ensure the vitality and readiness of the NNSA's nuclear security enterprise. (DP, NN, NR)
NS5	Create a well-managed, responsive and accountable organization. (DP, NN, NR)
Energy Resources	
ER1	Use public-private partnerships to promote energy efficiency and productivity technologies in order to enhance the energy choices and quality of life of Americans in 2020 relative to 2000 by: reducing the oil intensity of the U.S. economy by 25 percent (compared to 23 percent without EE programs); reducing energy intensity in the U.S. economy by 32 percent (compared to 28 percent without EE programs); and, reducing the need for additional electricity generating capacity by 10 percent (compared to the case without EE programs). (EE)
ER2	Use public private partnerships to bring cleaner, more reliable, and more affordable energy technologies to the marketplace, enhancing the energy choices and quality of life of Americans in 2020 relative to 2000 by: increasing the share of renewable energy to 10 percent (compared to 8 percent without EE programs); increasing the share of renewable-generated electricity to 12 percent (compared to 8 percent without EE programs); and, doubling the share of capacity additions accounted for by distributed power, which increases distributed generation to 11 percent of all electricity generation (compared to 8 percent without EE programs). (EE)
ER3	Reduce the burden of energy prices on low-income families by working with state and local agencies to weatherize at least 123,000 homes per year from 2003 through 2005. (EE)
ER4	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 percent with coal and 75 percent with natural gas. (FE)
ER5	By 2010, add over 1 million barrels a day of domestic oil production and almost 2 trillion cubic feet (TCF) per year of additional gas production as a result of technologies and practices from DOE supported research and development. (FE)
ER6	Maintain the Strategic Petroleum Reserve in a state of readiness to supply oil at sustained rate of 4.4 million barrels per day for 90 days within 15 days notice by the President. (FE)
ER7	Expand the capability of nuclear energy to contribute to the Nation's near and long-term energy needs by investing in our Nation's nuclear R&D infrastructure and promoting advanced research, such that by December 2004, the average capacity of existing U.S. nuclear power plants will increase from 90 to 92 percent; a new nuclear power plant construction project will be initiated in the United States; and, a conceptual design will be developed for a nuclear energy system that addresses the technology issues hindering the worldwide expansion of nuclear power. (NE)
ER8	Provide national and international energy data, analysis, information and forecasts to meet the needs of the energy decision-makers and the public in order to promote sound policymaking, efficient energy markets and public understanding. (EIA)
ER9	Ensure Federal hydropower is marketed and delivered while passing the North American Electric Reliability Council's Control Compliance Ratings, meeting planned repayment targets, and achieving a recordable injury frequency rate at or below our safety performance standard. (PMA)

Table 2. The Department's 32 Strategic Objectives (continued)

Science	
SC1	Determine whether the Standard Model accurately predicts the mechanism that breaks the symmetry between natural forces and generates mass for all fundamental particles by 2010, or whether an alternate theory is required, and on the same timescale determine whether the absence of antimatter in the universe can be explained by known physics phenomena. (SC)
SC2	By 2015, describe the properties of the nucleon and light nuclei in terms of the properties and interactions of the underlying quarks and gluons; by 2010, establish whether a quark-gluon plasma can be created in the laboratory and, if so, characterize its properties; by 2020, characterize the structure and reactions of nuclei at the limits of stability and develop the theoretical models to describe their properties, and characterize using experiments in the laboratory the nuclear processes within stars and supernovae that are needed to provide an understanding of nucleosynthesis. (SC)
SC3	By 2010, develop the basis for biotechnology solutions for clean energy, carbon sequestration, environmental cleanup, and bioterrorism detection and defeat by characterizing the multiprotein complexes that carry out biology in cells and by determining how microbial communities work as a system; and determine the sensitivity of climate to different levels of greenhouse gases and aerosols in the atmosphere and the potential resulting consequences of climate change associated with these levels by resolving or reducing key uncertainties in model predictions of both climate change that would result from each level and the associated consequences. (SC)
SC4	Provide leading scientific research programs in materials sciences and engineering, chemical sciences, biosciences, and geosciences that underpin DOE missions and spur major advances in national security, environmental quality, and the production of safe, secure, efficient, and environmentally responsible systems of energy supply; as part of these programs, by 2010, establish a suite of Nanoscale Science Research Centers and a robust nanoscience research program, allowing the atom-by-atom design of revolutionary new materials for DOE mission applications; and restore U.S. preeminence in neutron scattering research and facilities. (SC)
SC5	Enable advances and discoveries in DOE science through world-class research in the distributed operation of high performance, scientific computing and network facilities; and to deliver, in 2006, a suite of specialized software tools for DOE scientific simulations that take full advantage of terascale computers and high speed networks. (SC)
SC6	Advance the fundamental understanding of plasma, the fourth state of matter, and enhance predictive capabilities, through the comparison of well-diagnosed experiments, theory and simulation; for Magnetic Fusion Energy (MFE), resolve outstanding scientific issues and establish reduced-cost paths to more attractive fusion energy systems by investigating a broad range of innovative magnetic confinement configurations; advance understanding and innovation in high-performance plasmas, optimizing for projected power-plant requirements; develop enabling technologies to advance fusion science, pursue innovative technologies and materials to improve the vision for fusion energy; and apply systems analysis to optimize fusion development; for Inertial Fusion Energy (IFE), leveraging from the Inertial Fusion Confinement (ICF) program sponsored by the National Nuclear Security Administration's Office of Defense Programs, advance the fundamental understanding and predictability of high energy density plasmas for IFE. (SC)
SC7	Provide major advanced scientific user facilities where scientific excellence is validated by external review; average operational downtime does not exceed 10 percent of schedule; construction and upgrades are within 10 percent of schedule and budget; and, facility technology research and development programs meet their goals. (SC)
SC8	Ensure efficient SC program management of research and construction projects through a re-engineering effort of SC processes by FY 2003 that will support world class science through systematic improvements in SC's laboratory physical infrastructure, security, and environmental, safety and health. (SC)

Table 2. The Department's 32 Strategic Objectives (continued)

Environmental Quality	
EQ1	Safely and expeditiously manage waste; clean up facilities and the environment; and stabilize and store nuclear material and spent nuclear fuel, with the intent to complete cleanup of 16 additional sites by the end of 2006 bringing the total number of sites cleaned to 92 out of the total 114. (EM)
EQ2	Obtain requisite licenses, construct and, in 2010, begin acceptance of spent nuclear fuel and high-level radioactive wastes at the repository[1]. (RW)
EQ3	Reduce the number of deaths, injuries and illnesses and environmental releases from environment cleanup and other operational activities such that DOE organization activities remain below their averages established by DOE's last 5 years of data for (1) Total Recordable Case Rate; (2) Occupational Safety Cost Index; (3) Hypothetical Radiation Dose to the Public; (3) Average measurable dose to DOE workers; and, (5) Reportable Occurrences of Releases to the Environment. (EH)
EQ4	Assist DOE contract workers and communities that have been adversely affected as the result of downsizing or closing of Department facilities due to a change in or termination of their program mission by providing (1) separation benefits comparable to industry standards while achieving annual savings that are three times the one-time cost of separation; and, (2) creating and retaining jobs in the communities to absorb the displaced workers. (WT)
Corporate Management	
CM1	Achieve effective and efficient management of the Department of Energy by implementing the President's Management Agenda initiatives on Strategic Management of Human Capital; Competitive Sourcing; Improved Financial Performance; and Budget and Performance Integration. (ME, ED)
CM2	Implement the President's E-government initiatives by developing a framework for existing Information Technology and building a roadmap for corporate direction. (CIO)
CM3	Ensure secure, efficient, effective and economical operations of the Department's Information Technology Systems and Infrastructure. (CIO)
CM4	Provide analysis of domestic and international energy policy, develop implementation strategies, ensure policies are consistent across DOE and within the Administration, communicate analyses and priorities to the Congress, public, industry, foreign governments, and domestic and international organizations, and enhance the export and deployment of energy technologies internationally. (PI)
CM5	Reduce adverse security incidents, worker injuries, and environmental releases through policy development, counterintelligence, intelligence, and oversight of the Nation's energy infrastructure, nuclear weapons, materials, facilities, and information assets. (SO, CN, IN, OA)
CM6	Operate a robust review program and provide timely performance information and recommendations to facilitate: (1) implementation of the President's Management Agenda; (2) resolution of Management Challenges; (3) execution of the Secretary's priorities; (4) completion of statutory Inspector General mandates; (5) recovery of monies and opportunities for savings; and, (6) the integrity of the Federal and contractor workforce. (IG)

Note:
1. This objective is contingent on site designation in FY 2002

Table 3. The Department's 83 Program Strategic Performance Goals

National Nuclear Security	
NS1-1	Conduct a program of warhead evaluation, maintenance, refurbishment, and production, planned in partnership with the Department of Defense.
NS1-2	Develop science, design, engineering, testing and manufacturing capabilities needed for long-term stewardship of the stockpile.
NS2-1	Enhance the capability to detect weapons of mass destruction (WMD), including nuclear, chemical, and biological systems, and terrorist threats.
NS2-2	Prevent and reverse proliferation of weapons of mass destruction.
NS2-3	Protect or eliminate weapons and weapons-usable nuclear material or infrastructure and redirect excess foreign weapons expertise to civilian enterprises.
NS2-4	Reduce the risk of accidents in nuclear fuel cycle facilities worldwide.
NS3-1	Ensure the safety, performance reliability, and service-life of operating reactors for uninterrupted support of Fleet demands, which includes 126 million miles steamed for nuclear powered ships, and maintaining a utilization factor of at least 90 percent for operation of test reactor plants.
NS3-2	Develop new technologies, methods and materials to support reactor plant design, including the next generation submarine reactor, which will be 99 percent complete by the end of FY 2003, and conduct detailed design on a reactor plant for the next generation aircraft carrier, CVNX.
NS3-3	Maintain outstanding environmental performance by ensuring that no personnel exceed Federal limits for radiation exposure; no significant findings result from environmental inspections by State and Federal regulators; and operations have no adverse effect on human health or the quality of the environment.
NS4-1	Attract and retain the best laboratory and production workforce.
NS4-2	Provide state-of-the-art facilities and infrastructure supported by advanced scientific and technical tools to meet operational and mission requirements.
NS4-3	Protect classified information and assets.
NS5-1	Deploy new business practices to create an integrated nuclear security enterprise.

Table 3. The Department's 83 Program Strategic Performance Goals (Continued)

Energy Resources	
ER1-1	Increase the energy security and decrease the environmental impact of government by advancing energy efficiency and water conservation, promoting the use of distributed and renewable energy, and improving utility management decisions at Federal sites.
ER1-2	Partner with key, energy-intensive industries to develop and apply advanced technologies and practices that reduce energy consumption, improve environmental performance, maintain and create jobs, boost productivity, and significantly improve the competitiveness of the United States.
ER1-3	Partner with industry, research organizations, State governments, and other Federal agencies to support development and use of advanced vehicle technologies and fuels which reduce demand for petroleum, decrease emissions of criteria air pollutants and greenhouse gases, and enable the U.S. transportation industry to sustain a strong, competitive position in domestic and world markets.
ER2-1	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.
ER3-1	In partnership with industry and government, develop, promote, and integrate energy technologies and practices that make buildings more efficient, productive, and affordable.
ER3-2	Reduce the energy costs of low-income households by providing cost-effective energy efficiency improvements while ensuring the health and safety of people served.
ER4-1	By 2005, complete the development of mercury control systems capable of reducing mercury emissions by 70 percent (90 percent by 2010) in existing plants at half of current (2001) cost for application in over 300 GW of coal-fired plants in the U.S.
ER4-2	By 2006, complete demonstration of a fuel-flexible power system capable of meeting sulfur and nitrogen emission standards and with improved thermal efficiency at a scale suitable for further commercial deployment by the power industry, and by 2008, complete development of a fuel-flexible power system capable of achieving 52 percent thermal efficiency.
ER4-3	By 2005, complete the development of options that can achieve CO_2 capture/storage at less than a 25 percent increase in the cost-of-electricity (COE). By 2010, achieve a 5 percent increase in the COE.
ER4-4	By 2010, introduce a $400/kW solid-state, modular (i.e. SECA) fuel cell having between 40 percent to 50 percent fuel-to-electricity efficiency, and optimal SECA fuel cell-miniturbine hybrid systems utilizing natural gas and hydrogen
ER4-5	By 2007, complete development of a combined advanced air separation unit and partial oxidation membrane in a single compact reactor to provide significantly lower cost syngas and hydrogen from natural gas (25 percent less costly) to produce a variety of end-use transportation fuel products.
ER5-1	By 2005, demonstrate advanced technologies with potential to reduce exploration and production cost 5 to 10 percent.
ER6-1	Maintain an effective Strategic Petroleum Reserve (SPR) to deter and respond to oil supply disruptions and cooperate with the importing member nations of the International Energy Agency. Ensure achievement of a calculated site availability of 95 percent or greater with draw down capability of 4.4 million barrels per day[1] for a sustained 90-day period within 15 days notice by the President. Maintain the Northeast Home Heating Oil Reserve to respond to and mitigate the regional effects of a severe short-term energy supply disruption in the Northeast. Ensure the capability to complete draw down within 12 days of a Presidential notice.
ER7-1	Effectively address the key issues of economics, proliferation, and waste management that affect the future use of nuclear energy by conducting long-term, investigator-initiated, peer-reviewed research and development.

Note: 1. Rate is achieved when 700 million barrels of oil are in inventory

Table 3. The Department's 83 Program Strategic Performance Goals (Continued)

ER7-2	Contribute to the resolution of nuclear power plant issues in the four critical R&D areas related to long-term plant aging and the development of advanced technologies in three critical R&D areas to improve plant reliability, availability, and productivity to ensure that current plants can continue to operate up to and beyond their initial license period.
ER7-3	Successfully address the regulatory, technical, and institutional issues to enable one or more orders for new, commercial nuclear power plants in the United States by 2005 for deployment by 2010.
ER7-4	Develop, in close cooperation with the international community and industry, one to three next-generation nuclear energy systems which represent significant improvements in all aspects of nuclear power technology.
ER7-5	Support advanced medical research in order to develop an isotope-based treatment to address all forms of cancer by the end of the decade.
ER7-6	Enable United States universities to continue to produce highly trained nuclear engineers and scientists to supply the Nation's energy, environmental, health care, and national security needs by increasing overall enrollment by 3 percent per year over the next 5 years.
ER7-7	Develop and demonstrate an advanced, proliferation-resistant technology to reduce the quantity and toxicity of U.S. commercial spent nuclear fuel (thus enhancing the operation of a future geologic repository) while simultaneously enabling the United States to vastly increase the efficient use of its nuclear fuel resources.
ER7-8	Protect our Nation's nuclear R&D infrastructure by managing the Department's vital resources and capabilities efficiently and effectively, such that, by December 2004, major research/critical facilities will continue to be operational and available for fulfillment of long-term missions as funded by industry and other Federal agencies while unneeded facilities are deactivated in a safe and cost-effective manner.
ER7-9	Deliver isotope products and services for commercial, medical, and research applications where there is no private sector capability or sufficient capacity does not exist to meet the United States needs such that by December 2004, deliveries continue to be made to customers as needed.
ER8-1	Provide national and international energy data, analyses, information and forecasts to meet the needs of the energy decision-makers and the public in order to promote sound policymaking, efficient energy markets and public understanding.
ER9-1	Ensure Federal hydropower is marketed and delivered while passing the North American Electric Reliability Council's Control Compliance Ratings, meeting planned repayment targets, and achieving a recordable injuries frequency rate at or below our safety performance standard.

Table 3. The Department's 83 Program Strategic Performance Goals (Continued)

Science	
SC1-1	Exploit U.S. leadership at the energy frontier by conducting an experimental research program that will establish the foundations for a new understanding of the physical universe.
SC1-2	Explain the observed absence of antimatter in the universe through understanding of the phenomenon of Charge Parity (CP) Violation.
SC2-1	Determine the structure of nucleons in terms of bound states of quarks and gluons. Measure the effects of this structure on the properties of atomic nuclei.
SC2-2	Determine the behavior and properties of hot, dense nuclear matter as a function of temperature and density. Discover and characterize the quark-gluon plasma.
SC2-3	Determine the low energy properties of nuclei, particularly at their limits of stability. Use these properties to understand energy generation and the origin of the elements in stars and the fundamental symmetries of the "Standard Model" of elementary particle physics.
SC3-1	Determine, compare, and analyze DNA sequences of microbes and other organisms that will underpin development of biotechnology solutions for clean energy, carbon sequestration, environmental cleanup, and bioterrorism detection and defeat.
SC3-2	Establish the scientific foundation for determining a safe level of greenhouse gases and aerosols in the atmosphere by resolving or reducing key uncertainties in predicting their effects on climate, and provide the foundation to predict, assess and mitigate potential adverse effects of energy production and use on the environment.
SC4-1	Build leading research programs in the scientific disciplines encompassed by the Basic Energy Science (BES) mission areas and provide world-class, peer-reviewed research results cognizant of DOE needs as well as the needs of the broad scientific community.
SC4-2	Enable U.S. leadership in nanoscale science, allowing the atom-by-atom design of materials and integrated systems of nanostructured components having new and improved properties for applications as diverse as high-efficiency solar cells and better catalysts for the production of fuels.
SC4-3	Develop advanced research instruments for x-ray diffraction, scattering, and imaging to provide diverse communities of researchers with the tools necessary for exploration and discovery in materials sciences and engineering, chemistry, earth and geosciences, and biology.
SC5-1	Build leading research programs in focused disciplines of applied mathematics, computer science, and network and collaboratory research important to national and energy security to spur revolutionary advances in the use of high performance computers and networks.
SC5-2	Create the Mathematical and Computing Systems Software and the High Performance Computing Facilities that enable Scientific Simulation and Modeling Codes to take full advantage of the extraordinary capabilities of terascale computers, and the Collaboratory Software Infrastructure to enable geographically-separated scientists to effectively work together as a team as well as provide electronic access to both facilities and data.

Table 3. The Department's 83 Program Strategic Performance Goals (Continued)

SC6-1	Develop the basis for a reliable capability to predict the behavior of magnetically confined plasma, and use the advances in the Tokamak concept to enable the start of the burning plasma physics phase of the U.S. fusion sciences program.
SC6-2	Develop the cutting edge technologies that enable Fusion Energy Sciences (FES) research facilities to achieve their scientific goals and investigate innovations needed to create attractive visions of designs and technologies for fusion energy systems.
SC7-1A	Manage High Energy Physics (HEP) facility operations to the highest standards of performance, using merit evaluation with independent peer review. Meet U.S. commitments to the accelerator and detector components of the Large Hadron Collider (LHC) facility now under construction.
SC7-1B	Perform the research and development needed to support the operation and upgrade of existing HEP facilities and to provide the tools and technology to develop new forefront facilities.
SC7-2	Manage all Nuclear Physics (NP) facility operations and construction to the highest standards of overall performance, using merit evaluation with independent peer review.
SC7-3	Manage all Biological & Environmental Research (BER) facility operations and construction to the highest standards of overall performance, using merit evaluation with independent peer review.
SC7-4A	Manage Basic Energy Sciences (BES) facility operations and construction to the highest standards of overall performance using merit evaluation with independent peer review.
SC7-4B	Restore U.S. preeminence in neutron scattering research, instrumentation, and facilities to provide researchers with the tools necessary for the exploration and discovery of advanced materials.
SC7-5	Provide advanced scientific user facilities where scientific excellence is validated by external review; average operational downtime does not exceed 10 percent of schedule; construction and upgrades are within 10 percent of schedule and budget; and, facility technology research and development programs meet their goals.
SC7-6	Manage all Fusion Energy Sciences (FES) facility operations and construction to the highest standards of overall performance, using merit evaluation and independent peer review.
SC8-1	Ensure efficient SC program management of research and construction projects through a re-engineering effort of SC processes by FY 2003 that will support world-class science through systematic improvements in SC's laboratory physical infrastructure, security, and environmental safety and health.

Table 3. The Department's 83 Program Strategic Performance Goals (Continued)

Environmental Quality	
EQ1-1	Complete geographic site cleanup at 92 of the 114 cleanup sites by FY 2006. Continue cleanup at the remaining sites, including the five largest sites, scheduled for completion in the post 2006 timeframe.
EQ1-2	Safely and expeditiously dispose of waste generated during past and current DOE activities. Continue shipment of Transuranic (TRU) waste for disposal at the Waste Isolation Pilot Plant (WIPP).
EQ1-3	Stabilize nuclear material and spent nuclear fuel by producing safer chemical and/or physical forms of the material, and reduce the level of potential risk to personnel from radiation exposure or to the environment from contamination.
EQ1-4	Deploy innovative environmental cleanup, nuclear waste, and spent fuel treatment technologies that reduce cost, resolve currently intractable problems, and/or are more protective of workers and the environment.
EQ2-1	If Congress designates Yucca Mountain as the repository site, obtain a repository construction authorization from the Nuclear Regulatory Commission.
EQ3-1	Reduce the number of reportable deaths, injuries and illnesses and environmental releases from environment cleanup and other operational activities. The goal is that DOE organization activities remain below the past 5 year averages for the five corporate ES&H performance indicators.
EQ3-2	Identify health concerns and priorities as related to environmental cleanup and other operational activities through assessing injuries and illnesses in at least 70,000 current workers across 12 DOE sites and providing medical screening for at least 4,000 former workers exposed to beryllium and other hazards.
EQ4-1	Minimize the social and economic impacts to 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.

Table 3. The Department's 83 Program Strategic Performance Goals (Continued)

Corporate Management	
CM1-1	Implement the DOE 5-Year Workforce Restructuring Plan.
CM1-2	By the end of FY 2003, complete competitive sourcing studies on 15 percent of the Department's inventory of positions that are not inherently governmental. Conduct additional studies in FY 2004 and beyond based on requirements established by the Office of Management and Budget.
CM1-3	Manage the Department's financial resources and other assets; obtain an unqualified opinion by independent auditors on the Department's annual financial statements; and integrate financial, budget, and program information.
CM1-4	Make resource decisions based on performance, and fully integrate the Department's budget and performance by FY 2004.
CM1-5	Improve the efficiency and effectiveness of DOE's contract management to become a model for government.
CM1-6	Promote inclusion in all aspects of the Department's human capital and financial resources by increasing diversity in hiring, contracting, internships, mentoring and other developmental programs.
CM2-1	Advocate and implement E-government citizen service delivery office in FY 2003.
CM3-1	Promote the effective management of Information Technology resources in the Department.
CM3-2	Ensure that DOE's information assets are secure through effective policies, implementation, and oversight.
CM4-1	Provide analysis of domestic and international energy policy, develop implementation strategies, ensure policies are consistent across DOE and within the administration, communicate analyses and priorities to the Congress, public, industry, foreign governments, and domestic and international organizations, and enhance the export and deployment of energy technologies internationally.
CM5-1	Develop strategies and policies governing the protection of national security and other critical assets entrusted to the Department. Also, manage security operations for DOE facilities in the national capital area.
CM5-2	Increase and enhance the protection of sensitive and classified technologies, information, and expertise against attempts by foreign intelligence, industrial intelligence, and non-traditional collectors to acquire nuclear weapons information or advanced technologies from the National Laboratories and other DOE and NNSA facilities, and support the protection of DOE and NNSA personnel and assets from international terrorist activities.
CM5-3	Satisfy diverse customer demands for timely, high-impact intelligence necessary to secure the DOE complex and ensure national energy security.
CM5-4	Provide inspections and reviews that contribute to improved environmental protection, enhanced safety and health of DOE employees, contractors, and the public, as well as enhanced safeguards and security of assets throughout the DOE complex, by identifying and reducing vulnerabilities from environment, safety and health risks, and threats to national security interests.
CM6-1	Conduct focus performance reviews on those issues, programs and systems having the greatest potential impact on the protection or recovery of public resources; and make associated recommendations for positive change. Evaluate the Department's implementation of the Government Performance and Results Act.

Table 4. The Department's 41 GPRA Program Activities

GPRA Program Activity	FY 2003 Budget Request ($M)	Page
National Nuclear Security:		
Weapons Activities (DP)	5,869	5
Defense Nuclear Nonproliferation (NN)	1,114	21
Naval Reactors (NR)	708	33
NNSA Program Direction	348	41
Total for National Nuclear Security	**8,039**	
Energy Resources:		
Office of Energy Efficiency and Renewable Energy (EE) Programs:		
Energy Management	31	51
Industry Sector	138	59
Transportation Sector	276	67
Weatherization	277	73
Renewable and Distributed Energy	416	83
Building Technology, State and Community Program	132	91
Program Direction[1]	43	
Subtotal for EE	**1,312**	
Office of Fossil Energy (FE) Programs:		
High Efficiency, No/Low Emissions Power Systems R&D	356	97
Clean Fuels R&D	5	109
Domestic Oil and Gas Supply RD&D	58	113
FE R&D Crosscutting and Special Activities	115	117
Petroleum Reserves	282	119
Subtotal for FE	**816**	
Office of Nuclear Energy, Science and Technology (NE) Programs:		
Nuclear Energy R&D	89	123
Nuclear Energy Educational Infrastructure	18	139
Nuclear Energy Infrastructure	119	143
Program Direction[1]	24	
Subtotal for NE	**251**	
Other Energy Resources Programs:		
Energy Information Administration (EIA)	83	153
Power Marketing Administrations (PMAs)	205	161
Total for Energy Resources	**2,666**	

Table 4. The Department's 41 GPRA Program Activities (Continued)

GPRA Program Activity	FY 2003 Budget Request ($M)	Page
Science:		
High Energy Physics	725	173
Nuclear Physics	382	185
Biological and Environmental Research	504	197
Basic Energy Sciences	1,020	207
Advanced Scientific Computing Research	170	221
Fusion Energy Sciences	257	229
Science Management and Support	235	239
Total for Science:	**3,293**	
Environmental Quality:		
Environmental Management (EM)	6,714 [2]	249
Civilian Radioactive Waste Management (RW)	527	263
Environmental Safety and Health (EH)	130	269
Worker and Community Transition (WT)	26	279
Total for Environmental Quality	**7,397**	
Corporate Management:		
Management, Budget and Evaluation/Chief Financial Officer (ME)	111	287
Chief Information Officer (CIO)	84	299
Economic Impact and Diversity (ED)	7	303
Policy and International Affairs (PI)	22	313
Security (SO)	187	319
Counterintelligence (CN)	39	323
Intelligence (IN)	42	327
Independent Oversight & Performance Assurance (OA)	23	331
Office of Energy Security (EA)	28	337
Office of Inspector General (IG)	39	339
Office of the Secretary, Board of Contract Appeals, Congressional and Intergovernmental Affairs, Office of Energy Security, General Counsel, Public Affairs, and Hearings and Appeals [1]	44	
Subtotal for Departmental Support and Staff Offices	624	
Adjustments for Miscellaneous Revenues, Cost of Work for Others, FERC Receipts, Colorado River Basin	(103)	
Total for Corporate Management	**521**	
Total for the Department of Energy:	**21,917**	

Notes: 1. These are not treated as GPRA Program Activities, but are listed to complete the budget information. They are primarily program direction accounts that fund salaries of Federal employees who are responsible for delivering on the results of the GPRA Program Activities.

2. The Administration has demonstrated a willingness to support an additional $300 million for EM Cleanup Reform.

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NATIONAL NUCLEAR SECURITY

For almost 50 years, America's national security has relied on the deterrent provided by nuclear weapons. Designed, built, and tested by the Department of Energy and its predecessor agencies, these weapons helped win the Cold War, and they remain a key component of the Nation's security posture.

The Department's National Nuclear Security Administration (NNSA) now faces a new and complex set of challenges to its national nuclear security missions in countering the threats of the 21st century. One of the most critical challenges is met by the Stockpile Stewardship Program, which is maintaining the effectiveness of our nuclear deterrent in the absence of underground nuclear testing. Another critical challenge is the proliferation of weapons of mass destruction, where nuclear, chemical, or biological weapons or nuclear materials could fall into the wrong hands and be used against U.S. interests, both domestically or internationally. Additionally, international events and crises continue to arise to which the United States must project a forward presence, and quickly protect our national interests. The U.S. Navy will meet those military deployment objectives using nuclear-powered submarines and aircraft carriers.

Congrress created the NNSA through the National Defense Authorization Act for Fiscal Year (FY) 2000 (Public Law 106-065) to bring focus to the management of the nation's defense nuclear programs. Three existing organizations within the Department of Energy (DOE)--Defense Programs, Defense Nuclear Nonproliferation, and Naval Reactors were combined into a new, separately organized and managed agency headed by an Administrator. The Administrator, who is also an Under Secretary within DOE, has authority over and is responsible for all programs and activities necessary to accomplish our mission.

The vision of the NNSA is to be an integrated nuclear security enterprise, operating an efficient and agile nuclear weapons complex, recognized as preeminent in technical leadership and program management.

Four staff offices outside of NNSA retain policy, oversight, and some national security responsibilities: the Office of Security, the Office of Intelligence, the Office of Counterintelligence, and the Office of Independent Oversight and Performance Assurance. Performance plans for these offices are presented under the Corporate Management section of the plan.

NATIONAL NUCLEAR SECURITY (NS) GOAL

Strengthen United States security through the military application of nuclear energy, and by reducing the global threat from terrorism and weapons of mass destruction.

Strategic Objectives

NS1: Maintain and enhance the safety, security, and reliability of the nation's nuclear weapons stockpile to counter the threats of the 21st century. (NA-DP)

NS2: Detect, prevent, and reverse the proliferation of weapons of mass destruction while promoting nuclear safety worldwide. (NA-NN)

NS3: Provide the Navy with safe, militarily-effective nuclear propulsion plants, and ensure their continued safe and reliable operation. (NA-NR)

NS4: Ensure the vitality and readiness of the NNSA's nuclear security enterprise. (NA)

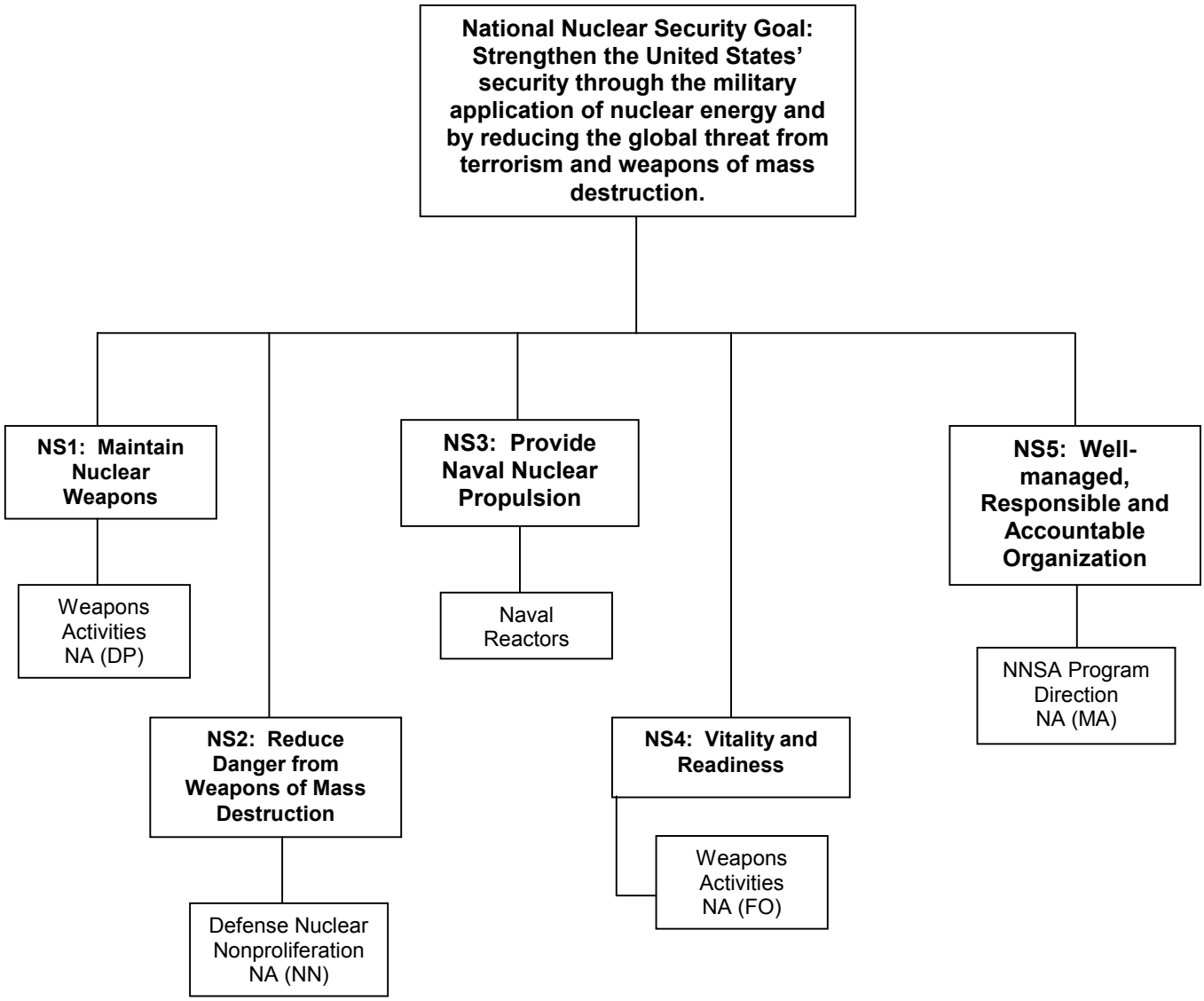
NS5: Create a well-managed, responsive and accountable NNSA organization. (NA)

The following table maps the Presidential Budget's Program and Financing (P&F) accounts and program activities to the Department of Energy's offices and GPRA Program Activities. The alignment includes aggregation, disaggregation, and consolidation of budget decision units. The chart that follows this table shows how the GPRA Program Activities support the Department's Strategic Objectives for the National Nuclear Security goal.

Presidential Budget Program and Financing (P&F) Accounts and Program Activities		FY 2003 Budget Request ($M)	DOE Office	GPRA Program Activity
050 Atomic Energy Defense Activities				
National Nuclear Security Administration (NNSA)				
Weapons Activities				
	Directed Stockpile Work	1,234	NA (DP)	Weapons Activities
	Campaigns	2,068	NA (DP)	
	Readiness in Technical Base and Facilities	1,688	NA (DP)	
	Secure Transportation Asset	155	NA (DP)	
	Facilities and Infrastructure Recapitalization	243	NA (FO)	
	Weapons Safeguards and Security	510	NA (FO)	
	Adjustments	(29)		
	Subtotal Weapons Activities	5,869		
Defense Nuclear Nonproliferation				
	Nonproliferation & Verification R&D	283	NA (NN)	Defense Nuclear Nonproliferation
	Nonproliferation & International Security	93	NA (NN)	
	Russian Transition Initiative	39	NA (NN)	
	International Materials Protection and Cooperation	233	NA (NN)	
	International Nuclear Safety	64	NA (NN)	
	HEU Transparency	17	NA (NN)	
	Fissile Materials Disposition	448	NA (NN)	
	Adjustments	(64)		
	Subtotal Defense Nuclear Nonproliferation	1,114	NA (NN)	
Naval Reactors		708	NA (NR)	Naval Reactors
Office of the Administrator[1]		348	NA (MA)	NNSA Program Direction
Total - NNSA		**8,039**		

Note:
1. Includes funding for Program Direction for the Office of Security (SO).

Five Strategic Objectives support the National Nuclear Security goal. Each strategic objective is being pursued through long-term strategies. In this Annual Performance Plan, these long-term strategies have been stated in terms of Program Strategic Performance Goals against which outcome performance indicators and annual (output) performance targets have been established. To make the linkage of these outcomes and outputs to the budget resources, we have organized the plan by GPRA Program Activities, which are aligned with the budget decision units through aggregation, disaggregation, and consolidation. The Program Strategic Performance Goals and indicators and annual targets are discussed with the GPRA Program Activities on the following pages. This approach allows us to clearly link annual performance with annual budget resources and the strategic plan objectives. The chart below gives an overview of the linkage of GPRA program activities and strategic objectives for the National Nuclear Security Goal.



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GPRA Program Activity: Weapons Activities

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activity	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
050 Atomic Energy Defense Activities					
Directed Stockpile Work		NA (DP)	934	1,044	1,234
Campaigns		NA (DP)	2,019	2,100	2,068
Readiness in Technical Base and Facilities		NA (DP)	1,495	1,535	1,688
Secure Transportation Asset		NA (DP)	127	162	155
Facilities and Infrastructure Recapitalization		NA (FO)	9	197	243
Weapons Safeguards and Security		NA (FO)	411	555	510
Adjustments			(43)	(29)	(29)
Total			**4,952**	**5,563**	**5,869**

Description of the Program:

The programs funded in the Weapons Activities appropriation are managed by the NNSA. The Weapons Activities appropriation consists of six major components: Directed Stockpile Work, Campaigns, Readiness in Technical Base and Facilities, Facilities and Infrastructure Recapitalization Program, Secure Transportation Asset, Weapons Safeguards and Security. About 2,000 Federal employees provide direction, management and oversight of about 25,000 contractor employees who carry out program activities in a safe, secure, and environmentally responsible manner at a nationwide complex of Government-Owned, Contractor-Operated (GOCO) nuclear weapons production facilities, national security laboratories, and test sites.

These programs conduct surveillance, maintenance, experiments, and simulations for individual weapons and weapon systems to ensure operational readiness of the nuclear weapon stockpile. At the same time, we are investing in advanced scientific and manufacturing capabilities for the future to ensure the capability to accurately assess weapon status, extend weapon life, and certify that the stockpile remains safe, secure, and reliable.

Directed Stockpile Work maintains confidence in the safety, security, and reliability of the nuclear weapons in the nation's stockpile through maintenance and evaluation of the weapons and planned refurbishments. These activities, conducted in concert with Department of Defense (DoD), are our top priority. Beginning in FY 2001, Directed Stockpile Work accelerated sharply as we prepared to undertake life extension activities for up to three additional warheads (in addition to the ongoing W87 refurbishment). NNSA has worked with the Nuclear Weapons Council (NWC) to reach agreement on the timing, pace, scope and technical aspects of this work. The NNSA has confirmed that these actions are consistent with overall national security policy.

Activities in **Campaigns** contribute the technology needed to carry out the directed stockpile work, as well as foster new ideas and concepts that will provide opportunities for cutting-edge improvements to sustain the stockpile and the program for many years into the future. The campaign activities are essential for certification and life extension of the stockpile. They allow us to move to "experience-based" judgments for stewardship, utilizing experiments, simulations, and surveillance information, in place of nuclear testing. The readiness campaigns are technology-based efforts designed to maintain and enhance manufacturing and other capabilities needed for the future production of weapon components. The pace of the campaigns was assessed as part of the Strategic Review of the national security-related programs and confirmed as planned.

The NNSA also provides Federal support for the **Secure Transportation Asset**, the Department's network of rolling stock, special agents and other personnel and specialized infrastructure for the safe and secure movement of weapons, weapon components, and other hazardous materials within the continental United States.

The Stewardship program develops and maintains the world-class scientific, engineering, and manufacturing capabilities needed to achieve weapons certification for the long term. More than over one fourth of NA-10's financial resources are devoted to operating key defense facilities funded by the **Readiness in Technical Base and Facilities** activities. These ensure the vitality of the NNSA national security enterprise, including the physical and intellectual infrastructure for the Lawrence Livermore National Laboratory, Los Alamos National Laboratory (LANL), and Sandia National Laboratories, the Nevada Test Site, the Kansas City, Pantex and Y-12 production plants, and Savannah River tritium facilities. Funding provides for operation and maintenance of these facilities, with a goal of a consistent readiness level. Infrastructure construction projects are also included in this category.

The **Facilities and Infrastructure Recapitalization Program** addresses issues that are outside of the base maintenance and repair efforts. The base maintenance and repair efforts at NNSA sites are primarily funded within the Readiness in Technical Base and Facilities budgeting for operations. The program applies new, increased, direct appropriations to address an integrated, complex-wide prioritized list of maintenance and infrastructure activities, above the current base operating levels. The program will significantly improve the long-term physical conditions and mission availability of the NNSA nuclear weapons complex. These activities are vital to mission accomplishment, yet they are not tied to a specific Directed Stockpile Work or Campaign workload described above. Because of their cross-cutting nature, these projects have not previously received priority within strictly programmatic budget reviews.

Consistent with the FY 2001 appropriations act, funding for **Weapons Safeguards and Security** (S&S) activities are requested as a separate budget category. All funding for S&S for NNSA landlord sites, including a planned offset for funding receipts from Work for Others, is included in the Weapons Activities appropriation, as well as support for cyber security activities. Weapons Safeguards & Security will provide the necessary physical, personnel, and cyber security to prevent the theft, loss, or unauthorized use of nuclear weapons, nuclear weapons components, or special nuclear materials, as well as classified and unclassified information and assets throughout the NNSA complex.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

The following facing pages have 5 years of performance measures for NS 1-1.

Program Strategic Performance Goal:

NS1-1 Conduct a program of warhead evaluation, maintenance, refurbishment, and production, planned in partnership with the Department of Defense.

Performance Indicators:

- Demonstrate and assess, using data and experiments, together with validated models, the safety and reliability of nuclear weapons stockpile, and determine if a technical need exists for underground nuclear testing.
- Demonstrate an increasing scientific and technical ability to sustain warhead safety, security and reliability.
- Meet planned warhead maintenance, refurbishment, and dismantlement schedules.

Related FY 1999 Results	Related FY 2000 Results
Report annually to the President that there is no need or lack of need to resume underground testing to certify the safety and reliability of the nuclear weapon stockpile. (MET GOAL)	*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 weapons stockpile.* (MET GOAL)
Meet all annual weapons maintenance and refurbishment schedules developed jointly by the DOE and DoD. (NEARLY MET GOAL)	*Meet all annual weapons alteration and modification schedules developed jointly by DOE and DoD.* (BELOW EXPECTATION: Six of the 11 modifications were behind schedule. Revised schedules have been negotiated with DoD that will meet their operational needs.)
Adhere to the schedule for the safe and secure dismantlement of approximately 275 weapons that have been removed from the U.S. nuclear weapon stockpile. (BELOW EXPECTATION: 207 weapons were dismantled and the difference was due to technical difficulties.)	*Adhere to approved schedules for the safe and secure dismantlement of nuclear warheads that have been removed from the U.S. nuclear weapon stockpile.* (MET GOAL)

NS1-1 FY 2001 Results	**NS1-1 FY 2002 Targets** (Revised Final)	**NS1-1 FY 2003 Proposed Targets**
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. (MET GOAL)	*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.*	*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.*
Meet all annual weapons maintenance and refurbishment schedules developed jointly by the DOE and DoD. (MET GOAL)	*Meet all annual weapons maintenance, refurbishment, and dismantlement schedules developed jointly by the DOE and DoD. This includes meeting milestones in the FMFIA corrective action plan for the Department Challenge of Stockpile surveillance and testing. (FMFIA)*	*Meet all annual weapons maintenance, refurbishment, and dismantlement schedules developed jointly by the DOE and DoD.*
Meet annual schedules for the safe and secure dismantlement of nuclear warheads that have been removed from the U.S. nuclear weapon stockpile. (MET GOAL)		

Program Strategic Performance Goal:

NS1-2 Develop science, design, engineering, testing and manufacturing capabilities needed for long-term stewardship of the stockpile.

Performance Indicators:

- Demonstrate cradle-to-grave, science-based stockpile stewardship, including the capability to design and certify new nuclear warhead types.
- Demonstrate that the scientific campaigns are increasing our understanding and capability to maintain the stockpile.
- Demonstrate that production-readiness campaign activities are reestablishing or developing capabilities necessary for warhead maintenance and refurbishment.
- Demonstrate that the ability to conduct underground nuclear testing, if necessary, is adequate to meet policy requirements.
- Successfully establish the capability to manufacture and certify nuclear weapons primaries (pits).
- Provide a reliable source of tritium to support planning and policy requirements.

Related FY 1999 Results	Related FY 2000 Results
Demonstrate 3 trillion operations per second computer system. (EXCEEDED GOAL)	*Demonstrate a computer code capable of performing a three-dimensional analysis of the dynamic behavior of a nuclear weapon primary, including a prediction of the total explosive yield, on an Accelerated Strategic Computing Initiative (ASCI) computer system.* (EXCEEDED GOAL)
Conduct two to three subcritical experiments at the Nevada Test Site to provide valuable scientific information about the behavior of nuclear materials during the implosion phase of a nuclear weapon. (MET GOAL)	*Conduct further subsets of the subcritical experiment begun in FY 1999 (Oboe) and one additional subcritical experiment at the Nevada Test Site to provide data on the behavior of nuclear materials during the implosion phase of a nuclear weapon.* (MET GOAL)

Related FY 2001 Results	NS1-2 FY 2002 Targets (Revised Final)	NS1-2 FY 2003 Proposed Targets
	Perform a prototype calculation of a full weapon system with three-dimensional engineering features.	
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 (MET GOAL)	*Meet the FY 2002 milestones in the science campaigns to achieve scientific understanding of the nuclear package of weapon systems to sustain our ability to annually certify the nuclear weapon stockpile without underground nuclear testing.*	*Meet the critical FY 2003 Campaign performance targets contained in the NNSA Future-Year Nuclear Security Plan (FYNSP).*
Meet FY 2001 milestones in the science campaigns to achieve scientific understanding of the nuclear package of weapon systems to sustain our ability to annually certify the nuclear weapon stockpile without underground nuclear testing. (MET GOAL)		
	Meet the FY 2002 milestones in the production readiness campaigns to address issues associated with high explosives, materials, and non-nuclear technologies.	
		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.

Program Strategic Performance Goal:

NS4-1 Attract and retain the best laboratory and production workforce.

Performance Indicators:

- Provide challenging and rewarding work in a safe and secure environment.
- Meet targets for hiring and retaining critical personnel.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*There were no related targets.*

NS4-1 FY 2001 Results	NS4-1 FY 2002 Targets (Revised Final)	NS4-1 FY 2003 Proposed Targets
		Meet targets included in workforce site plans and contracts for hiring and retaining critical personnel.
	Minimize the number of vacant critical skill positions and reduce the average age of the critically skilled workforce through recruitment and retention of a new generation of nuclear weapons stewards.	*Minimize the number of vacant critical skill positions and reduce the average age of the critically skilled workforce through recruitment and retention of a new generation of nuclear weapons stewards.*

Program Strategic Performance Goal:

NS4-2 Provide state-of-the-art facilities and infrastructure supported by advanced scientific and technical tools to meet operational and mission requirements.

Performance Indicators:

- Ensure necessary facilities are available to perform our mission.
- Meet or exceed environmental, safety, and health requirements.
- Implement the Integrated Safety Management Program.
- Complete construction activities on schedule and within budget.
- Implement NNSA's Facilities and Infrastructure Recapitalization Program.

Related FY 1999 Results	Related FY 2000 Results
Ensure that all facilities required for successful achievement of the Stockpile Stewardship Program remain operational. (BELOW EXPECTATION: Enriched Uranium Operations at the Y-12 Plant were behind schedule.)	*Ensure that all facilities required for successful achievement of the Stockpile Stewardship Program remain operational.* (BELOW EXPECTATIONS: Operations at LANL were severely impacted by the Plutonium intake accident and the Cerro Grande fire at LANL.)
Ensure that the capability to resume underground nuclear testing is maintained in accordance with the Presidential Decision Directive and Safeguard C of the Comprehensive Test Ban Treaty (CTBT). (MET GOAL)	*Ensure that the capability to resume underground nuclear testing is maintained in accordance with the Presidential Decision Directive through a combined experimental and test readiness program.* (MET GOAL)
Continue construction of the National Ignition Facility (NIF) according to the Project Execution Plan schedules. (BELOW EXPECTATION: A new project baseline is being developed.)	*Begin execution of the Defense-related project management campaign implementation plan.* (MET GOAL) *Continue construction of the National Ignition Facility (NIF), and rebaseline future construction plans, total costs, and schedules by June 2000.* (MET GOAL)
Meet the established schedules for downsizing and modernizing DOE's production facilities. (NEARLY MET GOAL)	*Meet the established schedules for downsizing and modernizing our production facilities.* (NEARLY MET GOAL)

Related FY 2001 Results	**NS4-2 FY 2002 Targets** (Revised Final)	**NS4-2 FY 2003 Proposed Targets**
Ensure the physical infrastructure and facilities are operational, safe, secure, and compliant, and that a defined state of readiness is sustained at all needed facilities. (MET GOAL)	*Meet established facility operating plans and construction schedules to ensure the physical infrastructure and facilities are operational, safe, secure, and compliant, and that a defined 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.*	*Meet established facility operating plans and construction schedules to ensure the physical infrastructure and facilities are operational, safe, secure, and compliant, and that a defined state of readiness is sustained at all needed facilities.*
	Execute oversight more than 50 FY 2002 Recapitalization Projects consistent with scope, cost, and schedule baselines.	*Execute a multi-year Recapitalization Program to arrest the deterioration and reduce the backlog of maintenance and repair projects.*
Implement the Secretary's Six Point Plan to improve project management of the National Ignition Facility (NIF) project and approve a new baseline. (FMFIA) (MET GOAL)	*Create and conduct NNSA-related project management and improvement campaigns. (FMFIA)*	
Complete the milestones listed in the corrective action plan for the Departmental challenge of managing physical assets. (MET GOAL)	*Implement an excess prioritized project list to ensure high priority facilities are demolished, based on NNSA's 10 Year Comprehensive Site Plans (TYCSPs) that result in disposal of over 500,000 square feet of floor space. (FMFIA)*	

Program Strategic Performance Goal:

NS4-3 - Protect classified information and assets.

Performance Indicators:

- Ensure operations at NNSA facilities meet security standards.
- Protect NNSA personnel, facilities, nuclear weapons, and other material from terrorist and other threats.
- Implement the Integrated Safeguards and Security Management Program.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*There were no related targets.*

FY 2001 Results	NS4-3 FY 2002 Targets (Revised Final)	NS4-3 FY 2003 Proposed Targets
There were no related targets.	*Provide technical support to the Counter-Terrorism Task Force strategic review of S&S DOE-wide, including cyber security.* *Develop a strategic framework for responsive and effective security methodology following the September 11, 2001 events.* *Complete the milestones listed in the corrective action plans for the Departmental Challenge of Security and Counterintelligence. (FMFIA)*	*Assess line management's progress in implementing Integrated Safeguards and Security Management.* *Complete implementation of "Higher Fences" to enhance the protection of certain Restricted Weapons Data within the DOE and DoD. (FMFIA)*

Means and Strategies:

The NNSA will conduct a wide range of tests and activities to assess the continuing safety and reliability of the Nation's nuclear weapon stockpile. Overall technical reviews by the weapons laboratories of the stockpile will encompass laboratory and flight tests of materials and components, surveillance tests, and hydrodynamic testing of components. Calculations and computer simulations of weapons will be used in these assessments. Weapon analyses will utilize data archived from past underground nuclear tests. Working through the weapon production plants and the laboratories, NNSA will make deliveries of limited life and other weapon components for nuclear weapon stockpile management and refurbishment according to schedules developed jointly by the NNSA and the Department of Defense (DoD). Dismantlement activities are also carried out in support of this objective. Activities will be conducted with DoD, ranging from training in nuclear weapon field maintenance to partnerships in research supporting non-nuclear munitions.

The NNSA will continue with the "campaigns" approach for activities that address critical capabilities needed to achieve weapons stockpile certification. The campaigns are focused efforts with specific end points, planned and executed by integrated teams from the laboratories, Nevada Test Site (NTS) and production plants. The campaign sub-elements are: Science, Engineering, High Density Physics (formerly Inertial Confinement Fusion and High Yield), Advanced Simulation and Computing, Pit Manufacturing and Certification, and Readiness.

The NNSA will continue to oversee and maintain the plant infrastructure at government-owned, contractor operated weapons laboratories and plants according to applicable statutes, laws, agreements and standards. NNSA is developing detailed facility operation plans to ensure that specific requirements for readiness are maintained. NNSA will also maintain appropriate infrastructure, personnel knowledge and the exercised skills necessary to conduct an underground nuclear test within 2-3 years. NNSA will provide for enhancements to the DOE Secure Transportation Asset to address vulnerability issues raised in FY 2001 reviews, and will maintain nuclear emergency response assets. NNSA will identify the workforce skills necessary to meet long-term stockpile stewardship requirements and will develop staffing plans to attract and keep staff to meet requirements.

Collaboration Activities:

Some activities will be conducted with DoD, ranging from training in nuclear weapon field maintenance to partnerships in research supporting non-nuclear munitions. Stockpile Stewardship activities are synergistic with Work for Others activities sponsored principally by the DoD.

There are a small number of collaborations with universities and colleges, mainly associated with the strategic computing activities and the inertial confinement fusion research program. Also, a limited number of technology partnership efforts with industry may be continued for FY 2003.

External Factors Affecting Performance:

The Administration's reviews to create a new vision for the role of the Nation's military in the 21st century have the potential to affect performance goals in FY 2003 and beyond.

The NNSA's weapons complex is a government owned-contractor operated enterprise. NNSA works proactively with its contractors, external regulators, and host communities to assure that facilities and operations are in compliance with all applicable statutes and agreements to minimize unscheduled disruption to program activities that could affect performance.

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Validation and Verification:

Data Sources:	Production and Planning Directive and quarterly reviews. Campaign Implementation Plans and Campaign Program Plans. Readiness in Technical Base and Facilities (RTBF) Implementation Plans and Recapitalization Execution Plan.
Baselines:	Established annually in approved plans. Established in the RTBF plan and the Recapitalization Work Authorization.
Frequency:	For Defense Programs: Quarterly review by program managers. For Recapitalization: Quarterly reviews by Assistant Administrator to coincide with RTBF reviews.
Data Storage:	n/a
Verification:	DoD, peer and external reviews.

Planned Program Evaluation:

The Stockpile Management Integration Council meets quarterly to assess progress against major performance objectives. An outside organization of management and operating (M&O) contractors, the Defense Programs Advisory Group (DPAG), is also available to evaluate program performance if requested by the Deputy Administrator for Defense Programs.

Federal campaign managers will use each plan (above) as a program management tool to manage, monitor and evaluate progress toward milestones. Periodic status reports will be provided to all campaign managers, and quarterly reviews are planned.

Each site will have a detailed Readiness in Technical Base and Facilities (RTBF) Implementation Plan which will include detailed data sheets on various activities. Federal RTBF managers will provide status reports and will host quarterly reviews of the program. In addition, the Recapitalization program has Work Authorizations that will be used as the baseline to conduct quarterly reviews.

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GPRA Program Activity: Defense Nuclear Nonproliferation

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activity	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
050 Atomic Energy Defense Activities					
Nonproliferation and Verification R&D		NA (NN)	240	322	283
International Nuclear Safety and Cooperation		NA (NN)	67	21	64
Highly Enriched Uranium Transparency		NA (NN)	15	14	17
Nonproliferation & International Security		NA (NN)	96	76	93
Russian Transition Initiative		NA (NN)	51	57	39
International Nuclear Materials Protection and Cooperation		NA (NN)	170	292	233
Fissile Materials Disposition		NA (NN)	226	302	448
Adjustments			(5)	(58)	(64)
Total		NA (NN)	864	1,027	1,114

Description of the Program:

The **Nonproliferation and Verification R&D** program enhances U.S. national security through needs-driven research and engineering resulting in prototype demonstrations and resultant detection systems. Activities focus on development, design, and construction of prototypes; sensor systems needed for proliferation detection; development and production of sensor systems and analytical techniques; nuclear explosion monitoring; and, response to domestic threats from chemical and biological agents. The program continues to support commercialization of detection technologies.

The **International Nuclear Safety and Cooperation** program works to reduce the chances of a nuclear accident and to improve emergency response capability. The program addresses safety deficiencies in nine countries at 26 sites and 70 operating reactors, including deficiencies in operator training, procedures, safety systems, safety maintenance, analysis, and regulatory oversight. During FY 2003, NNSA will successfully complete and close down this program. NNSA has recently undertaken management of the program for Elimination of Weapon-grade Plutonium Production Reactors in Russia, formerly under the direction of the Department of Defense. This program aims to eliminate Russian weapon-grade plutonium production capability at reactors at Seversk and Zheleznogorsk. International Emergency Cooperation assists foreign governments and international organizations in the development of emergency policy and preparedness infrastructure, and promotes sound policies for emergency communication, planning, and response and assistance worldwide. Both the safety and emergency cooperation programs are coordinated with other international efforts and organizations.

The **Highly Enriched Uranium (HEU) Transparency Implementation** program is responsible for monitoring the implementation of the 1993 HEU Purchase Agreement between the U.S. and the Russian Federation. Four Russian uranium processing facilities, located in closed cities with restricted access, perform conversion of the HEU components into low enriched uranium. NNSA has developed and negotiated with the Russian Federation a transparency program which uses on-site monitoring teams, portable non-destructive assay instruments, and permanently installed monitoring equipment to acquire the requisite data and information to assure the nuclear nonproliferation objectives of the Agreement are achieved. The Agreement also requires that the U.S. support comparable Russian monitoring of certain U.S. facilities.

The **Nonproliferation and International Security** program is the focal point within the NNSA and the Department of Energy for activities that support the President's nonproliferation and international security policies, goals and objectives, as well as those activities mandated by statute. The program provides technical expertise and leadership for interagency, bilateral and multilateral fora involved in nonproliferation and international security matters. *Nonproliferation Policy* programs address fuel cycle activities, efforts to support global legal regimes, regional nonproliferation initiatives, and projects that promote warhead dismantlement and fissile material transparency. The *International Safeguards* program supports International Atomic Energy Agency (IAEA) safeguards, many bilateral efforts to improve safeguards, international organizations with specific inspection regimes, and sustainability of safeguards and security systems in the New Independent States (NIS)/Baltics. The *Export Controls* program regulates American nuclear-related exports, and supports the development of effective nuclear export control systems in other countries, including Russia and the NIS.

The **Russian Transition Initiative** includes the *Initiatives for Proliferation Prevention (IPP)* program and the *Nuclear Cities Initiative (NCI)* program. IPP engages former Soviet weapon scientists, engineers, and technicians in non-weapons-related projects, which have high self-sustaining commercial potential. IPP motivates participation in proliferation prevention activities at institutes in Russia, Ukraine, Kazakhstan, and Belarus, in technical projects having high self-sustaining commercial potential. NCI focuses on reducing the size of the weapons complex in the Russian nuclear cities through economic diversification and development.

The **International Nuclear Materials Protection and Cooperation** program reduces the threat to U.S. national security from unsecured Russian nuclear weapons and weapons-usable material. NNSA has identified 53 Navy Complex sites, 11 MINATOM complex sites and 31 Civilian Complex sites (18 in Russia and 13 in the New Independent States (NIS)) that require security upgrades, and has been working at many of these sites. Security upgrades occur in a phased approach. Rapid upgrades include items such as baseline item inventories, installation of locks, delay blocks, and steel cages, limiting access, and hardening windows. Comprehensive upgrades include rapid upgrades plus items such as detection systems, closed-circuit television monitoring and assessment systems, material measurement equipment and computerized accounting systems. The program also provides assessment and tracking of nuclear smuggling and nuclear threat cases and enhances international nuclear emergency early warning, preparation and response capabilities.

The **Fissile Materials Disposition** program is responsible for disposing of inventories of surplus, U.S. weapons-usable plutonium and highly enriched uranium, as well as providing technical support for, and implementation of, efforts to obtain reciprocal disposition of Russian surplus weapon-grade plutonium. Disposing of 173 metric tons of U.S. highly enriched uranium will be accomplished by down-blending the material to low enriched uranium, suitable for use in making commercial reactor fuel. In September 2000, the U.S. and Russia signed the U.S.-Russia Plutonium Management and Disposition Agreement, which commits each country to dispose of 34 metric tons of weapon-grade plutonium (68 metric tons total) in rough parallel. In January 2002, the Department announced a revised approach for U.S. plutonium disposition where the U.S. will rely primarily on the irradiation of MOX fuel to dispose of surplus weapon-grade plutonium.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification and Planned Program Evaluations.

The following facing pages have 5 years of performance measures for NS 2-1.

Program Strategic Performance Goal:

NS2-1 Enhance the capability to detect weapons of mass destruction (WMD), including nuclear, chemical, and biological systems, and terrorist threats.

Performance Indicators:

- Perform cutting-edge research and development that drives the state-of-the-art in detection technologies.
- Develop and deliver innovative detection technologies in partnership with monitoring agencies.
- Demonstrate mechanisms to enable successful inspection and transparency regimes.

Related FY 1999 Results	Related FY 2000 Results
Complete development and delivery to customers of two new counter-nuclear-smuggling detection technologies, one portable/hand-held and the other for wide area tracking and interdiction. (MET GOAL) *Demonstrate, through airborne field tests, two new technologies that use chemical detection methods to remotely characterize weapons of mass destruction proliferation activities.* (MET GOAL)	*Develop improved technologies and systems for early detection, identification, and response to weapons of mass destruction proliferation and illicit materials trafficking.* (MET GOAL) *Test first generation prototype hand-held detector for enhanced detection of chemical agents.* (MET GOAL) *Complete architecture development to protect a "special event" from biological attacks.* (MET GOAL) *Launch the Multispectral Thermal Imager (MTI) small satellite to demonstrate temperature measurement from space for the passive detection and characterization of proliferant activities.* (MET GOAL)

Related FY 2001 Results	**NS2-1 FY 2002 Targets** (Revised Final)	**NS2-1 FY 2003 Proposed Targets**
Demonstrate systems to protect key infrastructure and special events from chemical and biological attacks. (MET GOAL)	*Field a demonstrated, deployable prototype biological threat -detection system at the Winter Olympics.*	*Demonstrate prototype commercial cargo inspection system to detect fissile materials and high explosives.*
		Provide two assays for biological threat agents to the Center for Disease Control Laboratory Response Network.
	Demonstrate a chemical agent detection system in a subway system.	*Demonstrate a fixed system to protect complex, key infrastructure facilities, components, and capabilities.*
Conduct Critical Design Reviews for three new-generation nuclear explosion monitoring sensors that are proposed for future satellite deployment. (MET GOAL)	*Start satellite sensor-payload assembly of operational nuclear explosion detection payloads for the next generation of Global Positioning System satellites scheduled for first launch in 2004.*	
	Perform experiments of prototype, unmanned-aerial-vehicle-based Light Detection and Ranging (LIDAR) systems to detect proliferation.	

Program Strategic Performance Goal:

NS2-2 Prevent and reverse proliferation of weapons of mass destruction.

Performance Indicators:

- Expand new cooperative science and technology efforts with foreign countries and international organizations for nonproliferation, monitoring, verification, and confidence building measures.
- Develop, promote, and implement innovative approaches to address international security, nonproliferation, and regional stability.

Related FY 1999 Results	Related FY 2000 Results
Further the Nuclear Cities Initiative promoting cooperation with the closed cities in the Russian nuclear weapons complex to improve the prospects for defense conversion and employment of former weapons scientists. (EXCEEDED GOAL)	*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 50 projects to provide long-term commercial employment.* (MET GOAL)

Related FY 2001 Results	NS2-2 FY 2002 Targets (Revised Final)	NS2-2 FY 2003 Proposed Targets
	Develop and implement lab-to-lab counter-terrorism technology demonstrations at Russian technical institutes.	
Complete canning of BN-350 fast reactor spent fuel. (MET GOAL)	*Conduct field missions to North Korea to maintain status of spent fuel in the Nyongbyon spent fuel facility.*	*Expedite the retrieval of spent nuclear fuel from Central Asia.*
	Expand cooperation with other states and U.S. Customs to improve export control capabilities.	*Work with U.S. Customs personnel to familiarize them with nuclear equipment, material, and technology, and to improve real-time analysis of suspect shipments.*
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. (MET GOAL)	*Engage 2,500 former WMD scientists on cooperative commercial projects.*	
	Develop verification capabilities to support implementation of the U.S.-Democratic Peoples Republic of Korea Agreed Framework.	
		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.

Program Strategic Performance Goal:

NS2-3 Protect or eliminate weapons and weapons-usable nuclear material or infrastructure and redirect excess foreign weapons expertise to civilian enterprises.

Performance Indicators:

- Protect or eliminate nuclear weapons and nuclear weapons-usable material.
- Redirect or shut down the highest risk nuclear facilities.
- Engage foreign weapons scientists in civilian employment.

Related FY 1999 Results	Related FY 2000 Results
	Issue the Record of Decision on a site(s) for three (U.S.) plutonium disposition facilities. (FMFIA) (MET GOAL *Begin to implement a bilateral agreement with Russia for plutonium disposition. (FMFIA)* (MET GOAL)
Continue to improve and integrate technology practices, facilities and training for material protection, control, and accounting for 650 metric tons of weapons-useable material at 53 locations. (EXCEEDED GOAL)	*Continue to install Materials Protection, Control and Accounting (MPC&A) upgrades in Russia, for defense-related sites, civilian sites, Russian Navy projects, and the transportation sector.* (MET GOAL)

Related FY 2001 Results	**NS2-3 FY 2002 Targets** (Revised Final)	**NS2-3 FY 2003 Proposed Targets**
The following additional result is included to provide historical context for the FY 2002 and FY 2003 targets, an do not correspond to a prior year APP target:		
The siting decision for plutonium disposition facilities was implemented based on the Record of Decision in FY 2000	*Develop a plan for U.S. and Russian plutonium disposition that is politically, fiscally, and technically feasible, and obtain White House approval.*	*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. (FMFIA)*
Complete comprehensive upgrades on an additional 8 percent of 850 metric tons (MTs) of weapons-usable nuclear material raising the total to almost 21 percent secured at 95 sites in Russia. (NEARLY MET GOAL) *Complete comprehensive upgrades at an additional eight of 95 sites, raising the total to 37 sites.* (MET GOAL)	*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.* *Sign an agreement with the Russian Ministry of Atomic Energy for access to closed nuclear cities.*	*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* *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.*

Program Strategic Performance Goal:

NS2-4 Reduce the risk of accidents in nuclear fuel cycle facilities worldwide.

Performance Indicators:

- Improve safety or shut down nuclear reactor or other fuel cycle facilities of concern.
- Assist foreign countries in achieving and sustaining international nuclear safety norms and standards.

Related FY 1999 Results	Related FY 2000 Results
Complete the development and implementation of an effective reactor plant operator training program at key plants based on the Systematic Approach to Training methodology used in the United States, and provide and incorporate plant simulators into the operator training programs. (MET GOAL) *Complete plans for critical asset identification within the Department and test vulnerability assessment techniques in two components of the Energy Sector in countries of the former Soviet Union.* (BELOW EXPECTATION: This was an un-funded mandate but significant progress was made.) *Promote U.S. positions and practices in international forums that advocate safe reactor operations.* (MET GOAL)	*Complete a full-scope simulator for Kola Unit 4 and Balakovo Unit 4 in Russia, and for South Ukraine Unit 3 in Ukraine.* (MET GOAL)

Related FY 2001 Results	**NS2-4 FY 2002 Targets** (Revised Final)	**NS2-4 FY 2003 Proposed Targets**
Complete safety parameter display systems for Ukraine's South Ukraine nuclear plant unit 3, and Zaporizhzhya nuclear plant units 2 and 4. (MET GOAL)	*Modify the agreement between the Russian Federation and the U.S. to cease the production of weapons-grade plutonium at Seversk and Zheleznogorsk.*	*Successfully complete and close down the Soviet-designed reactor safety program.*
Complete implementation of symptom-based emergency operating instructions at the Ignalina plant in Lithuania. (MET GOAL)	*Develop a small nuclear safety pilot program between the U.S. Department of Energy and the Vietnamese Atomic Energy Commission.*	*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.*

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Means and Strategies:

The Defense Nuclear Nonproliferation program goal is to detect, prevent, and reverse the proliferation of weapons of mass destruction (WMD) while promoting nuclear safety worldwide. Our programs address the danger that hostile nations or terrorist groups may acquire weapons of mass destruction or weapons-usable material, dual-use production or technology, or WMD expertise. There are now "rogue" states as well as terrorist organizations seeking to procure WMD capabilities. This emphasizes the importance of our programs to properly secure or eliminate vulnerable stockpiles of weapons-usable materials in Russia and countries of concern.

The events of September 11 make it clear that our threat detection programs are required on an accelerated basis. We will fully exploit the world-class expertise of our National Laboratories to increase our design, testing, and fielding capabilities for detection technologies.

Promoting nuclear safety worldwide is another of our major responsibilities. To help fulfill that role, we are totally committed to improving the safety of Russian and other reactors of concern around the world that now operate at levels below accepted international safety standards.

Collaboration Activities:

We work with many different U.S. agencies, international organizations, and non-governmental organizations to further our nonproliferation goals. All major policy issues are coordinated with the National Security Council, and we also work closely with the Departments of State and Defense on many of our programs. We continually leverage our considerable nuclear nonproliferation Research and Development base within the national laboratory complex. In addition, NNSA coordinates with the Department of Commerce on export control policy and international agreements, and the Nuclear Regulatory Commission on nuclear safety programs, as well as working with the International Atomic Energy Agency to further international safeguards. The United States Enrichment Corporation and the Tennessee Valley Authority are involved in the HEU purchase agreement and fissile materials disposition programs, and the U.S. Industrial Coalition is NNSA's partner in the Initiatives for Proliferation Prevention and Nuclear Cities Initiatives. The U.S. Agency for International Development, the Nuclear Energy Agency, the intelligence community, and other agencies are also involved in some programs.

External Factors Affecting Performance:

The pace and nature of treaties and agreements, extremely poor economic conditions in host countries, political and economic uncertainties in the former Soviet Union, and the unwillingness of threshold states to engage in negotiations can all have dramatic effects on our performance and effectiveness. Customs issues, Nuclear Regulatory Commission actions, and other Department of Energy elements can also cause significant impacts to our ability to achieve program objectives.

Validation and Verification:

NNSA uses extensive internal and external reviews to evaluate programs. Office management, program managers, and laboratory counterparts continually review project activities. Cost, schedule, and accomplishment reviews are conducted weekly, monthly, and/or quarterly depending on the program or project. External reviewers include the Department of Energy, peer groups, the General Accounting Office, and the Transparency Review Committee.

Data Sources:	Internal and external project/program management reviews and reports.
Baselines:	Baselines are specified in project/program plans.
Frequency:	Quarterly or as specified in project/program plans.
Data Storage:	The headquarters, field, and laboratory/contractor activity managing the project/program maintain the data.
Verification:	Project/program, peer, and external reviews.

Planned Program Evaluation:

NNSA will implement quarterly program reviews through the Management Council to assess program performance.

GPRA Program Activity: Naval Reactors

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
050 Atomic Energy Defense Activities					
Naval Reactors	-	NA (NR)	689	689	708

Description of the Program:

Naval Reactors is responsible for all Naval nuclear propulsion work, beginning with technology development, continuing through reactor operation and, ultimately, reactor plant disposal. The Program ensures the safe operation of the many reactor plants in operating nuclear powered submarines and aircraft carriers (constituting 40 percent of the Navy's combat fleet), and fulfills the Navy's requirements for new nuclear reactor propulsion plants that meet current and future national defense requirements.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal:

NS3-1 Ensure the safety, performance reliability, and service-life of operating reactors for uninterrupted support of Fleet demands, which includes 126 million miles steamed for nuclear powered ships, and maintaining a utilization factor of at least 90 percent for operation of test reactor plants.

Performance Indicators:

- Extend core lifetimes and reactor plant performance of selected LOS ANGELES-class submarines (33 years), OHIO-class submarines (42 years), and aircraft carriers (about 50 years).
- Conduct reactor core and reactor component/system design and technology development to support operating Naval reactors (currently 102).
- Maintain a utilization factor of at least 90 percent for operation of test reactor plants.
- Achieve an annual average of 2 million miles safely steamed for nuclear-powered ships to meet national security requirements.
- Provide laboratory support for increasing refueling workload, which more than doubles over the next 5 years.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*Ensure the safety, performance reliability, and service-life of operating reactors.* (MET GOAL)

Related FY 2001 Results	**NS3-1 FY 2002 Targets** (Revised Final)	**NS3-1 FY 2003 Proposed Targets**
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 percent for test reactor plants, and 121 million miles steamed for nuclear-powered ships. (EXCEEDED GOAL)	*Maintain utilization factors of at least 90 percent for operation of test reactor plants, and 124 million miles steamed for nuclear-powered ships.*	*Maintain utilization factors of at least 90 percent for operation of test reactor plants, and 126 million miles steamed for nuclear-powered ships.*

Program Strategic Performance Goal:

NS3-2 Develop new technologies, methods and materials to support reactor plant design, including the next generation submarine reactor, which will be 99 percent complete by the end of FY 2003, and conduct detailed design on a reactor plant for the next generation aircraft carrier, CVNX.

Performance Indicators:

- Meet the reactor plant design schedule to support the lead VIRGINIA-class ship delivery in 2004 and CVNX ship construction start.
- Accomplish planned core and reactor component and system design, and technology development efforts to support future national security demands.

Related FY 1999 Results	Related FY 2000 Results
Develop new reactor plants, including the next generation reactor, which will be 85 percent complete by the end of FY 1999, and ensure the safety, performance reliability, and service-life of operating reactors. (EXCEEDED GOAL)	*Develop new reactor plants, including the next generation reactor, the design of which will be 90 percent complete by the end of FY 2000, and complete initial development efforts on a reactor plant for the next generation aircraft carrier.* (MET GOAL)

Related FY 2001 Results	**NS3-2 FY 2002 Targets** (Revised Final)	**NS3-2 FY 2003 Proposed Targets**
Develop new technologies, methods and materials to support reactor plant design, including the next generation submarine reactor, which will be 93 percent complete by the end of FY 2001 and initiate detailed design efforts on a reactor plant for the next generation aircraft carrier. (EXCEEDED GOAL)	*Develop new technologies, methods and materials to support reactor plant design, including the next generation submarine reactor, which will be 96 percent complete by the end of FY 2002, and conduct detailed design efforts on a reactor plant for the next generation aircraft carrier.*	*Develop new technologies, methods and materials to support reactor plant design, including the next generation submarine reactor, which will be 99 percent complete by the end of FY 2003, and continue detailed design efforts on a reactor plant for the next generation aircraft carrier in support of reactor plant construction plans and on-going component procurement.*

Program Strategic Performance Goal:

NS3-3 Maintain outstanding environmental performance by ensuring that no personnel exceed Federal limits for radiation exposure; no significant findings result from environmental inspections by State and Federal regulators; and, operations have no adverse effect on human health or the quality of the environment.

Performance Indicators:

- No personnel receive radiation exposures that exceed Federal limits.
- No significant findings result from environmental inspections from State and Federal regulators.
- Achieve planned remediation milestones at all Naval Reactors sites.
- Meet commitments to State and other officials on handling and processing spent nuclear fuel.

Related FY 1999 Results	Related FY 2000 Results
Ensure radiation exposures to workers or the public from Naval Reactors' activities is within Federal limits and no significant findings result from environmental inspections by State and Federal regulators. (MET GOAL)	*Ensure radiation exposures to workers or the public from Naval Reactors activities is within Federal limits and no significant findings result from environmental inspections by State and Federal regulators.* (MET GOAL)

Related FY 2001 Results	**NS3-3 FY 2002 Targets** (Revised Final)	**NS3-3 FY 2003 Proposed Targets**
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. (MET GOAL)	*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.*	*Maintain outstanding environmental performance by ensuring that no personnel exceed Federal limits for radiation exposure, and operations have no adverse effect on human health or the quality of the environment.*

Means and Strategies:

The Department uses two government-owned, contractor-operated laboratories, the Bettis and Knolls Atomic Power Laboratories (employing approximately 5,500 people), which are solely dedicated to Naval nuclear propulsion work. Through these laboratories and the testing conducted at the Advanced Test Reactor (ATR) located at the Idaho National Engineering and Environmental Laboratory (INEEL), the Department will complete scheduled design, analysis and testing of reactor plant components and systems, conduct planned development, testing, examination, and evaluation of nuclear fuel systems, materials, and manufacturing and inspection methods necessary to ensure the continued safety and reliability of reactor plants in Navy warships. The Department will also accomplish planned testing, maintenance and servicing at land-based prototype nuclear propulsion plants, and execute all planned inactivation of surplus, land-based reactor plants in support of environmental clean-up goals. Finally, the Department will carry out the radiological, environmental and safety monitoring and ongoing clean-up of facilities necessary to protect people, minimize release of hazardous effluents to the environment, and comply with all applicable regulations.

Collaboration Activities:

Naval nuclear propulsion work is an integrated effort involving the DOE and the Navy, who are full partners in the Naval Nuclear Propulsion Program. This relationship is set forth in the Executive Order 12344 and Title 42 U.S.C. 7158.

External Factors Affecting Performance:

Industry-specific business conditions, outside technological developments and Department of Navy decisions all impact the performance of Naval nuclear propulsion work.

Validation and Verification:

Data Sources:	The DOE's Office of Naval Reactors (NR) maintains an integrated business and financial management information system used by headquarters, field offices and M&O contractors. This system incorporates program performance measure data. Work outcomes are tracked and reported at appropriate levels. Both financial and technical performance measure accomplishments are reported and reviewed semi-annually.
Baselines:	The baselines are established based on technical work scope and the associated costs and schedules approved by the Department.
Frequency:	Financial performance is updated monthly. Status of technical performance is tracked through various methods, including ongoing oversight by field offices; periodic, in-depth program reviews; ongoing audit programs; and formal reports. Performance measure status is reviewed semi-annually.
Data Storage:	The Office of Naval Reactors holds source documentation.
Verification:	Semi-annual confirmation of long and short range plans to rebaseline and set priorities, monthly financial reports from contractors to compare actual performance against long and short range plans. In addition, NR headquarters maintains close oversight of M&O contractors through periodic program reviews, formal audits and appraisals.

Planned Program Evaluation:

DOE uses extensive internal and external reviews to evaluate progress against established plans. NR plans semi-annual reviews of performance measure execution in addition to monthly financial and technical work reviews with the M&O contractors.

GPRA Program Activity: NNSA Program Direction

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activity	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
Office of the Administrator	NNSA Program Direction	NA (MA)	314	314	335
	Emergency Operations Program Direction	SO	13	13	13
Total			326	326	348

Description of the Program:

The Office of the Administrator provides funding for the Federal workforce responsible for oversight of the operation of the National Nuclear Security Administration (NNSA) through NNSA Program Direction; and the Emergency Operations Federal workforce through Emergency Operation Program Direction. The FY 2002 Energy and Water Development Appropriations Act consolidated the program direction funds of the Weapons Activities, Defense Nuclear Nonproliferation, and Office of the Administrator appropriations into a single program direction appropriation account.

NNSA Program Direction program supports Federal personnel and resources necessary to plan, manage, and oversee: the NNSA mission at Headquarters; the Albuquerque, Nevada, Oak Ridge, Oakland, Chicago, and Savannah River Operations Offices; and the International Offices in Moscow, Paris, Tokyo, Kiev, and Vienna. Program Direction funding necessary to support the Secure Transportation Asset and Naval Reactors is not included in this program. At the Albuquerque, Nevada and Oakland Operations Offices, NNSA also provides for technical and administrative Federal support for other DOE programs as the DOE Lead Program Secretarial Office for these offices.

Emergency Operations Program Direction supports Federal personnel and resources necessary to plan, manage, and oversee the Emergency Operations mission at Headquarters and provide travel funds to Chicago, Idaho, Oak Ridge, Oakland, Richland, and Savannah River. The Director of the Office of Emergency Operations is responsible for both Emergency Management and Emergency Response Assets within the Department.

Key Federal functions conducted include policy, program, and project management, and the full scope of resource management activities including financial management, human resources, procurement, information technology, and strategic planning. In carrying out these Federal functions, significant funds are required for Federal staff salaries and expenses, travel associated with oversight and management activities, support services, and other related expenses.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal:

NS 5-1 Deploy new business practices to create an integrated nuclear security enterprise.

Performance Indicators:

- Deploy an integrated planning, programming, budgeting, and evaluation system to support timely and accountable program and resource decisions.
- Attract and retain the appropriate Federal talent through "Excepted Service Authority" and streamlined personnel classification systems.
- Create an acquisition corps to move from contract management to acquisition management.
- Integrate NNSA information systems to streamline and speed management decisions.
- Establish accountability at all levels of operations and hold managers accountable for program and service results.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*There were no related targets.*

FY 2001 Results	**NS5-1 FY 2002 Targets** (Revised Final)	**NS5-1 FY 2003 Proposed Targets**
There were no related targets.	*Implement a single integrated NNSA-wide personnel controls system.* *By May 2002, issue a Preliminary Organizational Model to re-engineer and define the future NNSA organization.*	*By December 2002, complete the detailed NNSA reorganization implementation plan and initiate implementation.* *Complete the FY 2003 milestones in the NNSA implementation plan.*

Means and Strategies:

The performance framework for all NNSA activities focuses on three themes: to integrate NNSA as a cohesive unit to maximize efficiency and effectiveness, to build NNSA's capability to operate as an independent entity, and to maintain delivery of products and services.

Collaboration Activities:

The NNSA, as a separately organized element of the Department of Energy, must continue to work with the Department in key administrative areas. Significant coordination with the Office of Management, Budget, and Evaluation on many elements of the NNSA program will continue.

External Factors Affecting Performance:

The NNSA was established by the Congress to be a semi-autonomous element of the Department of Energy. Establishing independence from existing elements of the Department is underway.

Validation and Verification:

Data Sources:	Department of Energy Management Information Systems; cost performance data generated by DOE and contractor financial systems
Baselines:	NNSA Program Integrated Plans for each NNSA Deputy and Associate Administrator
Frequency:	Cost and schedule performance reports reviewed at least quarterly through program reviews conducted by the NNSA elements.
Data Storage:	Not applicable
Verification:	External constituents (DOE, OMB, and the Congress) perceive NNSA as being "responsive, accountable, and well-managed"

Planned Program Evaluation:

NNSA will implement quarterly program reviews through the Management Council to assess program performance.

ENERGY RESOURCES

Energy is the vital force powering business, manufacturing, and movement of goods and services throughout the country. The United States spends over one-half trillion dollars annually for energy, and our economic well-being depends on reliable, affordable supplies of clean energy.

The Energy Resources goal establishes the overarching purpose of the Department's energy programs. The focus of three of the Department's program offices is on energy technology R&D: Office of Fossil Energy (FE), Office of Nuclear Energy, Science and Technology (NE), and the Office of Energy Efficiency and Renewable Energy (EE). In addition to energy technology R&D, the Department's Energy Information Administration (EIA) develops and publishes energy statistics and forecasts, and the Department also delivers Federal hydroelectric power to consumers though the Power Marketing Administrations (PMAs).

Energy Resources (ER) Goal

Increase global energy security, maintain energy affordability and reduce adverse environmental impacts associated with energy production, distribution, and use by developing and promoting advanced energy technologies, policies and practices that efficiently increase domestic energy supply, diversity, productivity, and reliability.

Strategic Objectives

ER1: Use public-private partnerships to promote energy efficiency and productivity technologies in order to enhance the energy choices and quality of life of Americans in 2020 relative to 2000 by: reducing the oil intensity of the U.S. economy by 25 percent (compared to 23 percent without EE programs); reducing energy intensity in the U.S. economy by 32 percent (compared to 28 percent without EE programs); and, reducing the need for additional electricity generating capacity by 10 percent (compared to the case without EE programs). (EE)

ER2: Use public private partnerships to bring cleaner, more reliable, and more affordable energy technologies to the marketplace, enhancing the energy choices and quality of life of Americans in 2020, relative to 2000, by: increasing the share of renewable energy to 10 percent (compared to 8 percent without EE programs); increasing the share of renewable-generated electricity to 12 percent (compared to 8 percent without EE programs); and, doubling the share of capacity additions accounted for by distributed power, which increases distributed generation to 11 percent of all electricity generation (compared to 8 percent without EE programs). (EE)

ER3: Reduce the burden of energy prices on low-income families by working with state and local agencies to weatherize at least 123,000 homes per year from 2003 through 2005. (EE)

ER4: 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 percent with coal and 75 percent with natural gas. (FE)

ER5: By 2010, add over 1 million barrels per day of domestic oil production and almost 2 trillion cubic feet (TCF) per year of additional natural gas production as a result of technologies and practices from DOE supported research and development. (FE)

ER6: Maintain the Strategic Petroleum Reserve in a state of readiness to supply oil at a sustained rate of 4.4 million barrels per day for 90 days within 15 days notice by the President. (FE)

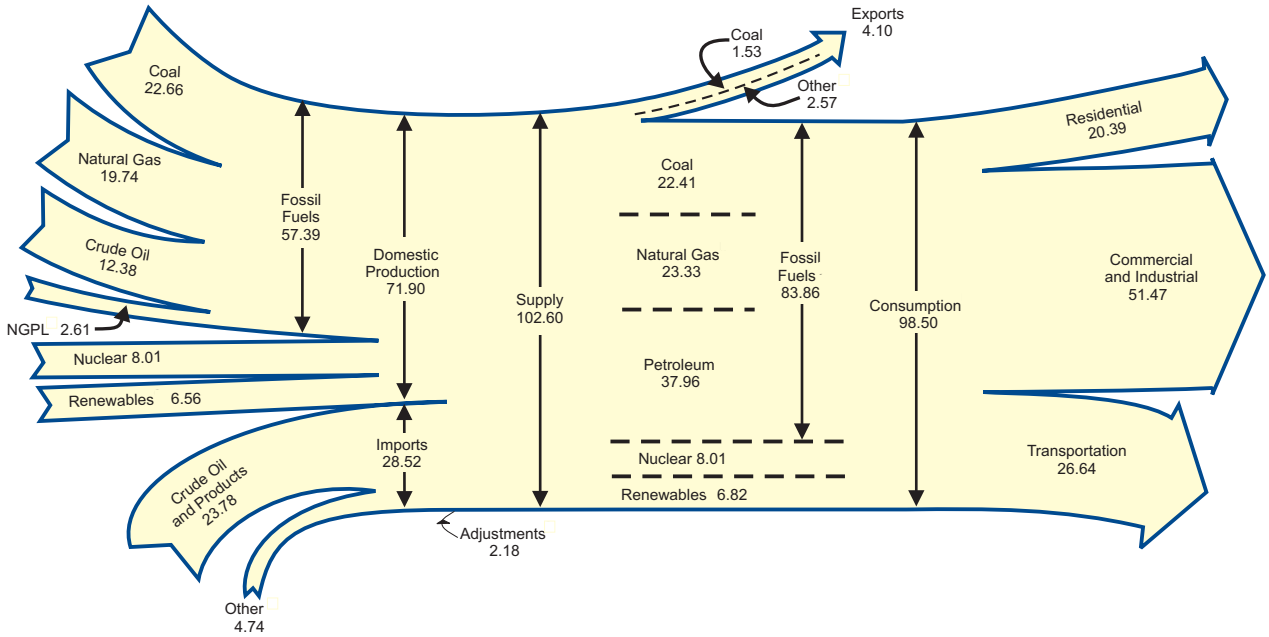
ER7: Expand the capability of nuclear energy to contribute to the Nation's near and long-term energy needs by investing in our Nation's nuclear R&D infrastructure and promoting advanced research, such that by December 2004, the average capacity of existing U.S. nuclear power plants will increase from 90 to

92 percent; a new nuclear power plant construction project will be initiated in the United States; and a conceptual design will be developed for a nuclear energy system that addresses the technology issues hindering the worldwide expansion of nuclear power. (NE)

ER8: Provide national and international energy data, analysis, information and forecasts to meet the needs of the energy decision-makers and the public in order to promote sound policymaking, efficient energy markets and public understanding. (EIA)

ER9: The power marketing administrations ensure Federal hydropower is marketed and delivered while passing the North American Electric Reliability Council's Control Compliance Ratings, meeting planned repayment targets, and achieving a recordable injuries frequency rate at or below our safety performance standard (PMAs).

Energy Flow, 2000 (Quadrillion Btu)
Source: EIA Annual Energy Review 2000



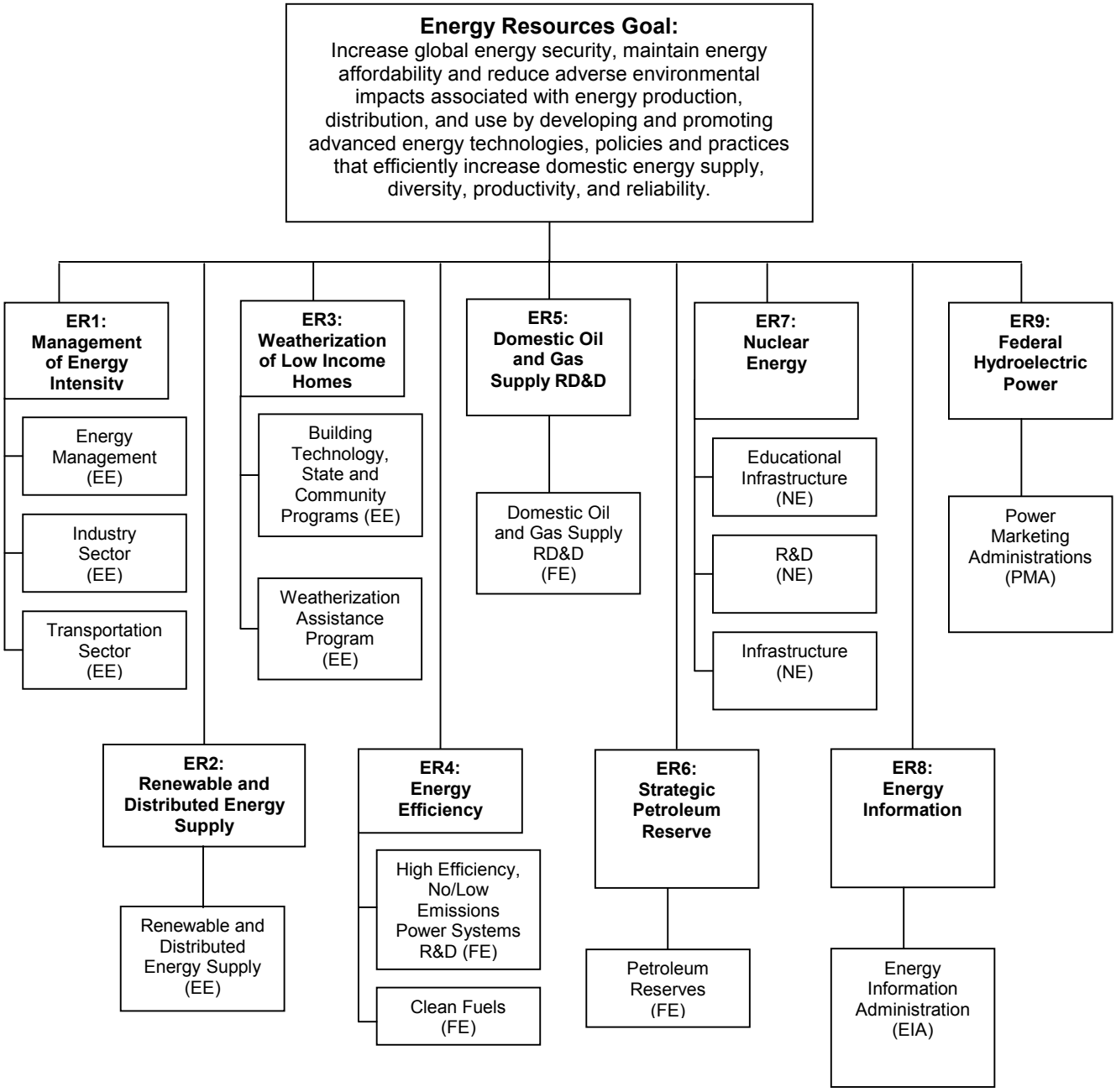
The following table maps the Presidential Budget's Program and Financing (P&F) accounts and program activities to the Department of Energy's offices and GPRA Program Activities. The alignment includes aggregation, disaggregation, and consolidation of budget decision units. The chart that follows this table shows how the GPRA Program Activities support the Department's Strategic objectives for the Energy Resources goal.

Presidential Budget Program and Financing (P&F) Accounts and Program Activities		FY 2003 Budget Request ($M)	DOE Program Office	GPRA Program Activity
270 Energy				
Energy Conservation				
	Building technology, State and Community Programs--non-grant	93	EE	Building technology, State and Community Programs
	Building technology, State and Community Programs—grant	39	EE	Building technology, State and Community Programs
		277	EE	Weatherization Assistance Programs
	Federal energy management program	28	EE	Energy Management
	Power Sector	64	EE	Renewable & Distributed Energy
	Industrial sector	138	EE	Industry Sector
	Transportation sector	223	EE	Transportation Sector
	Policy and management	43	EE	
Energy Supply				
	Renewable Energy Resources	352	EE	Renewable & Distributed Energy
		53	EE	Transportation Sector (Biofuels)
		3	EE	Energy Management
	Subtotal Renewable Energy Resources	408		
	Subtotal for Energy Efficiency	1,312		
Fossil Energy Research and Development				
	President's Coal Research Initiative	370	FE	High Efficiency, No/Low Emissions Power Systems
		5	FE	Clean Fuels R&D
	Oil and Gas Research and Development	58	FE	Domestic Oil & Gas Supply R&D
	Other Fossil Energy Research and Development	115	FE	FE R&D Crosscutting & Special Activities
Clean Coal Technology				
	Use of Prior Year Balances	(14)	FE	High Efficiency, No/Low Emissions Power Systems
Strategic Petroleum Reserve				
	Storage Facilities Operations & Management	170	FE	Petroleum Reserves
Northeast Home Heating Oil Program		8	FE	Petroleum Reserves
SPR Petroleum Account		11	FE	Petroleum Reserves
Naval Petroleum and Oil Shale Reserves		21	FE	Petroleum Reserves
Elk Hills School Lands Fund		72	FE	Petroleum Reserves
	Subtotal for Fossil Energy	816		

Presidential Budget Program and Financing (P&F) Accounts and Program Activities		FY 2003 Budget Request ($M)	DOE Program Office	GPRA Program Activity
Energy Supply				
	Nuclear Energy Research & Development	18	NE	NE Educational Infrastructure
		89	NE	NE R&D
		119	NE	NE Infrastructure
		24	NE	Program Direction
	Subtotal Nuclear Energy R&D	251	NE	
Energy Information Administration		83	EIA	Energy Information Admin.
Power Marketing Administrations[1]				
	Operation & Maintenance, SEPA	5	SEPA	Power Marketing Administrations
	Operation & Maintenance, SWPA	28	SWPA	
	Construction, Rehabilitation, Operation, & Maintenance.	169	WAPA	
	Falcon-Amistad O&M	3	WAPA	
	Bonneville Power Administration Fund	-	BPA	
	Colo. River Basins Power Marketing Fund	(22)	WAPA	
	Subtotal for Energy Efficiency	205	PMA	Power Marketing Administrations
TOTAL – Energy Resources		**2,666**		

Notes:
1. Revenues from Colorado River Basin (WAPA) are included under Corporate Management.

The Energy Resources goal is supported by nine strategic objectives. Each strategic objective is being pursued through long-term strategies. In this Annual Performance Plan, these long-term strategies have been stated in terms of Performance Strategic Performance Goals against which outcome performance indicators and annual (output) performance measures/targets have been established. To make the linkage of these outcomes and outputs to the budget resources, we have organized the plan by GPRA Program Activities which are aligned with the budget decision units through aggregation, disaggregation, and consolidation. The program strategic performance goal, indicators and annual targets are discussed with the GPRA Program Activities on the following pages. This approach allows us to clearly link annual performance with annual budget resources and the strategic plan objectives. The chart below gives an overview of the linkage of GPRA program activities and strategic objectives for Energy Resources.



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GPRA Program Activity: Energy Management

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriations		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
270 Energy					
Energy Conservation	Federal Energy Management Program	EE	26	23	28
Energy Supply	Renewable Energy Resources	EE	2	1	3
Total			28	24	31

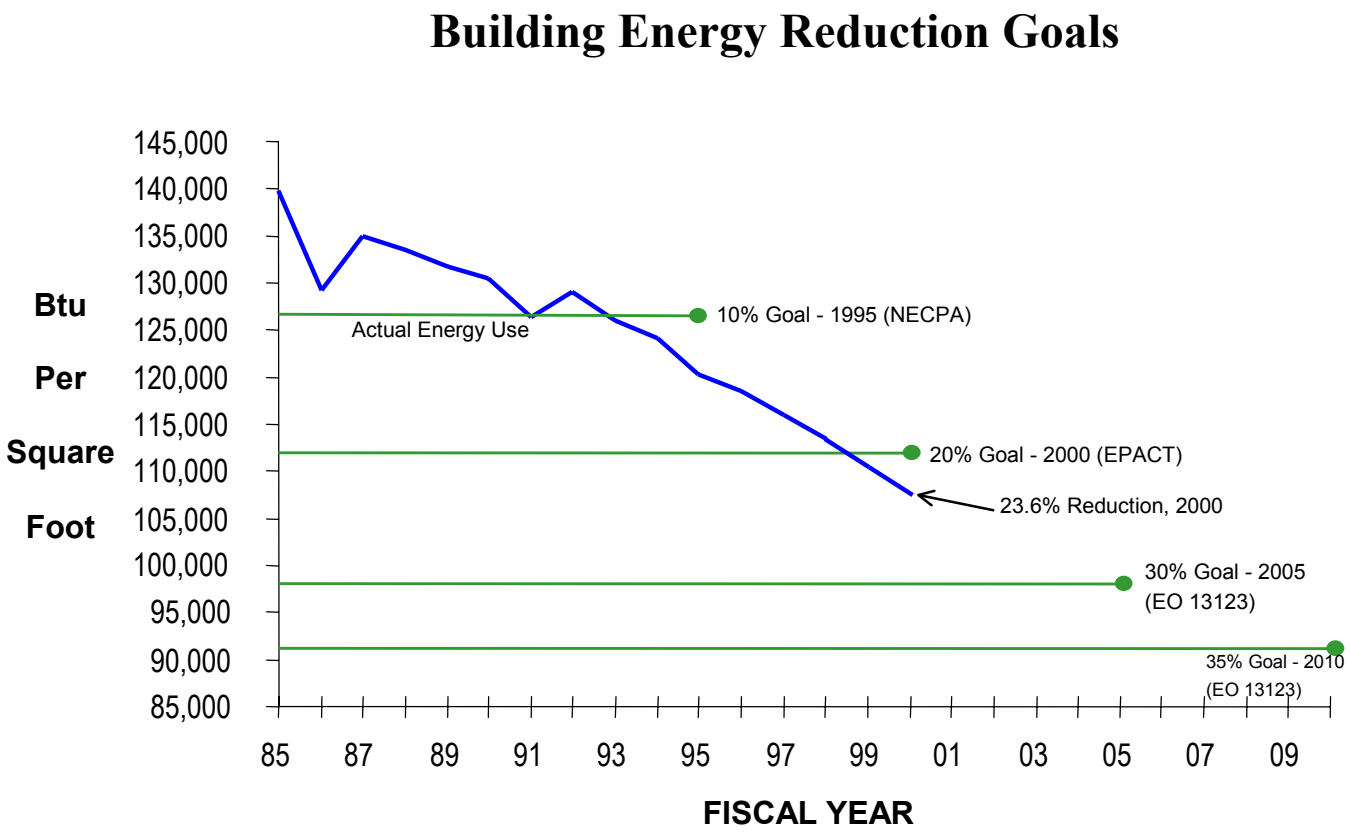
Description of the Program:

The mission of the Federal Energy Management Program (FEMP) is to increase the energy security and reduce the environmental impact of Federal government operations by advancing energy efficiency and water conservation, promoting the use of renewable and distributed energy, and improving utility decisions at Federal sites including those of the Department of Energy. Through alternative financing vehicles, technical assistance, and outreach campaigns, FEMP helps the Federal government lead by example through conserving energy and using more reliable energy sources at its own facilities. FEMP aids in the design and construction of energy efficient buildings, effective operation and maintenance of existing facilities, major retrofits, purchase of energy efficient products, and utility and load management. FEMP leverages both Federal and private resources to provide assistance to Federal agencies.

Discussion:
Executive Order 13123, issued in June 1999, set new requirements for energy efficiency, renewable power usage, water use, and greenhouse gas generation within the Federal sector. FEMP works with Federal agencies to achieve the following goals:

- Increase energy efficiency in Federal buildings by 20 percent by 2000, by 30 percent by 2005, and by 35 percent by 2010, relative to 1985. Preliminary data show that the Federal government reduced energy intensity by 23.6 percent in 2000.
- Increase the efficiency of Federal industrial and laboratory facilities (energy intensive buildings) by 20 percent in 2005, and 25 percent by 2010 compared to 1990 levels.
- Obtain 2.5 percent of Federal facilities' electricity needs from renewable energy sources by 2005.
- Reduce greenhouse gas emissions attributable to Federal buildings energy use by 30 percent by 2010 from a 1990 baseline.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.



DOE has set an internal policy of reducing energy intensity in its facilities by 45 percent in 2010, relative to 1985 levels. This goal reflects the National Energy Policy's call for the Federal government to lead by example in conserving energy in its own facilities. The Departmental Energy Management Program (DEMP), a program within the Office of Federal Energy Management Programs (FEMP), oversees these efforts.

The following facing pages have 5 years of performance measures for ER1-1.

Program Strategic Performance Goal

ER1-1: Increase the energy security and decrease the environmental impact of Federal government operations by advancing energy efficiency and water conservation, promoting the use of distributed and renewable energy, and improving utility management decisions at Federal sites.

Performance Indicators:

- Energy intensity in standard Federal facilities.
- Energy intensity in DOE facilities.

Related FY 1999 Results	Related FY 2000 Results
Complete three nationwide Solar technology Super-Energy Savings Performance Contracts (Super ESPCs) for use by all agencies. (BELOW EXPECTATIONS)	*Complete one nationwide Solar technology Super-Energy Savings Performance Contract (Super ESPC) for use by all agencies, bringing the total number of technology Super-ESPCs to four.* (NEARLY MET GOAL) *Continue efforts to reduce the use of energy in Federal buildings and report the results achieved through the end of FY 1998, towards the goal of achieving a 20 percent reduction by the end of FY 2000 as compared to 1985 energy use.* Preliminary data shows that the Federal *government reduced energy intensity by 17 percent in 1997.* (EXCEEDED GOAL)

Related FY 2001 Results	**ER1-1 FY 2002 Targets** (Revised Final)	**ER1-1 FY 2003 Proposed Targets**
Continued efforts to reduce energy intensity in Federal buildings and report the results achieved through the end of FY 1999, toward the goal of achieving a 22 percent reduction by the end of FY 2001 as compared to 1985 energy intensity. Preliminary data suggests that agencies exceeded this goal a year early, achieving a 23.6 percent reduction in energy intensity in 2000. (EXCEEDED GOAL)	*Continue efforts to reduce energy intensity in Federal buildings by 24 percent by the end of FY 2002 as compared to 1985 energy use.* *** Report the results achieved through the end of FY 2000.*	
The following additional results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target.	*Support the Federal goal of obtaining 2.5 percent of Federal facilities' electricity needs from renewable energy sources by 2005 by:*	*Support the Federal goal of obtaining 2.5 percent of Federal facilities' electricity needs from renewable energy sources by 2005 by:*
Achieved $120 million in private sector investment through Super ESPCs.	- *Achieving between $80 and $120 million in private sector investment through Super ESPC's.*	- *Achieving between $80 and $120 million in private sector investment through Super ESPCs.*
Completed 25 Assessment of Load and Energy Reduction Techniques (ALERT) assessments to shave anticipated peak demand and general energy consumption by 10 percent.	- *Completing at least 60 energy assessments including ALERTS, SAVEnergy Audits, industrial facility assessments and operation and maintenance assessments to identify energy and cost saving opportunities.*	- *Completing at least 80 energy assessments including SAVEnergy Audits, industrial facility assessments and operation and maintenance assessments to identify energy and cost saving opportunities.*

Notes:
**Starting in FY03, number of projects assisted will be used as an indicator toward achievement of annual Federal energy reduction targets since 1) number of projects are wholly under the control of FEMP, whereas reduction in energy intensity is a government-wide achievement, and 2) previous year data are not available until after the report on Annual Performance is due.

Annual Results and Targets for ER1-1 (Continued)

Related FY 2001 Results	ER1-1 FY 2002 Targets (Revised Final)	ER1-1 FY 2003 Proposed Targets
	- *Publishing initial listing of products that use minimal standby power by December 31, 2001, in accordance with E.O. 13221.*	- *Integrating information on standby power into Defense Logistics Agency and General Services Administration's product schedules in accordance with E.O. 13221.*
Trained 5,400 federal energy personnel in best practices.	- *Training 4,000 Federal energy personnel in best practices supporting National Energy Policy education goals.*	- *Training 4,000 Federal energy personnel in best practices supporting National Energy Policy education goals.* - *Completing the selection process for at least two energy projects that will reduce the annual energy use in DOE facilities by 30 billion Btu's.*
	Provide technical and design assistance for at least 60 energy efficiency, renewable energy, and water conservation projects; four will be large-scale distributed energy resources and/or combined heat and power projects.	*Provide technical and design assistance for 70 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 2001.*

Means and Strategies:

FEMP will achieve the targets outlined in the proceeding pages through three strategies: Project Financing, which focuses on developing and helping agencies use alternative methods of financing projects; Technical Guidance and Assistance, which aims to transfer to Federal agencies the knowledge and expertise required to make investments in efficient, renewable and secure energy technology; and Outreach and Interagency Coordination, which establishes and promotes Federal energy management policies and monitors achievement of government-wide goals.

Collaboration Activities:

FEMP collaborates primarily with Federal agencies, states, utilities, energy service companies (ESCOs), associations, and other private sector organizations. More specifically, FEMP collaborates with agencies on efficiency and renewable energy initiatives (e.g., EPA on the DOE-EPA Energy Star program and Labs for the 21st Century; National Park Service on the Green Energy Parks Program; and Defense Logistics Agency and General Services Administration on the Standby Power Initiative).

External Factors Affecting Performance:

Reliance on private sector financing for Federal efficiency exposes the program to risks inherent in the market -- such as energy price volatility, utility industry restructuring, and interest rate changes -- which potentially impact the cost and extent of efficiency improvements and advanced technology adoption. Environmental policies and regulatory actions also influence energy management decision-making. The size and composition of the Federal building stock is outside the control of the program and goal achievement is dependent upon the actions of individual agencies. Energy efficiency is not a primary objective for any other Federal agency.

Validation and Verification:

Data Sources:	Agencies submit annual reports documenting energy use, cost, gross square footage, and exempt facilities. The reports are supplemented by FEMP's tracking and reporting and are submitted each year to Congress.
Baselines:	Federal energy management goals are measured from 1985 for standard buildings, and 1990 levels for energy intensive buildings. Goals are expressed in BTU per gross square foot, and are not normalized for other factors.
Frequency:	Annual.
Data Storage:	FEMP maintains a database of reported information. Agencies maintain their own, more detailed data.
Verification:	No third party verification. Reporting anomalies are identified and resolved during the annual reporting cycle.

Planned Program Evaluation:

FEMP has built performance feedback into its program execution. FEMP conducts customer surveys for all program elements. Regular meetings are held with agencies, utilities and ESCOs to receive feedback and improve performance. FEMP conducts operational planning activities and is identifying process improvement opportunities to reduce costs, improve timeliness of program delivery, and raise customer satisfaction levels.

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GPRA Program Activity: Industry Sector

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriations*		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
270 Energy					
Energy Conservation	Industrial Sector	EE	146	149	138

*Dollars for Power Technologies not included.

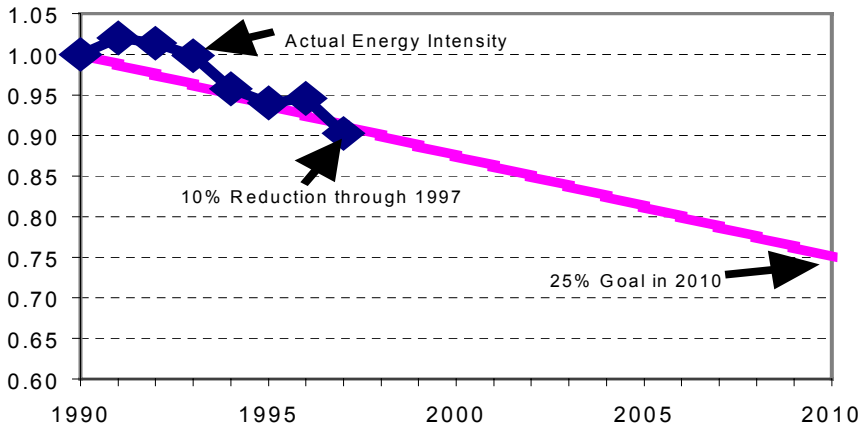
Description of the Program

The Office of Industrial Technologies (OIT) partners with key, energy-intensive industries to develop and apply advanced technologies and practices that reduce energy consumption, improve environmental performance, maintain and create jobs, boost productivity, and significantly improve the competitiveness of the U.S. OIT implements the program activities that support the following industrial sector performance goals:

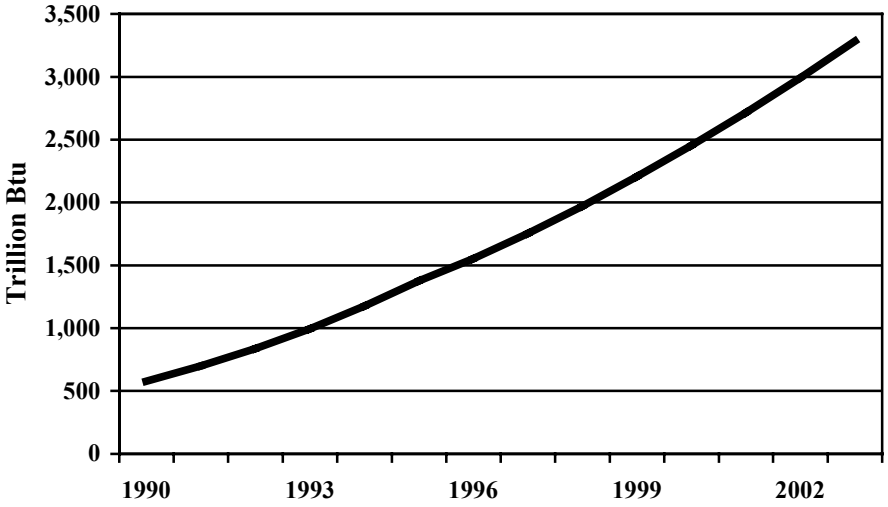
By 2010, contribute to a 25 percent decrease in energy use by our nine partner industries (a potential savings of almost 6 quads annually) relative to their projected energy consumption if production rises as expected and energy intensity levels were to continue at 1991 levels. By 2020, contribute to a 35 percent decrease in their energy use (a potential savings of almost 10 quads annually) through the combined efforts of industry and Federal, State, and local governments.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Industrial Energy Intensity
(1990 = 1.00)



OIT Cumulative Energy Savings



Performance Indicator Trends for Industrial Energy Sector:

Performance Indicator	FY96	FY97	FY98	FY99	FY00	FY01	FY02[2]	FY03
Number of Commercialized Technologies[3]	8	12	9	4	9	10e[1]	10	10
Annual Energy Savings[4]	175	198	218	236	249e	262e	276	290
RD&D Portfolio Turnover of Projects [%][5]	-	-	26	34	25	25e	25	25
Number of New Allied Partners[6]	-	-	-	-	-	18	20	20
Number of Plants Impacted[7]	-	-	-	-	-	-	TBD	2000
Internet Information Page Views (million)[8]	-	-	-	1.5	3.0	4.6	5.3	6.0

1 e= Estimate
2 All FY 02 numbers are preliminary estimates.
3 Data on commercialized technologies are collected on an annual basis. OIT maintains a list of technologies that are emerging from the program that may be commercialized over the next several years. Currently more than 150 technologies have been identified.
4 In trillions of Btu. One trillion Btu's are worth over $5 million dollars given recent industrial energy prices.
5 A database has been established to track turnover of projects. Numbers shown are calculated assuming approximately 500 projects in the portfolio each year.
6 Allied Partner program began in FY 2001. OIT partners with companies, industrial and professional associations, non-governmental organizations and universities/colleges, utilities, and equipment manufacturers. The new program includes 12-month agreements that are renewable. Accomplishments under the new program are reviewed annually. An end-of-year report is required each year reviewing what was accomplished under the agreement.
7 A database is being established to track plants adopting technologies and practices developed with support from OIT.
8 A page view is a request made to the Internet server for any content on the site. This does not include graphics.

Program Strategic Performance Goal (PSPG)

ER1-2: Partner with key, energy-intensive industries to develop and apply advanced technologies and practices that reduce energy consumption, improve environmental performance, maintain and create jobs, boost productivity, and significantly improve the competitiveness of the United States.

Performance Indicators:

- The annual energy savings in trillion Btu's of energy-intensive Industries of the Future (IOF) industries as a result of new developments.
- The annual energy savings in trillion Btu's of crosscutting energy-intensive IOF industries as a result of new developments.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*There were no related targets.*

Related FY 2001 Results	**ER1-2FY 2002 Targets** (Revised Final)	**ER1-2 FY 2003 Proposed Targets**
The following additional results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target.		
In FY 2001, commercialized 10 new technologies from both the nine vision industries as well as the crosscutting programs.	*Commercialize 10 new energy efficient technologies in partnership with the most energy intensive industries.* *Complete two showcase demonstrations, at industry sites, of advanced energy efficient technologies.*	*Commercialize 10 new energy efficient technologies in partnership with the most energy intensive industries.*
In FY 2001, OIT helped industry save an estimated 262 trillion Btu of energy worth more than $1.6 billion.	*Assist industry in saving more than 265 trillion Btu of energy, worth more than $1.6 billion.* *Complete 20 new Allied Partnerships with energy intensive companies, trade organizations and other groups.*	*Complete 20 new Allied Partnerships with energy intensive companies, trade organizations and other groups* *Achieve an estimated 15 percent improvement in energy productivity at 2,000 energy-intensive U.S. plants that will apply one or more EERE developed technologies or services.*
Continue support for Industrial Assessment Centers operating at 26 participating universities that will conduct approximately 650 combined energy, waste and productivity assessments.	*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.*	

Means and Strategies:

OIT partners with key industries and through Allied Partnerships with individual companies, trade and professional groups to develop and apply advanced technologies and practices that reduce energy consumption. Through an innovative strategy known as "Industries of the Future (IOF)," OIT works with the most energy intensive industries. These industries represent the greatest opportunity to save energy and improve environmental performance in a cost-effective manner. OIT invests in pre-competitive and high-risk Research Development and Demonstration (RD&D) that individual companies are unable to undertake without government support. By working with entire industries rather than just individual companies, OIT maximizes the energy benefits of technology investments and fosters the formation of public-private partnerships. Although the Industries of the Future strategy focuses on key energy-intensive industries, it engages the participation and expertise of many related industries. A 50 percent cost-share from industry over the life of the RD&D project is required.

The cross-cutting subprogram focuses on the development and accelerated market adoption of technologies with broad applications throughout energy intensive industries and, often, manufacturing as a whole. OIT is expanding its national efforts through its State's IOF initiative by capitalizing on partnerships at the State and regional level to leverage national technology investments; increase energy, economic, and environmental benefits; coordinate state and national activities; and reach smaller companies.

The IOF strategy facilitates industry access to the wealth of technology and specialized expertise available through the DOE laboratories and universities. The industry visions and roadmaps, developed as part of the strategy, help laboratories and universities better understand, communicate, and provide efficient access to the special capabilities they possess.

Collaboration Activities:

The Department collaborates on its RD&D with the industries identified above and with universities. The Department also collaborates with other government agencies including the National Aeronautics and Space Administration, the National Science Foundation (NSF), the Environmental Protection Agency and the Departments of Defense (DoD), Commerce (DOC), Agriculture (USDA), and Interior (DOI). Industry and company showcases and the voluntary Allied Partners program enhance industry adoption of best practices.

Validation and Verification

Data Sources:	Energy intensity is calculated from the Energy Information Administration's (EIA's) Manufacturing Energy Consumption Survey (MECS) and Department of Commerce data. The number of technologies and their energy savings is ascertained through interviews with technology developers and suppliers. Energy savings for the technical assistance programs are estimated based upon past reported participant data.
Baselines:	Industrial Energy Intensity has been tracked since 1991. Cumulative energy savings and commercialized technologies have been tracked since 1976. R&D portfolio turnover will be calculated starting in FY 2002.
Frequency:	EIA/MECS data for energy intensity is collected once every 4 years. Annual estimates can be made based upon data from Department of Commerce annual surveys. Data on energy savings and technologies commercialized and R&D portfolio turnover are collected or calculated annually.
Data Storage:	Energy intensity information is contained on EIA's computers. Data on energy savings and technologies commercialized are stored in OIT's Impacts Database and are available on the internet at OIT's website: www.oit.doe.gov. Data on R&D portfolio turnover is based upon information contained in OIT's information system database.

Verification:	EIA quality control and outside peer review of the Manufacturing Energy Consumption Survey. Industry representatives review data on energy savings and technologies commercialized. Data on R&D portfolio turnover is under development and will be subjected to peer review. Assessments of the impact of several technical programs assistance programs have been reviewed several times. The National Research Council periodically conducts independent reviews of OIT programs.

Planned Program Evaluation:

The individual programs conduct annual program and portfolio reviews. Based upon forest products industry assessment of the current portfolio's potential future impact, conduct a similar industry led assessment of another industry. OIT works closely with the National Materials Advisory Board of the National Research Council to conduct independent reviews of current and possible future directions of OIT technology R&D programs.

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GPRA Program Activity: Transportation Sector

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriations		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
270 Energy					
Energy Conservation	Transportation Sector	EE	251	253	223
Energy Supply	Renewable Energy Resources	EE	46	49	53
Total			297	302	276

Description of the Program

The Office of Transportation Technologies partners with industry, research organizations, State governments, and other Federal agencies to support development and use of advanced vehicle technologies and fuels that reduce demand for petroleum, decrease emissions of criteria air pollutants and greenhouse gases, and enable the U.S. transportation industry to sustain a strong, competitive position in domestic and world markets.

This mission directly supports the Secretary's mission and priorities for ensuring our Energy Security by reducing the amount of oil needed in this nearly 100 percent oil dependent sector of the economy, both by reducing the amount of oil needed for transportation services, and by encouraging the development and use of alternative fuels.

In addition, this program addresses the Secretary's priority for implementing the National Energy Policy (NEP). Specifically, the transportation portfolio helps improve transportation efficiency (Recommendation 4.14); helps provide the technological basis for an efficient vehicle tax credit (Recommendation 4.11); undertakes advanced vehicle R & D (Recommendation 4.12); reduced truck idling fuel waste (Recommendation 4.13); and, supports technology improvements supporting advanced power vehicles tax credits (Recommendation 6.12).

The projected annual benefits from these efforts through 2020 are:

	2005	2010	2020
Petroleum Displaced (Million Barrels per Day)	0.14	0.48	2.55
Total Primary Energy Displaced (Trillion Btu)	44	684	4,678
Energy Costs or Savings (Millions of $)	3,896	19,755	61,483
Carbon Equivalent Emissions Displaced (MMTCe)	2.3	14.4	92.1

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

ER1-3: Partner with industry, research organizations, State governments, and other Federal agencies to support development and use of advanced vehicle technologies and fuels which reduce demand for petroleum, decrease emissions of criteria air pollutants and greenhouse gases, and enable the U.S. transportation industry to sustain a strong, competitive position in domestic and world markets.

Performance Indicators:

- The estimated cost of high power 25 kW batteries.
- The cost of the 50 kW vehicle fuel cell power systems.
- The grams per mile of NOx emissions in light-duty, compression-ignition (diesel) powered vehicles and in heavy-duty diesel engines.
- The cost of lithium ion batteries.
- The Percentage of parasitic loss, including aerodynamic drag in large trucks.
- The grams per brake horsepower-hour of engine-out emissions of particulate matter in light trucks and passenger vehicles.
- The cost of carbon fiber per pound.
- The number of alternative fuel vehicles in Clean Cities.
- The cost of cellulose-based ethanol.

Related FY 1999 Results	Related FY 2000 Results
	Work with three domestic automakers to incorporate the most promising Partnership for a New Generation of Vehicles (PNGV) technologies in concept vehicles with up to three times average fuel economy of the 1993 Taurus, Lumina, and Concorde models. (EXCEEDED GOAL)
By September 1999, in cooperation with industry and other Federal agencies, develop a direct injection power system technical roadmap and a fuel cell power system technical roadmap to integrate fuels and lubricants research and development with development of engine and emission treatment technologies. (MET GOAL)	*Complete testing of baseline prototype, 50-volt high power lithium-ion modules for use in hybrid vehicles.* (MET GOAL)

Related FY 2001 Results	**ER1-3 FY 2002 Targets** (Revised Final)	**ER1-3 FY 2003 Proposed Targets**
Complete testing of the 276-volt battery aimed at demonstrating an integrated system having thermal and electrical controls. (MET GOAL)	*Complete development of second generation Lithium ion electrochemistry for hybrid vehicle power.* *Reduce gassing in sealed lithium ion batteries so that cells do not vent after 5 years of storage at full charge.*	*Reduce high power 25 kW estimated battery cost to $1,180 per battery system.*
Complete test and evaluation of a fuel-flexible 50 KW integrated fuel cell power system. (MET GOAL) The following additional results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target.	*Achieve $275/kW for a 50 kW fuel cell power system.*	*Achieve $225/kW for a 50 kW fuel cell power system.*
Completed explorations of lithium-polymer and lithium ion battery technologies; lithium ion was selected as the most promising approach for continued development. Light truck demonstration resulted in a 35 percent increase in fuel efficiency in a sport utility vehicle.	*Complete initial testing of light trucks with prototype diesel engines to demonstrate a 35 percent increase in fuel efficiency and Tier two emissions.* *Demonstrate 45 percent thermal efficiency for heavy-duty diesel engine while meeting EPA 2004 emission standards.*	*Demonstrate optimized emission control system that achieves 0.07 g/mile NOx and 0.01 g/mile PM short-term performance in light duty vehicles.*

Annual Results and Targets for ER1-3 (Continued)

ER1-3 Related FY 1999 Results	ER1-3 Related FY 2000 Results
Expand Clean Cities program to create continuous corridors of alternative transportation fuel availability in and between 10 major urban centers. (MET GOAL) *Build a single cylinder proof-of-concept diesel engine that delivers up to 55 percent efficiency.* (NEARLY MET GOAL) *Support an industrial partner to complete site preparation and begin construction of industry-owned facility to demonstrate first-of-a-kind cellulosic biomass to ethanol technology from agricultural crop waste.* (NEARLY MET GOAL)	*Launch two projects that will lead to 100 percent penetration of alternative fuel vehicles in selected niche applications such as a local taxi fleet or the buses for a particular goal.* (EXCEEDED GOAL) *Demonstrate conversion of agricultural wastes to ethanol at a small commercial scale using a genetically engineered fermentative microorganism.* (MET GOAL)

ER1-3 Related FY 2001 Results	ER1-3 FY 2002 Targets (Revised Final)	ER1-3 FY 2003 Proposed Targets
The following additional results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target.		
Completed explorations of four approaches to lower-cost precursors for carbon fibers; down-selected and initiated further work on the two most promising approaches.	*Fabricate a sport utility vehicle chassis component using carbon fiber in a low cost molding process that is suitable for high volume production.*	
		Reduce estimated cost of battery systems to $308 per kWh in 40 kWh systems, based on a production level of 20,000 batteries per year.
	Reduce parasitic losses of heavy vehicle systems to 36 percent.	*Reduce parasitic losses of heavy vehicle systems to 30 percent and benchmark additional reductions through heavy truck electrification.*
		Achieve 0.09 grams per brake horsepower-hour particulate matter.
		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.
Support the annual acquisition on 12,000 alternative fuel vehicles in the Federal fleet. (MET GOAL)	*Achieve 135,000 alternative fuel vehicles in operation in Clean Cities.*	*Achieve 157,000 alternative fuel vehicles in operation in Clean Cities.*
Conduct competitive solicitation and select at least one partner for demonstrating the conversion of cellulosic feedstock at a corn ethanol plant. (MET GOAL)	*Develop a prototype yeast capable of fermenting multiple biomass-derived sugars to meet cost goals for the ethanol/gasoline blend markets.*	*Evaluate an improved enzyme preparation developed by a leading enzyme manufacturer for reducing the cost of producing ethanol from biomass, and update the reference computer model of the production process.*

Means and Strategies:

Fuel efficiency gains will be achieved through the introduction of lightweight materials and more efficient technologies. The use of lightweight materials such as aluminum sheets and composites will be more economically attractive through DOE research and development efforts that reduce their costs. Vehicles with lightweight materials include electric, hybrid, and fuel cell vehicles. The penetration of these vehicles in the marketplace will be enhanced by DOE R&D that: reduces high power battery costs and battery calendar life for hybrid vehicles; decreases battery cost and increases battery specific energy for electric vehicles; and reduces the cost of fuel cell systems. DOE R&D that increases cellulose enzyme development and reduces the cost of producing cellulosic ethanol will enhance the production of cellulosic ethanol

Collaboration Activities:

The Office of Transportation Technologies collaborates with the Big Three automakers, ethanol producers, and universities in its R&D efforts. It also collaborates with the Department of Commerce, Department of Transportation, the Environmental Protection Agency and other federal agencies on the PNGV and other programs.

External Factors Affecting Performance:

Performance will be affected by the state of the economy, willingness of automakers to incorporate R&D advances into vehicles, and the continuation of the ethanol tax credit.

Validation and Verification:

Data Sources:	Department of Transportation/National Highway Traffic Safety Administration, Environmental Protection Agency, laboratory tests.
Baselines:	Fuel efficiency (mpg) gains are measured from 2001. Vehicles with lightweight materials and ethanol production are measured annually.
Frequency:	Annual.
Data Storage:	Office of Transportation Technologies (OTT) Quality Metrics report. Program analysis methodology document is prepared each year and put on the OTT website for comment and review.
Verification:	Review by Arthur D. Little. Presented to professionals for comment.

Planned Program Evaluation:

The National Research Council reviews the PNGV program each year and makes recommendations. Arthur D. Little reviews several programs each year.

GPRA Program Activity: Renewable and Distributed Energy

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriations*		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
270 Energy					
Energy Supply	Renewable Energy Resources	EE	324	337	352
Energy Conservation	Power Sector	EE	47	64	64
Total			371	401	416

* Biofuels Transportation's appropriation is excluded and included with the Transportation Sector.

Description of the Program:

The Renewable and Distributed Energy Program leads the national effort to develop clean, competitive, reliable power technologies for the 21st century, and to accelerate their acceptance and use, nationally and internationally. Within the Office of Energy Efficiency and Renewable Energy (EE), the program supports research and development of clean, reliable renewable and distributed energy technologies and cutting edge power infrastructure technologies that will improve the performance and efficiency of electric power systems. The EE Office of Power Technologies (OPT) implements the program activities that support the following general performance goal.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

ER2-1: 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.

Performance Indicators:

- Distributed energy and renewable energy generating capacity.
- Testing, verification, and demonstration of the component systems of cost-effective and efficient biomass gasification combined-cycle systems.
- Production cost of cellulose-based ethanol.
- Cost of geothermal electric production.
- Cost of hydrogen ($/kWh) produced from natural gas.
- Turbine induced fish mortality.
- Cost of wind powered electricity generation in Class 4 wind (13 mph annual average).
- Price paid for a photovoltaic system by the end user (including operation and maintenance costs).
- Power carrying capability and efficiency of High Temperature Superconductive (HTS) wires.
- Export sales of renewable energy products and services.
- Number of new renewable energy projects at publicly and cooperative-owned electric utilities.
- Annual energy production by "qualified facilities" and/or "number of projects."

Related FY 1999 Results	Related FY 2000 Results
Initiate the 8000-hour test of the gas turbine engine for the Advanced Turbine System for use in industrial cogeneration. (MET GOAL)	*Demonstrate two advanced industrial turbine system engines at end-user sites.* (MET GOAL)

Annual Energy Production by "Qualified Facilities" and "Number of Projects."										
Fiscal Year of Qualified Energy Production:	94	95	96	97	98	99	00	01	02	03
Cumulative Projects:	7	11	18	26	36	52	61	72	n/a	75 (goal)
Energy Production: (Annual 1000 Mwh)	42	153	177	458	529	506	685	701	n/a	n/a

Related FY 2001 Results	**ER2-1 FY 2002 Targets** (Revised Final)	**ER2-1 FY 2003 Proposed Targets**
		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. *Complete 4000-hour field test of ceramic composite shroud components to demonstrate performance and emission benefits to a gas turbine.*
Complete 5,000 durability, performance, and emissions testing of the Mercury 50 Advanced Turbine System engine. (EXCEEDED GOAL) The following additional results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target. Test facility completed for pilot-scale testing of the innovative turbine design developed by the Alden Research Laboratory team.	*Demonstrate a microturbine package (highly efficient for reducing peak loads) at a university site.*	*Contract with three companies to support research on demonstrating a 5 percent increase in efficiency for an advanced microturbine system.*

Annual Results and Targets for ER2-1 (Continued)

Related FY 1999 Results	Related FY 2000 Results
	Complete two designs of advanced air-cooled condensers for geothermal applications. (NEARLY MET GOAL)

Related FY 2001 Results	**ER2-1 FY 2002 Targets** (Revised Final)	**ER2-1 FY 2003 Proposed Targets**
Select industrial partners to build two cost-shared geothermal power plants using Enhanced Geothermal System (EGS) technology. (MET GOAL)	*Complete construction of a small-scale (300 kW to 1 MW) geothermal power plant for field verification.*	*Support industry opening and initial operation of a 1 MW small-scale geothermal power plant in the State of New Mexico.*
	Construct process development unit of ceramic membrane system for membrane system tests for hydrogen production.	*Verify low electricity and hydrogen production cost (<$.08/kWh and <$2.60/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.*

Annual Results and Targets for ER2-1 (Continued)

Related FY 1999 Results	Related FY 2000 Results
Establish a United States-based commercial firm as an internationally recognized certification agent using testing and design review services provided by the National Wind Technology Center. (MET GOAL)	*Install and begin testing of two proof-of-concept turbines under the Next Generation Turbine program leading to commercial availability of technology capable of producing electricity at 2 ½ cents per kWh in 15 mph wind resource by 2003.* (MET GOAL) The following additional result is included to provide historical context for the FY 2002 and FY 2003 target, and does not correspond to a prior year APP target. Installed first industrial HTS electrical transmission cables at Southwire Plant in Carrollton, Georgia and began testing system reliability.
Develop codes, standards and safety specifications for residential PV roof systems. (NEARLY MET GOAL)	*Develop a 13 percent efficient stable prototype thin-film photovoltaic module.* (NEARLY MET GOAL) *Demonstrate fully autonomous operation of a 10 kW dish engine system for off-grid applications.* *(*MET GOAL)

FY 2001 Results	ER2-1 FY 2002 Targets (Revised Final)	ER2-1 FY 2003 Proposed Targets
		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.
Move advanced wind hybrid control system technology developed jointly with USDA Agricultural Research Center to commercial availability. (MET GOAL)		*Complete low wind speed turbine conceptual design studies, and fabricate and begin testing advanced wind turbine components optimized for low wind speed application initiated under industry.*
Document 6,000 hours (100 percent load) operation of the first successful HTS power delivery system to power an industrial use. (EXCEEDED GOAL)	*Complete initial testing of Detroit superconducting transmission cable and document operational costs and reliability.*	
Install 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. (MET GOAL)	*Convene and support the principles to enable IEEE to publish draft P1547 Standard for Distributed Resources Interconnected with Electric Power Systems.*	*Increase the capability to reproducibly fabricate a 10-meter length of Second Generation HTS wire to carry 50 amps of electricity and 1-meter lengths that carry 100 amps from a 40-amp base.*
Develop a 14 percent efficient stable prototype thin-film photovoltaic module. (MET GOAL)	*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)*	*Reduce manufacturing cost of PV modules to $2.10 per watt (equivalent to $0.19 to $0.28 per kWh price of electricity from an installed solar system).*
	Complete 300 hours of testing of the advanced bromine battery system in partnership with Detroit Edison.	*Support the field test of a 100kW lithium battery system for 700 hrs at a utility site.*

Means and Strategies:

The DOE's Renewable and Distributed Energy programs contribute to increasing renewable and distributed energy generating capacity by reducing the price and increasing the benefits of energy for photovoltaic, wind, biomass, geothermal concentrating solar power, engine, turbine, microturbine and fuel cell technologies as well as the viability of hydroelectric power. For example, reduced prices for renewable electricity is achieved both by increasing photovoltaic cell efficiency and by increasing U.S. photovoltaic manufacturing capacity. The price also falls with improved wind turbine designs and validated advanced wind turbine performance; with lowered price of hydrogen purification and increased efficiency of fuel cells that use it; with increased reliability and reduced price of biomass gasification systems; and with lower drilling costs of geothermal systems. Increasing market penetration of distributed energy systems is achieved through advances in technology cost and performance, and the implementation of national standards for interconnecting distributed power with the grid. Technology advances include: increasing ceramic high temperature survival and material strength, and integrating sensors and controls. Modernization of the electricity infrastructure is achieved by: improving the reliability of the system through development of real time control and information systems, along with fast power electronic switching; increasing the production of high temperature superconducting wires; and, reducing the cost and increasing the energy density of energy storage systems.

In 2001, with new DOE leadership and the increased national concerns about homeland security, our programs have been realigned with the May 2001 National Energy Plan (NEP); with the June 2001 President's Management Agenda (and OMB R&D Initiative); with the Secretary's October 2001 message to DOE; with the December 2001 nine priorities of the Assistant Secretary; and, with the emerging results of the EERE Strategic Program Review undertaken as a key recommendation of the NEP. The NEP also supports DOE efforts to encourage the use of renewable and energy efficiency in transitioning and developing countries.

Collaboration Activities:

DOE collaborates on its R&D with academia, national laboratories, manufacturers and developers of renewable and distributed technologies. DOE also collaborates with users of these technologies for technology validation, system integration and design.

External Factors Affecting Performance:

The state of the economy and the cost of competing technologies will affect the installation of renewable and distributed energy systems. State and international efforts in renewable and distributed technologies also affect the market. Continuation of Federal tax incentives for renewables also will increase penetration and reduce cost due to economies of scale.

Validation and Verification:

Data Sources:	The National Renewable Energy Laboratory's Renewable Electric Plant Information System (REPIS), the Energy Information Administration's (EIA) Annual Energy Review, Renewable Energy Annual and Annual Energy Outlook, The Gas Technology Institute Survey of Distributed Resources, EIA Form 860 data analyzed by the Resource Dynamics Corporation.
Baselines:	The baseline for non-hydro, non-pulp and paper renewable electricity is 7.0 gigawatts (1999); the baseline for distributed energy resources is 14.7 gigawatts (1997).
Frequency:	Annual.
Data Storage:	The EIA and other data sources store the data on their computers.
Verification:	A trade association working group reviews REPIS renewable and DER data. The EIA uses and verifies the REPIS database. The November 2001 Distributed Energy Resources Peer Review verified the distributed generation data.

Planned Program Evaluation:

In Summer 2001, in response to the NEP, DOE undertook a strategic review and evaluation of its energy efficiency and renewable energy programs, known as the Strategic Program Review (SPR). The results of this review were released to the public in the Spring of 2002. In August 2001, the results of the National Academy of Sciences' National Research Council peer review of the Energy Efficiency Programs (including part of the Distributed Energy Resources

Program) became available. In response, EERE held a conference to expand the NAS benefits methodology to the supply side of the EERE portfolio. The SPR review relies upon the extensive data available as part of the EERE Strategic Management Systems (SMS). In addition, each technology program holds program reviews and external peer reviews with stakeholders on a periodic basis. An internal program review for each individual technology program within the EERE Office of Power Technologies is conducted annually with the Deputy Assistant Secretary. In 2001, OPT restructured its collaborative analytic activities to include external experts from academia, think tanks and industry. These experts are developing models to use as part of their scenario approach to portfolio analysis. At the end of 2001, the new OPT analytic collaborative was reviewed by an external peer review panel.

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GPRA Program Activity: Building Technology, State, and Community Programs

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriations		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
270 Energy					
Energy Conservation	Building Technology, State, and Community Programs--non-grant	EE	103	105	93
	Building Technology, State, and Community Programs--grant	EE	38	45	39
Total			141	150	132

Description of the Program:

The Building Technology, State, and Community Programs (BTS) directly addresses DOE's goal of increased energy security, reliability, and affordability, while reducing the environmental impacts related to energy use. Through research, development, deployment, and codes and standards BTS programs can significantly contribute to reducing these vulnerabilities in the future:

- BTS's programs reduce the amount of fossil fuels (including electricity generation) required to operate residential and commercial building uses, and for electricity generation.
- BTS programs also address the reliability of the energy supply system by targeting energy uses (such as commercial lighting) that contribute to the demand peak for electricity.

BTS' R&D efforts range from nearer term public-private partnerships with industry that increase performance of existing technologies (e.g., heat-pump water heater), to more long-term technologies that represent a fundamental change in the way energy services are delivered (e.g., solid state lighting). In addition to excessive risk associated with longer-term research, there are a number of other market factors, which contribute to a relatively low level of R&D (yet alone energy research) in the building sector. These factors include: fragmentation of the industry; sensitivity to first-costs with lack of consideration for full life-cycle costs; lack of builder and consumer information of the full benefits of energy efficient products; split incentives in the market (e.g., owners buy equipment but renters pay utility costs); and, compartmentalization and lack of communication between the building professions which leads to sub-optimal designs and less than optimal building operation.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

ER3-1: In partnership with industry and government, develop, promote, and integrate energy technologies and practices that make buildings more efficient, productive and affordable.

Performance Indicators:

- Number of new technological solutions developed and evaluated for use in energy efficient demonstration homes and building projects.
- Number of improvements to the Model Energy Code by 2008.
- Number of large energy efficient model commercial buildings by 2008.
- Number of improvements proposed to the American Association of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) commercial building code standards.
- Market share of Energy Star windows.
- Market share of Energy Star appliances.
- Number of new market-ready building products and materials by 2009.
- Number of new rulemakings for enhanced product standards and test procedures for appliances by 2008.
- Number of grants awarded to State energy offices by 2008.
- Square feet of commercial and institutional building space retrofitted with energy efficient measures by 2008.

Related FY 1999 Results	Related FY 2000 Results
Complete 100 homes that are over 50 percent more efficient than typical homes through the Building America program, bringing the total number of homes completed to 700; add five new community scale projects for building 1000 additional homes in FY2000; and transfer research recommendations to the Partnership for Advancing Technology in Housing (PATH). (EXCEEDED GOAL)	*In partnership with Building America, develop more than 2,000 highly energy-efficient, environmentally sound, and cost-effective houses and disseminate results to builders of 15,000 other houses through PATH.* (NEARLY MET GOAL)

Related FY 2001 Results	ER3-1 FY 2002 Targets (Revised Final)	ER 3-1 FY 2003 Proposed Targets
	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 heating, ventilation and air-conditioning (HVAC) designs, super efficient distribution systems, etc.	*Increase industry cost-shared contributions to research investigations of the most promising technological solutions, considering regional and housing type differences, and the extent of previous research, to 10 percent.*
With Building America Partners, completed 3,000 energy-efficient environmentally sound high performance homes. (EXCEEDED GOAL)	*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.*	*Complete at least 800 highly resource-efficient, cost-effective homes through the Building America consortia, bringing the total number of homes built through the program to more than 5,300.*
	Publish one proposal for upgrade to the Federal Residential Building codes, and one proposal for upgrade to the Commercial Building codes.	*Issue one upgrade to the Federal Residential Building codes and one upgrade to the Commercial Building codes.*

Annual Results and Targets for ER3-1 (Continued)

Related FY 1999 Results	Related FY 2000 Results
Work with the Federal Trade Commission to allow manufacturers to add the ENERGY STAR logo to the yellow and black FTC "Energy Guide" label for covered products, and recruit an additional 1,500 stores to market ENERGY STAR appliances nationwide. (EXCEEDED GOAL)	*Recruit five utility partners to promote ENERGY STAR products; an additional 500 retail stores to promote Energy Star products; and 40 window partners to promote Energy Star Windows.* (EXCEEDED GOAL)

Related FY 2001 Results	ER 3-1 FY 2002 Targets (Revised Final)	ER 3-1 FY 2003 Proposed Targets
	Establish one High Performance Buildings Roadmap implementation framework, leading to the goal of 30 percent more energy efficient new commercial construction compared to 1996 standard practice.	*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.*
Recruit 400 new ENERGY STAR partners, bringing the total number of stores marketing ENERGY STAR appliances up to 6,500. (EXCEEDED GOAL) The following additional results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target.	*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.*	*Recruit 500 additional retail stores, five additional utilities and 10 additional manufacturers.*
Issued three proposals for upgrades and three upgrades to appliance standards and test procedures.	*Issue two proposals for upgrades and five upgrades to appliance standards and test procedures.*	*Issue four proposals for upgrades to appliance standards and test procedures.*
WINDOW 5 released and approved by National Fenestration Rating Council (NFRC); algorithms adopted as International Standards Organization (ISO) standard.	*Implement and improve WINDOW 5 for NFRC production runs; train and support NFRC simulators.*	*Complete WINDOW 5.2, for basic retrofit product - NFRC rating & labeling- begin algorithm development for complex retrofit/new products and high performance products.*
Established 40 new Rebuild America community partnerships and assisted these communities to retrofit 80 million square feet of floor space in K-12 schools, colleges, public housing, state and local governments.	*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.*	*Establish 40 new Rebuild America community partnerships and assist these communities to retrofit 60 million square feet of floor space in K-12 schools, colleges, public housing, and State and local governments.*
Completed Phase I field demonstrations of heat pump water heaters, with utility partners.	*Conclude field demonstrations of heat pump water heaters, with utility partners.*	

Means and Strategies:

Energy savings in residential and commercial buildings will be achieved through a balanced program of R&D, outreach, deployment, and regulatory activities. The program continuously evaluates the energy saving potential of new technologies and practices in a number of critical areas: lighting, space conditioning, and building envelope (wall, windows, roof). The selection of the appropriate strategy to achieve those potential savings (e.g., window research) is based on an assessment the relative costs, and paybacks, and likelihood of success. Often this leads to a multi-pronged approach to any particular end-use where R&D is being conducting to improve efficiency, while deployment and outreach programs address market barriers, and standards work to remove the least efficient, and costly to operate, equipment and appliances. The approaches work in concert and also form a feedback loop where, for example, standards can help pull technological innovation into buildings and R&D can provide a proper basis for the development of standards.

Savings in residential buildings will be realized through research and development focusing on integrating design and equipment; residential building codes; weatherization assistance; contributions to the Partnership for Advancing Technology in Housing (PATH); and community energy programs. Savings in commercial buildings will be realized through research and development targeted towards design, operation, and maintenance of energy-efficient commercial buildings; commercial building codes; state energy grants; and all community energy programs. Energy savings for building equipment and materials, targeted towards either market, will be realized through research on building materials (e.g., roofs, walls, windows) and equipment, lighting, appliances; the development and implementation of appliance and equipment standards; and promotion of Energy Star buildings.

Collaboration Activities:

BTS collaborates with EPA, NIST, FEMP, the Department of Justice, buildings industries, state and local governments and organizations, manufacturers, trade associations, ASHRAE, NFRC, ISO, energy efficiency and consumer groups, and the national laboratories in efforts to promote the use of efficiency technologies and practices. This collaboration includes cooperative R&D, joint programs like Energy Star (DOE-EPA) and PATH (led by HUD), as well as a consensus process for developing labeling programs, NFRC and ASHRAE code standards, and standards with industry and other interested stakeholders.

External Factors Affecting Performance:

Numerous external factors may impact achievement of BTS' goals, including changes in the state of the economy, energy prices, consumer choice, regional disparities, and overall structural change in the buildings market. The energy savings goal assumes a robust construction market to generate the demand for new, energy-efficient housing and commercial space, as well as demand for remodeling and commercial retrofits to replace aging and relatively inefficient equipment.

Characteristics of new construction that would tend to increase energy consumption in residential buildings would be larger homes, more construction in temperate climates, and an increase in telecommuting. Increased electrification (more computers, printers, fax machines) and shifts in the relative mix of commercial buildings (e.g., hospitals versus office buildings) can contribute to a rise in energy use and intensity in the commercial sector.

Validation and Verification:

Data Sources:	EIA Annual Energy Review (AER); Commercial Building Energy Consumption Survey (CBECS); Residential Energy Consumption Survey (RECS); and Annual Energy Outlook (AEO). U.S. DOC Current Industrial Reports (CIR). Various trade publications. Information collected directly from BTS performers or partners.
Baselines:	Energy savings are based on market penetration of technologies after the year 2000. Savings are relative to what energy consumption would have been in the absence of this additional market penetration.
Frequency:	Complete revalidation of assumptions and results can only take place every three to four years, due to the reporting cycle of two critical publications: CBECS and RECS. However, updates of most of the baseline forecast and BTS program outputs will be undertaken annually.

Data Storage:	EIA and DOC data sources are publicly available. Trade publications are available on a subscription basis. BTS program output information is contained in various reports and memoranda.
Verification:	Calculations are based on assumptions of future market status, equipment or technology performance, and market penetration rates. These assumptions can be verified against actual performance through technical reports, market surveys, and product shipments.

Planned Program Evaluation:

Major program reviews take place every 2 or 3 years, on average. For example, in the summer of 2001, in response to the NEP, DOE undertook a Strategic Program Review (SPR) and evaluation of its energy efficiency and renewable energy programs. The results of this review were released in the spring of 2002. The SPR recommended several program closures and areas for increased emphasis.

In August 2001, the National Research Council (NRC) of the National Academy of Sciences concluded an assessment of the efficacy of the DOE energy R&D programs. That assessment, while acknowledging substantial returns on investment for building R&D, highlighted the need for increased and continuous evaluation of the impact of the DOE energy R&D portfolio. EERE is modifying its assessment process to include approaches developed by the NRC.

BTS also has a program for peer review and program evaluation. A formal peer review of the entire R&D portfolio was completed in January 2000. The analytical process and results underpinning the standards process are regularly reviewed by industry as part of rulemakings. Program and project managers also hold regular program reviews to assess progress towards milestones.

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GPRA Program Activity: Weatherization Assistance Program

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriations		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
270 Energy					
Energy Conservation	Building Technology, State, and Community Programs--grant	EE	153	230	277
Total			153	230	277

Description of the Program:

DOE implements the Weatherization Assistance Program by providing technical assistance and formula grant monies to State and local weatherization agencies throughout the U.S. The network of approximately 970 local agencies provide the trained Crews who perform the weatherization services for eligible low-income households, in single-family homes, multifamily dwellings, and mobile homes. The elderly, persons with disabilities, families with children, and households with high energy burden receive priority. Homes receive a comprehensive energy audit and a cost-effective combination of energy-saving measures. Execution of the Weatherization Assistance Program seeks the participation of States.

The Weatherization Assistance Program will (1) reduce energy costs for low-income households, which are disproportionately burdened by utility bills (14.5 percent of these households' income, vs. 3.5 percent of other households' income); (2) benefit local economies by reducing the local impacts of energy price volatility; (3) reduce the need for other public services such as fuel assistance, housing, and health care; and (4) improve housing and community conditions. The estimated benefits of the Weatherization Assistance Program are reflected in the table below.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Performance Indicator Trends

Performance Indicator	FY 2005	FY 2010	FY 2020
Total Primary Energy Displaced (Trillion Btu)	51.38	100.40	146.56
Energy Costs or Savings (Millions of $)	360	707	1,011
Carbon Equivalent Emissions Displaced (MMTCe)	0.86	1.65	2.40

Source: Estimates based on the GPRA 2001 EERE Database.

Program Strategic Performance Goal

ER3-2 Reduce the energy costs of low-income households by providing cost-effective energy efficiency improvements while ensuring the health and safety of the people served.

Performance Indicators:

- Number of low-income households weatherized annually.
- Total Primary Energy Displaced (Trillion Btu).
- Energy Costs or Savings (Millions of $).
- Carbon Equivalent Emissions Displaced.

Related FY 1999 Results	Related FY 2000 Results
Weatherize 67,845 homes, bringing the total number of homes weatherized to 4.7 million. (EXCEEDED GOAL)	*Weatherize 68,000 homes, bringing the total number of homes weatherized to 4.8 million.* (EXCEEDED GOAL)

Related FY 2001 Results	ER3-2 FY 2002 Targets (Revised Final)	ER3-2 FY 2003 Proposed Targets
Weatherize 75,350 homes, bringing the total number of homes weatherized to 4.8 million. (MET GOAL)	*Weatherize 105,000 homes, bringing the total number of homes weatherized to 5.1 million*.*	*Weatherize 123,000 homes, bringing the total number of homes weatherized to 5.2 million.*

Notes:
The number of homes weatherized per year is based on DOE contributions. The cumulative total includes homes weatherized with DOE and leveraged funds. The reporting process reflects an 18-month lag period in funding and completion of weatherization.

*The weatherization assistance program reassessed the total number of homes weatherized between FY 2001 and FY 2002.

Means and Strategies:

The mission of the Weatherization Assistance (Wx) 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 to implement this program. These agencies in turn contract with local governmental or non-profit agencies to deliver weatherization services.

The Weatherization Assistance Program statute permits the use of funds for Training and Technical Assistance. States have indicated that enhancing the technical base of the staff at the Federal, State, and local levels is a top priority and critical to improving the effectiveness of the Program. Many weatherization providers are moving forward the concept of "whole house weatherization." Under this concept, providers tackle the house as a single energy-consuming system, rather than a loose collection of unrelated systems. Using this approach, these providers can find the best combination of measures for reducing total energy consumption in low-income housing.

One of DOE's goals in increasing flexibility in the Wx Program in recent years is to allow weatherization crews to more fully address health and safety issues they come across on the job. The crews find all kinds of hazards over the course of a year, including carbon monoxide from incomplete combustion of fuel in old boilers, furnaces and hot water heaters; indoor air quality problems from mold that accumulates in walls, basements, or attics exposed to moisture; and fire hazards from electrical equipment or wiring that is old and needs replacement. They also find many examples of equipment that could become a hazard in the case of a flood, tornado or other natural disaster.

Collaboration Activities:

Weatherization is a partnership from top to bottom. First there is cooperation among federal, state, and some local agencies to fund the work. In fact, every dollar DOE invests in weatherization leverages $3.39 in federal, state, and private sector funding.

There is also a significant private investment in weatherization, both from individual property owners and from electric and gas utilities. In fact, utilities were responsible for 22% of all weatherization projects between 1978 and 1989 (see page 17).
DOE works directly with the states, the District of Columbia, and Native American Tribal Governments to carry out these goals. These agencies, in turn, contract with approximately 1,000 local governmental or non-profit agencies to deliver weatherization services to low-income clients.

External Factors Affecting Performance:

DOE relies heavily on its partners (State and Local governments) and weatherization providers to deliver weatherization services. DOE must be seen as a reliable partner by providing sustained and stable funding to achieve the shared goals of reducing energy costs, while safeguarding their health and safety, or low-income recipients. Attracting and retaining qualified local providers remains a strong challenge given the tightness of labor markets.

Validation and Verification:

Data Sources:	EIA Annual Energy Review (AER); Commercial Building Energy Consumption Survey (CBECS); Residential Energy Consumption Survey (RECS); and Annual Energy Outlook (AEO). U.S. DOC Current Industrial Reports (CIR). Various trade publications. Information collected directly from BTS performers or partners.
Baselines:	Energy savings are based on market penetration of technologies after the year 2000. Savings are relative to what energy consumption would have been in the absence of this additional market penetration.
Frequency:	Complete revalidation of assumptions and results can only take place every 3 to 4 years, due to the reporting cycle of two critical publications: CBECS and RECS; however, updates of most of the baseline forecast and BTS program outputs will be undertaken annually.
Data Storage:	EIA and DOC data sources are publicly available. Trade publications are available on a subscription basis. BTS program output information is contained in various reports and memoranda.

Verification:	Calculations are based on assumptions of future market status, equipment or technology performance, and market penetration rates. These assumptions can be verified against actual performance through technical reports, market surveys, and product shipments.

Planned Program Evaluation:

The Weatherization Assistance Program conducts national evaluations. DOE makes the results of this evaluation available to States which provide the framework for States making changes to their respective programs to improve performance, efficiency, and effectiveness. Likewise, this evaluation assists States and local agencies in obtaining leveraged funds from utilities and other sources by demonstrating documented energy savings and illustrating a professionally operated program. DOE also encourages and allows grant funds to be used for individual State evaluations.

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GPRA Program Activity: High Efficiency, No/Low Emissions Power Systems R&D

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
270 Energy					
Fossil Energy Research and Development	President's Coal Research Initiative (Clean Coal Power Initiative)	FE	0	150	150
	President's Coal Research Initiative (Coal Power Systems (C&PS)/Central Systems)	FE	197	96	85
	Other Power Systems (C&PS/Distributed Generation Systems)	FE	51	58	50
	President's Coal Research Initiative (C&PS/Sequestration R&D)	FE	18	32	54
	President's Coal Research Initiative (C&PS/Advanced Research)	FE	30	28	32
Clean Coal Technology	Clean Coal Technology	FE	104	42	40
	Use of Prior Year Balances	FE	(4)	(6)	(14)
	Use of Previously Appropriated Clean Coal Funds	FE	(95)	(34)	(40)
Total			301	366	356

Description of the Program:

The power systems RD&D program addresses the energy and environmental demands of the post-2000 domestic market, including increasing international pressure to reduce greenhouse gas emissions, and helps U.S. industry meet the needs of a currently large and growing export market, while contributing to national energy security. The Coal program is focused on four goals. The first is to develop progressively higher efficiency and cleaner power generation systems with 10-20 percent lower busbar electricity costs, which will ultimately evolve into a "Vision 21" fleet of new power and energy plants with near zero levels of pollutants. The second is to develop super-clean emission control systems for SO_2, NOx, air toxics, and particulate matter that can be applied to existing plants. The third goal is to develop economically competitive technologies for the production of alternative transportation fuels and chemicals.

The fourth goal is to evaluate economically viable approaches to carbon sequestration to address climate change concerns. Power Systems includes Central Systems, Distributed Generation Systems, Sequestration R&D, and Advanced Research.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

The following facing pages have 5 years of performance measures for ER4-1.

Program Strategic Performance Goal

ER4-1: By 2005, complete the development of mercury control systems capable of reducing mercury emissions by 70 percent (90 percent by 2010) in existing plants at half of current (2001) cost for application in over 300 GW of coal-fired plants in the U.S.

Performance Indicator: Reduction in the percentage of mercury removed versus cost.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*Complete pilot studies on mercury emission controls that augment existing pollution control technologies, and are expected to reduce mercury emissions by over 50 percent at less than half the cost originally estimated in EPA's December 1997 Report to Congress on Mercury.* (MET GOAL) *Complete the first large scale (600MW) test of selective non-catalytic reduction, which will allow coal-fired power plants to satisfy ozone transport (OTAG) requirements for reduction of emissions of oxides of nitrogen and also reduce fine particulate matter.* (MET GOAL)

Related FY 2001 Results	**ER 4-1 FY 2002 Targets** (Revised Final)	**ER 4-1 FY 2003 Proposed Targets**
Deliver to EPA 2 years worth of high-quality $PM_{2.5}$ ambient monitoring data from the upper Ohio River Project. (MET GOAL)	*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.*	*Complete short-term field testing of sorbent injection control technology capable of achieving 50-70 percent reduction in mercury emissions at 75 percent the cost of current technology ($30,000 - $70,000 lb. of Hg removed, depending on coal type and other plant-specific factors).*
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. (MET GOAL)		*Make selections from Clean Coal Power Initiative (CCPI) Round 1. Initiate NEPA for all CCPI projects* *Complete National Environmental Policy Act (NEPA) activities for six of eight Power Plant Improvement Initiative (PPII) projects, and initiate detailed design efforts.*

Program Strategic Performance Goal

ER4-2: By 2006, complete demonstration of a fuel-flexible power system capable of meeting sulfur and nitrogen emission standards and with improved thermal efficiency at a scale suitable for further commercial deployment by the power industry, and by 2008, complete development of a fuel-flexible power system capable of achieving 52 percent thermal efficiency.

Performance Indicator: Estimated efficiency of Integrated Gasification Combined Cycle (IGCC) systems based on improvements in subsystems.

Related FY 1999 Results	Related FY 2000 Results
Complete the commercial demonstration of one integrated gasification combined cycle project (Wabash), and continue operations of two other gasification projects in order to establish the engineering foundation leading to new generation of 60 percent efficient, ultraclean coal power plants. (MET GOAL)	*Complete demonstration of the third integrated gasification combined cycle project (Pinion Pine) utilizing air-blown gasification and hot gas cleanup for improved thermal efficiency, and continue operations of one other project (Polk) in order to establish the engineering foundation leading to new generation of 60 percent efficient power plants.* (NEARLY MET GOAL)

Related FY 2001 Results	**ER4-2 FY 2002 Targets** (Revised Final)	**ER4-2 FY 2003 Proposed Targets**
Demonstrate hydrogen and CO_2 separation from syngas to meet the long-term goals of providing low-cost hydrogen for high-efficiency fuel cells, and for providing concentrated CO_2 streams for sequestration. (MET GOAL)	*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.*	*Conduct critical tests of the IGCC transport gasifier in an oxygen-blown mode to prepare the way for testing of Vision 21 technologies for concentrating CO_2; prepare a report of results; and evaluate performance to confirm the feasibility of the technology to significantly improve reliability, cost effectiveness, and improved efficiency compared to existing technologies as a long-term goal (current on-line availability performance of IGCC on coal is 75-80 percent; capital cost is $1,200-$1,300/kW; and thermal efficiency is 38 percent. This program will improve two of these three parameters by at least 2 percent).* *Complete proof-of-concept operation of the transport reactor for high-temperature fuel gas desulfurization for IGCC systems in the NETL Syngas Generator and Gas Process Development Unit at design operating temperatures (>1,000°F) using a commercially available sorbent.*
Complete design and continue construction of Circulating Atmospheric Fluidized Bed demonstration project at Jacksonville, Florida. (MET GOAL)	*Complete construction and start operations of Circulating Atmospheric Fluidized Bed demonstration project at Jacksonville, Florida.*	

Program Strategic Performance Goal

ER4-3: By 2005, complete the development of options that can achieve CO_2 capture/storage at less than a 25 percent increase in the cost-of-electricity (COE). By 2010, achieve a 5 percent increase in the COE.

Performance Indicator: Cost of CO_2 capture/storage versus COE.

Related FY 1999 Results	Related FY 2000 Results
Initiate a coordinated, Department-wide, collaborative, research program to develop lower-cost, environmentally acceptable technology approaches to carbon capture and sequestration. (MET GOAL) *Issue a draft report that identifies key research needs in several aspects of sequestration, and select six concepts to identify promising sequestration options.* (MET GOAL)	*Commence three to four small scale carbon sequestration development projects from those selected in the FY 1998 Novel Concepts solicitation, and initiate feasibility studies for one to two sequestration projects selected under FE's August and September 1999 solicitations.* (MET GOAL)

Related FY 2001 Results	**ER4-3 FY 2002 Targets** (Revised Final)	**ER4-3 FY 2003 Proposed Targets**
		As part of the largest terrestrial sequestration reclamation project in the United States, reforest approximately 1,000 acres of mined land using hardwoods.
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. (MET GOAL)	*Complete the injection of 2,500 tons of CO_2 into a depleting oil reservoir to monitor the transport of CO_2 and verify predictive geologic models on reservoir integrity.*	*Issue a "Best Practices" manual, making initial recommendations on long-term monitoring techniques for use with the storage of CO_2 in geologic settings.*

Program Strategic Performance Goal

ER4-4: By the 2010 time frame, introduce a $400/kW solid-state, modular (i.e. SECA) fuel cell having between 40 to 50 percent fuel-to-electricity efficiency, and introduce optimal SECA fuel cell-miniturbine hybrid systems utilizing natural gas and hydrogen.

Performance Indicator: Estimated cost and efficiency of SECA fuel cells.

Related FY 1999 Results	Related FY 2000 Results
Successfully operate 100 kWe solid oxide fuel cell for 4,000 hours. (MET GOAL)	*Begin testing of first market prototype solid oxide fuel cell for distributed power applications.* (MET GOAL) *In support of Vision 21, complete testing of a 250kw fuel cell/turbine hybrid, and deliver a conceptual design of a one MW fuel cell/turbine hybrid power plant to facilitate market entry.* (NEARLY MET GOAL)

Related FY 2001 Results	**ER4-4 FY 2002 Targets** (Revised Final)	**ER4-4 FY 2003 Proposed Targets**
Begin testing of a 300 kW-1MW solid oxide fuel cell/turbine hybrid commercial prototype for distributed power applications. (MET GOAL) *Begin construction of a one MW Solid Oxide Fuel Cell (SOFC) hybrid.* (BELOW EXPECTATIONS) *Initiate construction of a fixed-bed slagging gasification and fuel cell demonstration project (Kentucky Pioneer Energy Project).* (NEARLY MET GOAL)	*Complete demonstration of a commercial-scale, 250 kW Molten Carbonate Fuel Cell (MCFC) power plant system. 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 6 MW to 50 MW per year.* *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.*	*Validate the high current densities for single cell SECA SOFCs in the 650 - 950 Centigrade temperature range as the initial step necessary to achieve the $400/kW cost target.* *Develop solid oxide fuel cell materials in the laboratory that operate at lower temperatures (700 - 800^{o}C), thereby assuring with sufficient confidence that fuel cell capital costs of $400/kW in 2010 will be achieved.*

Means and Strategies:

The program will continue to promote a strategy in power systems R&D that incorporates a focused and collaborative effort between government and industry to achieve the environmental and economic goals of the technologies. It will continue its dissemination of information and data and build on government-industry partnerships to commercialize clean coal technologies. For carbon sequestration, the program will continue to work with domestic and international partners to complete field experiments on promising options.

Collaboration Activities:

FE will continue to collaborate with the Office of Science, other parts of DOE, and other government agencies, as appropriate, to meet the carbon sequestration program goals. For all activities, FE will also work collaboratively with other government and industry partners, and participate cooperatively with other countries, for example, through the International Energy Agency in the Greenhouse Gas (IEAGHG) R&D Program and the Clean Coal Technology Center. Significant cost-sharing opportunities are possible through existing and new research agreements.

External Factors Affecting Performance:

Program results may be affected by: world prices for competitive feedstocks and energy technologies; new and evolving environmental regulations; or any new legislation, in particular, new legislation related to CO_2 and air pollutants that affect coal and gas use. Also, industry restructuring/deregulation issues and uncertainties will continue to challenge coal use. Program results may be particularly affected by both evolutionary and revolutionary approaches to carbon sequestration.

Validation and Verification:

Data Sources**:**	DOE fact sheets, project reports, and published articles (i.e., technical journals, trade press), FE/NETL program descriptions, NETL project database.
Baselines:	Project reports, EIA Annual Energy Outlook.
Frequency:	Varies by project (monthly, quarterly, semi-annual, annual).
Data Storage:	Fossil Research Energy Database (FRED), project contract files maintained at the NETL. Clean Coal Compendium of Information available at www.lanl.gov/projects/cctc. Carbon Sequestration websites.
Verification:	FE technical review of project reports and peer review of published articles.

Planned Program Evaluation:

The program and projects contained here will be evaluated at the Annual Contractor's Meeting.

GPRA Program Activity: Clean Fuels R&D

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriations		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
270 Energy					
Fossil Energy Research and Development	President's Coal Research Initiative (Coal-Derived Fuels)	FE	23	10	0
	President's Coal Research Initiative (Gas-to-Liquids)	FE	6	5	5
	President's Coal Research Initiative (Ultra-Clean Fuels)	FE	10	17	0
Total			39	32	5

Description of the Program:

Clean Fuels R&D seeks to create mid-to long-term options for producing fuels for transportation and other end-use sectors from alternative domestic resources, such as coal and natural gas. Some specific key program areas include the development of: 1) new ceramic membranes that would separate coal gas, biomass-derived gas, or natural gas into synthesis gas for producing hydrogen or conversion to premium liquid fuels; 2) synthesis gas conversion processes for producing fuels that enable advanced vehicle engine/after-treatment systems to achieve high efficiencies and ultra-low emissions; and, 3) high-value carbon products from coal that can be used in a wide range of industrial applications.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

ER4-5: **By 2007, complete development of a combined advanced air separation unit and partial oxidation membrane in a single compact reactor to provide significantly lower cost syngas and hydrogen from natural gas (25 percent less costly) to produce a variety of end-use transportation fuel products.**

Performance Indicator: Cost of producing syngas and hydrogen from natural gas.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*Complete solicitation for, and selection of, candidate industrial teams for the Early Entrance Co-production Plant (EECP) project in which innovative alternative fuels will be co-produced along with electricity and chemical products.* (MET GOAL)

Related FY 2001 Results	ER4-5 FY 2002 Targets (Revised Final)	ER4-5 FY 2003 Proposed Targets
Complete negotiations with industrial teams selected to implement the Early Entrance Co-production Plant (EECP) projects, and initiate Phase I of the three-phase activity. (MET GOAL) *Complete laboratory evaluation of initial set of hydrogen separation membranes.* (MET GOAL)		
Begin laboratory scale test operations of a novel syngas ceramic membrane reactor to reduce gas-to-liquid fuel conversion costs, and initiate construction of first stage scale-up of the reactor. (MET GOAL)	*Complete laboratory scale test operations of novel ITM-syngas ceramic membrane reactor to reduce gas-to-liquid fuel conversion costs.*	*Demonstrate, in sustained operation at a syngas flow rate of 24,000 cubic feet per day, that an ITM membrane reactor can meet a competitive oxygen separation performance level at greater than 30 percent capital cost savings over conventional syngas production technology.*

Means and Strategies:

The program will continue to develop innovative processes, in partnership with industry and other Government organizations, for the mid-to long-term production of ultra-clean fuels required by the transportation sector and other end-use applications.

The R&D will continue to stress technologies that improve the environment. Specifically, this will be achieved by developing technologies to produce fuels from coal, natural gas and wastes that enable transportation and stationary systems to achieve ultra-low pollutant emissions and significant reductions in greenhouse gases

Collaboration Activities:

Criteria essential to setting performance goals and programmatic content are being obtained through informational exchanges and meetings with the Environmental Protection Agency (EPA), other offices within the Department of Energy, and the Departments of Commerce, Defense, and Transportation.

External Factors Affecting Performance:

Presidential initiatives, such as the recent announcement of the "Freedom Car," which is to be fueled by hydrogen and powered by fuel cells, will influence priorities for long-term R&D. Mid-term R&D emphasis will be shaped primarily by the general requirements for clean liquid fuels and the specific technologies that can make them and reduce their production costs. Program results may also be affected by: world prices for competitive feedstocks and energy technologies; new and evolving environmental regulations; or any new legislation, in particular, related new legislation to CO_2 and air toxics that affect coal use.

Validation and Verification:

Data Sources:	DOE fact sheets, project reports, and published articles (i.e., technical journals, trade press), FE/NETL program descriptions, NETL project database.
Baselines:	Project reports, EIA Annual Energy Outlook.
Frequency:	Varies by project (monthly, quarterly, semi-annual, annual).
Data Storage:	Fossil Research Energy Database (FRED), project contract files maintained at the NETL. Clean Coal Compendium of Information available at www.lanl.gov/projects/cctc.
Verification:	FE technical review of project reports and peer review of published articles.

Planned Program Evaluation:

The program and projects contained described herein will be peer-reviewed through various forums, including formal meetings, workshops and industrial advisory boards.

GPRA Program Activity: Domestic Oil and Gas Supply RD&D

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
270 Energy					
Fossil Energy Research and Development	Oil and Gas Research and Development (Oil Technology)	FE	65	56	35
	Oil and Gas Research and Development (Gas Technology)	FE	44	45	23
Total			109	101	58

Description of the Program:

The Department's Domestic Oil and Gas Supply Program invests program funds in technology projects and in policy and regulatory analyses designed to ensure the availability of competitively-priced oil and natural gas supplies to support a strong U.S. economy, and to maximize the public benefit of the Nation's oil and gas resources. The Program's R&D activities focus on protecting the environment while enhancing the efficiency of domestic oil and natural gas exploration, recovery, processing, transport, and storage operations. Fossil Energy (FE) activities under this program support the following general performance goal that flows from the National Energy Policy and, as appropriate, the Department's Strategic Plan.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

ER5-1 By 2005, demonstrate advanced technologies with potential to reduce exploration and production cost 5 to 10 percent. Develop, for difficult geologic settings, drilling and completion technologies, and higher resolution imaging and diagnostics tools that can reduce costs, increase ultimate recovery, and reduce formation damage.

Performance Indicators: Oil and gas exploration and production costs relative to costs for currently available tec+hnology in comparable geologic settings.

Related FY 1999 Results	Related FY 2000 Results
Demonstrate four advanced production enhancement technologies that could ultimately add 190 million barrels of domestic reserves, including 30 million barrels during FY 1999. (EXCEEDED GOAL)	*Complete demonstration and transfer of seven advanced secondary and tertiary technologies, adding 92 million barrels of reserves, increasing the number of economic wells and reducing abandonment rates.* (MET GOAL)
Complete an online environmental compliance expert system, developed in cooperation with States, that will improve oil and gas production economics by giving producers on-line access to Federal and State rules and regulations, and allowing them to conduct environmental permitting and reporting over the Internet, reducing time and costs related to environmental compliance. (NEARLY MET GOAL)	*Complete field testing and monitoring of two technologies for downhole separation of oil and water, resulting in reduction in produced water and potential increase in oil production per well.* (NEARLY MET GOAL)
Complete development of one Advanced Drilling, Completion & Stimulation technology system that could contribute to an additional 6 trillion cubic feet (TCF) of domestic gas reserves by 2010. (MET GOAL)	*Demonstrate a cost-effective horizontal well and advanced exploration and stimulation technologies in low permeability natural gas formations for increasing recovery of the 5,000+ TCF of gas in place in the Greater Green River and Wind River Basins.* (NEARLY MET GOAL) *Identify a site containing gas hydrates suitable for testing the feasibility of methane recovery.* (MET GOAL)

Related FY 2001 Results	**ER5-1 FY 2002 Targets** (Revised Final)	**ER5-1 FY 2003 Proposed Targets**
Complete 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 by over 2.4 billion barrels of oil. (NEARLY MET GOAL)		*Complete development of a basin model for the Wind River Basin that will assist operators in identifying high production zones and help them avoid areas of high potential water production*
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. (BELOW EXPECTATIONS)	*Demonstrate safe economic slimhole drilling technology in actual use under Arctic conditions. This technology can significantly reduce cost and environmental impacts.*	*Drill and evaluate production potential of the approximate 600 ft. thick hydrate stability zone in a northern Alaska well. The field data from this well will be used to assess the viability of producing gas from North Slope hydrates.*
Quantify a hydrate deposit by correlating core samples with geophysical and well log data. (MET GOAL)	*Complete laboratory testing and begin field demonstrations of an improved remedial technology for storage wells.* *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.* *Demonstrate a small-diameter, light-weight composite drill pipe for ultra-short radius drilling.*	*Complete the development of an improved exploration and development methodology utilizing an intelligent computing system. When compared with using conventional techniques this methodology will increase the success rate for new exploration test wells in the Williston Basin study area by 50 percent.* *Complete the development and demonstration of Composite Drill Pipe (CDP) that will weigh less than half of its steel counterpart, increase the lateral distance that can be reached from an offshore drilling platform, and increase drilling depth.*

Means and Strategies:

- Protect the environment through enhanced design and efficiency of domestic oil and natural gas exploration, recovery, processing, transport, and storage operations;
- Focus on technology paths that private companies cannot risk undertaking alone;
- Provide scientific and technological information and analysis to assist policymakers in their decision-making; and,
- Optimize environmental protection by contributing to science-based improvements in regulations that reduce uncertainties and costs.

The above strategies are achieved through activities such as the following:
– Increasing recovery through lower cost drilling, wellbore improvements, and improved stimulation technology;
– Improving geoscience technologies to locate and measure oil and gas within reservoirs;
– Extending the life of mature oil and gas fields and reducing well abandonment;
– Improving technologies for enhanced oil recovery processes;
– Minimizing potential environmental damage from oil and gas operations;
– Advancing technologies for refining lower quality crude and reducing process related emissions;
– Upgrading low-quality gas and converting remote and offshore gas-to-liquid transportation fuels; and,
– Modeling estimates of potential economic recovery of domestic oil and gas through a range of technologies, economic criteria, and legislative and regulatory scenarios.

Collaboration Activities:

- Perform R&D activities in partnership with universities, State and local governments, industry, and other stakeholders;
- Use cost-share projects and diverse technology paths to improve chances of success, and to create a direct technology transfer component;
- Seek synergy of the capabilities of multiple governmental agencies and industry, including the unique capabilities of National Laboratories;
- Collaborate with other agencies to effectively promulgate domestic production technologies;
- Invest jointly with other groups in promising technologies for target resource areas;
- Conduct, with input from National Laboratories; field demonstrations in collaboration with industry, academia, and others; and
- Transfer technologies in cooperation with State and industry organizations, including the Petroleum Technology Transfer Council (PTTC).

External Factors Affecting Performance:

World oil prices, corporate mergers and acquisitions, issues related to access to public lands, and new and evolving environmental legislation and regulation may affect program results.

Validation and Verification:

Data Sources:	DOE fact sheets, FE/NETL website, FE/NETL program descriptions and results, data bank, NETL project database, project reports, DOI onshore and offshore oil and gas data, and published articles (e.g., technical journals, trade press).
Baselines:	Project reports. 1995 National Assessment of United States Oil and Gas Resources, U.S. Geological Survey. DDS 35. EIA's Annual Energy Outlook.
Frequency:	Varies by project (quarterly, semi-annual, annual).
Data Storage:	Project contract files and resource oil and gas databases maintained at NETL.
Verification:	FE/NETL technical review of project reports and peer review of published articles is monitored as a validation of industry commitment to market application of the R&D portfolio.

Planned Program Evaluation:

The Office of Natural Gas and Petroleum Technology annually performs an internal review of the R&D portfolio as an integral part of annual budget preparation. Projects are evaluated periodically at Contractor Review Conferences, and as part of road-mapping workshops to determine R&D gaps. NETL project managers individually monitor projects with status and major milestone reporting documented in a NETL project database. NETL in-house R&D projects are peer reviewed by external experts from academia and industry. At this time, FE is working with other DOE organizations to develop specific metrics that are applicable to better quantifying and valuing R&D results.

GPRA Program Activity: FE R&D Crosscutting and Special Activities

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriations		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
270 Energy					
Fossil Energy Research and Development	Program Direction and Management Support	FE	84	90	90
	Plant and Capital Equipment	FE	4	13	2
	Environmental Restoration	FE	10	10	10
	Cooperative Research and Development	FE	8	8	6
	Fuels Programs (Import/Export Authorization)	FE	2	2	3
	Advanced Metallurgical Research	FE	5	5	5
	Great Plains Project Trust (Alternative Fuels Production) (Interest)	FE	(1)	(2)	0
Total			112	126	115

Description of the Program:

This GPRA Program Activity includes items that are in the overall FE R&D area, but are not part of the main FE R&D business lines. In particular:

- Program Direction and Management Support provides funding for salaries, benefits and overhead expenses for management of the FE program at Headquarters, the Federal Energy Technology Center, and the National Petroleum Technology Office.
- Environmental Restoration funds activities to ensure protection of workers, the public, and the environment in performing the FE mission at FE field facilities.
- Cooperative R&D funds collaborative strategic research at two former FE facilities.
- The Fuels Program includes management of the regulatory review of natural gas imports and exports, exports of electricity, and the construction and operation of electricity lines that cross U.S. international borders.
- Advanced Metallurgical Research carries out research concerning the extraction, processing, use and disposal of mineral substances at the Albany Research Center in Oregon. These funds primarily support the salaries and benefits of the Federal staff that manage FE programs or are relatively small, special activities in FE. Therefore, this group of budget lines does not have performance goals that meet the criteria for inclusion in this plan.

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GPRA Program Activity: Petroleum Reserves

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriations		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
270 Energy					
Strategic Petroleum Reserve (SPR)	Storage Facilities Operations and Management	FE	158	172	170
Northeast Home Heating Oil Program		FE	8	8	8
SPR Petroleum Account		FE	(16)	0	11
Naval Petroleum and Oil Shale Reserves		FE	2	18	21
Elk Hills School Land Fund		FE	36	36	72
Total			187	234	282

Description of the Program:

Petroleum Reserves includes the Strategic Petroleum Reserve (SPR), the Northeast Home Heating Oil Reserve, and the Naval Petroleum and Oil Shale Reserves (NPOSR). The SPR ensures and maintains the readiness capability to draw down and distribute crude oil from the SPR inventory to commercial distribution systems in order to protect the domestic U.S. economy from the impact of energy supply disruptions. SPR executes U.S. obligations to act cooperatively with member nations of the International Energy Agency (IEA) to deter or respond to supply disruptions, which would adversely affect member nations. The NPOSR, following the February 1998 sale to the private sector of Elk Hills, its primary asset, continues to manage, operate, maintain, and produce three properties remaining under its jurisdiction. The program is relatively small, and no performance goals are included in the Annual Performance Plan. Also included is the Elk Hills School Lands Fund, which was established to settle certain Elk Hills related land claims with the State of California.

The Energy Policy Act of 2000 (Public Law 106-469), signed on November 9, 2000, authorizes the Secretary of Energy "to establish, maintain, and operate a Northeast Home Heating Oil Reserve containing no more than two million barrels of petroleum distillate." On March 6, 2001, Secretary Spencer Abraham announced the permanent establishment of the Reserve, separate from the Strategic Petroleum Reserve.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

ER6-1 Maintain an effective Strategic Petroleum Reserve (SPR) to deter and respond to oil supply disruptions and cooperate with the importing member nations of the International Energy Agency. Ensure achievement of a calculated site availability of 95 percent or greater with drawdown capability of 4.4 million barrels per day* for a sustained 90 day period, within 15 days notice by the President. Maintain the Northeast Home Heating Oil Reserve to respond to and mitigate the regional effects of a severe short-term energy supply disruption in the Northeast. Ensure the capability to complete drawdown within 12 days of a Presidential notice.

* Rate is achieved when 700 million barrels of oil are in inventory.

Performance Indicators:

- Drawdown Rate (90 Day Sustainable Drawdown Rate).
- SPR Site Availability (calculated).
- Response Time (Number of Days) to Commence SPR Crude Oil Drawdown and to Complete Heating Oil Reserve Drawdown.

Related FY 1999 Results	Related FY 2000 Results
Initiate additional SPR infrastructure Life Extension Program projects, thereby bringing program implementation to approximately 96 percent of the $328 million program. Program completion in FY 2000 will increase sustained drawdown capability to 4.1 million barrels per day, compared to 3.7 in FY 1997. (MET GOAL)	*Complete contracting for the transfer and/or exchange of 28 million barrels of Federal Royalty Oil from the Department of the Interior for a net increase of approximately 23 million barrels in the SPR inventory, with deliveries of a remaining four million barrels in FY 2001.* (MET GOAL) *Complete the Life Extension Program to ensure the long-term reliability, effectiveness, and operational readiness of SPR facilities and systems.* (MET GOAL) *Ensure the achievement of a calculated site availability of 95 percent or greater with drawdown capability of 4.1 million barrels per day for a sustained 90-day period within 15 days notice by the President.* (MET GOAL)

Related FY 2001 Results	ER6-1 FY 2002 Targets (Revised Final)	ER6-1 FY 2003 Proposed Targets
Establish a Northeast Heating Oil Reserve of up to two million barrels. (MET GOAL) *Complete the transfer of Federal Royalty Oil to the SPR by November 2000 per the FY 1999 Agreement with the Department of Interior.* (MET GOAL)	*Continue the delivery of exchanged Federal Royalty Oil to the SPR that was transferred to DOE in FY1999-2001, per the FY 1999 Agreement with the Department of Interior. Approximately 11 million barrels will be added to SPR inventory in FY 2002.* *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.*	*Complete the delivery of all exchanged oil due to the SPR from the oil exchange during 1999-2000.* *By the end of FY 2003, add 30.6 million barrels of Federal Royalty Oil to the SPR inventory for a total of 39.8 million barrels cumulative from April 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.	*Complete the degas plant design by October 1, 2002. A Degas Plant is a vapor pressure system for the continuous removal of excess gas from the SPR crude oil inventory.*

Means and Strategies:

SPR will continue its mission to maintain the operational readiness of the SPR facilities to drawdown oil within 15 days of notice by the President at set performance levels. Assurance of this readiness posture will be accomplished through internal readiness reviews, assessments, exercises, and tests. Effectiveness of the SPR to mitigate the economic damage of severe oil supply disruptions on the economy will be influenced by the SPR's size (inventory and capacity) and ability to deliver into the marketplace. The Department has attempted several strategies over the years (e.g., direct purchase, oil exchanges, and storage service agreements with public, private and foreign entities) to acquire oil to complete the SPR fill. FY 1999 and FY 2002 Departmental agreements with the Department of Interior provide for the use of Federal Royalty Oil to fill the SPR to its 700 million barrel capacity with completion of deliveries, under the FY 2002 agreement, in FY 2006.

Continual monitoring of the SPR's crude inventory for geothermal heating and gas intrusion has indicated the necessity for initiating the investment in FY 2002 of vapor pressure (degas) control systems for continuous removal of excess gas from the SPR crude oil inventory. Commencement of full degas plant operations will be in FY 2004. SPR will continue to manage the Northeast Home Heating Reserve and assure readiness to complete drawdown of the Reserve within 12 days of a Presidential decision.

Collaboration Activities:

DOE coordinates its activities for the SPR with the White House working group on the SPR, and the Departments of the Interior, and Treasury, as a member of the Interagency Working Group on Oil and Gas. Acquisition of oil through Federal royalty-in-kind oil leases is being coordinated with the Department of Interior's Minerals Management Service. The Defense Contract Management Administration (DCMA) conducts quality and inventory control review for heating oil, stored in DOE's Northeast Home Heating Oil Reserve.

External Factors Affecting Performance:

Performance can be affected by petroleum market conditions and developments in the commercial distribution system (i.e., pipelines, and terminals). Continuing royalty-in-kind transfers during FY 2002 and beyond, in addition to those per the FY 1999 agreement, will be contingent on annual delivery targets negotiated with the Department of the Interior. Performance of the Home Heating Oil Reserve's distribution can be affected by pipeline and transportation ability in the Northeast.

Validation and Verification:

Data Sources:	Operations status reports, project assessment reports, and project and program reviews. Energy Information Administration (EIA) oil industry databases. DCMA reports on Heating Oil Reserve inventory.
Baselines:	Technical project baselines, Operational Readiness performance criteria, SPR Annual Performance Plan, contractor annual operating and work authorization plans, budget baselines, and Northeast Home Heating Oil Reserve Plan.
Frequency:	Daily operational status reports, monthly project reviews and quarterly program reviews. Annual and monthly EIA data sources. Monthly DCMA inventory reports.
Data Storage:	Operations and facilities management data is maintained at the SPR field office. This includes project assessment and M&O contractor performance data. Program policy analysis and initiatives, legislative guidance, and oil industry research data is maintained at the Headquarters SPR Program Office.
Verification:	Combination of daily field and Headquarters staff interaction, monthly and quarterly reporting/reviews, and online access to performance data provides a continuous means throughout the fiscal year to verify and validate performance data.

Planned Program Evaluation:

Monthly project reviews and quarterly program reviews, conducted by Federal and contractor personnel of the SPR, provide an important means for evaluating progress against program plans like the SPR Annual Performance Plan and scheduled project management reviews. Budget formulation/execution assessments are regularly conducted throughout the year, including annual budget validations. Other evaluations include: semiannual M&O contractor award fee performance assessments against Work Authorization Directives; on-site reviews each year to verify operational, maintenance and management performance data; and Drawdown Readiness quarterly reviews.

GPRA Program Activity: Nuclear Energy R&D

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriations		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
270 Energy					
Energy Supply	Nuclear Energy Research and Development	NE	49	53	72
	Nuclear Energy Research and Development (Spent Fuel Pyroprocessing and Transmutation)	NE	69	77	18
Total			118	130	89

Description of the Program:

Our Nation's investments in nuclear energy R&D are made in response to the benefits that are now routinely expected by the public, and in anticipation of those new benefits that are likely to accrue. Currently, emission-free nuclear power plants produce 20 percent of our Nation's electricity. The *National Energy Policy* calls for the expansion of nuclear energy in the United States. In support of this goal, the Department's nuclear energy R&D programs address improving the performance of the Nation's current operating nuclear power plants, addressing the key technical issues impacting the expanded use of nuclear energy, deploying new nuclear plants by 2010, and developing advanced reactor and fuel cycle concepts. Nuclear Energy's R&D is conducted under the following programs: Nuclear Energy Plant Optimization; Nuclear Energy Research Initiative; Nuclear Energy Technologies; Advanced Nuclear Medicine Initiative; and Spent Fuel Pyroprocessing and Transmutation.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

ER7-1 Effectively address the key issues of economics, proliferation, and waste management that affect the future use of nuclear energy by conducting long-term, investigator-initiated, peer-reviewed research and development.

Performance Indicator: Percent of stated NERI objectives achieved - progress and advancement in NERI research evidenced by achievement of at least 75 percent of the stated NERI research project objectives, and by the selection of concepts for continued development that have a high potential for commercialization.

Related FY 1999 Results	Related FY 2000 Results
Establish a peer-reviewed Nuclear Energy Research Initiative, initially funded at $19 million, to select and conduct investigator-initiated innovative scientific and engineering research that will address the issues facing the future of nuclear power in the U.S., including proliferation concerns, economics, and the management of nuclear waste. (MET GOAL)	*Continue Nuclear Energy Research Initiative (NERI) research to improve the understanding of new reactor and fuel cycle concepts and nuclear waste management technologies, and begin to develop a preliminary feasibility assessment of the concepts and technologies.* (MET GOAL) *Advance the state of scientific knowledge and technology to enable incorporation of improved proliferation resistance, safety, and economics in the potential future design, and development of advanced reactor and nuclear fuel systems.* (MET GOAL)

Related FY 2001 Results	**ER7-1 FY 2002 Targets** (Revised Final)	**ER7-1 FY 2003 Proposed Targets**
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. (MET GOAL)	*Complete the first 3-year phase of NERI research and development.* *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.* *Award at least six International NERI bilateral cost-shared research projects with three countries.*	*Complete the ten NERI R&D projects initiated in FY 2000; complete funding for the 13 NERI projects initiated in FY 2001; and provide funding for 16 projects initiated in FY 2002.* *Expand International NERI program participation to five countries and organizations.*
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. (MET GOAL)		

Program Strategic Performance Goal

ER7-2 Contribute to the resolution of nuclear power plant issues in the four critical R&D areas related to long-term plant aging, and the development of advanced technologies in three critical R&D areas to improve plant reliability, availability, and productivity to ensure that current plants can continue to operate up to and beyond their initial license period.

Performance Indicator: No performance indicator has been established for this goal.

Related FY 1999 Results	Related FY 2000 Results
Complete Memoranda of Understanding with the Nuclear Regulatory Commission and the Electric Power Research Institute (IEPRI) to guide future implementation of the Joint DOE-EPRI Strategic Research and Development Plan to Optimize U.S. Nuclear Power Plants. (MET GOAL)	*Issue the first update to the Joint DOE/EPRI Strategic Research and Development Plan to Optimize U.S. Nuclear Power Plants.* (MET GOAL) *Implement a cooperative cost-shared R&D program by working with industry, universities, national laboratories, and the Nuclear Regulatory Commission to address technical issues that could impact continued operation of current nuclear power plants.* (MET GOAL)

Related FY 2001 Results	**ER7-2 FY 2002 Targets** (Revised Final)	**ER7-2 FY 2003 Proposed Targets**
The following additional results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to prior year APP target. Completed four projects, continued 10 projects initiated in FY 2000, and initiated eight new projects to conduct R&D activities associated with managing long-term effects of plant aging and improving electricity generation.	*Complete five projects initiated in prior years associated with managing long-term effects of plant aging and improving electricity generation.*	*Using prior-year appropriations, complete six projects initiated in prior years associated with managing long-term effects of plant aging and improving electricity generation.*

Program Strategic Performance Goal

ER7-3 Successfully address the regulatory, technical, and institutional issues to enable one or more orders for new, commercial nuclear power plants in the United States by 2005 for deployment by 2010.

Performance Indicator: Progress will be measured by the demonstration of untested regulatory and licensing processes for the siting and construction of a nuclear power plant, and by getting a private sector order for a new commercial nuclear power plant in the United States by 2005.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*There were no related targets.*

Related FY 2001 Results	**ER7-3 FY 2002 Targets** (Revised Final)	**ER7-3 FY 2003 Proposed Targets**
There were no related targets.	*Complete and issue the government/industry roadmap to build new nuclear plants in the United States by 2010.* *Complete at least two cooperative agreements with U.S. power generating companies to jointly proceed, with at least two NRC Early Site Permit applications for specific DOE and/or commercial sites.* *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.*	*Complete the design and assembly of a gas-reactor fuel test vehicle, install it in the Advanced Test Reactor at Idaho National Engineering and Environmental Laboratory, and conduct irradiation tests to support development of the technical and licensing basis to deploy an advanced gas-cooled reactor for new nuclear generation capacity by the end of the decade.* *Complete cooperative agreements with at least two U.S. power generating companies to jointly proceed with NRC construction/operating license applications.*

Program Strategic Performance Goal

ER7-4 Develop, in close cooperation with the international community and industry, one to three next-generation nuclear energy systems that represent significant improvements in all aspects of nuclear power technology.

Performance Indicators:

- Number of systems selected with potential for meeting Generation IV technology goal.
- Number of R&D partnerships established with other countries for each selected system.

(NE plans to select six to eight systems in FY 2003 with the highest potential for meeting Generation IV technology goals, establish R&D partnerships with at least one country for each selected system in FY 2003, down select to one to three systems in FY 2007 for continuing R&D consistent with the outcome of the completed research and studies, and establish public-private partnerships on the one to three nuclear systems that generate private-sector interest in FY 2012).

Related FY 1999 Results	Related FY 2000 Results
There were no related targets .	*There were no related targets.*

Related FY 2001 Results	**ER7-4 FY 2002 Targets** (Revised Final)	**ER7-4 FY 2003 Proposed Targets**
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. (MET GOAL)	*Complete the draft Generation IV Technology Roadmap for development of the next generation nuclear energy systems.*	*Issue the Generation IV Technology Roadmap to develop the most promising next generation nuclear energy system concept and initiate, in collaboration with other countries, the required R&D.*

Program Strategic Performance Goal

ER7-5 Support advanced medical research in order to develop an isotope-based treatment to address all forms of cancer by the end of the decade.

Performance Indicators: No performance indicator has been established for this goal.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets	*Implement the Advanced Nuclear Medicine Initiative by providing isotopes or financial assistance for at least five researchers.* (EXCEEDED GOAL)

Related FY 2001 Results	**ER7-5 FY 2002 Targets** (Revised Final)	**ER7-5 FY 2003 Proposed Targets**
Provide five grants under the Advanced Nuclear Medicine Initiative. (MET GOAL)	*Complete two, and based on the technical merits of the grants, approve the continuation of 12 research and curriculum development awards funded by 3-year Advanced Nuclear Medicine Initiative grants to universities, hospitals and research institutions.*	*Complete 12 research and curriculum development awards funded by 3-year Advanced Nuclear Medicine Initiative grants to universities, hospitals and research institutions.*

Program Strategic Performance Goal

ER7-7 Develop and demonstrate an advanced, proliferation-resistant technology to reduce the quantity and toxicity of U.S. commercial spent nuclear fuel (thus enhancing the operation of a future geologic repository) while simultaneously enabling the United States to vastly increase the efficient use of its nuclear fuel resources.

Performance Indicator: Program milestones achieved.

Related FY 1999 Results	Related FY 2000 Results
Complete the demonstration of the electrometallurgical spent fuel treatment technology by the end of FY 1999 using Experimental Breeder Reactor-II (EBR)-II) spent nuclear fuel. (MET GOAL) *Complete the conversion and disposition of 100 percent of the secondary sodium coolant from EBR-II, and 40 percent of the Fermi reactor sodium coolant in storage at Argonne National Laboratory-West. (ANL-W)* (NEARLY MET GOAL)	*Complete the conversion and disposition of 100 percent of the secondary sodium coolant from EBR-II, and 40 percent of the Fermi reactor sodium coolant in storage at ANL-W.* (MET GOAL) *Initiate draining sodium from the EBR-II primary system and processing it for disposal.* (MET GOAL) *Depending upon the conclusion of the NEPA analysis currently underway, complete Fuel Conditioning Facility maintenance and resume sodium-bonded fuel treatment activities.* (MET GOAL) The following additional results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to prior year APP target. Established a science and engineering based research program into Accelerator Transmutation of Waste (ATW) technology development. Commenced systems studies to establish and evaluate technology options and narrow choices. Issue a Program Plan for the conduct and management of the ATW research program.

Related FY 2001 Results	ER7-7 FY 2002 Targets (Revised Final)	ER7-7 FY 2003 Proposed Targets
Complete the conversion and disposition of 100 percent of the Fermi reactor sodium coolant in storage at ANL-W. (EXCEEDED GOAL)	*Following completion of primary sodium drain, complete deactivation of EBR-II and all directly related surplus facilities by March 2002.*	
Complete draining the EBR-II primary system and process 100 percent of all EBR-II sodium in compliance with the INEEL Site Treatment Plan. (MET GOAL)		
Treat a minimum of 0.5 metric tons of heavy metals (MTHM) of EBR-II spent nuclear fuel. (MET GOAL)	*Treat a minimum of 0.5 MTHM of EBR-II spent nuclear fuel.*	*Treat a minimum of 0.5 MTHM of EBR-II spent nuclear fuel.*
Establish 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. (MET GOAL)	*Demonstrate the separation of highly radioactive isotopes from civilian spent nuclear fuel from uranium with the uranium cleaned up to 99.999 percent pure (Class C waste), using the newly developed UREX process.*	*Complete first laboratory scale oxide reduction pyroprocessing of irradiated oxide fuel.*
Establish a new Advanced Accelerator Applications university fellowship program, and fund 10 new graduate students in engineering and science. (MET GOAL)	*Successfully manufacture advanced transmutation non-fertile fuels and testing containers for irradiation testing in the Advanced Test Reactor.*	
	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.	

Means and Strategies:

The NEPO program has supported a key national objective by conducting the necessary R&D; on a cost-shared basis with industry, to ensure that most of the current fleet of 103 operating commercial nuclear reactors are available beyond their initial 40 year license period by resolving open issues related to plant aging, and by applying new technologies to improve plant reliability, availability, and productivity. The NERAC Subcommittee on Operating Nuclear Power Plant Research, Coordination, and Planning provides oversight. The projects for the NEPO program are conducted at industrial companies, national laboratories, and universities. While the Department continues to support the objectives of the NEPO program, no funding is requested for FY 2003. Projects will be completed in FY 2003 using prior year funds.

The NERI program has been the cornerstone for renewed interest in nuclear science and technology development in this country since its introduction in FY 1999. In FY 2003, the Department will continue to conduct investigator-initiated, peer-reviewed research and development at universities, industrial companies, and national laboratories to address the principal obstacles to the expanded use of nuclear energy (i.e., cost, safety, waste, and non-proliferation), advance the state of nuclear technology for a competitive marketplace, and help maintain a nuclear science and technology infrastructure to meet future challenges. NERI has helped return the United States to a key leadership role in the international exploration of nuclear technology, prompting the interest and support of many other nations, and leading to expanded research and development collaboration.

During FY 2003, the Department will continue the bilateral cost-shared research in cooperation with other nations initiated in FY 2001and FY 2002. These cooperative projects are focused on scientific research, and advanced technology development to improve the cost and enhance the safety, proliferation resistance, and waste management of advanced nuclear energy systems. The NERAC Subcommittee on Long-Range Planning provides advice on the conduct of the NERI research and development program for Nuclear Energy Research.

The Nuclear Power 2010 Program is a joint government/industry cost-shared program to develop advanced reactor technologies and demonstrate new regulatory processes leading to the initiation of private sector construction of new nuclear power plants in the United States in 2005, and operation by 2010.

In early FY 2002, a Near-Term Deployment Working Group, operating under the direction of the Department's Nuclear Energy Research Advisory Committee, issued "*A Roadmap to Deploy New Nuclear Power Plants in the United States by 2010,"* which recommends actions to be taken by industry and the Department to support deployment of new advanced nuclear power plants in the United States by 2010. The recommendations of the near-term deployment roadmap, which have broad industry support, provide the basis for the activities of the Nuclear Power 2010 program. The Department will continue its cost-shared Early Site Permit demonstration project initiated with industry in FY 2002. In FY 2003, the Department will initiate the Reactor Technology Development and Combined Construction and Operating License (COL) demonstration projects. The Reactor Technology Development project will result in the design certification of one advanced light water reactor and one advanced gas-cooled reactor. The COL demonstration project will result in the private sector submission of an application for construction of a new nuclear power plant in the U.S. in 2005. These projects will also be cost-shared with industrial teams led by nuclear utilities or power generating companies.

The goal of the Generation IV Nuclear Energy Systems Initiative is to make nuclear energy, no later than 2030, the most sustainable, cost-competitive, reliable, and secure means of generating electricity that advanced nuclear technology and prior experience can produce. The goals defined for this program focus not only on the traditional goals of safety and cost-competitiveness, but of equal importance, on the fuel cycle and overall systems aspects that make nuclear energy sustainable in terms of the consumption of fuel and structural materials, and its ultimate radioactive waste products. The Generation IV Technology Roadmap, initiated in FY 2001 and planned for completion and submission to Congress by March 2003, will provide a comprehensive R&D plan to close existing technology gaps and permit the design and construction of Generation IV nuclear power systems.

In FY 2003, the Department has consolidated the Nuclear Facilities Management program with the Advanced Accelerator Applications (AAA) program and formed one focused research and development program titled, "Spent Fuel Pyroprocessing and Transmutation (SFP/T)." In FY 2002 through FY 2003, experienced personnel, facilities, and equipment that were being used for electrometallurgical treatment technology will be redirected to the research and development activities required to support the SFP/T program. The

Department will resolve spent nuclear fuel disposition problems by applying electrometallurgical treatment in accordance with the National Environmental Policy Act reviews and Record of Decision for the disposition of DOE sodium-bonded spent nuclear fuel.

In FY 2002, the Department will 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.

Collaboration Activities:

The NERI program encourages research and development collaboration among scientific and engineering researchers at universities, national laboratories and industry to maximize the use of available talent. In addition, the NERI program endorses foreign participation by international nuclear energy research organizations with U. S. participants to help maintain the nuclear option worldwide, and to leverage research funds.

The Department and the Nuclear Regulatory Commission (NRC) coordinate program planning to assure that their research and development activities are complimentary, cost-effective, and without duplication. On the Nuclear Power 2010 Program, the Department is working with the NRC and industry to establish a regulatory framework for advanced gas-cooled reactors by identification of technical issues and research needs. The Department, working with industry, is proceeding on a cost-shared basis to conduct demonstrations of NRC's Early Site Permit process. Arrangements will also be made with industry to demonstrate NRC's combined Construction and Operating License process, and to proceed with certification of advanced light water and advanced gas-cooled reactor designs.

The Department sponsors innovative research and development in cooperation with other countries through the International Nuclear Energy Research Initiative (I-NERI), focused on advanced technologies to improve the cost and enhance the safety, proliferation resistance and waste management of nuclear energy systems. This research is conducted on at least a 50-50 cost-shared basis with international partners.

In FY 2002, the Department will continue to emphasize joint collaborative activities in spent fuel recycling research, design, development, and demonstration. Considerable expertise has been developed overseas on these technologies, and the potential for significant cooperation and collaboration is very high. The Department has already held discussions with several potential international partners with expertise in areas of interest to the program, and for which focused cooperative programs would allow the U.S. and partnering countries to achieve their technology goals.

External Factors Affecting Performance:

The I-NERI and the Generation IV Nuclear Energy Systems Initiative, including development of the Generation IV Technology Roadmap, are receiving broad international cooperation and support, consistent with the objectives of the programs. The Nuclear Power 2010 Program requires close cooperation with and substantial cost sharing by industry. National energy policy influences all of the research and development programs covered in this performance plan.

If sufficient progress is not demonstrated toward meeting both near-term and long-term environmental commitments for the treatment and disposal of highly radioactive waste, and EBR-II spent nuclear fuel stored at the ANL-W site, the Department's ability to conduct and complete programmatic activities such as the above and the EBR-II Shutdown project could be severely restricted by the State of Idaho. A 1995 Settlement Agreement and Consent Order signed by the DOE and the State of Idaho and the Idaho National Engineering and Environmental Laboratory (INEEL) Site Treatment Plan Consent Order contain DOE waste and environmental commitments that are enforceable by the State of Idaho. Additionally, the Resource Conservation and Recovery Act and other State of Idaho permits that are requisite for ANL-W site operations are contingent upon acceptable progress by DOE in meeting the above commitments, and can be withdrawn or not renewed by the State, if performance is unsatisfactory.

Validation and Verification:

Data Sources:	Monthly and quarterly progress reports, periodic technical reports; quarterly, semiannual, and annual reviews.
Baselines:	Technical and financial baselines are specified in project plans and contracts.
Frequency:	Data is collected periodically on a monthly basis for some programs and quarterly and semiannually for others.
Data Storage:	The headquarters and field organization managing the project maintain the data on technical progress.
Verification:	Independent technical expert reviews, or peer reviews of technical reports and perfomance, are conducted.

Planned Program Evaluation:

Periodic NE and external reviews evaluate progress against established plans. These reviews provide an opportunity to verify and validate performance. Monthly, quarterly, semiannual and annual reviews consistent with specific program management plans are held to ensure technical progress, cost and schedule adherence, and responsiveness to program requirements.

The NERAC Subcommittee evaluates NERI for Long-Term R&D. NERI projects require quarterly and annual progress reports from the principal investigators, which are reviewed for research progress against stated goals and milestones. In addition, periodic project evaluations are conducted in which principal investigators present to NE the results of research progress to date, discuss issues encountered and planned activities. I-NERI is in the program development stage, but will include progress evaluations similar to NERI and oversight provided by a bilateral committee of NE and members from the participating countries.

Nuclear Power 2010, in addition to the continual review and oversight by NE, also receives oversight by NERAC. Additional evaluation measures will also be established with the cooperating and cost-sharing utility and other organizations.

The Generation IV Technology Roadmap project plan provides for a number of intermediate deliverables, culminating in a complete roadmap by March 2003. NE as well as NERAC and the NERAC Subcommittee on Generation IV Technology Planning will periodically review the products and progress of the Roadmap effort.

The Generation IV International Forum (GIF), made up of representation from member countries, provides guidance to the execution of the Roadmap project in meetings of the GIF Policy and Experts Groups. The Spent Fuel Pyroprocessing and Transmutation program staff discusses progress against established plans at periodic televideo conferences and on-site program review meetings with field office and contractor representatives. For activities at ANL–W, these conferences will include the Chicago Operations Office Group responsible for ANL and ANL– W staff. In addition, semiannual and annual program reviews are held to verify and validate the performance data. Finally, the Chicago Operations Office Group located at the ANL–W site meets frequently with State of Idaho regulators to review progress against prescribed commitments in State permits, Consent Orders, and the 1995 Settlement Agreement.

GPRA Program Activity: Nuclear Energy Educational Infrastructure

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriations		FY 2003 Request ($M
			FY 2001 ($M)	FY 2002 ($M)	
270 Energy					
Energy Supply	Nuclear Energy Research and Development (University Reactor Fuel Assistance and Support)	NE	12	18	18

Description of the Program:

To retain the capability in the U.S. to conduct research, address pressing environmental challenges, and preserve the nuclear energy option, DOE must work with U.S. university nuclear engineering programs to maintain the education and training infrastructure necessary to develop the next generation of nuclear scientists and engineers. The University Reactor Fuel Assistance and Support program provides funding for U.S. university nuclear engineering programs and university research reactors, which play a critical role in providing this education and training. While the number of nuclear engineering programs and research reactors in the United States has declined precipitously during the 1980s and 1990s, the Nation's need for nuclear engineers and nuclear trained personnel is on the rise due to the excellent job market, the lack of large numbers of recent nuclear engineering graduates, and the increasing number of retirements in the nuclear field. Demand for nuclear engineers now exceeds supply.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

ER7-6 Enable United States universities to continue to produce highly trained nuclear engineers and scientists to supply the Nation's energy, environmental, health care, and national security needs by increasing overall enrollment by 3 percent per year over the next 5 years.

Performance Indicators: Increased undergraduate and graduate enrollments in nuclear engineering.

Related FY 1999 Results	Related FY 2000 Results
Support U.S. universities' nuclear energy research and education capabilities by: - *Providing fresh fuel to all university reactors requiring this service;* - *Funding at least 20 universities with research reactors for reactor upgrades and improvements;* - *Partnering with 19 or more private companies to fund DOE/Industry Matching Grants Program for universities; and* - *Increasing the funding for Reactor Sharing by 40 percent over FY 1998, enabling each of the 26 schools involved in the program to improve the use of their reactors for teaching, training, and education within the surrounding community.* (MET GOAL)	*Support U.S. universities' nuclear energy research and education capabilities by:* - *Providing fresh fuel to all university reactors requiring this service;* - *Providing funding for reactor upgrades and improvements at least 23 universities;* - *Partnering with 17 or more private companies to fund DOE/Industry Matching Grants Programs for universities; and* - *Increasing the funding for Reactor Sharing by 20 percent over FY 1998, 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.* (EXCEEDED GOAL)
Attract outstanding U.S students to pursue nuclear engineering degrees by: - *Increasing the number of fellowships from 14 to 22;* - *Increasing the number of Nuclear Engineering Education Grants from 19 to over 40; and* - *Providing summer on-the-job training to 29 junior and senior nuclear engineering scholarship recipients.* (MET GOAL)	*Attract outstanding U.S. students to pursue nuclear engineering degrees by:* - *Providing 18-20 fellowships;* - *Increasing the number of Nuclear Engineering Education Grants to 45 existing and new grants; and* - *Providing scholarships and summer on-the-job training to approximately 50 sophomore, junior and senior nuclear engineering and science scholarship recipients.* (EXCEEDED GOAL)

Related FY 2001 Results	**ER7-6 FY 2002 Targets** (Revised Final)	**ER7-6 FY 2003 Proposed Targets**
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* - *Continue 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.* (MET GOAL)	*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.* - *Award two or more Innovations in Nuclear Infrastructure and Education awards.*	*Support U.S. universities' nuclear energy research and education capabilities by:* - *Providing fresh fuel to all 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* - *Continue Innovations in Nuclear Infrastructure and Education awards from FY 2002.*
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.* (MET GOAL)	*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.*	*Attract outstanding U.S. students to pursue nuclear engineering degrees by:* - *Providing 24 graduate student fellowships;* - *Supporting 55 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 55 sophomore, junior, and senior nuclear engineering and science scholarship recipients.*

Means and Strategies:

The University Reactor Fuel Assistance and Support program supports the Nation's science and engineering infrastructure to help meet our current and future needs for nuclear scientists and engineers in energy technology, medical research, and national security. The program provides fellowships, scholarships, and grants to students enrolled in nuclear science and engineering programs at U.S. universities; DOE/Industry matching grants for participating U.S. universities; and other assistance to students and U.S. universities in cooperation with industry. The program also provides fuel assistance and reactor upgrade funding for university-owned research reactors. During FY 2002, the Innovations in the Nuclear Infrastructure and Education program will be initiated. This program establishes, on a competitively-selected basis, regional research and training centers and strategic partnerships to further strengthen the university research infrastructure.

Collaboration Activities:

The University program draws upon the experience of university professors through its meetings with the University Working Group, which helps coordinate DOE and University efforts to improve nuclear engineering education in the U.S.

During the past 2 years, several studies have been completed in an attempt to ascertain the current status and future outlook for nuclear engineering education in the U.S., and recommend initiatives to strengthen this vital sector of the university education curriculum. The Organization of Economic Cooperation and Development/Nuclear Energy Agency conducted a review of nuclear engineering education in its member countries, and the Nuclear Energy Department Heads Organization surveyed U.S. industry and universities concerning manpower requirements. The conclusion of these two studies was that the enrollment trends of the 1990s was not encouraging and more students need to be educated in nuclear engineering to provide the manpower required today and in the future. A third study by an expert panel appointed by the independent Nuclear Energy Research Advisory Committee (NERAC) recommended major increases in funding to maintain the nuclear engineering infrastructure in the U.S. A three-person panel of experts from NERAC collected and assessed information on all university reactors including their research and training capabilities and operating costs. In April 2001, this panel reported back to the Department recommending the creation of innovative partnerships to support the nuclear engineering infrastructure, particularly the maintenance of vital university research reactor facilities in the U.S. This program, Innovations in Nuclear Infrastructure and Education, will be initiated in FY 2002.

External Factors Affecting Performance:

Industry participation in the DOE Matching Grants programs is essential to trigger a DOE cost-share for this activity, which supports nuclear engineering education at approximately 25 U.S. universities. The health of and prospects for the nuclear industry influence students' decisions on pursuing a nuclear engineering education.

Validation and Verification:

Data Sources:	Monthly progress and quarterly technical reports; quarterly, semiannual, and annual reviews.
Baselines:	Technical and financial baselines are specified in project plans and contracts.
Frequency:	Data is collected periodically on a monthly basis for some programs and quarterly and semiannually for others.
Data Storage:	The headquarters and field organizations managing the project maintain the data on technical progress.
Verification:	Independent technical expert reviews, or peer reviews of technical reports and performance, are conducted.

Planned Program Evaluation:

Progress against established plans is evaluated by periodic internal and external performance reviews. These reviews provide an opportunity to verify and validate performance. Monthly, quarterly, semiannual and annual reviews consistent with specific program management plans are held to ensure technical progress, cost and schedule adherence, and responsiveness to program requirements.

GPRA Program Activity: Nuclear Energy Infrastructure

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriations		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
270 Energy					
Energy Supply	Nuclear Energy Research and Development (Infrastructure)	NE	127	123	119
Energy Supply	Nuclear Energy Research and Development (Isotope Production and Distribution)	NE	0	0	0*
Total			127	123	119

*No funds are requested for the Isotope Production and Distribution fund. Production expenses associated with processing and distributing isotopes will be offset by revenue generated by sales.

Description of the Program:

Infrastructure Programs provide for the management of the Department's vital resources and capabilities at sites and facilities assigned to the Office of Nuclear Energy, Science and Technology (NE). These resources ensure that the Department's unique facilities are available to meet the vital missions of the Federal government, and that these assets are maintained in a safe, secure, environmentally-compliant and cost-effective manner, ensuring the protection of site workers, the public, and the environment. Programs include the Fast Flux Test Facility (FFTF) and Radiological Facilities Management.

The Isotope Production and Distribution Fund, which operates under a revolving fund, includes all isotope production costs financed by revenues from sales of isotopes products and services. Revenue projections for FY 2003 total $8 million. The facilities and infrastructure activities previously funded in the Medical Isotope Program have been consolidated into the Radiological Facilities Management program mentioned above.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

ER7-8 Protect our Nation's nuclear R&D infrastructure by managing the Department's vital resources and capabilities efficiently and effectively, such that, by December 2004, major research/critical facilities will continue to be operational and available for fulfillment of long-term missions as funded by industry and other Federal agencies while unneeded facilities are deactivated in a safe and cost-effective manner.

Performance Indicators:

- Number of unneeded facilities deactivated versus total number of unneeded facilities
- Readiness of operational facilities

Related FY 1999 Results	Related FY 2000 Results
Maintain the Fast Flux Test Facility (FFTF) in a safe, environmentally compliant standby condition to permit implementation of an anticipated Secretarial decision in FY 1999 to deactivate or pursue a potential restart to support a range of national research requirements. (MET GOAL)	*Maintain the FFTF in a safe, environmentally compliant standby condition while implementing a Secretarial decision to conduct a National Environmental Policy Act (NEPA) review of the environmental impacts of enhancing the Department's nuclear research facility infrastructure.* (MET GOAL)

Related FY 2001 Results	**ER7-8 FY 2002 Targets** (Revised Final)	**ER7-8 FY 2003 Proposed Targets**
There were no related targets.	*Complete upgrades to the FFTF fuel handling control systems and achieve readiness to initiate their validation in FY 2003.* *Negotiate implementation of revised Hanford Federal Facility Agreement and Consent Order milestones for FFTF deactivation.* *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 percent.*	*Meet all milestones in the Hanford Federal Facility Agreement and Consent Order.*

Results and Targets for ER7-8 (Continued)

Related FY 1999 Results	Related FY 2000 Results
Initiate construction and commissioning of the Los Alamos Isotope Production Facility to improve isotope quality with greater operating efficiency. (MET GOAL)	*Complete at least 40 percent of the construction of the Los Alamos Isotope Production Facility, which is needed for the production of short-lived isotopes for medical research.* (MET GOAL)
	Complete bench scale demonstration of the process to recover Pu-238 scrap for reuse in power systems for future missions using radioisotope power systems. (MET GOAL)
	Execute an industrial contract and initiate associated laboratory efforts to develop small Radioisotope Thermoelectric Generators (RTGs) for anticipated use on NASA's Europa Orbiter and Pluto/Kuiper missions planned for launch in 2003 and 2004.[1] (MET GOAL)

Note:

1. Since the development of this goal, NASA has changed its mission plans and priorities and has deferred the Pluto mission and has asked DOE to develop and baseline a Stirling Radioisotope Power System for the 2006 Europa Orbiter mission and maintain the viability of using spare RTGs and assembling a spare converter from the Cassini mission as backups for the Europa Orbiter mission.

Related FY 2001 Results	ER7-8 FY 2002 Targets (Revised Final)	ER7-8 FY 2003 Proposed Targets
Complete 75 percent 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. (MET GOAL)	*Complete 80 percent 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.*	*Complete construction of the Los Alamos Isotope Production Facility, which is needed for the production of short-lived radioisotopes essential for U.S. medical research*
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. (MET GOAL)	*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.*	
	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).	*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), and by processing at least two kilograms of scrap Pu-238 through the new full scale Pu-238 scrap recovery line at LANL.*
Competitively select system integration contractor to develop a flight qualified Stirling Radioisotope Power System for future space exploration missions. (NEARLY MET GOAL)	*Develop conceptual design of Stirling Radioisotope Power System suitable for space exploration missions.*	
Complete initial assessment of special purpose fission technologies that are focused on concepts and technologies for space applications. (MET GOAL)	*Complete assessment of special purpose fission technology options required to power advanced spacecraft to the outer planets and on the surface of Mars.*	

Program Strategic Performance Goal

ER7-9 Deliver isotope products and services for commercial, medical, and research applications where there is no private sector capability or sufficient capacity does not exist to meet the United States needs such that by December 2004, deliveries continue to be made to customers as needed.

Performance Indicators:

- Number of annual deliveries.
- Percent of customer specifications met.

Related FY 1999 Results	Related FY 2000 Results
Supply quality stable and radioactive isotopes for industrial, research, and medical applications that continue to meet customer specifications and maintain 95 percent on-time deliveries. (EXCEEDED GOAL)	*Supply quality stable and radioactive isotopes for industrial, research, and medical applications that continue to meet customer specifications and maintain 95 percent on-time deliveries.* (MET GOAL)

Related FY 2001 Results	**ER7-9 FY 2002 Targets** (Revised Final)	**ER7-9 FY 2003 Proposed Targets**
Supply quality stable and radioactive isotopes for industrial, research, and medical applications that continue to meet customer specifications no less than 97 percent of the time, and maintain 95 percent on-time deliveries. (NEARLY MET GOAL)	*Supply quality stable and radioactive isotopes for industrial, research, and medical applications that continue to meet customer specifications no less than 97 percent of the time, and maintain 95 percent on-time deliveries.*	*Supply quality stable and radioactive isotopes for industrial, research, and medical applications that continue to meet customer specifications no less than 97 percent of the time, and maintain 95 percent on-time deliveries.*

Means and Strategies:

The Department will ensure that essential systems, resources, and support services are available to conduct priority missions for the Department and are maintained and operated in compliance with DOE, Federal, and State safety and environmental requirements in a secure and cost-effective manner. The Department will also continue the permanent deactivation of the FFTF to help meet its obligations under a tri-party agreement with the State of Washington Department of Ecology and the U.S. Environmental Protection Agency (EPA - Region III). Finally, the Department will responsibly manage and disposition legacy materials generated from past DOE nuclear energy activities.

Beginning in FY 2003, the facilities and infrastructure activities previously funded in the Advanced Radioisotope Power Systems Program, Medical Isotope Program, ANL-W Operations, and the Test Reactor Area (TRA) Landlord Programs have been incorporated into one account, the Radiological Facilities Management Program.

The Department will maintain isotope production facilities in a safe and environmentally compliant condition and a state of readiness for the production of radioisotopes. Starting in FY 2002 with full implementation in FY 2003**,** the Nuclear Energy Protocol for Research Isotopes (NEPRI), a new, more formal protocol that will guide the selection of research isotopes for development, production and distribution functions, will be initiated. Under this protocol, all isotopes, including commercial and research isotopes, will be priced to recover the cost of production. The Department will determine each year, with comments from the Nuclear Energy Research Advisory Committee Standing Isotope Subcommittee, which research isotopes it will produce.

The Department will also maintain a unique infrastructure and capability to deliver advanced radioisotope power systems for space and national security missions.

Collaboration Activities:

To maintain continuity of supply of isotopes, the Department has increased the importance of collaboration with other suppliers wherever possible. The Department seeks cooperative isotope supply agreements with other government, private sector, and university isotope manufacturers, both domestic and foreign, to increase the Department's ability to meet customer requests by improving product availability and reliability. For example, the Department has cooperated on the production and supply of isotopes with the Institute for Nuclear Research (INR) in Troitsk, Russia; the National Accelerator Centre (NAC) in Faure, South Africa; and the SCK Center in Mol, Belgium. These collaborations will continue for the foreseeable future.

The Department coordinates with NASA and other customer agencies in developing radioisotope power systems for their use. Coordination is required to ensure proposed systems and technologies satisfy the necessary technical requirements identified by customers for identified mission scenarios.

External Factors Affecting Performance:

External factors for performance of the FFTF deactivation fall in two inter-related areas: availability of skilled staff and the ability to meet obligations under the Tri-Party Agreement on the Hanford Clean-up with the State of Washington Department of Ecology and the U.S. EPA.

Skilled technicians and operators must be retained in the current FFTF staff to permanently deactivate FFTF and meet approved milestones. Certain skills, such as hot cell operator, are in short supply. Should there be greater than expected difficulty in retaining staff in such a skill area, then deactivation milestones could potentially be impacted. Measures will be taken to retain and update current staff skills, and, if necessary, tap all reasonably available skill resources, including other laboratories such as ANL-W. It is expected that personnel needs will be met for the FFTF deactivation.

The Tri-Party Agreement (TPA) with Washington and the EPA for the Hanford Site clean-up includes legally binding FFTF deactivation milestones, which, if not met, would result in Notices of Violation and fines. Addressing these would absorb some of the resources otherwise going toward deactivation activities. TPA FFTF deactivation milestones are external factors, since they are independent of funding actually appropriated for the current fiscal year.

If the Idaho Department of Environmental Quality were to find an environmental violation in the ANL-W site the Idaho test reactor area that required immediate correction the resultant reallocation of resources would impact planned performance

The production of isotopes for medicine and industry takes place in facilities operated by other DOE programs. Because of this symbiotic relationship, any unscheduled outage or change in facility operating

schedules negatively affects isotope construction activities, isotope production, revenues, expenses, and results in unfilled customer orders unless other foreign producers can provide those isotopes. Also, the market for medical isotopes drives prices, and as such, directly impacts revenues.

Changing mission requirements from agencies that use radioisotope power systems and risk associated with technological developments could affect the Department's ability to deliver these systems in a timely manner to customer agencies.

Validation and Verification:

Data Sources:	Monthly and quarterly progress; technical, production, and business reports; quarterly, semiannual, and annual reviews.
Baselines:	Production output and schedules, and project/program plans and contracts specify production and technical baselines.
Frequency:	Both financial and non-financial data is collected periodically on a monthly basis for some activities; and quarterly and semiannually for others.
Data Storage:	The headquarters and field organization managing the project maintains the data on progress. Isotope customer responses are tracked.
Verification:	Conduct internal audits, independent audits, and technical expert reviews, or peer reviews of business, production, process improvement, technical reports and performance.

Planned Program Evaluation:

The Infrastructure Program staff discusses progress against established plans at periodic televideo conferences with field office and contractor representatives. For activities at ANL-W, these conferences will include the Chicago Operations Office Group responsible for ANL and ANL-W staff, and for FFTF deactivation, the Richland Operations Project Office responsible for the FFTF and Fluor-Hanford FFTF staff. In addition, semiannual and annual program reviews are held to verify and validate the performance data. Finally, the Chicago Operations Office Group located at the ANL-W site meets frequently with State of Idaho regulators to review progress against prescribed commitments in State permits, Consent Orders, and the 1995 Settlement Agreement.

The Infrastructure Program is closely monitored through the use of: frequent telephone conference calls between Headquarters and program staff, the field operations office, and the contractor; weekly and monthly reports on technical, cost, and schedule milestones; and on-site program review meetings conducted at least twice a year.

Annual financial and planning meeting, and two site-wide program managers meetings are conducted at various site visits throughout the year for isotopes activities. Conferences such as the Society of Nuclear Medicine Conference are also attended. At these conferences, workshops are allow for meetings with stakeholders and customers who further assist with gaining knowledge of the needs of the program.

Progress against established plans is evaluated by periodic internal and external reviews. These reviews provide an opportunity to verify and validate the performance data. Monthly, quarterly, semiannual and annual reviews consistent with specific program management plans are held to ensure technical progress, cost, and schedule adherence, and responsiveness to partner agencies' requirements.

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GPRA Program Activity: Energy Information Administration

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriations		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
270 Energy					
Energy Information Administration		EIA	78	81	83

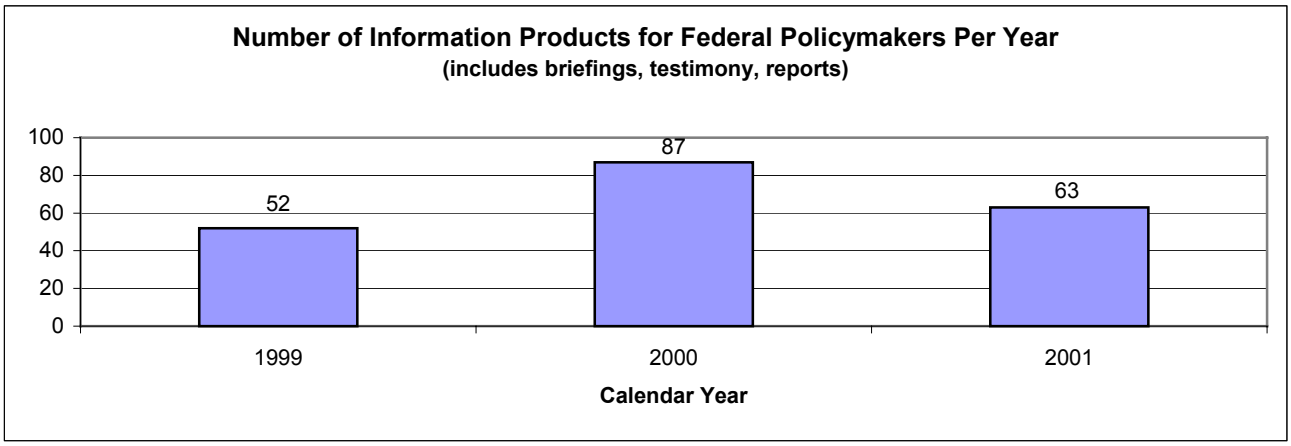
Description of the Program:

As an independent statistical/analytical agency, EIA has two principal roles. First, its primary responsibility is to conduct the functions required by statute. This responsibility consists of the development and maintenance of a comprehensive energy database and the publication of reports and analyses for a wide variety of customers in the public and private sectors. There are also specific reports that are required by law. Second, EIA responds to inquiries for energy information. The primary customers of EIA services are public policymakers in the Department of Energy and the Congress. Other customers include other agencies within the Executive branch and the independent agencies of the Federal Government, state and local governments, the energy industry, educational institutions, the news media, and the public. EIA activities under this program support the following general performance goal that flows from the Department's Strategic Plan.

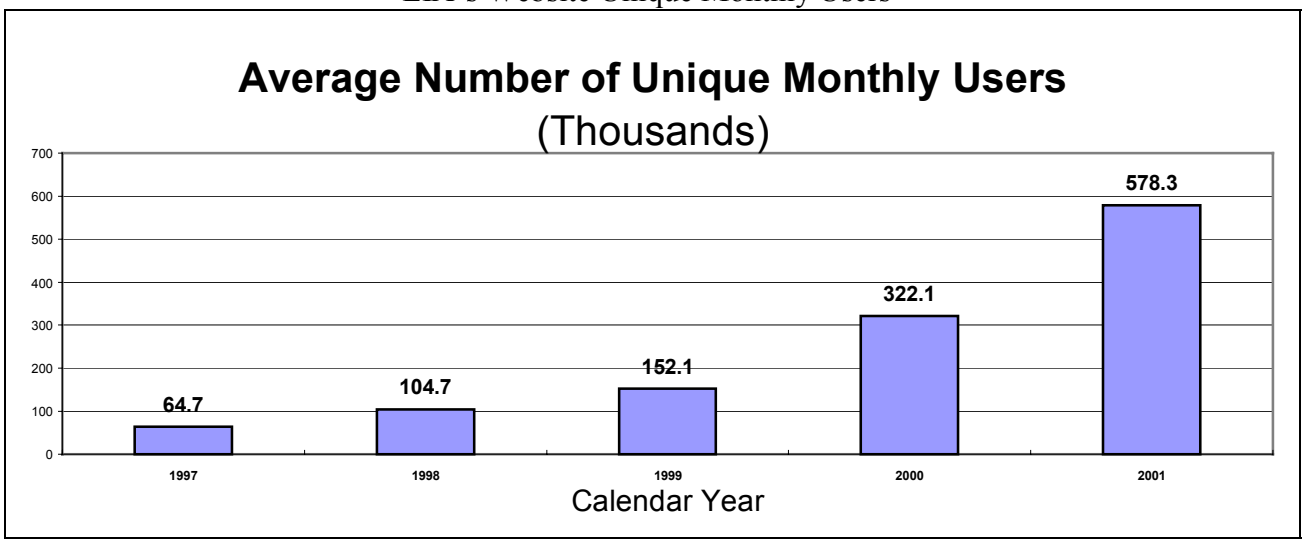
Discussion:

In 1997, in cooperation with Office of the Assistant Secretary for Energy Efficiency and Renewable Energy (EE), EIA committed to increasing the average number of unique monthly users of it's web site by 20 percent annually, from a baseline of 70,000. In FY 1997, average monthly users sessions for EIA and EE was 71,500 or slightly more than the agreed upon baseline average for the combined web sites. EIA's actual contribution to this baseline was an average of 64,700 unique monthly users. In the following year, EIA averaged 104,700 unique monthly users and for FY 1999, EIA averaged 152,600 unique monthly user sessions. That growth in the number of customers continues. During FY 2000, EIA averaged over 322,100 unique monthly users of it's website, an increase of over 110 percent from the previous year. For the first 5 months of fiscal year 2001, EIA is averaging over 523,600 unique monthly users of its web site. The average monthly usage of EIA's web site for FY 2001 is eight times that experienced in the baseline year of FY 1997.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.



EIA's Website Unique Monthly Users



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Program Strategic Performance Goal

ER8-1 Provide national and international energy data, analyses, information, and forecasts to meet the needs of energy decision-makers and the public in order to promote sound policymaking, efficient energy markets, and public understanding.

EIA's major output is energy information. The purpose (outcome) of EIA's energy data collection, analysis, and dissemination endeavors is to promote sound policy-making, efficient energy markets, and public understanding. Because assessing the level of achievement of these ultimate outcomes is extremely difficult and costly, EIA approximates overall achievement of our mission by measuring product usage and the number of information products prepared at the request of Congress, the Administration, and State policymakers per year (includes briefings, testimony, and reports). EIA tracks product usage levels in many ways (number of website file downloads, number of publications mailed out, number of customers and the products they use, number of telephone inquiries, number of news media citations, etc.).

Performance Indicators:

- Number of informational briefings for high-level energy policymakers in the Administration and Congress, to provide timely information and analyses on topical energy issues and situations.
- Number of unique monthly users of EIA's website by at least 20 percent per year through 2005.
- Number of citations of EIA in major media outlets by at least 10 percent per year through 2005.

Related FY 1999 Results	Related FY 2000 Results
Achieve a growth rate of at least 20 percent per year in the average number of unique monthly users of the Energy Resources Board Website (from about 71,000 per month in 1997). (EXCEEDED GOAL)	*Achieve a growth rate of at least 20 percent per year, through 2002, in the average number of unique monthly users of the Energy Resources Board Website (from about 71,000 per month in 1997).* (MET GOAL)

Related FY 2001 Results	**ER8-1 FY 2002 Targets** (Revised Final)	**ER8-1 FY 2003 Proposed Targets**
		Conduct informational briefings for high-level energy policymakers in the Administration and Congress to provide timely information and analyses on topical energy issues and situations.
Achieve a growth rate of at least 20 percent per year in the average number of unique monthly users of the Energy Resources Board Website (from about 71,000 per month in 1997). (EXCEEDED GOAL)	*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.)*	*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).*
		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).

Note: The baseline of 71,000 is inclusive of EIA and EE's websites, jointly referred to as the Energy Resources Websites.

Means and Strategies:

In FY 2003, EIA's program will consist of data collection necessary to fulfill its statutory requirement for the maintenance of a comprehensive energy database, the publication of reports and analyses for a wide variety of customers in the public and private sectors, the maintenance of the National Energy Modeling System for mid-term energy markets analysis and forecasting, the maintenance of the Short-Term Integrated Forecasting System for near-term energy market analysis and forecasting, and customer forums and surveys to maintain an up-to-date product and service mix. EIA's strategy is to make its broad mix of products and services available to its customers through the continued use of publications and an expansion of electronic information dissemination via the EIA web site, ListServ, and CD-ROM.

Collaboration Activities:

EIA has a number of different collaborative activities underway with statistical representatives from other cabinet agencies. The most important collaboration is via the Interagency Council on Statistical Policy (ICSP), composed of the heads of the major statistical agencies and chaired by the Office of Management and Budget's Chief Statistician. The ICSP has supported a number of collaborative activities, including: Fedstats – a website providing data from the major statistical agencies in a user-friendly environment; the NSF Digital Government initiative, providing funds to researchers to interact with consortiums of statistical agencies on issues related to data dissemination, and the presentation and collection of large-scale databases on the web; and, the Joint Program in Survey Methodology (JPSM) – training college graduates in applied survey methodology, initiating a summer intern program and developing other certification alternatives. ICSP is backing the data sharing legislation that would allow the agencies to share data and sampling lists and still protect the confidentiality of respondents.

The longest standing collaboration is through our membership on the Federal Committee on Statistical Methodology, a consortium of government experts, appointed from within the statistical agencies for their technical abilities. The FCSM undertakes studies of methodological issues, and sponsors conferences for sharing ideas, problems, and research.

Still another example of collaboration is through the Interagency Confidentiality and Data Access Group, a special interest group of FCSM, that deals with confidentiality, privacy, and disclosure protection issues. The group collaborated and pooled funds to create a user interface to a census disclosure program. The program is now readily available on the web. Individual agencies have provided funds to support the development of an auditing program for tabular data that will also be made widely available on the web.

External Factors Affecting Performance:

EIA's data and analyses are anticipated to become more visible and critical over the next several years, because: (1) With the restructuring and deregulation of the electric and natural gas industries, energy use and price data, especially at the consumers level, are much more difficult to obtain from new and emerging types of suppliers in the evolving energy market; (2) With the increase in dependence on foreign oil supplies, Congressional and other customer requests for current petroleum products' production, supply, stocks, price, markets, trend analyses, and forecasts will continue to increase. This type of information is especially useful to State governments, who are increasingly relying on EIA data to understand and effectively manage the current and emerging effects of energy industry 's restructuring impact on consumers in their State; (3) The debate on greenhouse gas emissions, carbon trading permits, and global warming are influencing the United States, as well as other countries, of the need to assess and understand the impact from major sources of human generated emissions.

Partly as a result of this increasing visibility and importance, it is critical to maintain the quality of the data from EIA's surveys. EIA will face an unprecedented challenge in maintaining the quality of its data due to: (1) the increasing amount of work needed to keep survey response rates high in the current cultural climate, with respondents increasingly more difficult to reach and more resistant to completing surveys; (2) The need for expanded and more complex energy consumption and expenditures data collection procedures, due to the more complex energy supply structure caused by natural gas and electric industry restructuring and markets.

EIA's ability to provide data and information on the natural gas industry may be severely challenged by changes in the regulatory environment and corresponding industry restructuring. In addition, there are major segments of activity relating to prices and volumes for which no information is collected by EIA, such as the cost of underground storage, the cost of transportation, and the price and physical transactions at market centers and market hubs. Since natural gas is usually the swing fuel in electric generation, information on these prices is essential in

understanding the fuel decisions made by electric generator operators and the subsequent impact on electricity prices.

Validation and Verification:

Data Sources:	1. EIA's Performance Measures Database. 2. Website Server Logs 3. EIA's Performance Measures Database.
Baselines:	1. Not Applicable 2. 71,000 Unique Monthly Users of EIA's website in 1997. 3. 73 citations in major media outlets in 1999.
Frequency:	1. Annual 2. Continuous Monthly Citations of EIA in 1999 in major media outputs 3. Annual
Data Storage:	1. Microsoft Access Database. 2. Initial on server, later displaced to CD-ROM.
Verification:	1. Software: Microsoft Access Database 2. Software: Webtrends Inc., Webtrends 4.1 3. Software: Microsoft Access Database

Planned Program Evaluation:

EIA annually conducts a customer satisfaction survey. EIA's senior management reviews the results of the customer survey. Often specific survey questions about EIA's website and electronic products are included in the customer survey. As a result of the customer survey process, the regular monitoring of customer comments and concerns, and the rapidly increasing use of EIA's website, EIA maintains an ongoing cognitive testing initiative of its website. EIA strives to make the site accessible and usable to the most diverse range of customers, not just those with technical expertise and knowledge in energy and web surfing. To do this, users need to be able to find the data for which they are looking quickly and easily without being frustrated by jargon or a design that reflects EIA's organizational structure and/or publication format or content. The results of this testing often lead to the re-design of specific areas of the site to make it's usability easier for the diverse range of users. Monitoring of customer feedback and usage of the re-designed site will continue and form the basis for future updates. EIA is also exploring methods for increasing it's ability to provide faster and more reliable energy data and analysis delivery through its website.

EIA's performance measures are presented to senior management on a quarterly basis. Included is the number of unique monthly users of EIA's website, and EIA's progress in meeting the established goal of continuously increasing the numbers of customers accessing and using EIA's energy data, information and services.

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GPRA Program Activity: Power Marketing Administrations

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriations		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
Power Marketing Administrations					
Operation & Maintenance, SEPA		SEPA	5	5	5
Operation & Maintenance, SWPA		SWPA	29	29	28
Construction, Rehabilitation, Operation, & Maintenance.		WAPA	173	178	169
Falcon-Amistad O&M		WAPA	3	3	3
Total PMAs			210	215	205
Bonneville Power Administration Fund		BPA	-	-	-
Colo. River Basins Power Marketing Fund		WAPA	0	(26)	(22)

Notes:

- Beginning in FY 2001, Southeastern Power Administration, Southwestern Power Administration, and Western Area Power Administration's Construction, Rehabilitation, Operation, & Maintenance Account fund purchased power and wheeling through the use of revenues from the sale of power and other alternative financing methods, such as net billing and bill crediting.
- The Bonneville Power Administration Fund and the Colorado River Basins Power Marketing Fund are revolving funds and require no appropriations. Net Receipts from the Colorado River Basins Power Marketing Fund are included in Corporate Management (CM), and reflected in CM's Budget Summary Table.
- DOE's Budget Request is considered Discretionary funding. The Bonneville Fund is considered Mandatory funding, so its expenses are not included in this table.
- FY 2003 appropriated amounts in this table reflect the Administration's legislative proposal to fully fund post-retirement pension and health benefits in each agency's appropriation. FY 2001 and FY 2002 appropriations have been adjusted to be comparable.

Description of the Program:

The Power Marketing Administrations' (PMAs) missions fulfill the requirements of the Bonneville Project Act of 1937, Section 9 of the Reclamation Project Act of 1939, Section 5 of the Flood Control Act of 1944, the Federal Columbia River Transmission System Act, the Pacific Northwest Electric Power Planning and Conservation Act, and various other acts by marketing and reliably delivering cost-based Federal hydroelectric power, with preference given to publicly-owned electric utilities and cooperatives. This is accomplished by charging rates for Federal power that are as low as possible to consumers, while recovering all operating costs and repaying the Federal investment in power facilities in a timely manner.

The PMAs' programs help achieve the Department's Energy Resources goal through the strategic objective of ensuring Federal hydropower is marketed and delivered reliably to customers in the West, Midwest, and Southeastern United States, repaying Federal power investment, and providing safe working conditions.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

ER9-1: Ensure Federal hydropower is marketed and delivered while passing the North American Electric Reliability Council's Control Compliance Ratings, meeting planned repayment targets, and achieving a recordable injury frequency rate at or below our safety performance standard.

Performance Indicators

- Reliability Performance.
- Principal Repayment.
- Recordable Injury Frequency Rate.

Related FY 1999 Results	Related FY 2000 Results
Bonneville Power Administration	
Ensure that each power system control area operated by a Power Marketing Administration receives, for each month of the fiscal year, a Control Compliance Rating of "Pass" using the North American Electric Reliability Council performance standard. (MET GOAL)	*Ensure that each power system control area operated by a Power Marketing Administration receives, for each month of the fiscal year, a Control Compliance Rating of "Pass" using the North American Electric Reliability Council performance standard.* (MET GOAL) *Meet planned repayment of principal on power investment.* (MET GOAL) *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.* (MET GOAL)
Southwestern Power Administration	
Ensure that each power system control area operated by a Power Marketing Administration receives, for each month of the fiscal year, a Control Compliance Rating of "pass" using the North American Electric Reliability Council performance standard. (MET GOAL)	*Ensure that each power system control area operated by a Power Marketing Administration receives, for each month of the fiscal year, a Control Compliance Rating of "Pass" using the North American Electric Reliability Council performance standard.* (MET GOAL) *Meet planned repayment of principal on power investment.* (MET GOAL) *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.* (MET GOAL)

Related FY 2001 Results	ER9-1 FY 2002 Targets (Revised Final)	ER9-1 FY 2003 Proposed Targets
Bonneville Power Administration		
Reliability Performance BPA: (MET GOAL)	*Bonneville Power Administration will receive monthly Control Performance Ratings of "Pass" using the North American Electric Reliability Council performance standards.*	*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.*
Principal Repayment BPA: (MET GOAL)	*Bonneville Power Administration will meet planned repayment of principal on power investment.*	*The Bonneville Power Administration will meet planned annual repayment of principal on power investment.*
Recordable accident frequency rate BPA: (MET GOAL)	*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.*	*Bonneville Power Administration will achieve a safety performance of not greater than a 3.3 recordable injuries per 200,000 hours worked, or the Bureau of Labor Statistics' industry rate, whichever is lower.*
Southwestern Power Administration		
Reliability Performance SWPA: (MET GOAL)	*Southwestern Power Administration will receive monthly Control Performance Ratings of "Pass" using the North American Electric Reliability Council performance standards.*	*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*
Principal Repayment (ER9) SWPA: (NEARLY MET GOAL)	*Southwestern Power Administration will meet planned repayment of principal on power investment.*	*Southwestern Power Administration will meet planned annual repayment of principal on power investment.*
Recordable accident frequency rate SWPA: (MET GOAL)	*Southwestern 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.*	*Southwestern Power Administration will achieve a safety performance of not greater than a 3.3 recordable injuries per 200,000 hours worked, or the Bureau of Labor Statistics' industry rate, whichever is lower.*

Related FY 1999 Results	Related FY 2000 Results
Southeastern Power Administration	
Ensure that each power system control area operated by a Power Marketing Administration receives, for each month of the fiscal year, a Control Compliance Rating of "Pass" using the North American Electric Reliability Council performance standard. (MET GOAL)	*Ensure that each power system control area operated by a Power Marketing Administration receives, for each month of the fiscal year, a Control Compliance Rating of "Pass" using the North American Electric Reliability Council performance standard.* (MET GOAL) *Meet planned repayment of principal on power investment.* (NEARLY MET GOAL) *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.* (MET GOAL)
Western Area Power Administration	
Ensure that each power system control area operated by a Power Marketing Administration receives, for each month of the fiscal year, a Control Compliance Rating of "Pass" using the North American Electric Reliability Council performance standard. (MET GOAL)	*Ensure that each power system control area operated by a Power Marketing Administration receives, for each month of the fiscal year, a Control Compliance Rating of "Pass" using the North American Electric Reliability Council performance standard.* (MET GOAL) *Meet planned repayment of principal on power investment.* (MET GOAL) *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.* (MET GOAL)

Related FY 2001 Results	ER9-1 FY 2002 Targets (Revised Final)	ER9-1 FY 2003 Proposed Targets
Southeastern Power Administration		
Reliability Performance SEPA: (MET GOAL)	*Southeastern Power Administration will receive monthly Control Performance Ratings of "Pass" using the North American Electric Reliability Council performance standards.*	*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.*
Principal Repayment SEPA: (BELOW EXPECTATIONS)	*Southeastern Power Administration will meet planned repayment of principal on power investment.*	*Southeastern Power Administration will meet planned annual repayment of principal on power investment.*
Recordable accident frequency rate SEPA: (MET GOAL)	*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.*	*Southeastern Power Administration will achieve a safety performance of not greater than a 3.3 recordable injuries per 200,000 hours worked, or the Bureau of Labor Statistics' industry rate, whichever is lower.*
Western Area Power Administration		
Reliability Performance WAPA: (MET GOAL)	*Western Area Power Administration will receive monthly Control Performance Ratings of "Pass" using the North American Electric Reliability Council performance standards.*	*Ensure that each power system control area operated by the Western Area Power Administration receives, Control Compliance Ratings of "Pass" on both of the North American Electric Reliability Council's reliability performance standards in every month.*
Principal Repayment WAPA: (BELOW EXPECTATIONS)	*Western Area Power Administration will meet planned repayment of principal on power investment.*	*Western Area Power Administration will meet planned annual repayment of principal on power investment*
Recordable accident frequency rate WAPA: (MET GOAL)	*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.*	*Western Area Power Administration will achieve a safety performance of not greater than a 3.3 recordable injuries per 200,000 hours worked, or the Bureau of Labor Statistics' industry rate, whichever is lower.*

Means and Strategies:

In order to achieve safety and reliability while staying competitive, the PMAs will accomplish their missions with 4,786 Federal employees (BPA 3,278, SEPA 40, SWPA 178, and WAPA 1290), $205 million of budget authority, and use of power revenues and alternative financing authority. The PMAs accomplish their missions through five program activities: Operations and Maintenance, Construction and Rehabilitation, Purchased Power and Wheeling, Program Direction, and Utah Reclamation Mitigation and Conservation (not every PMA has every program activity).

To achieve the first goal of Reliability, the PMAs will make improvements and perform maintenance on their transmission, communications, and control systems. They will also make improvements to their analytic capabilities, work force skills, and employee retention. To achieve the second goal of Repayment, the PMAs will utilize sound business practices and prudent risk management; and to achieve the third goal of Safety, the PMAs will continue to train their employees in occupational safety and health regulations, policies, and procedures and hold safety meetings at employee, supervisory and management levels in order to keep their safety culture strong. Accidents will be reviewed to ensure that lessons are learned and proper work controls in place.

Collaboration Activities:

The PMAs coordinate their operational activities with the U.S. Army Corps of Engineers, Bureau of Reclamation, International Boundary & Water Commission (IBWC), NERC regional electric reliability councils, and their customers to provide the most efficient use of Federal assets.

External Factors Affecting Performance:

Achieving and maintaining system reliability can be affected by weather, natural disasters, changes in NERC operating standards, new load patterns, deregulation of the electricity market, changing electric industry organizational structures, and additions to other utilities' transmission systems interconnected to the Federal system.

Achieving and maintaining planned repayment can be affected by weather, power markets, natural disasters, and other external costs and revenue factors.

Achieving and maintaining safety goals can be affected by the loss of expertise due to retirements and the inability to replace the expertise, weather conditions, encroachments on rights-of-way, terrain, and location of the equipment being maintained.

Validation and Verification (Goal 1-Reliability):

Data Sources:	NERC Control Area operators provide monthly data on the measures of Area Control, Error variability, and magnitude. (CPS1 and CPS2)
Baselines:	Control Performance Rating = Pass if CPS1 $\geq$100% and CPS2 $\geq$ 90%.
Frequency:	Monthly.
Data Storage:	Control Area Operators.
Verification:	Data on the measures of Area Control, Error variability, and magnitude (CPS1 and CPS2) are provided by NERC Control Area Operators.

Validation and Verification (Goal 2-Repayment):

Data Sources:	Chief Financial Officers at the PMAs track and report data.
Baselines:	Planned principal payments to the U.S. Department of Treasury.
Frequency:	Annually.
Data Storage:	Chief Financial Officer.
Verification:	External auditors.

Validation and Verification (Goal 3-Safety):

Data Sources:	The safety office prepares injury and illness reports. Inquiries are made with managers and employees.
Baselines:	Department of Labor statistics.
Frequency:	Continuous.
Data Storage:	PMA safety offices.
Verification:	Safety committees review reports.

Planned Program Evaluation:

Annual performance goals are evaluated against NERC operating standards for the electric utility industry; repayment standards are set forth in DOE Order RA 6120.2; and the Bureau of Labor Statistics publishes industry safety rates.

SCIENCE

The Department of Energy's (DOE's) Science programs represent the third-largest government sponsorship of basic research in the United States. These programs fulfill the DOE's science mission, while providing an essential foundation for DOE's applied missions in energy resources, environmental quality, and national security. With a focus on exploring the mysteries of the natural world, the Science Business Line leads the nation in its support for the physical sciences and is a significant contributor in the fields of computation, biology, and environmental sciences through research efforts supportive of DOE's missions.

DOE's Science Programs extend the frontiers of basic knowledge. The Office of Science (SC) conducts research at universities, national laboratories, and private research facilities in the areas of materials and chemical sciences, engineering and geosciences, energy biosciences, magnetic fusion energy, health and environmental research, high energy and nuclear physics, and computational sciences. The DOE's cadre of large-scale scientific facilities supports the United States' position as the worldwide leader in science. The broad variety of world-class facilities such as our large accelerators, experimental reactors and detectors, high-precision instruments, synchrotron light sources, supercomputers, high-capacity networks, and high-resolution microscopes provide the scientific base to support the Nation's national security and energy security interests. Research is performed at national laboratories, universities, non-profit research centers, and private-sector research institutions.

Science (SC) Goal

Deliver the scientific knowledge and discoveries for the Department of Energy's (DOE's) applied missions; advance the frontiers of the physical sciences and areas of the biological, environmental and computational sciences; and provide world-class research facilities and essential scientific human capital to the Nation's overall science enterprise.

Strategic Objectives

SC1: Determine whether the Standard Model accurately predicts the mechanism that breaks the symmetry between natural forces and generates mass for all fundamental particles by 2010 or whether an alternate theory is required, and on the same timescale determine whether the absence of antimatter in the universe can be explained by known physics phenomena. (SC)

SC2: By 2015, describe the properties of the nucleon and light nuclei in terms of the properties and interactions of the underlying quarks and gluons; by 2010, establish whether a quark-gluon plasma can be created in the laboratory and, if so, characterize its properties; by 2020, characterize the structure and reactions of nuclei at the limits of stability and develop the theoretical models to describe their properties, and characterize (using experiments in the laboratory) the nuclear processes within stars and supernovae that are needed to provide an understanding of nucleosynthesis. (SC)

SC3: By 2010, develop the basis for biotechnology solutions for clean energy, carbon sequestration, environmental cleanup, and bioterrorism detection and defeat by characterizing the multiprotein complexes that carry out biology in cells, and by determining how microbial communities work as a system; and determine the sensitivity of climate to different levels of greenhouse gases and aerosols in the atmosphere and the potential resulting consequences of climate change associated with these levels by resolving or reducing key uncertainties in model predictions of both climate change that would result from each level and the associated consequences. (SC)

SC4: Provide leading scientific research programs in materials sciences and engineering, chemical sciences, biosciences, and geosciences that underpin DOE missions and spur major advances in national security, environmental quality, and the production of safe, secure, efficient, and environmentally responsible systems of energy supply; as part of these programs, by 2010, establish a suite of Nanoscale Science Research Centers and a robust nanoscience research program, allowing the atom-by-atom design of revolutionary new materials for DOE mission

applications; and restore U.S. preeminence in neutron scattering research and facilities. (SC)

SC5: Enable advances and discoveries in DOE science through world-class research in the distributed operation of high performance, scientific computing and network facilities; and deliver, in 2006, a suite of specialized software tools for DOE scientific simulations that take full advantage of terascale computers and high speed networks. (SC)

SC-6: Advance the fundamental understanding of plasma, the fourth state of matter, and enhance predictive capabilities through the comparison of well-diagnosed experiments, theory and simulation; for Magnetic Fusion Energy (MFE), resolve outstanding scientific issues and establish reduced-cost paths to more attractive fusion energy systems by investigating a broad range of innovative magnetic confinement configurations; advance understanding and innovation in high-performance plasmas, optimizing them for projected power-plant requirements; develop enabling technologies to advance fusion science, pursue innovative technologies and materials to improve the vision for fusion energy, and apply systems analysis to optimize fusion development; for Inertial Fusion Energy (IFE), utilizing leverage from the Inertial Confinement Fusion (ICF) program sponsored by the National Nuclear Security Administration's (NNSA) Office of Defense Programs, advance the fundamental understanding and predictability of high energy density plasmas for IFE. (SC)

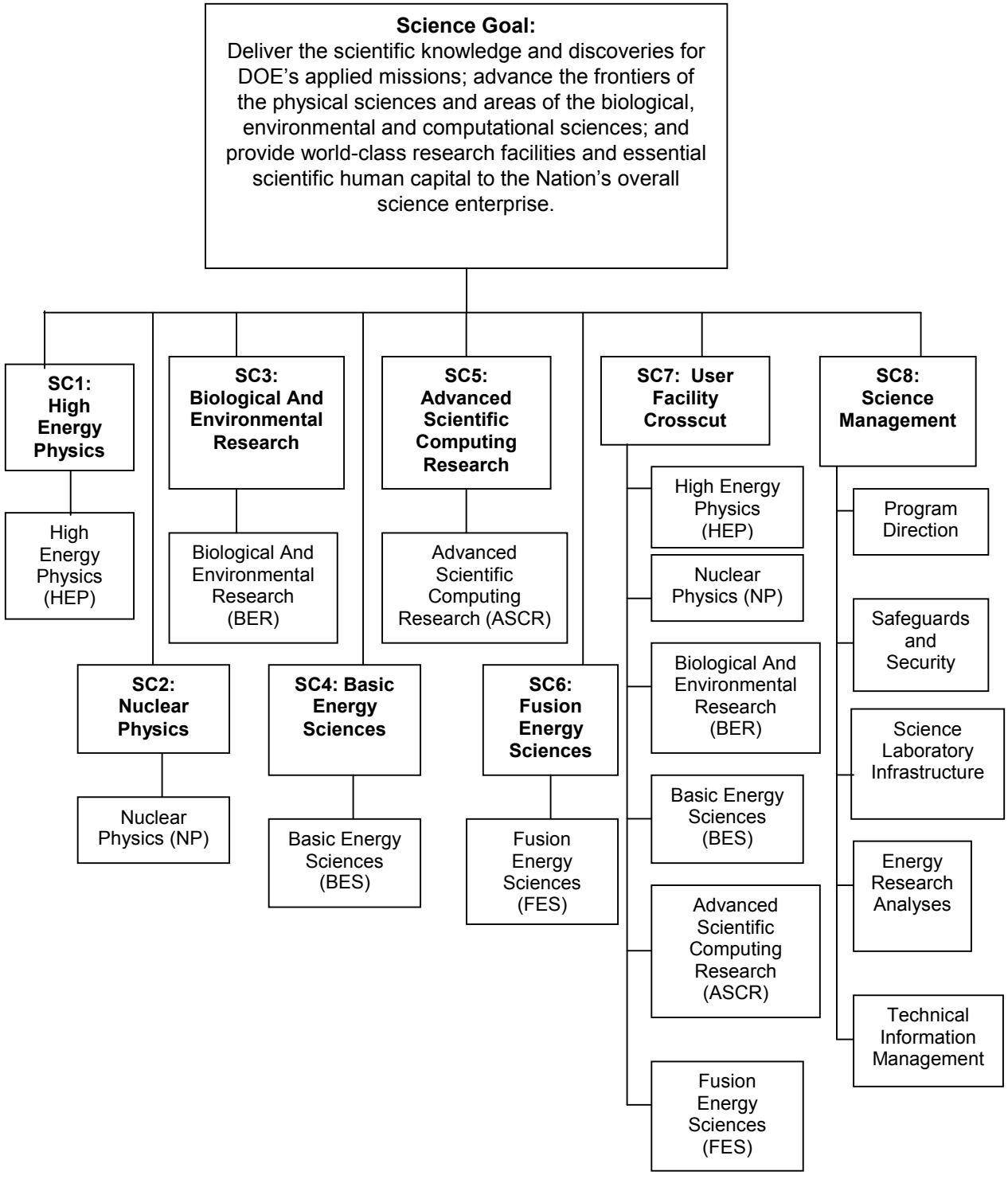
SC7: Provide major advanced scientific user facilities where scientific excellence is validated by external review; average operational downtime does not exceed 10 percent of schedule; construction and upgrades are within 10 percent of schedule and budget; and facility technology research and development programs meet their goals. (SC)

SC8: Ensure efficient SC program management of research and construction projects through a re-engineering effort by FY 2003 that will support world class science through systematic improvements in SC's laboratory physical infrastructure, security, and environmental safety & health. (SC)

The following table maps the Presidential Budget's Program and Financing (P&F) accounts and program activities to the Department of Energy's offices and GPRA Program Activities. The alignment includes aggregation, disaggregation, and consolidation of budget decision units. The chart that follows this table shows how the GPRA Program Activities support the Department's Strategic Objectives for the Science goal.

Presidential Budget Program and Financing (P&F) Accounts and Program Activities		FY 2003 Budget Request ($M)*	DOE Office	GPRA Program Activity
250 Science				
	High Energy Physics	725	SC	High Energy Physics
	Nuclear Physics	382	SC	Nuclear Physics
	Biological and Environmental Research	504	SC	Biological & Environmental Research
	Basic Energy Sciences	1,020	SC	Basic Energy Sciences
	Advanced Scientific Computing Research	170	SC	Advanced Scientific Computing Research
	Fusion Energy Sciences	257	SC	Fusion Energy Sciences
	Energy Research Analyses	1	SC	Science Management and Support
	Science Laboratory Infrastructure	43	SC	
	Safeguards and Security	48	SC	
	Revenues from security charges for reimbursable work	(4)	SC	
	Program direction	139	SC	
270 Energy		3,285		
	Technical Information Management	8	SC	Science Management and Support
TOTAL - Science		**3,293**		

Eight Strategic Objectives support the Science goal. Each strategic objective is being pursued through long-term strategies. In this Annual Performance Plan, these long-term strategies appear in terms of Program Strategic Performance Goals against which outcome performance indicators and annual (output) performance measures/targets have been established. To make the linkage of these outcomes and outputs to the budget resources, we have organized the plan by GPRA Program Activities, which are aligned with the budget decision units through aggregation, disaggregation, and consolidation. The Program Strategic Performance Goals, indicators and annual targets are discussed with the GPRA Program Activities on the following pages. This approach allows us to clearly link annual performance with annual budget resources and the strategic plan objectives. The chart below gives an overview of the linkage of GPRA program activities and strategic objectives for Science.



Common Performance Indicators

In addition to specific annual output measures for each GPRA program activity (same as the Budget Unit for SC), the Office of Science is implementing a common set of investment criteria across all SC research programs activities, and will begin comprehensive reporting on them as indicators in FY 2004. OMB has issued draft R&D investment criteria for basic research (February 2002) that are closely aligned with SC's investment criteria. These common indicators will ensure SC science is results oriented and maintains focus. Specifically, these indicators address excellence and relevance; leadership; quality; and safety, health and security.

Excellence and Relevance: The overall quality of the research funded by the Office of Science (SC) will be judged excellent and relevant by external evaluation by peers, and through various forms of external recognition.

Leadership: SC will maintain leadership positions in key disciplines that are critical to DOE's mission and the Nation.

Quality:
(1) Research Projects: At least 80% of all new research grants supported by SC will be peer reviewed and competitively selected, and will undergo regular peer review merit evaluation. Annually, 96% of SC's research grants are peer reviewed and competitively selected.

(2) Facility Upgrades and Construction: The Office of Science will keep within 10%, on average, of cost and schedule milestones for upgrades and construction of scientific user facilities. SC's construction of major research facilities historically has been on time and within budget.

(3) Operation of User Facilities: The SC scientific user facilities will be operated and maintained so that unscheduled operational downtime will be kept to less than 10%, on average, of total scheduled operating time. SC's operation of major scientific facilities has ensured that a growing number of U.S. scientists have reliable access to those important facilities. The number of users at major SC user facilities is projected to grow to over 17,000 in FY 2002, and over 18,000 in FY 2003.

Safety, Health, and Security: The Office of Science will ensure the safety and health of the workforce and members of the public and the protection of the environment in all SC program activities.

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GPRA Program Activity: High Energy Physics

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
250 Science					
High Energy Physics	High Energy Physics	SC	696	713	725

Description of the Program:

The mission of the High Energy Physics (HEP) program is to understand the universe at a fundamental level, by investigating the elementary particles that are the basic constituents of matter and the forces between them, thereby underpinning and advancing DOE missions and objectives through the development of cutting-edge technologies and trained manpower that provide unique support to these missions. This program will provide world-class, peer-reviewed research results in HEP and related fields, including particle astrophysics and cosmology, executing a long-range strategy for HEP research and technology.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

SC1-1: Exploit U.S. leadership at the energy frontier by conducting an experimental research program that will establish the foundations for a new understanding of the physical universe.

Performance Indicator: Number of significant scientific discoveries.

Related FY 1999 Results	Related FY 2000 Results
Deliver on the 1999 US/DOE commitments to the international Large Hadron Collider project. (MET GOAL)	*Operate the B-factory at the Stanford Linear Accelerator Center, the Main Injector for the Tevatron at Fermilab, the Thomas Jefferson National Accelerator Facility, and the Relativistic Heavy Ion Collider at Brookhaven National Laboratory, and deliver on the FY 2000 U.S./DOE commitments to the international Large Hadron Collider project.* (MET GOAL) *Move the newly upgraded D-Zero and CDF detectors at Fermilab into position in the Main Injector tunnel, and begin commissioning in the third quarter of the fiscal year.* (NEARLY MET GOAL) *Further the progress on achieving luminosity and operational efficiency for the Tevtron at Fermilab in its new mode of operation with the recently completed Main Injector.* (MET GOAL)
Continue collaborative efforts with NASA on space science and exploration. (MET GOAL)	*Continue collaborative efforts with NASA on space science and exploration.* (MET GOAL)

Related FY 2001 Results	**SC1-1 FY 2002 Targets** (Revised Final)	**SC1-1 FY 2003 Proposed Targets**
Respond to the priorities and recommendations contained in the long-range plan of the DOE/NSF Nuclear Science Advisory Committee (NSAC) on the Department's Nuclear Physics program. (MET GOAL) The following additional results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target. Completed first phase of upgrades to enable the Tevatron at Fermilab to run with much higher luminosity. Began commissioning of phase-one accelerator upgrades.		
Completed and commissioned upgrades of the Collider Detector Facility (CDF) and D-Zero detectors at the Tevatron facility at Fermilab.	*Deliver integrated luminosity as planned (80 pb-1) to Collider Detector Facility (CDF) and D-Zero at the Tevatron. Begin implementation of second phase of accelerator upgrades: install four performance improvements to existing systems, and begin design and construction of two new systems.*	*Deliver integrated luminosity as planned (250 pb-1) to CDF and D-Zero at the Tevatron. Complete and install two new accelerator systems. Design new device to improve yield in antiproton target.*

Program Strategic Performance Goal

SC1-2: Explain the observed absence of antimatter in the universe through understanding of the phenomenon of Charge Parity (CP) Violation.

Performance Indicator: Precision of final results; number of significant scientific discoveries.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*There were no related targets.*

Related FY 2001 Results	**SC1-2 FY 2002 Targets** (Revised Final)	**SC1-2 FY 2003 Proposed Targets**
The following results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target.		
Delivered sufficient luminosity (25 fb-1) to double total BaBar data set.	*Increase the total data recorded by BaBar at the Stanford Linear Accelerator Center (SLAC) B-factory by delivering 35 fb-1 of total luminosity.*	*Increase the total data delivered to BaBar at the SLAC B-factory by delivering 50 fb-1 of total luminosity.*
Added one new Radio Frequency (RF) station.	*Add one new Radio Frequency (RF) station.*	*Add one new Radio Frequency RF station.*
BaBar collaboration published first unambiguous observation of Change Parity (CP) violation in B meson decays with an uncertainty of +/- 0.15.	*Measure Change Parity (CP) violation in B mesons with an uncertainty of +/- 0.12. Precise measurement of CP violation will help advance understanding of the preponderance of matter over antimatter in the universe.*	*Measure CP violation in B mesons with an uncertainty of +/- 0.10.*

Program Strategic Performance Goal

SC7-1A: Manage High Energy Physics (HEP) facility operations to the highest standards of performance, using merit evaluation with independent peer review. Meet U.S. commitments to the accelerator and detector components of the Large Hadron Collider (LHC) facility now under construction.

Performance Indicator: Percent on time/within budget; percent unscheduled downtime.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*There were no related targets.*

Related FY 2001 Results	**SC7-1A FY 2002 Targets** (Revised Final)	**SC7-1A FY 2003 Proposed Targets**
Meet 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. (MET GOAL) The following additional results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target.		
The completion figures for the U.S. portion of the LHC project were: - CMS 61 percent - ATLAS 61 percent - Accelerator 68 percent.	*Meet the completion targets for the U.S. portion of the LHC project:* - *Compact Muon Solenoid (CMS) 77 percent* - *Argonne Tandem Linac Accelerator System (ATLAS) 72 percent* - *Accelerator 85 percent.*	*Meet the completion targets for the U.S. portion of the LHC project:* - *CMS 85 percent* - *ATLAS 82 percent* - *Accelerator 92 percent.*
HEP scientific facilities were scheduled and operated such that unscheduled downtime on average is about 20 percent of scheduled operating time.	*Maintain and operate HEP forefront scientific facilities such that unscheduled downtime is less than 20 percent of the total scheduled operating time.*	*Maintain and operate HEP forefront scientific facilities such that unscheduled downtime is less than 20 percent of the total scheduled operating time.*

Program Strategic Performance Goal

SC7-1B: Perform the research and development needed to support the operation and upgrade of existing HEP facilities and to provide the tools and technology to develop new forefront facilities.

Performance Indicator: Demonstration of R&D milestones and prototype components.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*There were no related targets.*

Related FY 2001 Results	**SC7-1B FY 2002 Targets** (Revised Final)	**SC7-1B FY 2003 Proposed Targets**
The following results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target.		
Demonstrated 50 MV/m accelerating gradients in 11.4 GHz Next Linear Collider (NLC) accelerating structures are sustainable without significant structure damage.	*Demonstrate operation of 11.4 GHz accelerating structure for an NLC at 75 MV/m without significant structural damage.*	*Demonstrate operation of advanced design accelerating structure for the NLC at 70 MV/m.*
Successfully completed, at BNL, initial tests of carbon and mercury jet targets for the next generation of proton-driven accelerators.	*Complete construction of Linac Test Area at BNL for detailed targeting & capture studies.*	

Means and Strategies:

The High Energy Physics (HEP) program will support innovative, peer-reviewed scientific research to advance knowledge and provide insights into the nature of the fundamental forces of the universe and studies of the structure of matter, energy, space and time. The program also builds and supports the forefront scientific facilities and instruments necessary to carry out that research. All research projects undergo regular peer review and merit evaluation based on procedures set down in 10 CFR 605 for the extramural grant program, and under a similar modified process for the laboratory programs and scientific user facilities. All new projects will be selected by peer review and merit evaluation.

The HEP program will manage its national scientific user facilities to serve and collaborate with researchers from universities, national laboratories, Federal agencies, industrial laboratories, and foreign institutions, thus enabling the acquisition of new scientific knowledge. The national scientific user facilities include the Tevatron at Fermilab and the B-factory at the Standford Linear Accelerator Center (SLAC). The program also supports the research of U.S. scientists at a number of foreign accelerator facilities, and research at non-accelerator facilities such as the large underground neutrino detectors in Japan and Canada. The program formally peer reviews its scientific user facilities to assess the scientific output, user satisfaction, and the overall cost-effectiveness of each facility's operations, and their ability to deliver the most advanced scientific capability to its user community.

In FY2003, the HEP program has allocated resources to emphasize the high priority given to the "discovery potential" experiments underway at the Tevatron and B-factory. This will enable a series of accelerator and detector improvements necessary to maximize the quantity and quality of data produced at these facilities.

Collaboration Activities:

The HEP program is closely coordinated with the research activities of the National Science Foundation (NSF). The major scientific facilities required by NSF scientists are usually the DOE facilities, and DOE-supported researchers also use NSF facilities. NSF often supports the fabrication of major research equipment at DOE user facilities.

DOE and NSF jointly charter the Federal advisory committee on high-energy physics (HEPAP). The HEP program has also begun collaborations with NASA on space-borne experiments to address fundamental questions at the intersection between particle physics and astrophysics.

The HEP program collaborates with researchers from many countries. Large numbers of foreign scientists, who also provide monetary and equipment support, heavily utilize High Energy Physics user facilities, including Collider Detector Facility (CDF) and D-Zero at Fermilab, and the B-factory at SLAC. The HEP program is also a major participant in the international project to build the Large Hadron Collider (LHC) and two of its large detectors, Argonne Tandem Linac Accelerator System (ATLAS) and Compact Muon Solenoid (CMS). The LHC is an energy-frontier accelerator facility now under construction at European Organization for Nuclear Research (CERN) in Geneva, Switzerland. A joint DOE-NSF management team oversees U.S. participation in the LHC project.

These programs also promote the transfer of the results of its basic research to a broad set of technologies involving advanced materials, national defense, medicine, space science and exploration, and industrial processes. HEP user facilities are often utilized by other Federal agencies (e.g., NASA) and industry to carry out important studies of the effects of particle beams (radiation) in a variety of materials, and for diagnostic purposes. The involved industry or Federal agency supports such studies.

External Factors Affecting Performance:

External factors in addition to budgetary constraints that affect the level of performance on these goals include: (1) changing mission needs as described by the DOE and the Office of Science (SC) mission statements and strategic plans; (2) scientific opportunities as determined, in part, by proposal pressure, scientific workshops, and Long Range Plans; (3) the results of external program reviews and international benchmarking activities of entire fields or sub fields, such as those performed by the National Academy of Sciences (NAS); (4) assessments of program balance and relevance, including considerations of activities funded by non-HEP Program sources; and (5) strategic and programmatic decisions made by non-DOE funded domestic research activities and by major international research centers.

Validation and Verification:

Data Sources:	HENP Website: http://www.science.doe.gov/production/henp.html. Planning and operations documents and agreements such as MOUs and research facility Program Advisory Committee reports. Annual reports of facility performance, experimental and research proposals, and laboratory Program Advisory committee reports are reported to headquarters. Project Management Plans, external peer reviewer comments, published scientific papers, and Cost, Scope, and Schedule reviews.
Baselines:	Baselines and timelines that contain the milestones, rate of activity, schedules, etc. of facility upgrades and projects identified in the FY 2003 budget request and project planning documents.
Frequency:	The High Energy and Nuclear Physics Programs conduct a formalized peer review process for activities at the DOE laboratories and peer reviews grant applications on a regular basis. The major laboratories (Fermilab, SLAC, BNL, ANL, TJNAF and LBNL) are reviewed on an annual basis. Annual projects reviews; review of university grants upon inception and periodically thereafter, and High Energy Physics Advisory Panel and NSAC sub panels convene on a 2-4 year basis to examine progress and direction of the field.
Data Storage:	These documents reside at headquarters, operations offices, and at each facility.
Verification:	The High Energy Physics program, and the DOE/NSF High Energy Physics Advisory Panel, as well as the Nuclear Physics Program and the DOE/National Science Foundation (NSF) Nuclear Science Advisory Committee (NSAC) on an on-going basis conduct broad program reviews.

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GPRA Program Activity: Nuclear Physics

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
250 Science					
Nuclear Physics	Nuclear Physics	SC	352	359	382

Description of the Program:

The mission of the Nuclear Physics (NP) Program is to foster fundamental research in nuclear physics that will provide new insights and advance our knowledge on the nature of matter and energy and develop the scientific knowledge, technologies, and trained manpower that are necessary to underpin the DOE's missions for nuclear-related national security, energy, and environmental quality. The Program provides world-class, peer-reviewed research results and operates user accelerator facilities in the scientific disciplines encompassed by the NP mission areas, under the mandate provided in Public Law 95-91 that established the Department of Energy.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

SC2-1: Determine the structure of nucleons in terms of bound states of quarks and gluons. Measure the effects of this structure on the properties of atomic nuclei.

Performance Indicators: Results of external and internal reviews of quality; relevance and leadership of research activities and facility operations; and, number of significant scientific discoveries.

Related FY 1999 Results	Related FY 2000 Results
Complete construction and begin operation of the Relativistic Heavy Ion Collider (RHIC) at the Brookhaven National Laboratory (BNL). (MET GOAL)	*Advance knowledge from experiments at the RHIC to see possible evidence of the predicted quark-gluon plasma (a high-temperature, high-density state of nuclear matter that may have existed a millionth of a second after the "Big Bang").* (MET GOAL)

Related FY 2001 Results	SC2-1 FY 2002 Targets (Revised Final)	SC2-1 FY 2003 Proposed Targets
Continue construction of the Neutrinos at the Main Injector Project, meeting milestones as detailed in the benchmark plan. (BELOW EXPECTATIONS)		
Complete fabrication of the Bates Large Acceptance Spectrometer (BLAST) detector at Massachusetts Institute of Technology (MIT) Bates in accordance with the project milestones. (MET GOAL)	*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 G0 detector, a joint NSF-DOE project, at TJNAF.*	*Complete first experiments with the BLAST detector at MIT/Bates, studying the structure of nucleons and few body nuclei as elements of the electron beam program. Map out the strange quark contribution to nucleon structure using the G0 detector, utilizing the high intensity polarized electron beam developed at TJNAF as elements of the electron beam program.*
The following results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target.		
As elements of the electron beam program, (a) completed fabrication of the BLAST detector at MIT/Bates in accordance with project milestones, and (b) conducted precise studies of nucleon structure, including studies of the proton's internal charge distribution and role of Quantum Chromocynamies (QCD) in nuclear structure by delivering high intensity (140 micro amps), highly polarized (75 percent) electron beams with Continuous ElectronBean Accelerator Facility (CEBAF) at Thomas Jefferson National Accelerator Facility (TJNAF).		
	Commission polarized protons at the Relativistic Heavy Ion Collider (RHIC). for research programs directed at understanding the spin structure of the proton.	*Collect first data with polarized protons with the Solenoidal Tracker RHIC (STAR), Pioneering High Energy Nuclear Interacting Experiment (PHENIX), and pp2pp detectors.*

Program Strategic Performance Goal

SC2-2: Determine the behavior and properties of hot, dense nuclear matter as a function of temperature and density. Discover and characterize the quark-gluon plasma.

Performance Indicators: Results of external and internal reviews of quality; relevance and leadership of research activities and facility operations; and, number of significant scientific discoveries.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*There were no related targets.*

Related FY 2001 Results	**SC2-2 FY 2002 Targets** (Revised Final)	**SC2-2 FY 2003 Proposed Targets**
The following additional results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target.		
Produced first heavy-ion collisions at the Relativistic Heavy Ion Collider (RHIC - construction completed FY1999) at 10 percent of its design luminosity, as planned, with four experimental detectors. Published first results of heavy-ion collisions.	*Complete first round of experiments at RHIC at full energy; achieve the full design luminosity (collision rate) of 2 x 10^{26} cm^{-2} s^{-1} for heavy ions.*	*Initiate first round of experiments with collisions with other ions to compare to results of gold-gold collisions.*
Continued major accelerator improvement projects at RHIC in order to improve machine reliability and efficiency.	*Complete Helium Storage addition and liquid nitrogen standby cooling system at RHIC, leading to better cost effectiveness ($0.5M savings) and operational efficiency (10 percent increase).*	*Upgrade the RHIC cryogenics system by replacing turbine oil skids and removing the seal gas compressor, eliminating a single point failure.*

Program Strategic Performance Goal

SC2-3: Determine the low energy properties of nuclei, particularly at their limits of stability. Use these properties to understand energy generation and the origin of the elements in stars, and the fundamental symmetries of the "Standard Model" of elementary particle physics.

Performance Indicators: Results of external and internal reviews of quality; relevance and leadership of research activities and facility operations; and, number of significant scientific discoveries.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*There were no related targets.*

Related FY 2001 Results	**SC2-3 FY 2002 Targets** (Revised Final)	**SC2-3 FY 2003 Proposed Targets**
The following results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target.		
Produced first results on the solar neutrino flux with the Sudbury Neutrino Observatory (SNO). SNO measures properties of solar neutrinos.	*Collect the first data from neutral current interactions from SNO.*	*Collect the first data from KamLAND, a joint U.S.-Japan experiment measuring neutrinos produced in nuclear reactors.*
Tested low-energy prototype of RIA fast catcher and tested low-beta accelerator cavities.	*Construct a prototype high-energy, high-power gas catcher for RIA.*	*Complete testing the prototype high-energy, high-power gas catcher, and prototype targets for Rare Isotope Accelerator (RIA). Complete prototype Electron Cyclotron Resonance (ECR) ion source, and work on the development of the high-beta superconducting Radio Frequency (RF) cavities for RIA.*

Program Strategic Performance Goal

SC7-2: Manage all Nuclear Physics (NP) facility operations and construction to the highest standards of overall performance, using merit evaluation with independent peer review.

Performance Indicators - Percent on time/within budget; percent unscheduled downtime.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*There were no related targets.*

Related FY 2001 Results	**SC7-2 FY 2002 Targets** (Revised Final)	**SC7-2 FY 2003 Proposed Targets**
The following results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target.		
Maintained and operated NP scientific user facilities so that the unscheduled operational downtime was 15 percent, on average, of total scheduled operating time.	*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.*	*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.*
Met the cost and schedule milestones for construction of facilities and Major Items of Equipment within 10 percent of baseline estimates. Completed on schedule the Analysis System for Relativistic Heavy Ion Collider (RHIC) Detectors and RHIC Silicon Vertex Detector.	*Meet the cost and schedule milestones for construction of facilities and Major Items of Equipment within 10 percent of baseline estimates. Complete the Pioneering High Energy Nuclear Interacting Experiment (PHENIX) Muon Arm Instrumentation.*	*Meet the cost and schedule milestones for construction of facilities and Major Items of Equipment within 10 percent of baseline estimates. Complete the Solenoidal Tracker at RHIC (STAR) Electro-Magnetic Calorimeter (EMCAL).*

Means and Strategies:

The Nuclear Physics (NP) program will support innovative, peer-reviewed scientific research to advance knowledge and provide insights into the nature of energy and matter, in particular to investigate the fundamental forces of the natural world that hold the nucleus of the atom together, and determine the detailed structure and behavior of atomic nuclei. The program also builds and supports the forefront scientific facilities and instruments necessary to carry out that research. All research projects undergo regular peer review and merit evaluation based on procedures set down in 10 CFR 605 for the extramural grant program and under a similar modified process for the laboratory programs, and scientific user facilities, and all new projects will be selected by peer review and merit evaluation. A primary objective of the program is also to support the training of graduate students and postdoctoral associates, the next generation of nuclear scientists that will perform research in a wide variety of fields, in basic research as well as in applications critical to the national security, nuclear medicine, and environmental science.

This research is directed to accomplish the four NP program specific program goals, and is primarily based at its national scientific user facilities that serve researchers from universities, national laboratories, Federal agencies, industrial laboratories, and foreign institutions. These national scientific user facilities include the new Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory (BNL), the Thomas Jefferson National Accelerator Facility (TJNAF), the Massachusetts Institute of Technology (MIT)/Bates Linear Accelerator Center (BLAC), and three low energy user facilities: the Argonne Tandem Linac Accelerator System (ATLAS) at Argonne National Laboratory (ANL), the 88-Inch Cyclotron at Lawrence Berkeley National Laboratory, and the Holifield Radioactive Ion Beam Facility (HRIBF) at Oak Ridge National Laboratory (ORNL). The storage and analysis of data from these facilities and the performance of theoretical calculations to understand the experimental results require extensive computing resources that are also primarily located at these national laboratories. The program also supports some university accelerator laboratories and non-accelerator facilities such as the Sudbury Neutrino Observatory (SNO), which is a large neutrino detector located 7,000 feet below the earth's surface in Sudbury, Ontario, Canada. The NP program formally peer reviews its scientific user facilities annually to assess the scientific output, user satisfaction, and the overall cost-effectiveness of each facility's operations and ability to deliver the most advanced scientific capability to its user community.

Collaboration Activities:

The NP program is closely coordinated with the research activities of the National Science Foundation (NSF). The major scientific facilities required by NSF supported scientists are usually the DOE facilities. NSF often jointly supports the fabrication of major research equipment at DOE user facilities.

Scientists supported by the NP program collaborate with researchers from many countries. Large numbers of foreign scientists, who also provide monetary and equipment support, heavily utilize all the NP user facilities, especially RHIC at BNL and TJNAF. The program also supports some collaborative work at foreign accelerator facilities. The program promotes the transfer of the results of its basic research to a broad set of technologies involving advanced materials, national defense, medicine, space science and exploration, and industrial processes. In particular, nuclear reaction data are an important resource for these programs. Also, NP user facilities are utilized by other Federal agencies (e.g., NASA) and industry to carry out important studies of the effects of particle beams (radiation) in a variety of materials and biological systems. In particular, NASA is developing a major facility to be completed in FY 2003 using heavy-ion beams from the Booster Synchrotron at RHIC/BNL for studying radiation effects in conjunction with possible future travel to Mars.

External Factors Affecting Performance:

External factors in addition to budgetary constraints that affect the level of performance on these goals include (1) unanticipated failures in critical components of scientific user facilities that cannot be mitigated in a timely manner; and (2) strategic and programmatic decisions made by non-DOE funded domestic research activities and by major international research centers.

Validation and Verification:

Data Sources:	HPNP Website: http://www.science.doe.gov/production/henp.html. Planning and operations documents and agreements such as MOUs and research facility Program Advisory Committee reports; annual reports of facility performance, experimental and research proposals, and laboratory Program Advisory committee reports are reported to Headquarters; Project Management Plans, external peer reviewer comments, published scientific papers and Cost, Scope and Schedule reviews; hours of operation and numbers of users are recorded by laboratories and reported to Headquarters.
Baselines:	Baselines and timelines that contain the milestones, rate of activity, schedules, etc., of facility upgrades and projects identified in the FY 2003 budget request and project planning documents.
Frequency:	The Nuclear Physics (NP) Program conducts a formalized peer review process for activities at the DOE laboratories, and peer reviews grant applications on a regular basis. The major laboratories, the Relativistic Heavy Ion Collider (RHIC) and Thomas Jefferson National Accelerator Facility (TJNAF), are reviewed on an annual basis. Projects are reviewed annually; university grants are reviewed upon inception and tri-annually thereafter, and Nuclear Science Advisory Committee sub-panels are convened on a 4-6 year basis to examine progress and direction of subprograms.
Data Storage:	These documents reside at Headquarters, operations offices, and at each facility.
Verification:	The DOE/National Science Foundation (NSF) Nuclear Science Advisory Committee, on an ongoing basis, conducts broad program reviews.

Planned Program Evaluation:

The Nuclear Science Advisory Committee (NSAC) is charged periodically to review various subprograms within the Nuclear Physics Program. In FY 2002 the Low-Energy Subprogram was evaluated; no such reviews are planned for FY 2003. NSAC is also charged to prepare a Long-Range Plan approximately every 5-6 years to identify the most promising scientific opportunities, and such a plan is being completed during FY 2002.

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GPRA Program Activity: Biological and Environmental Research

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
250 Science					
Biological and Environmental Research	-	SC	514	570	504

Description of the Program:

For over 50 years, the Biological and Environmental Research (BER) program has been advancing environmental and biomedical knowledge that promotes national security through improved energy production, development, and use; international scientific leadership that underpins our nation's technological advances; and environmental research that improves the quality of life for all Americans. BER supports these vital national missions through competitive and peer-reviewed research at National Laboratories, universities, and private institutions. In addition, BER develops and delivers the knowledge needed to support the President's National Energy Plan, provides the science base in support of the Energy Policy Act of 1992, and works cooperatively with DOE's national security programs to develop tools to combat terrorism.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

SC3-1: Determine, compare, and analyze DNA sequences of microbes and other organisms that will underpin development of biotechnology solutions for clean energy, carbon sequestration, environmental cleanup, and bioterrorism detection and defeat.

Performance Indicator: Base pairs of DNA sequenced per year.

Related FY 1999 Results	Related FY 2000 Results
Complete sequencing of 30 million subunits and, draft sequence of 30 million additional subunits of human DNA for submission to publicly accessible databases. (NEARLY MET GOAL)	*Complete the sequencing of 50 million subunits of human DNA to submit to publicly accessible databases in FY 2000.* (EXCEEDED GOAL)

Related FY 2001 Results	**SC3-1 FY 2002 Targets** (Revised Final).	**SC3-1 FY 2003 Proposed Targets**
By the end of FY 2001, the DOE Joint Genome Institute (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. (EXCEEDED GOAL)	*By the end of FY 2002, the DOE 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.*	*Complete the high quality DNA sequencing of human chromosome 5.* *Increase the DNA sequencing capacity of the DOE JGI with no additional funding, to approximately eight billion base pairs of DNA sequence per year, a 100 percent increase in the projected capacity over FY 2001.* *Establish at least 30 diverse collaborations for high throughput DNA sequencing with scientists outside the DOE JGI important for conducting Genomics and Genomes to Life research.*
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. (EXCEEDED GOAL)	*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.*	*Produce draft DNA sequences of more than 30 microbes vital to future U.S. energy security and independence, carbon sequestration, and environmental cleanup.*

Program Strategic Performance Goal

SC3-2: Establish the scientific foundation for determining a safe level of greenhouse gases and aerosols in the atmosphere by resolving or reducing key uncertainties in predicting their effects on climate, and provide the foundation to predict, assess, and mitigate potential adverse effects of energy production and use on the environment.

Performance Indicator: Climate model resolution.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*Continue Atmospheric Radiation Measurement (ARM) accomplishments by conducting five intensive operations periods at the ARM Southern Great Plains site. Data will be obtained from the second station on the North Slope of Alaska. The third station in the Tropical Western Pacific, on Christmas Island, will become operational.* (MET GOAL) *Proceed with the development of the next generation coupled ocean-atmosphere climate model, leading to better information for assessing climate change and variability at regional rather than global scales. This next generation model will change grid size from the current 300-500 kilometers on a side to less than 200 kilometers on a side.* (MET GOAL) *In cooperation with NASA, NSF, USDA/Forest Service, and the Smithsonian Institution, provide quantitative data on the annual exchange of carbon dioxide between the atmosphere and terrestrial ecosystem from 25 AmeriFlux sites representing major types of ecosystem and land uses in North and Central America. Provide data on environmental factors, such as climate variation, on the net sequestration or release of carbon dioxide and the role of biophysical processes controlling the net exchange.* (MET GOAL)

Related FY 2001 Results	**SC3-2 FY 2002 Targets** (Revised Final)	**SC3-2 FY 2003 Proposed Targets**
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 made operational the third station in the Tropical Western Pacific on Christmas Island on schedule and within budget, in accordance with the program plan. (EXCEEDED GOAL)	*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.*	*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, and by increasing 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.*

Program Strategic Performance Goal

SC7-3: Manage all Biological & Environmental Research (BER) facility operations and construction to the highest standards of overall performance, using merit evaluation with independent peer review.

Performance Indicator: Percent on time/within budget and percent unscheduled downtime.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*There were no related targets.*

Related FY 2001 Results	SC7-3 FY 2002 Targets (Revised Final)	SC7-3 FY 2003 Proposed Targets
The following results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target.		
Upgrades and construction of scientific user facilities were kept within 10 percent of cost and schedule milestones. Commissioning of the protein crystallography Structural Biology User Station at the Los Alamos National Laboratory (LANL) was initiated and construction of the Center for Comparative and Functional Genomics (CCFG) at Oak Ridge National Laboratory was initiated.	*Keep within 10 percent of cost and schedule milestones for upgrades and construction of scientific user facilities; begin acceptance testing of the new high performance computer at the Environmental Molecular Sciences Laboratory (EMSL) at the Pacific Northwest National Laboratory (PNNL); continue construction of the CCFG at ORNL.*	*Keep within 10 percent of cost and schedule milestones for upgrades and construction of scientific user facilities; begin operation of the new high performance computer at the EMSL at the PNNL; complete construction of the CCFG at ORNL.*
The BER scientific user facilities were maintained and operated so the unscheduled downtime on average was less than 10 percent of the total scheduled operating time.	*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.*	*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.*

Means and Strategies:

The Biological and Environmental Research (BER) program supports peer reviewed, fundamental research at DOE national laboratories, leading universities, and private research institutions. The BER Advisory Committee reviews BER programs. Scientific personnel include biologists, microbiologists, engineers, and atmospheric and environmental scientists, as well as the scientific and technical program managers.

The DOE Production Genomics Facility is upgrading its DNA sequencing capacity with machines that can process 384 samples simultaneously, instead of the current 96. This new capacity coupled with ongoing cost reduction efforts will contribute to the new sequencing capacity target. The Joint Genome Institute (JGI) will complete the high quality sequence of human chromosome 5 in early FY 2003, through efforts at Los Alamos National Laboratory (LANL) and Stanford University. BER issued a request for scientific proposals for microbes for genomic sequencing. The genomic sequencing of these microbes in FY 2003, and developing partnerships for DNA sequencing at other federal agencies, will lead to a diverse set of new collaborations at the JGI.

Data from the Atmospheric Radiation Measurement (ARM) program's three, fully-operational sites will contribute to the development of improved climate models. Improvements in computing software and in new algorithms will contribute to this target.

The successful operation and maintenance of scientific user facilities will be monitored through user surveys, tracking of scientific productivity, and monitoring of cost and operational efficiency.

Collaboration Activities:

The DOE Human Genome program is part of the international Human Genome Project. In the U.S. the program is coordinated with the National Institutes of Health (NIH) as described in the 1998 DOE/NIH 5-year plan for the U.S. Human Genome Project, published in the October 26, 1998 issue of *Science* magazine. Microbial genomics activities are coordinated within the Department and other Federal agencies through the interagency Microbe Project Working Group. The climate modeling activities are part of DOE's contribution to the U.S. Global Change Research Program, an interagency program codified by Public Law 101-606, and involving nine federal agencies.

Scientists use all BER's facilities for genomics, structural biology, and climate change research with research funds from DOE and many other agencies.

External Factors Affecting Performance:

Achieving sequencing objectives depends on continued high quality performance of DNA sequencing machines, and on retention of key personnel at the DOE JGI. There is continued pressure on key personnel to join biotechnology companies for increased financial compensation, responsibility, and scientific resources. Success in achieving modeling objectives depends on continued progress in development and operation of software and algorithms for high performance computers, and on continued high quality performance of ARM sites to provide comprehensive data sets on the role of clouds in climates. Successful operation of research facilities depends on continued successful operation of existing equipment, and on upgrades to maintain state-of-the-art research capabilities.

Validation and Verification:

Data Sources:	JGI website (http://www.jgi.doe.gov/) for updates on sequencing efficiency. ARM data is on the web at (http://www.archive.arm.gov/). Data on scientific facilities is collected throughout the year.
Baselines:	FY 2003 targets were based on FY 2001 capabilities in sequencing and modeling.
Frequency:	Frequency of data collection: DNA sequencing progress is monitored weekly.
Data Storage:	DNA sequence data is stored on the JGI website (http://www.jgi.doe.gov/) and in GenBank, the Federal DNA sequence database (http://www.ncbi.nlm.nih.gov). ARM data is stored in the ARM data archive (http://www.archive.arm.gov/).

Verification:	DNA sequencing data entered into GenBank will be available for independent scientific evaluation. ARM data are being used by the global climate modeling community and can be verified by peer review. Climate model analysis and comparison is a central component of the Program for Climate Model Diagnosis and Intercomparison (http://www-pcmdi.llnl.gov/).

Planned Program Evaluation:

The BER Advisory Committee is planning to evaluate all components of the BER program in FY 2003.

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GPRA Program Activity: Basic Energy Sciences

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
250 Science					
Basic Energy Sciences		SC	974	1,000	1,020

Description of the Program:

Basic Energy Sciences (BES) and its predecessor organizations have supported a program of fundamental research focused on critical mission needs of the Nation for over five decades. The Federal program that became BES began with the research effort that was initiated to help defend our Nation during World War II. The diversified program was organized into the Division of Research with the establishment of the Atomic Energy Commission in 1946, and was later renamed Basic Energy Sciences as it continued to grow through legislation included in the Atomic Energy Act of 1954, the Energy Reorganization Act of 1974, the Department of Energy Organization Act of 1977, and the Energy Policy Act of 1992.

Today, the mission of the BES program – a multi-purpose, scientific research effort – is to foster and support fundamental research in focused areas of the natural sciences, in order to expand the scientific foundations for new and improved energy technologies, and for understanding and mitigating the environmental impacts of energy use. BES delivers the knowledge needed to support the President's National Energy Plan for improving the quality of life for all Americans. In addition, BES works cooperatively with other agencies and the programs of the National Nuclear Security Administration (NNSA) to discover knowledge and develop tools to strengthen national security and combat terrorism. As part of its mission, the BES program plans, constructs, and operates major scientific user facilities to serve researchers at universities, national laboratories, and industrial laboratories.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

SC4-1: Build leading research programs in the scientific disciplines encompassed by the Basic Energy Science (BES) mission areas and provide world-class, peer-reviewed research results cognizant of DOE needs as well as the needs of the broad scientific community.

Performance Indicator: Validation of results by merit review with external peer evaluation.

Related FY 1999 Results	Related FY 2000 Results
	Maintain the high quality and relevance of DOE's science research effort as evaluated by annual peer reviews and advisory committees. (MET GOAL) *Continue Partnerships for Academic-Industrial Research where peer reviewed grants are awarded to university researchers for fundamental, high-risk work jointly defined by the academic and industrial research partners.* (MET GOAL)

Related FY 2001 Results	**SC4-1 FY 2002 Targets** (Revised Final)	**SC4-1 FY 2003 Proposed Targets**
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. Additional indicator of the success of our scientific research will be the recognition through the awards received by our researchers and by the broader scientific community. (MET GOAL)	*Competitively select and peer review at least 80 percent of all new research projects, and evaluate approximately 30 percent of ongoing projects using guidelines defined in 10 CFR 605 for the university projects, and similar guidelines established by BES for the laboratory projects.*	*Competitively select and peer review at least 80 percent of all new research projects, and evaluate approximately 30 percent of ongoing projects using guidelines defined in 10 CFR 605 for the university projects and similar guidelines established by BES for the laboratory projects.*
	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 chemical sciences activities using a Basic Energy Science Advisory Committee (BESAC) chartered Committee of Visitors.	*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 BESAC chartered Committee of Visitors.*
	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: superconductivity. Publish results and continue to structure BES programs in accordance with these results.	*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, radiation effects, materials synthesis and processing, and catalysis. Publish results and continue to structure BES programs in accordance with these results.*

Program Strategic Performance Goal

SC4-2: Enable U.S. leadership in nanoscale science, allowing the atom-by-atom design of materials and integrated systems of nanostructured components having new and improved properties for applications as diverse as high-efficiency solar cells and better catalysts for the production of fuels

Performance Indicator: Validation of results by merit review with external peer evaluation.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*There were no related targets.*

Related FY 2001 Results	**SC4-2 FY 2002 Targets** (Revised Final)	**SC4-2 FY 2003 Proposed Targets**
The following results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target.	*Begin engineering and design of three Nanoscale Science Research Centers (NSRC). Complete six percent of total Project Engineering Design (PED) at LBNL, 60 percent at ORNL, and 24 percent at SNL by the end of FY 2002.*	*Begin construction of one 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. Conduct engineering and design activities to establish construction baselines on the two other NSRCs.*
Initiated 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.	*Award 40 grants to universities and six projects at DOE laboratories in selected areas of nanoscale science, engineering, and technology.*	*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.*

Program Strategic Performance Goal

SC4-3: Develop advanced research instruments for x-ray diffraction, scattering, and imaging to provide diverse communities of researchers with the tools necessary for exploration and discovery in materials sciences and engineering, chemistry, earth and geosciences, and biology.

Performance Indicator: Validation of results by merit review with external peer evaluation.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*There were no related targets.*

Related FY 2001 Results	**SC4-3 FY 2002 Targets** (Revised Final)	**SC4-3 FY 2003 Proposed Targets**
There were no related targets.	*There were no related targets.*	*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.* *Establish collaborative, national Research &Development programs for common needs at the BES synchrotron light sources, e.g., for detectors and other components.*

Program Strategic Performance Goal

SC7-4A: Manage Basic Energy Sciences (BES) facility operations and construction to the highest standards of overall performance using merit evaluation with independent peer review.

Performance Indicator: Validation of results by merit review external with peer evaluation.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*Meet the cost and schedule milestones for the upgrade and construction of scientific facilities.* (MET GOAL) *Continue fabrication of instrumentation for the short-pulse spallation source at the Manual Lujan Jr. Neutron Scattering Center at the Los Alamos Neutron Science Center (LANSC).* (MET GOAL)

Related FY 2001 Results	SC7-4A FY 2002 Targets (Revised Final)	SC7-4A FY 2003 Proposed Targets
	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 percent of baseline. At the end of FY 2002, the upgrade of SPEAR 3 will be 70 percent complete.	*Complete the upgrade of the SPEAR 3 storage ring at the SSRL, maintaining cost and schedule within 10 percent of baselines.*
Maintain and operate the scientific user facilities so that the unscheduled downtime on average is less than 10 percent of the total scheduled operating time. (MET GOAL)	*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.*	*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.*

Program Strategic Performance Goal

SC7-4B: Restore U.S. preeminence in neutron scattering research, instrumentation, and facilities to provide researchers with the tools necessary for the exploration and discovery of advanced materials.

Performance Indicator: Validation of results by merit review with external peer evaluation.

Related FY 1999 Results	Related FY 2000 Results
Begin Title I design activities, initiate subcontracts and long-lead procurements, and continue research & development (R&D) work necessary to begin construction activities of the Spallation Neutron Source (SNS). (MET GOAL)	*Continue construction of the SNS, meeting cost and timetables as contained in the Critical Decision II agreement, to provide beams of neutrons used to probe and understand the physical, chemical, and biological properties of materials at an atomic level leading to better fibers, plastics, catalysts, and magnets and improvements in pharmaceuticals, computing equipment, and electric motors.* (MET GOAL)

Related FY 2001 Results	**SC7-4B FY 2002 Targets** (Revised Final)	**SC7-4B FY 2003 Proposed Targets**
Meet the cost and schedule milestones for upgrade and construction of scientific user facilities, including the construction of the Spallation Neutron Source. (MET GOAL)	*Continue construction of the Spallation Neutron Source (SNS), meeting the cost and timetables within 10 percent 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 percent complete.* *Select and begin fabrication of one additional instrument for the SNS.*	*Continue construction of the 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.* *Select and begin fabrication of one additional instrument for the SNS.* *Select and begin upgrade/ fabrication of one instrument each at the High Flux Isotope Reactor and the Manuel 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.*

Means and Strategies:

To demonstrate progress on the Program Strategic Performance Goals and achieve the FY 2003 targets, Basic Energy Science (BES) will support fundamental, innovative, peer-reviewed research to create new knowledge in areas important to the BES mission, i.e., in materials sciences, chemical sciences, geosciences, plant and microbial biosciences, and engineering sciences. All research projects will undergo regular peer review and merit evaluation based on procedures set down in 10 CFR 605 for the extramural grant program, and under a similar modified process for the laboratory programs and scientific user facilities. All new projects will be selected by peer review and merit evaluation.

To achieve reliability of facility operating schedules, BES will manage its premier national scientific user facilities for materials research and related disciplines to serve researchers at universities, national laboratories, and industrial laboratories, thus enabling the acquisition of new scientific knowledge. These scientific facilities include synchrotron radiation light sources, high-flux neutron sources, electron-beam microcharacterization centers, and specialized facilities such as the Combustion Research Facility. In managing these facilities, BES established baselines for all performance indicators for each scientific user facility using an annual survey tool developed in collaboration with the facility directors and the facility user coordinators. An integral part of the survey tool is an assessment of user satisfaction. BES also conducts formal peer reviews of its major scientific user facilities to assess the scientific output and overall quality of facilities.

To keep within 10 percent of cost and schedule baselines on the development and upgrade of scientific user facilities, including the construction of the Spallation Neutron Source (SNS), BES will conduct rigorous independent reviews using external experts in the areas of project management, cost, and schedule.

Collaboration Activities:
The BES program in fundamental science is closely coordinated with, and synergistic to, the activities of other federal agencies (e.g., NSF, NASA, U.S. Department of Agriculture (USDA), Department of Interior (DOI), and National Institute of Health (NIH). BES also promotes the transfer of the results of its basic research to contribute to DOE missions in areas of energy efficiency, renewable energy resources, improved use of fossil fuels, reduced environmental impacts of energy production and use, national security, and future energy sources. Hence, BES has extensive collaboration activities with other DOE programs, and collocates many of its research performers in national laboratories with the applied researchers of the DOE technology programs.

External Factors Affecting Performance:

External factors in addition to budgetary constraints that affect the level of performance on these goals include (1) changing mission needs as described by the DOE and the Office of Science (SC) mission statements and strategic plans; (2) scientific opportunities as determined, in part, by proposal pressure and scientific workshops; and, (3) the results of external program reviews and international benchmarking activities of entire fields or sub fields, such as those performed by the National Academy of Sciences (NAS).

Validation and Verification:

Data Sources:	BES Website: http://www.science.doe.gov/production/bes. Planning and operations documents and agreements such as MOUs, annual reports of facility performance, experimental and research proposals, and laboratory reports, external peer reviewer comments, published scientific papers, and Cost, Scope, and Schedule reviews.
Baselines:	Baselines and timelines that contain the milestones, rate of activity, schedules, etc. of the BES facility upgrades and construction activities identified in the FY 2003 budget request
Frequency:	BES conducts a formalized peer review process for activities at the DOE laboratories and peer reviews grant applications as described in 10 CFR 605 on a regular basis (at least once every 3-4 years).
Data Storage:	Documents reside at Headquarters, operations offices and at each facility.
Verification:	The Basic Energy Sciences Advisory Committee conducts broad program reviews on an ongoing basis.

Planned Program Evaluations:

In BES, all new research projects and approximately 30 percent of ongoing projects were competitively selected and peer reviewed in FY 2001. For BES, this will involve approximately 700 projects peer reviewed by over 2,000 expert reviewers in FY 2003.

The Basic Energy Sciences Advisory Committee (BESAC) met four times in FY 2001, and will meet three times in FY 2003 to review and discuss the status of major BES focus areas such as the Spallation Neutron Source (SNS) project; the Linac Coherent Light Source; Nanoscale Science, Engineering and Technology research directions; and the engineering and design of the Nanoscale Science Research Centers (NSRCs). Agendas, minutes, and presentations of BESAC meetings are available at: http://www.science.doe.gov/production/bes/besac/Meetings.html.

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GPRA Program Activity: Advanced Scientific Computing Research

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
250 Science					
Advanced Scientific Computing Research		SC	161	157	170

Description of the Program:

The mission of the Advanced Scientific Computing Research (ASCR) program is to foster and support fundamental research in advanced scientific computing – applied mathematics, computer science, and networking, and to provide the high performance computational and networking tools that enable DOE to succeed in its science, energy, environmental quality, and national security missions. The importance of advanced scientific computing to the missions of the Department was clearly stated in the "Scientific Discovery through Advanced Computing," (SciDAC) report, which was delivered to Congress in March 2001:

> "Advanced scientific computing is key to accomplishing the missions of the U.S. Department of Energy (DOE). It is essential to the design of nuclear weapons, the development of new energy technologies, and the discovery of new scientific knowledge. All of the research programs in DOE's Office of Science … have identified major scientific questions that can only be addressed through advances in scientific computing."

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

SC5-1: Build leading research programs in the focused disciplines of applied mathematics, computer science, and network and collaboratory research important to national and energy security to spur revolutionary advances in the use of high performance computers and networks.

Performance Indicator: Invited presentations at major national and international conferences.

Related FY 1999 Results	Related FY 2000 Results
Provide fundamental research in environmental sciences, biology, molecular sciences, and computational modeling that will underpin the cleanup of contaminated sites. (MET GOAL)	*Develop advanced computing capabilities, computational algorithms, models, methods, libraries, and advanced visualization and data management systems to enable new computing applications to science.* (MET GOAL)

Related FY 2001 Results	**SC5-1 FY 2002 Targets** (Revised Final)	**SC5-1 FY 2003 Proposed Targets**
The following results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target.		
Initiated 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.	*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.*	*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.*

Program Strategic Performance Goal

SC5-2: Create the Mathematical and Computing Systems Software and the High Performance Computing Facilities that enable Scientific Simulation and Modeling Codes to take full advantage of the extraordinary capabilities of terascale computers, and the Collaboratory Software Infrastructure to enable geographically-separated scientists to effectively work together as a team as well as provide electronic access to both facilities and data.

Performance Indicator: Software released to applications teams.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*Continue to fabricate, assemble, and operate premier supercomputer and networking facilities that serve researchers at national laboratories, universities and within industry, enabling understanding of complex problems and effective integration of geographically distributed teams in national collaborations.* (MET GOAL)

SC5-2 FY 2001 Results	SC5-2 FY 2002 Targets (Revised Final)	SC5-2 FY 2003 Proposed Targets
There were no related targets.		*Begin installation of next generation NERSC computer, NERSC-4, that will quadruple the capability available to solve leading edge scientific problems.*
	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.	*Initiate at least eight competitively selected interdisciplinary research teams to provide computational science and applied mathematics advances that will accelerate biological discovery in microbial systems and develop the next generation of computational tools required for nanoscale science based on peer review, in partnership with the Biological and Environmental Research (BER) and Basic Energy Sciences (BES) programs, respectively, of submitted proposals.*

Program Strategic Performance Goal

SC7-5: **Provide advanced scientific user facilities where scientific excellence is validated by external review; average operational downtime does not exceed 10 percent of schedule; construction and upgrades are within 10 percent of schedule and budget; and facility technology research and development programs meet their goals.**

Performance Indicator: Percent unscheduled downtime for scientific user facilities.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*Increase by 25 percent over FY 1999 the availability of peer-reviewed scientific journal literature, preprints, and reports to DOE and the public through collaborations with publishers, data compilers, exchange partners, and R&D programs using Web-based mechanisms.* (EXCEEDED GOAL) *Meet 75 percent of the requirements of computer facilities and networks users.* (NEARLY MET GOAL)

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Related FY 2001 Results	**SC7-5 FY 2002 Targets** (Revised Final)	**SC7-5 FY 2003 Proposed Targets**
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 delivery of 3.6 teraflop capability at the end of FY 2001 to support DOE's science mission. (EXCEEDED GOAL)	*Maintain and operate facilities, including NERSC and ESnet, so the unscheduled downtime on average is less than 10 percent of the total scheduled operating time.*	*Maintain and operate facilities, including NERSC and ESnet, so the unscheduled downtime on average is less than 10 percent of the total scheduled operating time.*
The following additional results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target.		
Initiated the review of Advanced Scientific Computing Research (ASCR) high performance computing facilities by the Advanced Scientific Computing Advisory Committee (ASCAC).	*Deliver preliminary report of ASCAC review of ASCR high performance computing facilities.*	*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.*
Expand and increase access to published and preprinted scientific and technical information via cost-effective, specialized information retrieval systems, resulting in a 25 percent increase in users served. (EXCEEDED GOAL)		

Means and Strategies:

The Office of Advanced Scientific Computing Research (ASCR) will support fundamental, peer-reviewed research to create new fundamental knowledge in areas of advanced computing research important to the Department of Energy. In addition, the ASCR program will plan, fabricate, assemble, and operate premier supercomputer and networking facilities that serve researchers at national laboratories, universities, and industry, thus enabling both new understanding through analysis, modeling, and simulation for complex problems, and effective integration of geographically distributed teams through national co-laboratories. Finally, the program will continue its leadership of the SC-wide Scientific Discovery through Advanced Computing (SciDAC) initiative and establish new partnerships with Basic Energy Science (BES) and Biological Environmental Research (BER) in the areas of nanotechnology and Genomes to Life. All research projects will undergo regular peer review and merit evaluation based on procedures set down in 10 CFR 605 for the extramural grant program, and under a similar modified process for the laboratory programs and scientific user facilities. All new projects will be selected by peer review and merit evaluation.

To continue to develop future generations of scientists with the breadth of skills required to be effective both in advanced computing research and in interacting with disciplinary sciences, the ASCR program supports the Computational Science Graduate Fellowship program.

Collaboration Activities:

The ASCR research program and facilities have been closely coordinated with the information technology research activities of other Federal Agencies (DARPA, EPA, NASA, NIH, NSA, and NSF) through the Computing Information and Communications R&D subcommittee of the National Science and Technology Council (NSTC), under the auspices of the Office of Science and Technology Policy. This coordination will continue in the future through the newly organized IT Group of Principals and IT2 Working Group, established in response to the recommendations of the President's Information Technology Advisory Committee (ITAC). In addition to this interagency coordination, ASCR has a number of partnerships with other programs in SC and other parts of the Department, focused on advanced application testbeds to apply the results of ASCR research to mission-critical problems in those areas. Finally, ASCR has a significant ongoing coordination effort with the National Nuclear Security Administration's (NNSA) Advanced Science Computing (ASC) Campaign to ensure maximum effectiveness of both computational science research efforts.

External Factors Affecting Performance:

External factors, in addition to budgetary constraints that affect the level of performance on these goals include: (1) changing mission needs as described by the DOE and the Office of Science (SC) mission statements and strategic plans; (2) scientific opportunities as determined, in part, by proposal pressure and by scientific workshops; (3) the results of external program reviews and international benchmarking activities of entire fields or sub fields.

Validation and Verification:

Data Sources:	ASCR Website: http://www.science/doe.gov/ascr The planning and operations documents and agreements (MOUs, etc.) of ASCR.
Baselines:	Baselines and timelines that contain the milestones, rate of activity, schedules, etc., of facilities operations that reside at Headquarters, operations offices, and each facility.
Frequency:	A formalized peer review process for activities at the DOE laboratories and peer reviews of grant applications as described in 10 CFR 605, are conducted on a regular basis (at least once every 3-4 years).
Data Storage:	Annual reports of facility performance and progress data are reported to, and reside at, Headquarters, operations offices, and at each facility
Verification:	Verification is conducted through broad program reviews, advisory committees, surveys, etc.

Planned Program Evaluation:

The Integrated Software Infrastructure Centers (ISICs) initiated in FY 2001 will undergo a progress review to ensure effective coupling between the ISICs, and between the ISICs and application teams in the Mathematical, Information, and Computational Science (MICS) Scientific Applications Pilot Projects efforts, and with the Scientific Discovery through Advanced Computing (SciDAC) Initiative.

GPRA Program Activity: Fusion Energy Sciences

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
250 Science					
Fusion Energy Sciences		SC	242	247	257

Description of the Program:

The Fusion Energy Sciences (FES) program leads the national research effort to advance plasma science, fusion science, and fusion technology—the knowledge base needed for an economically and environmentally attractive fusion energy source. Fusion offers the potential for abundant, safe, environmentally attractive, affordable energy. The science and the technology of fusion have progressed to the point that the next major research step is the exploration of the physics of a self-sustained plasma reaction in a burning plasma physics experiment. The Office of Science (SC) will fund research that supports such an experiment. In addition, SC will fund the exploration of innovative approaches to confining, heating, and fueling plasmas. In order to develop a predictive capability to design future fusion experiments and energy systems, unique, state-of-the-art experiments and theoretical models benchmarked against those experiments will be funded by SC. The characteristics of the materials used in the construction of fusion power plants will determine the environmental impact that those power plants will have on the environment. SC will support scientific research aimed at developing materials for fusion applications in coordination with its basic materials science program that will ensure that fusion-generated power will have a minimal environmental impact. SC will support and sustain basic plasma science research as the vital scientific core of the fusion program.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

SC6-1: Develop the basis for a reliable capability to predict the behavior of magnetically confined plasma, and use the advances in the Tokamak concept to enable the start of the burning plasma physics phase of the U.S. fusion sciences program.

Performance Indicator: The range of parameter space over which theoretical modeling and experiments agree.

Related FY 1999 Results	Related FY 2000 Results
Maintain high scientific quality in the Energy Research Program as judged by the Program Advisory Committees. (MET GOAL)	*Maintain high scientific quality in the Energy Research Program as judged by the Program Advisory Committees.* (MET GOAL) *Operate the DIII-D Tokamak facility to test the feasibility of using increased radio frequency heating power, and improved power exhaust capabilities to extend the pulse length of advanced operating modes, a requirement for future fusion energy sources.* (MET GOAL) *Operate a novel magnetic fusion confinement device, the National Spherical Torus Experiment, with 0.5 mega-ampere plasma currents approaching 0.5-second pulse lengths, and one mega-ampere currents for shorter pulses.* (MET GOAL) *Make operational three innovative concept exploration experiments in fusion science--The LSX field-reversed configuration and the flow-through Z pinch, both at the University of Washington, and the Pegasus quasi-spherical toroidal plasma at the University of Wisconsin -- providing basic scientific understanding of relevant concept phenomena.* (MET GOAL)

Related FY 2001 Results	**SC6-1 FY 2002 Targets** (Revised Final)	**SC6-1 FY 2003 Proposed Targets**
Complete by June 2001 the 6 MW power upgrade of the DIII-D microwave system, and initiate 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. (BELOW EXPECTATIONS) The following additional results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target. Improved nonlinear magneto-hydrodynamics codes to be capable of computing the effect of realistic resistive walls and plasma rotation on advanced Tokamak pressure limits.	*Use recently upgraded plasma microwave heating system and new sensors on DIII-D to study feedback stabilization of disruptive plasma oscillations.*	*Complete installation of internal coils for feedback control of plasma instabilities on DIII-D, and conduct a first set of experiments demonstrating the effectiveness of these coils in controlling plasma instabilities, and compare the results with theoretical predictions.*
Evaluated first physics results from the innovative Electric Tokamak at 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. (Exploratory Concept-Electric Tokamak)	*Successfully demonstrate innovative techniques for initiating and maintaining current in a spherical torus.*	*Produce high temperature plasmas with five megawatts of Ion Cyclotron Radio Frequency (ICRF) power for pulse lengths of 0.5 seconds in the Alcator C-Mod. Study the stability and confinement properties of these plasmas, which would have collisionalities in the same range as that expected for the burning plasma regime.*

Program Strategic Performance Goal

SC6-2: Develop the cutting edge technologies that enable Fusion Energy Sciences (FES) research facilities to achieve their scientific goals and investigate innovations needed to create attractive visions of designs and technologies for fusion energy systems.

Performance Indicator: Percentage of milestones met for installing components developed by the Enabling R&D program on existing experimental devices.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*There were no related targets.*

Related FY 2001 Results	**SC6-2 FY 2002 Targets** (Revised Final)	**SC6-2 FY 2003 Proposed Targets**
By June 2001, enter into a new NSF/DOE Partnership in Basic Plasma Science and Engineering to provide continuity after the present agreement ends, and initiate a new element of the U.S.-Japan collaborative program by the end of FY 2001. (BELOW EXPECTATIONS) The following additional results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target.		
Completed 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).	*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).*	*Complete testing of the High-Power Prototype advanced ion-cyclotron radio frequency antenna that will be used at the JET.*
Initiated a new U.S.-Japan collaborative program for research on enabling technologies, materials, and engineering science for an attractive fusion energy source.	*Complete measurements and analysis of thermal creep of Vanadium Alloy (V-4Cr-4Ti) in vacuum and lithium environments; determine controlling creep mechanisms and access operating temperature limits.*	*Complete preliminary experimental and modeling investigations of nano-scale thermodynamic, mechanical, and creep-rupture properties of nanocomposited ferritic steels.*

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Program Strategic Performance Goal

SC7-6: Manage all Fusion Energy Sciences (FES) facility operations and construction to the highest standards of overall performance, using merit evaluation and independent peer review.

Performance Indicator: Percent on time/within budget; percent unscheduled downtime.

FY 1999 Results	FY 2000 Results
There were no related targets.	*There were no related targets.*

Related FY 2001 Results	**SC7-6 FY 2002 Targets** (Revised Final)	**SC7-6 FY 2003 Proposed Targets**
The following results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target.		
Kept deviations in cost and schedule for upgrades and construction of scientific user facilities within 10 percent of approved baselines.	*Keep deviations in cost and schedule for upgrades and construction of scientific user facilities within 10 percent of approved baselines.*	*Keep deviations in cost and schedule for upgrades and construction of scientific user facilities within 10 percent of approved baselines.*
Achieved planned cost and schedule performance for dismantling, packaging, and offsite shipping of the Tokamak Fusion Test Reactor (TFTR) systems.	*Successfully complete within cost and in a safe manner all TFTR decontamination and decommissioning activities.*	
Kept deviations in weeks of operation for each major facility within 10 percent of the approved plan.	*Keep deviations in weeks of operation for each major facility within 10 percent of the approved plan.*	*Keep deviations in weeks of operation for each major facility within 10 percent of the approved plan.* *Complete the National Compact Stellarator Experiment (NCSX) Conceptual Design, and begin the Preliminary Design.*

Means and Strategies:

The Alcator C-Mod Lower Hybrid Heating (LHH) project and the National Compact Stellarator Experiment (NCSX) project will be managed so that deviations in cost and schedule are held to within 10% of approved baselines.

The Conceptual Design for the NCSX project will be complete the by documenting the resolution of all issues identified during the review of the Conceptual Design Report (COR). The Preliminary Design phase will be initiated.

Operation of each major fusion user facility will be managed so that deviations in operating time will be remain within 10 percent of the approved plan.

Testing will be completed for the High Power Prototype (HPP) advanced ion-cyclotron radio frequency antenna that will provide the technical basis for upgrading the plasma heating system in the Joint European Torus (JET).

Preliminary experimental and modeling investigations of nanoscale thermodynamic, mechanical, and creep-rupture properties of nanocomposited ferritic steels will be completed.

Installation of internal feedback control coils on DIII-D will be carried out under contract with General Atomics in San Diego, followed by initial plasma instability control experiments.

A dedicated series of plasma heating experiments using Ion Cyclotron Radio Frequency heating, culminating in 0.5-second pulse lengths, will be conducted on the Alcator C-Mod Tokamak system.

Collaboration Activities:

Testing of the HPP advanced ion-cyclotron radio frequency antenna is conducted under the United States Europe (US-EU) bilateral agreement on fusion research.

Key elements of the experimental investigations of nanoscale thermodynamic, mechanical, and creep-rupture properties of nanocomposited ferritic steels are conducted under a multi-national collaborative program of the International Energy Agency (IEA).

External Factors Affecting Performance:

Since the Alcator C-Mod Tokamak system is scheduled to be completed in FY 2003, most project activities will have been complete; however, there will be some risk in final assembly due to the first-of-a-kind nature of this innovative technology development.

NCSX will face the usual technological risks associated with first-of-a-kind design and fabrication activities. Contingency funds will be allocated in proportion to the individual sub-system risks.

The major user facilities will experience operational risks typical of those at large, complex research experiments.

Validation and Verification:

Data Sources:	EES Website: http://www.ofes.doe.gov Progress on the Alcator C-Mod and NCSX will be formally documented quarterly. For NCSX, the Princeton Plasma Physics Laboratory (PPPL) will prepare monthly cost and schedule reports. Progress on facility operation will be documented in quarterly reports prepared by the host facilities. Progress on testing of the HPP antenna will be documented in a report to be prepared at the conclusion of testing. Progress in fusion materials research will be documented in a semi-annual report prepared by ORNL. Progress in the collaborations for the HPP antenna and fusion materials work will be reported as part of the usual procedures for bilateral and multinational agreement reporting.
Baseline:	Baseline and timelines that contain milestones, rate of activity, schedules, etc., of the FES facility upgrades and construction activities identified in the FY 2003 budget request and project planning documents.
Frequency:	FES conducts a formalized peer review process for activities at the DOE laboratories, and peer reviews grant applications as described n 10 CFR 605 on a regular basis (at least once every 3 years).

Data Storage:	Documents reside at Headquarters, operations offices, and at each facility.
Verification:	DOE will review the physical progress on projects as well as the documentation. For NCSX, a DOE project manager will be located at the fabrication site. DOE personnel will review the facility operation progress quarterly, including on-site visits (typically, every other quarter). DOE program managers will review the HPP antenna work and fusion materials research in periodic progress meetings and by site visits. DOE program managers and collaboration committees, as part of the usual procedures for bilateral and multinational agreement oversight, will review collaborations activities on the HPP antenna and fusion materials work. Progress on installation of the internal feedback control coils on DIII-D, and experimental results will be on Alcator C-Mod, described in monthly progress reports that are submitted to Office of Fusion Energy Science (OFES), and reviewed at quarterly intervals by the program managers.

Planned Program Evaluation:

The Office of Science obtains validation of the relevance and quality of its current and new research efforts through peer review, in addition to the advisory committees and professional scientific associations that are involved in providing support and guidance to the SC programs. The Fusion Energy Sciences Advisory Committee (FESAC), like others in the Office of Science, is composed of industry, university, and government officials who are qualified in the scientific disciplines of the program area of the advisory committee. SC tasks them on various issues to provide advice to program managers on approaches, relevance of the research portfolio, and strategic planning.

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GPRA Program Activity: Science Management and Support

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
250 Science					
Program Direction		SC	140	152	139
Safeguards and Security (S&S)		SC	39	48	48
S&S Reimbursable Work		SC	(5)	(4)	(4)
Science Laboratories Infrastructure		SC	27	37	43
Energy Research Analyses		SC	1	1	1
270 Energy Supply					
Technical Information Management		SC	9	8	8
Total			211	242	235

Description of the Program:

Program Direction
The purpose of Science Program Direction account is to provide and support a skilled, highly motivated Federal workforce to manage a broad set of scientific disciplines, programs, projects, and facilities. This program enables a skilled, highly motivated Federal workforce to manage the Office of Science's (SC) research portfolio and facilities in support of new and improved energy, environmental, and health technologies, and provides continuous science education opportunities.

Science Program Direction consists of three subprograms: Program Direction, Science Education, and Field Operations. Beginning in FY 2003, Program Direction and Field Operations are realigned to include all functions performed in the Office of Science (SC) Field complex in the Field Operations subprogram. With this change, the Program Direction subprogram becomes the single funding source for the SC Federal staff in Headquarters responsible for directing, administering, and supporting the broad spectrum of SC scientific disciplines. The Science Education subprogram supports four educational human resource development programs. The Department is committed to programs that train students to enter careers in Science, Mathematics, Engineering, and Technology (SMET). Each of the development activities within the Science Education subprogram targets a different group to attract a broad range of students and faculty to the programs, and to expand the pipeline of students who can enter the SMET workforce. In this fashion, the activities should help our national laboratories and the nation meet the demand for a well-trained scientific/technical workforce, and strengthen the national security. The Field Operations subprogram is the centralized funding source for the field Federal workforce responsible for the management and administrative functions at the Chicago and Oak Ridge Operations Offices, and program management oversight provided by the site offices supporting SC laboratories and facilities, e.g., Argonne, Brookhaven, Fermi, and Lawrence Berkeley National Laboratories; the Princeton Plasma Physics Laboratory; the Thomas Jefferson National Accelerator Facility (TJNAF); the Stanford Linear Accelerator Center (SLAC); and the Spallation Neutron Source (SNS).

Safeguards and Security
The mission of the Office of Science (SC) Safeguards and Security (S&S) program is to ensure appropriate levels of protection against: unauthorized access, theft, diversion, loss of custody or destruction of Department of Energy (DOE) assets and hostile acts that may cause adverse impacts on fundamental science, national security or the health and safety of DOE and contractor employees, the public or the environment. Each site has a tailored protection program as analyzed and defined in each site's Security Plan (SP) or other appropriate plan. SC's Integrated Safeguards and Security Management (ISSM) strategy encompasses a graded approach to S&S. This approach allows each site to design varying degrees of protection commensurate with the risks and consequences described with their site-specific threat scenarios.

Science Laboratories Infrastructure
The mission of the Science Laboratories Infrastructure (SLI) program (formerly the Multiprogram Energy Laboratories – Facilities Support program) is to conduct Departmental research missions at the Office of Science (SC) multi-program and program dedicated laboratories by funding line item construction to maintain the general purpose infrastructure (GPI); and the clean-up and removal of excess facilities. The program also supports SC landlord responsibilities for the 36,000-acre Oak Ridge Reservation, and provides Payments in Lieu of Taxes (PILT) to local communities around Argonne National Laboratory-East (ANL-E), Brookhaven National Laboratory (BNL), and Oak Ridge National Laboratory (ORNL).

Energy Research Analysis
The mission of the Energy Research Analyses (ERA) program is to provide the capabilities needed to evaluate the scientific excellence, relevance, and international leadership of the SC basic science research programs; to advance the understanding of how the SC contributes to DOE and national mission goals; and to contribute to the effective management of the Department's science enterprise.

Technical Information Management
The mission of the Technical Information Management (TIM) program is to lead DOE e-government initiatives for disseminating information resulting from and relevant to the Department's $8.0 billion annual research and development (R&D) program. The Office of Scientific and Technical Information (OSTI), within SC, manages the TIM program. The TIM program provides electronic access to worldwide energy scientific and technical information to DOE researchers, U.S. industry, academia, and the science-attentive citizen through a set of cutting-edge, Internet-based information products for technical reports, scientific journals, and preprints – the three main sources in which scientific and technical information is recorded. As shared knowledge is the enabler of scientific progress, TIM helps to promote scientific progress.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG.

The following facing pages have 5 years of performance measures for SC8-1.

Program Strategic Performance Goal

SC8-1: Ensure efficient SC program management of research and construction projects through a re-engineering effort of SC processes by FY 2003 that will support world-class science through systematic improvements in SC's laboratory physical infrastructure, security, and environment, safety and health.

Performance Indicator: Measurable improvement in management and program operations that yield greater efficiencies.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*There were no related targets.*

FY 2001 Results	SC8-1 FY 2002 Targets (Revised Final)	SC8-1 FY 2003 Proposed Targets
The following results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target.		
Launched several research management studies to identify: (1) best practices in benchmarking, (2) best practices to administer public science communication, (3) effective use of quantitative performance measures to evaluate the societal impact of basic research, and (4) a case study methodology to ensure the success of future case studies of societal impact of science.	*Improve and integrate performance planning and measures between budget documents and DOE performance plans; conduct six pilot retrospective and/or prospective studies to examine the societal impact of SC research.* *Develop a 5-year program plan for addressing infrastructure needs. (FMFIA)*	*Publish results of quantitative performance measures study in open literature; fully incorporate results into SC evaluation regime. Conduct at least six studies/year to demonstrate the societal impact of SC science programs.*
Established and filled 10 Excepted Service (EJ) positions. Implemented process improvements and automated recruitment methods to expedite filling critical vacancies.	*Prepare a 5-Year Workforce Restructuring Plan. Recruit for all scientific and technical positions via the automated DOE Job Line to reach a more diverse candidate pool and decrease the time to fill positions. Implement a simplified position classification process/system to reduce administrative burdens and processing times.*	*Implement actions netting near-term results as identified in the 5-Year Workforce Plan. Initiate actions netting long-term culture and process changes.*
More than 1,000 applicants for undergraduate laboratory research internships were received. 479 students were selected for summer 2001. 479 students were placed.	*Increase the number and/or diversity of the applicants for summer internships by 20 percent.*	*Increase the number and/or diversity of the applicants for summer internships by 10 percent.*

Annual Results and Targets for SC8-1 (Continued)

FY 2001 Results	SC8-1 FY 2002 Targets (Revised Final)	SC8-1 FY 2003 Proposed Targets
The following additional results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP target.		
During FY 2001, no national security incidents occurred within SC that caused unacceptable risk or damage to the Department.	*Establish baseline of unauthorized access into SC Security areas or intrusions into SC Cyber Systems that process sensitive but unclassified information.*	*Achieve a 95 percent success rate for preventing unauthorized access into SC Security areas from FY 2002 baseline, or intrusions into SC Cyber Systems that process sensitive but unclassified information commensurate with risk from FY 2002 baseline.*
Expanded and increased access to published and pre-printed scientific and technical information via cost-effective information retrieval systems, resulting in a 25 percent increase in users served.	*Advance science knowledge and its application by providing access to 5,000 new full-text technical reports and increasing access to preprint servers from 5,200 to 8,000 sites.*	*Increase the number of new full-text technical reports available online by 5,000.*

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ENVIRONMENTAL QUALITY

The Department of Energy is committed to cleaning up sites across the country that supported the Nation's production and testing of nuclear weapons. The Office of Environmental Management (EM) is responsible for addressing the environmental legacy of nuclear weapons research, production, and testing and of DOE-funded nuclear energy and basic science research in the United States. During the Cold War, the nuclear weapons complex generated large amounts of waste, which pose unique problems--EM manages some of the most technically challenging and complex work of any environmental program in the world. By the end of FY 2003, EM plans to complete cleanup of at least 76 of the 114 contaminated geographic sites for which it has responsibility.

In addition to the environmental legacy of nuclear weapons production, the United States has growing inventories of commercial spent nuclear fuel currently stored at reactor sites in 33 States, and increasing inventories of spent fuel from nuclear-powered naval vessels. The Office of Civilian Radioactive Waste Management (RW) implements the Federal policy for permanent disposal of this spent nuclear fuel and of defense high-level radioactive waste.

The Department is committed to protecting the health and safety of its workers, the public, and the environment in accomplishing its mission. The Office of Environment, Safety and Health (EH) is the Department's independent advocate in this highly visible and critical role. The Department also recognizes the need to address impacts on workers and communities as a result of changing missions. The office of Worker and Community Transition provides support in the form of retraining, placement assistance and grants to workers and communities that are impacted by downsizing.

Environmental Quality (EQ) Goal

Aggressively clean up the environmental legacy of nuclear weapons and civilian nuclear research and development programs at 114 of the Department's sites; permanently dispose of the Nation's radioactive wastes; minimize the social and economic impacts to individual workers and their communities resulting from Departmental activities; and ensure the health and safety of DOE workers, the public, and protection of the environment.

Strategic Objectives

EQ1: Safely and expeditiously manage waste; cleanup facilities and the environment; and stabilize and store nuclear material and spent nuclear fuel, with the intent to complete cleanup of 16 additional sites by the end of 2006, bringing the total number of sites cleaned up to 92 out of the total 114. (EM)

EQ2: Obtain requisite licenses, construct and, in 2010, begin acceptance of spent nuclear fuel and high-level radioactive wastes at the repository.* (RW)

EQ3: Reduce the number of deaths, injuries and illnesses and environmental releases from environment cleanup and other operational activities, such that DOE organization activities remain below their averages established by DOE's last 5 years of data for: (1) Total Recordable Case Rate; (2) Occupational Safety Cost Index; (3) Hypothetical Radiation Dose to the Public; (3) Average measurable dose to DOE workers; and (5) Reportable Occurrences of Releases to the Environment. (EH)

EQ4: Assist DOE contract workers and communities that have been adversely affected as the result of downsizing or closing of Department facilities due to a change in, or termination of their program mission by providing (1) separation benefits comparable to industry standards while achieving annual savings that are three times the one-time cost of separation, and (2) creating and retaining jobs in the communities to absorb the displaced workers. (WT)

* This objective has been revised since the FY 2003 Budget Submission, and is contingent on site designation in 2002. The site characterization work has been completed. The Secretary of Energy has recommended the site, and the President has approved the Secretary's recommendation and forwarded it to Congress to officially designate Yucca Mountain as the repository site.

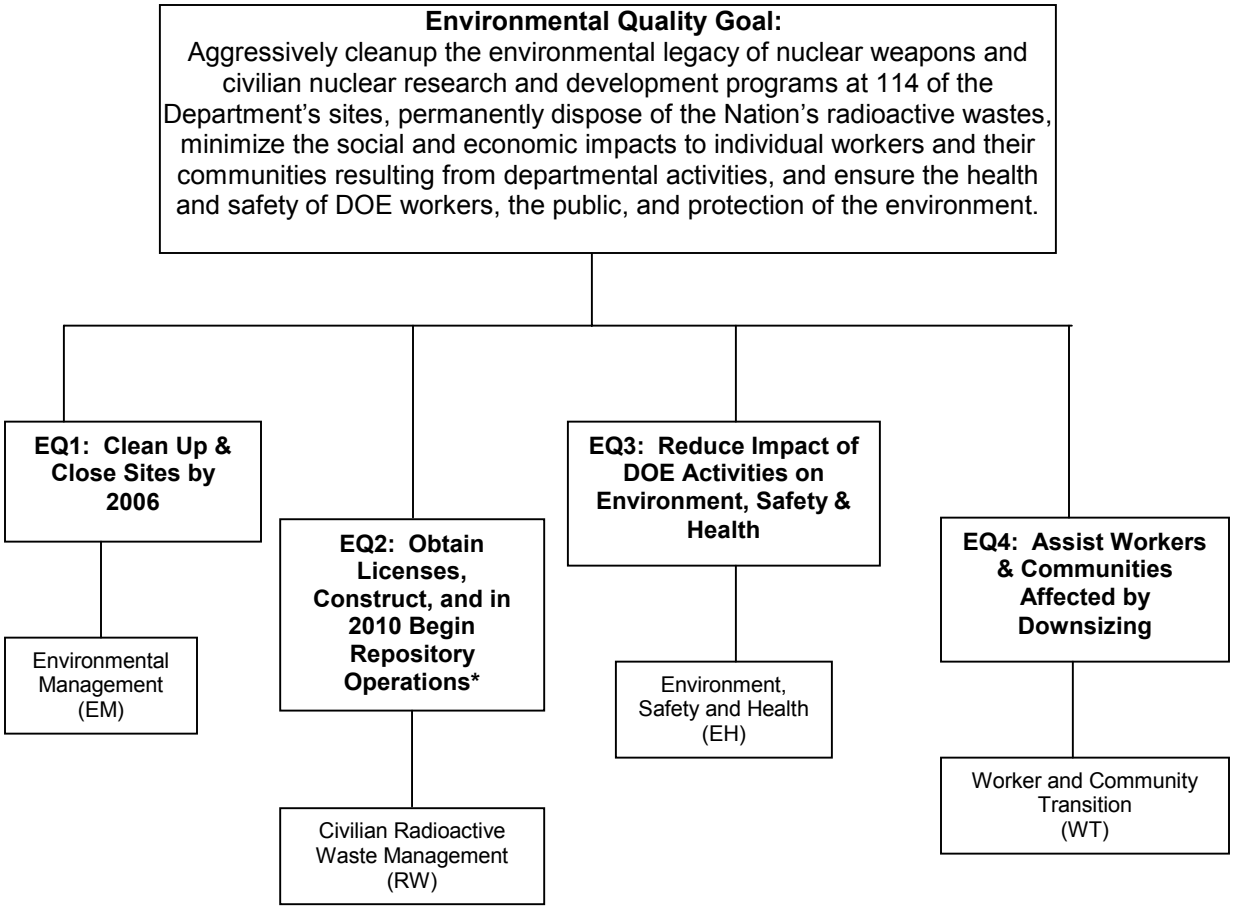
The following table maps the Presidential Budget's Program and Financing (P&F) accounts and program activities to the Department of Energy's offices and GPRA Program Activities. The alignment includes aggregation, disaggregation, and consolidation of budget decision units. The chart that follows this table shows how the GPRA Program Activities support the Department's strategic objectives for the Environmental Quality goal.

President's Budget Program and Financing (P&F) Accounts and Program Activities	FY 2003 Request ($M)	DOE Program Office	GPRA Program Activity
050 Atomic Energy Defense Activities			
Defense Environmental Restoration and Waste Management (ERWM)			
Site/Project Completion	788	EM	Environmental Management
Post 2006 Completion	1,717	EM	
Program Direction	358	EM	
EM Science & Technology	92	EM	
Excess Facilities	1	EM	
Multi-Site Activities	480	EM	
Post 2006 Completion - ORP	898	EM	
Safeguards and Security	228	EM	
Subtotal (ERWM)	4,562	EM	
Adjustments	446	EM	
Total (ERWM)	4,116	EM	
Defense Facilities Closure Projects	1,091	EM	
Defense Environmental Management Privatization	159	EM	
Environmental Management Cleanup Reform	800[1]		
Defense Nuclear Waste Disposal	315	RW	Civilian Radioactive Waste Management
Environment Safety and Health (Defense)	100	EH	Environment, Safety and Health
Worker and Community Transition	26	WT	Worker and Community Transition
270 Energy			
Non-Defense Environmental Management	166	EM	Environmental Management
Uranium Facilities Maintenance and Remediation	382	EM	
Nuclear Waste Disposal Fund	212	RW	Civilian Radioactive Waste Management
Environment Safety and Health (Non-Defense)	30	EH	Environment, Safety and Health
TOTAL - Environmental Quality	7,397		

Note:

1. The administration has shown a willingness to support an additional $300 million for EM Cleanup Reform.

Four Strategic Objectives support the Environmental Quality goal. Each strategic objective is being pursued through long-term strategies. In this Annual Performance Plan these long-term strategies have been stated in terms of Program Strategic Performance Goals, against which outcome performance indicators and annual (output) performance targets have been established. To make the linkage of these outcomes and outputs to the budget resources, we have organized the plan by GPRA Program Activities, which are aligned with the budget decision units through aggregation, disaggregation, and consolidation. The Program Strategic Performance Goals and indicators and annual targets are discussed with the GPRA Program Activities on the following pages. This approach allows us to clearly link annual performance with annual budget resources and the strategic plan objectives. The chart below gives an overview of the linkage of GPRA Program Activities and strategic objectives for Environmental Quality.



* Contingent on site designation in 2002

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GPRA Program Activity: Environmental Management

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
050 Defense Appropriation Accounts		EM	6,129	6,465	6,608
270 Non Defense Accounts		EM	703	655	548
D&D Fund Offset		EM	(419)	(420)	(442)
Total			**6,412**	**6,700**	**6,714***

* The administration has shown a willingness to support an additional $300 million for EM Cleanup Reform.

Description of the Program

The Environmental Management (EM) program budget structure categorizes projects according to their specific appropriation – Defense Environmental Restoration and Waste Management, Defense Facilities Closure, Defense Environmental Management Privatization, Non-Defense Environmental Management, and the Uranium Facilities Maintenance and Remediation Account. The structure of the EM budget continues to be based on the grouping of activities into projects at the various Departmental sites, a crucial step in accelerating work and lowering the cost of carrying out the EM mission. EM's budget program accounts reflect near-term goals and emphasis on completion:

- **Cleanup Reform** provides funding to accelerate activities related to site or facility closure or alternative cleanup strategies, which have the potential for significant life-cycle cost savings over the current baseline cleanup approach. These funds will be available only when current cleanup strategies are renegotiated with the State and regulatory officials, and agreement is reached on an approach to accelerate the cleanup of the site or facility.

- **Site Closure** provides funding for completing cleanup and closing down facilities at sites with no continuing federal presence, except for stewardship activities. This account includes activities at the Rocky Flats Environmental Technology Site in Colorado; and the Fernald Environmental Management Project, the Miamisburg Environmental Management Project, the Columbus Environmental Management Project, and the Ashtabula Environmental Management Project sites in Ohio. EM has established a goal of completing cleanup at the sites in this account by the end of 2006.

- **Site/Project Completion** is similar to the Site Closure account, except that it funds those projects (rather than sites) for which EM has established a goal of completion by 2006 at: (1) EM sites where overall site cleanup will not be fully accomplished by 2006; and (2) DOE sites where EM has set a goal of completion of all EM projects by 2006 (except for long-term stewardship activities), but where there will be a continuing Federal workforce at the site to carry out continuing non-EM missions. Examples of non-EM missions include support of nuclear weapons activities or scientific research, and the waste management activities to handle newly-generated wastes from these missions. This account includes projects and sites under the following Operations/Field Offices: Albuquerque, Chicago, Idaho, Oakland, Richland, the Office of River Protection, Savannah River, and multi-site activities.

  In a limited number of cases, sites have been placed in the Site/Project Completion account, even though there is no expectation of a continuing mission after cleanup is completed. In these instances, use of the Site Closure account would have created an additional appropriation control for an Operations/Field Office with a limited amount of associated funding, thereby hindering managerial flexibility in the execution of projects at these sites.

- **Post 2006 Completion** provides funding for projects and sites that are expected to require work beyond 2006. This includes projects at the following Operations/Field Offices: Albuquerque, Carlsbad, Idaho, Nevada, Oakland, Oak Ridge, Ohio, Richland, and Savannah River, and multi-site activities. This account also provides funding for the Federal contribution to the Uranium Enrichment Decontamination and Decommissioning Fund. This account includes efforts at the largest DOE sites, where cleanup will continue beyond 2006. Some projects have been moved from the Site Closure or Site/Project Completion accounts to this account, consistent with the budget structure, because the most recent estimates for those projects indicate that these projects will not be completed by 2006.

- **Post 2006 Completion--Office of River Protection** is solely responsible for activities at the Office of River Protection associated with the management, stabilization, treatment, storage, and vitrification of tank wastes. This program account was established due in part to the shift of the Hanford Waste Treatment and Immobilization Plant project from a privatization project to a traditional design and construction project.

- **Safeguards and Security** provides funding to ensure appropriate levels of protection against unauthorized access, theft, diversion, loss of custody, or destruction of DOE assets and hostile acts that may cause adverse impacts on national security or the health and safety of DOE and contractor employees, the public, or the environment. Each site has a tailored protection program consistent with its mission and functions.

- **Excess Facilities** supports the transfer of contaminated excess facilities to EM from other programs for surveillance and maintenance and eventual decontamination and decommissioning. The transfers constitute new work scope for the EM program.

- **Program Direction** provides the critical oversight and management functions for the EM program, including federal salaries, travel, and other costs. For FY 2003, EM is requesting funding to provide for 2,401 full-time equivalents across the DOE complex.

- **Science and Technology** funds the EM Technology Program out of the Defense Environmental Restoration and Waste Management appropriation. The EM Technology Program will focus on high priority technical needs at closure sites, identifying technical vulnerabilities, and focusing on near-term projects.

- **Other Uranium Activities Account** supports important government activities related to the Federal Uranium Enrichment Program that were not transferred to the United States Enrichment Corporation (USEC). Activities include management of highly-enriched uranium; management of facilities at the Paducah Gaseous Diffusion Plant and Portsmouth Gaseous Diffusion Plant; pre-existing liabilities; management of the Department's inventory of depleted uranium hexafluoride and other surplus uranium inventories; management of the DOE Material Storage Areas at the Paducah Gaseous Diffusion Plant; and placement and maintenance of the Portsmouth Gaseous Diffusion Plant in cold-standby.

- **Uranium Enrichment Decontamination and Decommissioning Fund** includes projects to maintain, decontaminate, decommission, and otherwise remediate uranium processing facilities. This account provides for the environmental management responsibilities at the nation's three gaseous diffusion plants in Paducah, Kentucky; Portsmouth, Ohio; and the East Tennessee Technology Park in Oak Ridge, Tennessee.

- **The Privatization Account** funds selected projects where the contractor finances the project and does not receive the contractually-specified payment from the government until the project or services are delivered in accordance with the contract. The FY 2003 Privatization request will enable EM to continue the Advanced Mixed Waste Treatment privatization project at the Idaho National Engineering and Environmental Laboratory.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

The following facing pages have 5 years of performance measures for EQ1-1.

Program Strategic Performance Goal

EQ1-1 Complete geographic site cleanup at 92 of the 114 cleanup sites by FY 2006. Continue cleanup at the remaining sites, including the five largest sites, scheduled for completion in the post 2006 timeframe.

Performance Indicators:
- Number of geographic sites completed.
- Number of release site cleanups completed.
- Number of facilities decommissioned.
- Number of facilities deactivated.

Related FY 1999 Results	Related FY 2000 Results
Geographic Site Cleanup (MET GOAL) EM completed three sites in FY 1999: Ames Laboratory in Iowa, Sandia National Laboratory in California, and Princeton Plasma Physics Laboratory in New Jersey.	*Complete remediation at 2 geographic sites. (FMFIA)* (MET GOAL) Monticello Remedial Action Project in Utah and Columbus Environmental Project-King Avenue in Ohio. *Monitor field activities and participate in reviews at Savannah River Operations Office to ensure adherence to project costs and schedules. This is an FY 2000 FMFIA milestone. (FMFIA)* (MET GOAL)
Release Site Cleanup Progress (NEARLY MET GOAL) EM completed 161 of the planned 165 release site cleanups.	*Complete 252 release site cleanups.* (NEARLY MET GOAL) Completed 207 release site cleanups.
Facility Decommissioning Progress (EXCEEDED GOAL) EM decommissioned 92 facilities exceeding the goal of 80.	*Complete 82 facility decommissionings.* (NEARLY MET GOAL) Completed 77 of the 82 facility decommisionings.
Facility Deactivation Progress	Deactivated 30 facilities.

EQ1-1 FY 2001 Results	**EQ1-1 FY 2002 Targets** (Revised Final)	**EQ1-1 FY 2003 Proposed Targets**
Complete remediation at 3 geographic sites. (MET GOAL) Completed remediation at Argonne National Laboratory-West in Idaho, Grand Junction Office Site in Colorado, and General Atomics Site in California. *Complete actions addressing safety and health issues at Paducah from 1990 forward. (Phase I) (FMFIA)* (MET GOAL)	*Complete remediation at one additional geographic site, the Weldon Spring Site in Missouri.* *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. (FMFIA).* *Update EM Infrastructure Restoration Plan to support 10-year facilities and infrastructure planning. (FMFIA)* *Complete action addressing safety and health issues at Paducah from 1990 forward (Phase 1). (FMFIA)*	*Complete remediation at one additional geographic site, the Maxey Flats Disposal Site in Kentucky, increasing the total completed to 76 of the 114 geographic sites.*
Complete 196 release sites.* (NEARLY MET GOAL) Completed 186 release sites.	*Complete 113 release sites.*	*Complete 76 release sites, bringing the total number of completed release sites to 5,303 out of a life-cycle total of 10,527 release sites.*
Complete 45 facility decommissioning.* (BELOW EXPECTATION) Completed 31 facility decommissioning.	*Complete 42 facility Decommissioning projects.*	*Complete nine facility Decommissioning projects, bringing the total number of completed facility decommissioning to 744 out of a life-cycle total of 3,130 facility decommissioning.*
Deactivate 20 facilities. (EQ1-1)* (EXCEEDED GOAL) Deactivated 32 facilities.	*Deactivate 30 facilities.*	*Deactivate 14 facilities, bringing the total number of deactivated facilities to 499 out of a life-cycle total of 2,552 deactivated facilities.*

Program Strategic Performance Goal

EQ1-2 Safely and expeditiously dispose of waste generated during past and current DOE activities. Continue shipment of transuranic (TRU) waste for disposal at the Waste Isolation Pilot Plant (WIPP).

Performance Indicators:
- Canisters of High-Level Waste (HLW) produced for disposal.
- Volume (cubic meters) of Transuranic Waste shipped for disposal.
- Volume (cubic meters) of Mixed Low-Level Waste (MLLW) disposed.
- Volume (cubic meters) of Mixed Low-Level Waste (MLLW) treated.
- Volume (cubic meters) of Low-Level Waste (LLW) disposed.

Related FY 1999 Results	Related FY 2000 Results
High Level Waste (HLW) Progress – Canisters Produced (EXCEEDED GOAL) The DWPF produced 236 canisters of HLW and West Valley produced 12 canisters of HLW, exceeding the goal of 215 canisters.	*Produce 200 canisters of HLW at the Defense Waste Processing Facility (DWPF) at Savannah River Site and five canisters of HLW at the West Valley Demonstration Project.* (EXCEEDED GOAL) EM produced 241 canisters.
Transuranic (TRU) Waste Progress – Shipments to WIPP. (NEARLY MET GOAL) Approximately 282** cubic meters of TRU waste were shipped to WIPP for disposal. The plan was to prepare 700 cubic meters and ship 100 to 200 cubic meters. Delayed opening of WIPP postponed the preparation of additional waste for disposal.	*Ship 1,200 cubic meters of TRU waste to WIPP for disposal.* (BELOW EXPECTATIONS) Shipped 371** cubic meters of TRU waste to WIPP for disposal. *Implement the permit requirements in parallel with the court challenge and begin Mixed TRU waste disposal operations at WIPP in FY 2000. (FMFIA)* (MET GOAL)
Mixed Low-Level Waste (MLLW) Disposal Progress (MET GOAL)	*Dispose of 10,000 cubic meters of MLLW.* (EXCEEDED GOAL) Disposed 10,933 cubic meters.
Mixed Low-Level Waste (MLLW) Treatment Progress	*Treated 6,473 cubic meters of MLLW of the planned 6,973 cubic meters.*
Low-Level Waste (LLW) Disposal Progress (BELOW EXPECTATION) Disposed of more than 49,400 cubic meters of LLW of the 73,000 planned. Contributing factors were: lack of agreement with the State of Nevada on cleanup standards; and lack of NEPA authority to ship stored waste at Oak Ridge.	*Dispose of 40,000 cubic meters of LLW.* (EXCEEDED GOAL) Disposed of 50,340 cubic meters.

EQ1-2 FY 2001 Results	**EQ1-2 FY 2002 Targets** (Revised Final)	**EQ1-2 FY 2003 Proposed Targets**
Produce 225 canisters of HLW. (MET GOAL) Produced 238 canisters of HLW.	*Produce 205 canisters of HLW.*	*Produce 100 canisters of HLW bringing the total number of canisters of HLW to 1,744 out of a life-cycle total of 18,743 canisters of HLW.*
Ship 2,425 cubic meters of TRU waste to WIPP for disposal.) (BELOW EXPECTATION) Shipped 1,945 cubic meters of TRU waste to WIPP for disposal.	*Ship 4,709 cubic meters of TRU waste to WIPP for disposal.*	*Ship 4,605 cubic meters of TRU waste to WIPP bringing the total number of cubic meters of TRU shipped to WIPP to 11,912 out of a life-cycle total of 175,600 cubic meters.*
Dispose of approximately 8,271 cubic meters of MLLW. (BELOW EXPECTATION) Disposed of approximately 6,988 cubic meters of MLLW.	*Dispose of approximately 8,446 cubic meters of MLLW.*	*Dispose of approximately 7,798 cubic meters of MLLW bringing the total number of cubic meters of MLLW disposed to 55,706 out of a life-cycle total of 146,324 cubic meters.*
Treat approximately 4,814 cubic meters of MLLW. (NEARLY MET GOAL) Treated approximately 4,385 cubic meters of MLLW.	*Treat approximately 2,765 cubic meters of MLLW.*	*Treat approximately 1,882 cubic meters of MLLW bringing the total number of cubic meters of MLLW disposed to 33,603 out of a life-cycle total of 82,724 cubic meters.*
Dispose of approximately 47,908 cubic meters of LLW. (EXCEEDED GOAL) Disposed of approximately 64,825 cubic meters of LLW.	*Dispose of approximately 76,655 cubic meters of LLW.*	*Dispose of approximately 80,365 cubic meters of LLW bringing the total number of cubic meters of LLW disposed to 348,046 out of a life-cycle total of 2,238,706 cubic meters.*

Program Strategic Performance Goal

EQ1-3 Stabilize nuclear material and spent nuclear fuel by producing safer chemical and/or physical forms of the material, and reduce the level of potential risk to personnel from radiation exposure or to the environment from contamination.

Performance Indicators

- Number of containers of plutonium metals/oxides stabilized.
- Kilograms bulk of plutonium residues stabilized.
- Metric tons of heavy metal (MTHM) of spent nuclear fuel moved to dry storage.

Related FY 1999 Results	Related FY 2000 Results
Nuclear Material Stabilization (Plutonium) Progress. (NEARLY MET GOAL) EM stabilized 31,033 kilograms bulk of plutonium residues, 16 liters of plutonium solution, and 275 containers of plutonium metals/oxides. Seismic issue and equipment malfunctions of the stabilization system at Richland contributed to the shortfall.	*Stabilize 400 containers of plutonium metals/oxides, 41,000 kilograms bulk (kg) of plutonium residues, and 130 handling units of other nuclear material in other forms.* (NEARLY MET GOAL) Stabilized 29,460 kg bulk of plutonium residues, 574 containers of plutonium metals/oxides, and 224 handling units of other nuclear materials.
Spent Nuclear Fuel (SNF) Stabilization Progress (BELOW EXPECTATION) In FY 1999, 0.34 MTHM of SNF was stabilized. This was a result of a criticality issue discovered in the de-watering system operation that precluded processing Three Mile Island spent nuclear fuel canisters.	*Move to dry storage 35.1 metric tons of heavy metal (MTHM) of spent nuclear fuel (SNF) to dry storage.* (BELOW EXPECTATION) Moved approximately three tons of MTHM to dry storage.

EQ1-3 FY 2001 Results	**EQ1-3 FY 2002 Targets** (Revised Final)	**EQ1-3 FY 2003 Proposed Targets**
Stabilize 510 containers of plutonium metals/oxides and 29,456 kilograms bulk of plutonium residues. (BELOW GOAL) Stabilized 426 containers of plutonium metals/oxides and 23,259 kilograms bulk of plutonium residues.	*Stabilize 110 containers of plutonium metals/oxides and 17,225 kilograms bulk of plutonium residues.*	*Stabilize 263 containers of plutonium metals/oxides and 1,387 kilograms bulk of plutonium residues, bringing the total number of containers of plutonium metals/oxides stabilized to 1,728 out of a life-cycle total of 2,267 containers; and the total kilograms bulk of plutonium residues stabilized to 107,368 out of a life-cycle total of 111,700 kilograms.*
Move to dry storage 195 metric tons of heavy metal (MTHM) of spent nuclear fuel (SNF). (EXCEEDED GOAL) Moved to dry storage 206 metric tons heavy metal (MTHM) of spent nuclear fuel (SNF).	*Move to dry storage 601 metric tons heavy metal (MTHM) of spent nuclear fuel (SNF).*	*Move to dry storage 586 metric tons heavy metal (MTHM) of spent nuclear fuel (SNF), bringing the total metric tons of heavy metal (MTHM) of spent nuclear fuel (SNF) moved to 1,396 out of a life-cycle total of 2,476 metric tons.*

Program Strategic Performance Goal

EQ1-4 Deploy innovative environmental cleanup, nuclear waste, and spent fuel treatment technologies that reduce cost, resolve currently intractable problems, and/or are more protective of workers and the environment.

Performance Indicator: To be developed.

Related FY 1999 Results	Related FY 2000 Results
Technology Deployment Progress. (EXCEEDED GOAL) 125 innovative technology deployments were achieved, exceeding the goal of 60.	*Accomplish 60 innovative technology deployments.* (EXCEEDED GOAL) 210 innovative technology deployments were achieved, exceeding the goal of 60.

EQ1-4 FY 2001 Results	EQ1-4 FY 2002 Targets (Revised Final)	EQ1-4 FY 2003 Proposed Targets*
Accomplish 200 innovative technology deployments. (MET GOAL) Accomplished 204 innovative technology deployments.	*Complete transition to a new Science and Technology (S&T) program and establish a new performance indicator for the S&T program by the end of FY 2002**	

Note:
*The February 2002 Top-to-Bottom Review of the Office of Environmental Management (EM) Program recommended the redirection of the Science and Technology (S&T) Program. The Assistant Secretary for Environmental Management has directed the reorientation of the S&T program to streamline and focus the program on high payback activities. Transition to a new S&T program, will be completed by the end of FY 2002, at which time a new performance indicator will be determined for this goal.

Means and Strategies

Fifty years of nuclear weapons production and nuclear energy research produced large volumes of nuclear materials, spent nuclear fuel, radioactive waste, and hazardous waste, resulting in contaminated facilities, soil, and groundwater at 114 sites around the country. The cost of maintaining the status quo is very high. The current cleanup program is projected to cost about $220 billion and take 70 years to complete. Costs continue to increase while schedules slip. Every year these liabilities are not resolved costs the public billions of dollars. This is unacceptable. Secretary Abraham directed that a top-to-bottom review of the EM program be conducted to find ways to achieve greater real cleanup and risk reduction, more efficiently and cost effectively.

The top-to-bottom review's major observation is that the EM program's major emphasis has been oriented towards managing risk, rather than actually reducing risks to workers, the public, and the environment. The review describes these programmatic weaknesses and provides specific proposals for improving EM's performance. The goal is to quickly and markedly improve the program's performance in achieving cleanup and closure, and ensure that we are reducing risk to our workers, the public, and the environment. Over the next 18 months, the Department will pursue implementing proposals, some of which will require reaching new understandings with State and Federal regulators, as well as fundamental changes in how DOE, EM conducts its business.

EM's strategic objective is "to safely and expeditiously manage waste; cleanup facilities and the environment; and stabilize and store nuclear material and spent nuclear fuel, with the intent to complete cleanup of 16 additional sites from FY 2004 through FY 2006, bringing the total number of sites completed to 92 of 114." Toward this objective, EM has established performance measures– metrics and milestones– to track progress. The measures in use today -- both metrics and project-specific milestones -- allow EM to track environmental cleanup progress and results. As proposals are pursued from the top-to-bottom review, changes in strategy that occur as a result may lead to changes in metrics and milestones. These changes may result in additional milestones or metrics being used, or the changes may simply be to the dates or quantities associated with existing milestones or metrics.

EM's FY 2003 budget request was prepared using the following principles and priorities: 1) protect human health and the environment; 2) perform surveillance and maintenance; 3) achieve accelerated cleanup and closure of Rocky Flats, Fernald, and Mound; 4) ensure increased shipments to the Waste Isolation Pilot Plant; 5) achieve continuing progress in completing cleanup projects in accordance with existing approaches and under existing agreements; and 6) focusing on cleanup.

Collaboration Activities

- Regulatory Compliance: DOE negotiates and signs environmental compliance and cleanup agreements with the U.S. Environmental Protection Agency (EPA) and or the state regulatory agencies, as appropriate. Key parameters such as required cleanup levels must be negotiated with the appropriate regulators and stakeholders for each site.
- Developing Disposal Options for Mixed Low-Level and Low-Level Waste: The Department has conducted numerous meetings with State, tribal, and stakeholder groups to discuss disposal options for mixed low-level waste and low-level waste prior to making final decisions.
- Long-Term Stewardship: The Department will maintain a presence at most sites to ensure that the reduction in risk to human health and the environment is maintained. The extent of long-term stewardship required at a site will reflect the end state developed in consultation among DOE, Congress, tribal nations, representatives of regulatory agencies, State and local authorities, and other stakeholders.
- Defense Nuclear Facilities Safety Board (DNFSB): EM works with the DNFSB to implement recommendations relating to activities at the Department's defense nuclear facilities affecting nuclear health and safety.
- Environmental Management Advisory Board (EMAB): EM solicits advice and guidance from the EMAB on a wide variety of topics relating to the management of the EM program.

External Factors Affecting Performance

- Cleanup Standards: Decisions made regarding the area extent of cleanup and cleanup levels at EM's contaminated sites

impact the program's cost, schedule, and scope (i.e., it costs more and takes longer to cleanup a site for residential use than to clean it up for industrial development).

- Commercially Available Options for Waste Disposal: Accomplishment of the environmental cleanup objectives assumes the continued availability of commercial options for mixed low-level waste and low-level waste disposal.
- Technologically Available Solutions: The deployment of innovative technologies will help reduce risk to the worker, the public and the environment, and lower life-cycle costs.

Validation and Verification:

Data Sources:	Data are based on an aggregation of field-generated "actual" and planned performance results for EM's projects. Performance targets are established based on the current year appropriations and the plan year budget request.
Baselines:	The Operations/Field Offices' baselines are reported during the annual update of the Corporate Database. Planning baselines reflect cost, schedule, and scope from FY 1997 through life-cycle completion. (Life-cycle quantities by PBS are available prior to 1997 for release sites and facilities. High-level waste canister quantities are available beginning in 1997. Life-cycle quantities for other waste types, nuclear materials, and spent nuclear fuel are available for 1998 through completion). Because FY 1997 was the year that EM transitioned to Project Baseline Summaries (PBSs), quantity information by *project* for FY 1997 is not available for each corporate performance measure. Where reliable historical information is available, pre-FY 1997 performance measure quantity data are provided at a summary level only (i.e., not at the project detail level).
Frequency:	EM collects mid-year and year-end actual results by PBS for the majority of the corporate performance measures. Milestone data are tracked on a quarterly basis.
Data Storage:	Data are entered into the EM Integrated Planning, Accountability and Budgeting System-Information System (IPABS-IS) and are maintained in the EM Corporate Database.
Verification:	The Operations/Field Office project managers and EM Headquarters verify and formally approve the Project Baseline Summary (PBS) data and performance results. Discussions between Headquarters and the Field occur on a continuing basis to ensure the data reported for both internal management reviews and to meet external requirements are accurate and complete. To aide validation efforts, there are a limited number of built-in, automated checks in IPABS-IS that flag input errors.

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GPRA Program Activity: Civilian Radioactive Waste Management

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
050 Atomic Energy Defense Activities					
Defense Nuclear Waste Disposal	Defense Nuclear Waste Disposal	RW	200	280	315
Nuclear Waste Fund	Nuclear Waste Fund	RW	193	97	212
Total			393	377	527

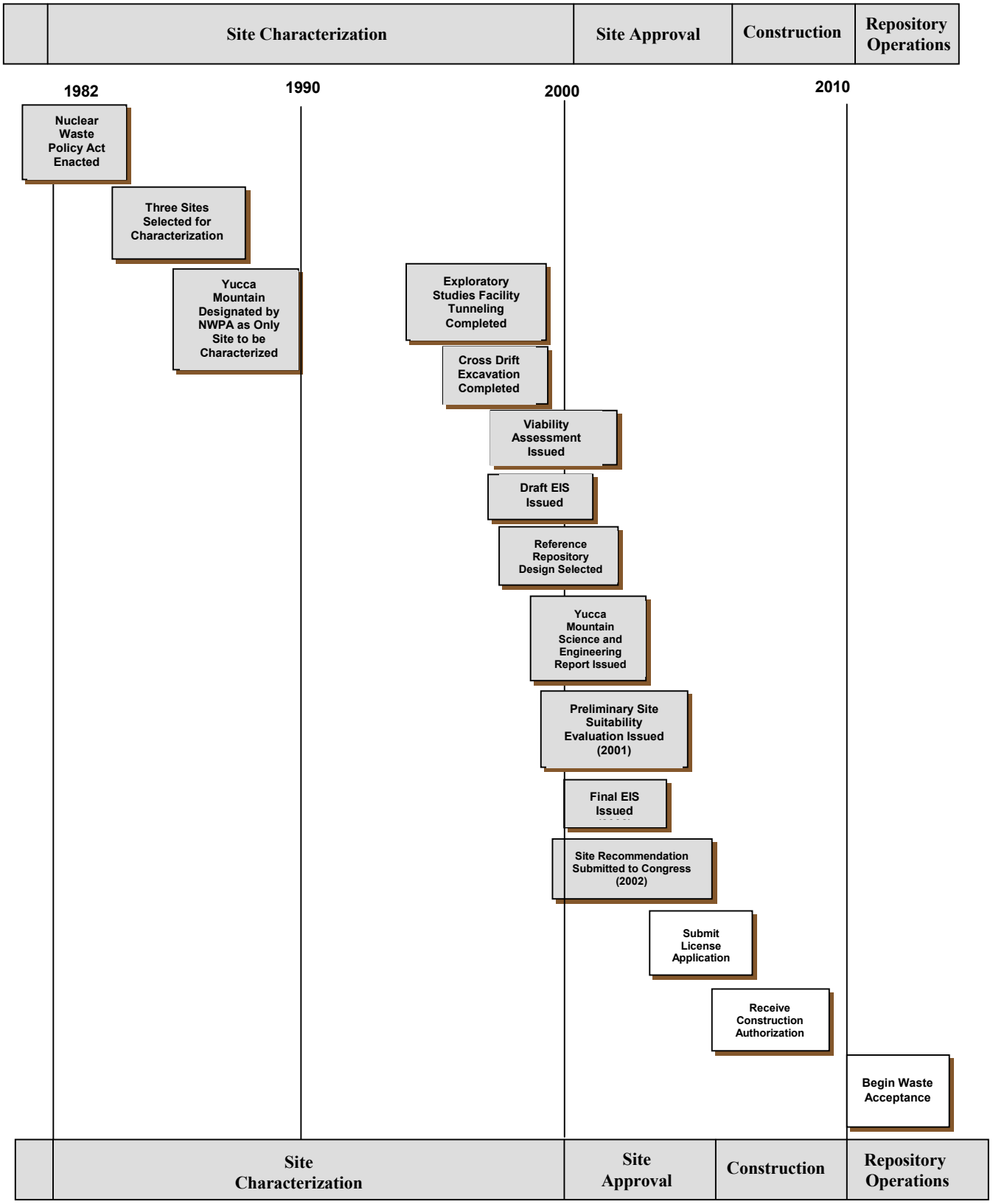
Description of the Program:

The Office of Civilian Radioactive Waste Management (RW) implements the Federal policy for permanent disposal of high-level radioactive waste and spent nuclear fuel, in order to protect the public health and the environment. Based on the results of the site investigations and related field and laboratory testing conducted over the past 20 years to determine the suitability of the Yucca Mountain, Nevada, candidate repository site, Secretary Abraham, on February 14, 2002, recommended to President Bush that the President approve the site and recommend it to Congress as the repository site. The Secretary forwarded to the President a comprehensive statement of the basis for his recommendation, as required by the Nuclear Waste Policy Act, which included a final environmental impact statement, preliminary comments from the Nuclear Regulatory Commission, and the views and comments of the Governor and legislature of the State of Nevada. On February 15, 2002, the President approved the Secretary's recommendation and forwarded it to Congress.

If Congress designates Yucca Mountain as the repository site, a license application for construction authorization by the Nuclear Regulatory Commission will be developed. Under current plans, waste acceptance at the repository could commence in 2010. However, the Department's schedule remains critically dependent on adequate program funding. Any additional reductions will impact critical near-term milestones for repository development, and possibly the planned 2010 waste acceptance date. During the licensing and pre-construction phase of the program, funding well in excess of past appropriations will be required. In addition, the Department will have to address the concerns of local citizens and national opposition groups, as well as legal challenges.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Progress of the Civilian Radioactive Waste Management Program



The following facing pages show 5 years of performance targets for EQ2-1

Program Strategic Performance Goal:

EQ2-1 If Congress designates Yucca Mountain as the repository site, obtain a repository construction authorization from the Nuclear Regulatory Commission.

Performance Indicator: Meeting RW Program Milestones.

Related FY 1999 Results	Related FY 2000 Results
Publish a draft Environmental Impact Statement (EIS). The Nuclear Waste Policy Act requires a Final EIS to accompany the site recommendation. (MET GOAL)	*Complete public hearings on the Draft Environmental Impact Statement, which was published in August 1999.* (MET GOAL)
Complete repository and waste package design inputs for use in total system performance assessment for the repository license application. (MET GOAL)	*Select the reference design for site recommendation and license application.* (NEARLY MET GOAL) [1]
Complete peer review of the total system performance assessment to provide formal, independent evaluation and critique. (MET GOAL)	*Select the reference natural systems models for site recommendation and license application.* (MET GOAL)

Notes:

1. The reference design for site recommendation was selected for the preliminary site suitability evaluation, which was used for the statutory hearings on site recommendation. The license application design will be selected after consideration of comments from stakeholders, including oversight bodies, such as the Nuclear Waste Technical Review Board, if the site designation becomes effective.

EQ2-1 FY 2001 Results	EQ2-1 FY 2002 Targets (Revised Final)	EQ2-1 FY 2003 Proposed Targets
Complete the scientific and technical documents that will provide the technical basis for a possible site recommendation. (MET GOAL)	*Submit a Final Environmental Impact Statement to the President as required by the Nuclear Waste Policy Act. (FMFIA)*	*Complete additional testing and analyses required to support license application design.* *Complete development of repository conceptual design and request Acquisition Executive approval to start preliminary design, which will be used in the license application.*
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. (MET GOAL)	*Submit a Site Recommendation Report to the President. (FMFIA)*	*Complete draft license application chapters for radiation protection, conduct of operations, performance confirmation, land ownership and control, site description, and general information.*
Update all process models and conduct a total system performance assessment for use in the site recommendation. (MET GOAL)	*Issue Nuclear Waste Policy Act Section 180(c) Notice of Revised Proposed Policy and Procedures for public comment.*[1]	*Issue Final Policy and Procedures for Implementation of Section 180(c) of the Nuclear Waste Policy Act, as amended.*
Complete and issue Total System Life Cycle Cost and Fee Adequacy reports. (MET GOAL)	*Begin development of updated-Total System Life Cycle Cost and Fee Adequacy reports.* *Issue draft request for proposals for waste acceptance and transportation services.*[2]	*Complete and issue Total System Life Cycle Cost and Fee Adequacy reports.* *Develop and issue final request for proposals for waste acceptance and transportation services.*

Notes:
1. Contingent on site designation in 2002.

Means and Strategies:

If Congress designates Yucca Mountain as the repository site in 2002, the Department will focus the Civilian Radioactive Waste Management Program on the activities necessary for license application design and development; continue confirmatory scientific testing; study design options such as modular and phased design, construction, and operation; and conduct other activities associated with the Federal government's waste acceptance obligation.

Collaboration Activities:

The Department is engaged in continued interactions with the Nuclear Regulatory Commission, the Environmental Protection Agency, and the Nuclear Waste Technical Review Board. In addition, the Civilian Radioactive Waste Management Program collaborates on technical, policy, and operational issues with the State of Nevada and affected units of local government within the State. The program also works collaboratively with several other nations to address common technical issues associated with radioactive waste management and disposal.

External Factors Affecting Performance:

The program's indicated performance goals and associated schedules are contingent on site designation in 2002, and depend on sufficient funding to address past funding shortfalls and future expectations to develop a license application.

Validation and Verification:

Data Sources:	Internal management reviews and external peer reviews supplement technical reports.
Baselines:	Program technical, cost and schedule baselines have been established and are maintained through a formal change control process.
Frequency:	Program milestones are tracked on a continuous basis, and formal reviews of program activities are held quarterly.
Data Storage:	Data are maintained in published technical reports, on CD-ROM, and on publicly-accessible Internet websites.
Verification:	Internal reviews and external oversight activities and audits provide thorough verification of program accomplishments and technical findings. Results of scientific investigations are published and/or made available on the Internet.

Planned Program Evaluations:

The program's activities are subject to continuing review by the Congress, the General Accounting Office, the Department's Inspector General, the Nuclear Regulatory Commission, the Environmental Protection Agency, the Nuclear Waste Technical Review Board, and the Department's Office of Engineering and Construction Management (OECM). During FY 2002, an external independent review by OECM is scheduled of the program's cost and schedule baseline through license application, and of the related management systems. Complementing external reviews, the Office of Civilian Radioactive Waste Management conducts quarterly, in-depth reviews of program activities, schedules, and expenditures. The Director and all key managers and supervisors participate to ensure that activities are on-track and within budget.

GPRA Program Activity: Environment, Safety and Health

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Program Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
270 Energy					
Environment Safety and Health (Non-Defense)		EH	37	31	30
050 Atomic Energy Defense Activities					
Environment Safety and Health (Defense)		EH	119	100	100
Total			156	131	130

Description of the Program:

The Office of Environment, Safety and Health (EH) are a corporate resource that provides leadership and Departmental management excellence to protect the workers, the public, and the environment. EH provides corporate policy, guidance, and technical expertise to support and advise the Secretary regarding the line management implementation of environment, safety, and health requirements and programs. Under the Energy Supply appropriation, EH funds two major activities: Policy, Standards and Guidance; and Corporate Programs. This better characterizes EH as a corporate resource to advance the DOE mission, while promoting the establishment of effective and efficient environment, safety, and health programs. Under the Other EH Defense Activities appropriation, EH funds the following four major core activities: Safety Performance, Health Studies, the Radiation Effects Research Foundation (RERF), and the Gaseous Diffusion Plants activity. In addition, funding is provided for Exposure Compensation Activities that relate to compensation of workers across the complex for work-related illnesses. EH has established the following general performance goal in support of the Department's strategic plan.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

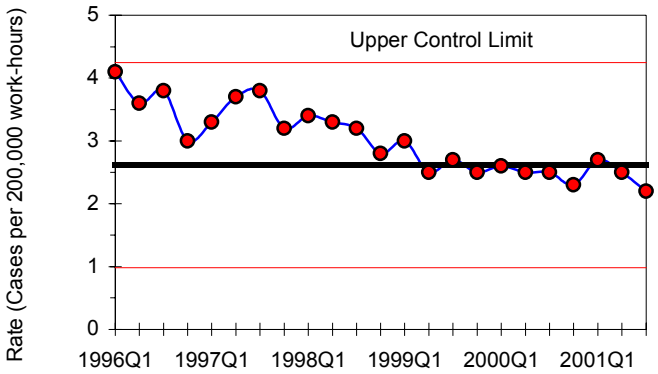
Program Strategic Performance Goal

EQ3-1 Reduce the number of reportable deaths, injuries and illnesses and environmental releases from environment cleanup and other operational activities. The goal is that DOE organization activities remain below the past 5-year averages for the five corporate ES&H performance indicators.

Performance Indicators:

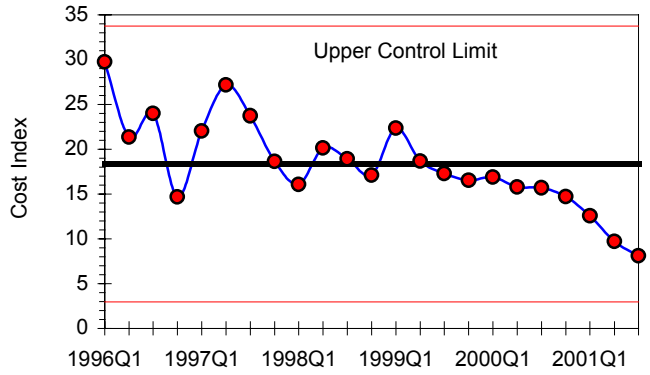
- Total Recordable Case Rate.
- Occupational Safety Cost Index.
- Hypothetical Radiation Dose to the Public.
- Worker Radiation Dose.
- Reportable Occurrences of Releases to the Environment.

Total Recordable Case Rate



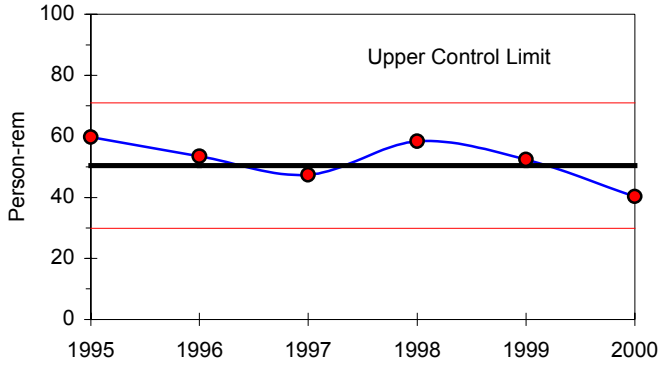
Recordable Case Rate measures work-related death, as well as injury or illness that results in loss of consciousness, restriction of work or motion, transfer to another job, or medical treatment beyond first aid.

Occupational Safety and Health Cost Index



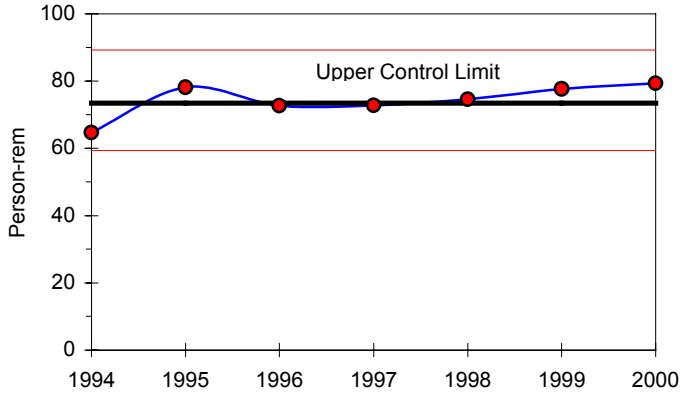
Occupational Safety Cost Index is a measure of the direct and indirect costs based on the Cost Index formula, due to safety-related injuries/illnesses.

Estimated Radiation Dose to the Public



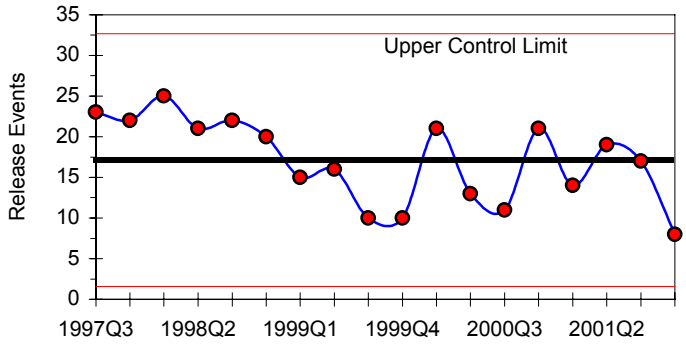
Hypothetical Radiation Dose to the Public is an estimate of the collective radiation dose to the public within 50 miles of DOE facilities due to airborne releases of radionuclides.

Estimated Radiation Dose to the Workers



Worker radiation dose is calculated by dividing the collective total effective dose equivalent (TEDE) by the number of individuals with measurable dose.

Reportable Occurrences of Releases to Environment



Reportable Occurrence of Releases to the Environment include releases of radionuclides, hazardous substances, or regulated pollutants that must be reported to Federal, State, or local agencies.

Annual Results and Targets for EQ3-1

EQ3-1 Related FY 1999 Results	EQ3-1 Related FY 2000 Results
Conduct oversight special reviews, assessments, evaluations, and inspections of such topics as emergency management, safety management, and accidents. (MET GOAL)	*Conduct oversight special reviews, assessments, evaluations, and inspections of such topics as emergency management, safety management, and accidents.* (MET GOAL)

EQ3-1 Related FY 2001 Results	EQ3-1 FY 2002 Targets (Revised Final)	EQ3-1 FY 2003 Proposed Targets
Fully implement Integrated Safety Management at all DOE sites. (FMFIA) (NEARLY MET GOAL)	*Increase the adoption and use of voluntary consensus technical standards (e.g., ANSI, ASTM, ASME) used in DOE Directives and safety documentation by 20 to 30, to help improve safety and cost-effectiveness.*	*Reduce the number of reportable deaths, injuries and illnesses and environmental releases.*

Program Strategic Performance Goal

EQ3-2 Identify health concerns and priorities as related to environmental cleanup and other operational activities through assessing injuries and illnesses in at least 70,000 current workers across 12 DOE sites, and providing medical screening for at least 4,000 former workers exposed to beryllium and other hazards.

Performance Indicators:

- Medical screening of DOE workers.
- Assessment of injuries and illnesses in workers across 12 DOE sites.

Related FY 1999 Results	Related FY 2000 Results
Issue an initial status report on the development of a public health agenda by December 31, 1998, and a final public health agenda for each site, which reflects customer and stakeholder input. (NEARLY MET GOAL)	*Propose legislation to Congress that would establish a program to compensate:* *- Current and former Federal and contractor workers and beryllium vendor employees who are ill because of beryllium exposure; and* *- Certain workers at the Oak Ridge East Tennessee Technology Park and the Paducah Gaseous Diffusion Plant in Kentucky who have illnesses associated with exposures, which occurred during their employment.* (MET GOAL) *Provide medical screening to all DOE workers formerly exposed to beryllium during their employment at DOE facilities.* (MET GOAL) *Develop a stronger, more coherent public health agenda at and surrounding DOE sites.* (MET GOAL)

Related FY 2001 Results	EQ3-2 FY 2002 Targets (Revised Final)	EQ3-2 FY 2003 Proposed Targets
Make biennial presentations of the results of epidemiologic surveillance analyses to workers and management at participating DOE facilities; and expand public access to the Office of Epidemiologic Studies through improved web linkages. (MET GOAL)	*Establish a Beryllium Registry in January 2002 for current and former DOE workers who may have been exposed. (FMFIA)*	*Provide medical screening to a minimum of 4,000 DOE workers exposed to beryllium, radiation, or other hazards during their employment at DOE facilities.*
Publish 10 interim or final international health scientific and technical reports from the RERF, Marshall Islands, and Russians to increase our ability to define the relationship between ionizing radiation dose and its effect on human health. (MET GOAL)	*Publish an additional 10 interim or final international health scientific and technical reports from the RERF, Marshall Islands, and Russians to increase our ability to define the relationship between ionizing radiation dose and its effect on human health.*	*Assess injuries and illnesses in at least 70,000 workers across 12 DOE sites.*

Means and Strategies:

Policy, Standards and Guidance activities involve the maintenance of current, up to-date DOE policies, standards, and guidance while adopting consensus standards as they apply to the DOE work environment. DOE regulatory liaison activities include transactions and participatory relationships with other regulators (OSHA, NRC and the States) to accommodate their identified interests and jurisdiction.

Corporate Programs activities provide products and support in environment, safety, and health that efficiently use DOE resources when managed centrally by EH. Such programs include the Department of Energy Laboratory Accreditation Program (DOELAP), the Federal Employees Occupational Safety and Health (FEOSH) program, and the nationally recognized Voluntary Protection Program (VPP). Environment, Safety, and Health Performance Analysis activities include collecting and analyzing DOE performance data to support policy decisions and focus limited resources on the most hazardous vulnerabilities. Corporate Programs also include crosscutting Department-wide functions such as environment, safety, and health monitoring; programs directed toward strengthening safety performance and incorporating it into the routine of daily work; communication of environment, safety, and health program guidance and practices; and lessons learned and the maintenance of an operating experience database. Management Planning directly supports the Department's goal of clearly identifying and funding environment, safety, and health priorities and ensuring that resources are appropriately spent on those priorities. Specific objectives include: (1) ensure all Departmental sites conduct sufficient work-scope planning and identify and fund environment, safety, and health priorities in the FY 2002 budget and annually thereafter; and (2) monitor annually and report on environment, safety, and health expenditures (commitments) and improve related internal controls.

The National Environmental Policy Act (NEPA) Program provides compliance assurance to DOE line management by supporting the implementation of the Department's NEPA activities. Information Management provides for the overall management of environment, safety, and health data and information for the DOE complex and other stakeholders.

Safety Performance activities provide information and analysis needed to ensure that the Department of Energy (DOE) and contractor management, the public, the Secretary of Energy, and the Assistant Secretary for Environment, Safety and Health have an accurate, comprehensive understanding of the effectiveness, vulnerabilities, and trends of the Department's environment, safety, and health policies and programs. This data and analysis provide critical information on how effectively line management is implementing Integrated Safety Management. The activities to accomplish this mission include Evaluations, Price-Anderson Amendments Act Enforcement, and the Departmental Representative to the Defense Nuclear Facilities Safety Board (DNFSB).

Health Studies activities include Occupational Medicine (medical surveillance); Epidemiologic Studies (surveillance and communication of worker injury and illness); Public Health Activities (health studies, health education and promotion, etc., at DOE sites); and International Health Programs (Marshall Islands program and health studies in the former Soviet Union and Spain).

Radiation Effects Research Foundation (RERF) activities support analysis of the medical effects of radiation with the intention of contributing to the maintenance of the health and welfare of atomic bomb survivors, and to the enhancement of worldwide radiation protection practices and standards.

Employee Compensation Initiative was formed to recognize special needs of DOE workers who were unknowingly exposed to dangerous material, or who were not adequately protected from these exposures. When illnesses force workers into retirement, many are left with little or no medical and /or wage benefits. The EH Office of Advocacy will assist DOE workers in understanding worker compensation opportunities and requirements, and employer-provided benefits. Where appropriate, EH will assist in filing compensation claims.

Collaboration Activities:

EH maintains close contacts with private industry, regulatory agencies, independent standard-setting groups, and national environment, safety, and health organizations, for the purpose of facilitating information exchanges between DOE line management and their counterparts in the private sector. EH staff also provide corporate support to DOE managers in developing improved strategies for including safety and health in planning and conducting work; applying regulations (guidance on Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), the States, and Nuclear Regulatory Commission (NRC) regulations); and DOE policy and guidance.

External Factors Affecting Performance:

Specific ES&H events, departmental program activities, and requests from field sites will affect the level and deployment of EH's resources.

Validation and Verification:

Data Sources:	The field sites provide their operating data to EH's various reporting systems.
Baselines:	Technical baselines have been established using historical data.
Frequency:	Data is updated monthly and reports are issued quarterly and annually.
Data Storage:	Data is stored at various sites and in EH's databases.
Verification:	Data entry quality control procedures have been established by each EH information system manager.

Planned Program Evaluation:

An extensive peer and program review process is followed to assure that reports reflect the highest quality achievable.

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GPRA Activity: Worker and Community Transition

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Program Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
050 Atomic Energy Defense Activities					
Worker and Community Transition		WT	42	20	26

Description of the Program:

The mission of the Office of Worker and Community Transition is to minimize the social and economic impacts of changes in the Department's activities and encourage disposition of the Department's unneeded assets.

The principal functions of the Office are to: (1) establish policy and provide funding for contractor work force restructuring activities; (2) develop policy for contractor labor relations, oversee the collective bargaining process, and assist the Department's field organizations in labor/management relations; (3) establish policy for community transition and allocate funding to mitigate economic impacts; (4) provide for the disposition of unneeded properties to encourage private sector investment for job creation and economic stability; (5) reduce potential domestic and international economic impacts caused by disposition of unneeded materials by the Defense National Stockpile Center; and (6) provide information and opportunities for participation in the decision-making process affecting the contractor work force and adjacent communities.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

EQ4-1 Minimize the social and economic impacts to 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.

Performance Indicator

- Ratio of the annual savings to the one-time cost of separation.
- Number of jobs created or retained in the community.

Related FY 1999 Results	Related FY 2000 Results
Keep involuntary separations between 30 and 60 percent of positions eliminated, while assuring maintenance of essential work force skills mix and productivity. (NEARLY MET GOAL)	*Limit involuntary termination of employment at Department of Energy defense nuclear facilities between 30 and 60 percent of positions eliminated.* (MET GOAL)
Achieve annual recurring costs savings from separated workers that is at least three times the one time cost of separation. (EXCEEDED GOAL)	*Achieve annual recurring costs savings from separated workers that is at least three times the one time cost of separation.* (MET GOAL)
Support local community transition activities that will create, cumulatively, 15,000 to 20,000 new private sector jobs by the end of FY 1999. (EXCEEDED GOAL)	*Support local community transition activities that will create 3,000 to 5,000 jobs during FY 2000, bringing the total jobs created to between 20,000 and 25,000 by the end of FY 2000.* (MET GOAL)

Related FY 2001 Results	**EQ4-1 FY 2002 Targets** (Revised Final)	**EQ4-1 FY 2003 Proposed Targets**
Achieve annual recurring costs savings from separated workers that are at least three times the one time cost of separation. (MET GOAL) *Support local community transition activities that will create, cumulatively, between 24,000 and 27,500 new private sector jobs by the end of FY 2001.* (MET GOAL)	*Achieve annual recurring cost savings from separated workers that are at least three times the one time cost of separation.* *Support local community transition activities that create or retain, cumulatively, 27,500 to 29,000 private sector jobs by the end of FY 2002.* *Publish an annual report providing updates of work force restructuring and community transition activities, as required under Section 3161 of the authorizing legislation.*	*Achieve annual recurring cost savings from separated workers that are at least three times the one time cost of separation.* *Support local community transition activities that create or retain, cumulatively, 29,000 to 30,500 private sector jobs by the end of FY 2003.* *Publish an annual report providing updates of work force restructuring and community transition activities, as required under Section 3161 of the authorizing legislation.* *In cooperation with the community reuse organizations, develop criteria to guide community transition funding allocations.*

Means and Strategies:

The Department will achieve the workforce restructuring objectives through Headquarters oversight and contractor performance measures that will encourage cost-effective use of voluntary separation strategies, manage attrition, and ensure internal placement whenever possible. The community transition goal will be achieved through financial and technical assistance provided to community reuse organizations at the affected sites.

Collaboration Activities:

The Office of Worker and Community Transition works through the Lead Program Offices at field facilities to coordinate work force planning and restructuring requirements and strategies in consultation with interested stakeholders. The community transition activities work through the Community Reuse Organizations (CRO) made up of representatives from each diverse group within the community.

External Factors Affecting Performance:

Contracting strategies and mission changes in major operating programs fundamentally influence the need for work force restructuring and community transition assistance. Uncertainties in long-range plans and resources could adversely impact the ability to meet program objectives.

Validation and Verification:

Data Sources:	Annual Report on Contractor Work Force Restructuring, field manager certifications, Community Transition Semi-Annual Report (Reports available on website are described below in "Data Storage").
Baselines:	Same as above.
Frequency:	Annually and semi-annually.
Data Storage:	Electronic files, WT's office library, WT's web page http://www.wct.doe.gov/.
Verification:	Field and CRO representatives and Lead Program Offices at Headquarters.

Planned Program Evaluation:

The Annual Report on Contractor Work Force Restructuring provides a regular review. The GAO and Booz-Allen & Hamilton, Inc. have performed independent reviews and audits with anticipated continued external review and evaluation. Revised community transition criteria were developed in 1999 in response to GAO recommendations. A review and potential update of the criteria is a target for FY 2003.

CORPORATE MANAGEMENT

The Department manages an extensive array of energy programs over a nationwide complex including headquarters organizations, operations offices, field offices, national laboratories, power marketing administrations, special purpose offices, and sites now dedicated to environmental cleanup. The Department needs strong corporate management in order to integrate its diverse portfolio of program missions, its facilities, and its contractor resources that are spread over a large geographic area.

This strong corporate culture is also necessary to complement program managers' pursuit of program mission goals. The offices funded under the Corporate Management goal:

- provide oversight and internal review of policy issues and budgets;
- act as honest brokers in decision-making;
- provide leadership on broad Departmental management issues; and
- represent the Department with other Federal agencies.

The Corporate Management goal and the strategic objectives provide the focus for implementing the Secretary's initiatives to improve management and accountability while ensuring the safety, security and health of the DOE workforce and members of the public.

CORPORATE MANAGEMENT (CM) GOAL

Demonstrate excellence in the management of the Department's human, financial, physical and information assets. Successfully implement each of DOE's requirements in the President's Management Agenda; demonstrate measured progress in resolving DOE's management challenges; and resolve all management recommendations from DOE's IG and GAO within 3 years of issuance.

Strategic Objectives

CM1: Achieve effective and efficient management of the Department of Energy by implementing the President's Management Agenda initiatives on Strategic Management of Human Capital; Competitive Sourcing; Improved Financial Performance; and Budget and Performance Integration. (ME, ED)

CM2: Implement the President's E-government initiatives by developing a framework for existing Information Technology and building a roadmap for corporate direction. (CIO)

CM3: Ensure secure, efficient, effective and economical operations of the Department's Information Technology Systems and infrastructure. (CIO)

CM4: Provide analysis of domestic and international energy policy, develop implementation strategies, ensure policies are consistent across DOE and within the administration, communicate analyses and priorities to the Congress, public, industry, foreign governments, and domestic and international organizations, and enhance the export and deployment of energy technologies internationally. (PI)

CM5: Reduce adverse security incidents, worker injuries, and environmental releases through policy development, counterintelligence, intelligence, and oversight of the Nation's energy infrastructure, nuclear weapons, materials, facilities and information assets. (SO, CN, IN, OA)

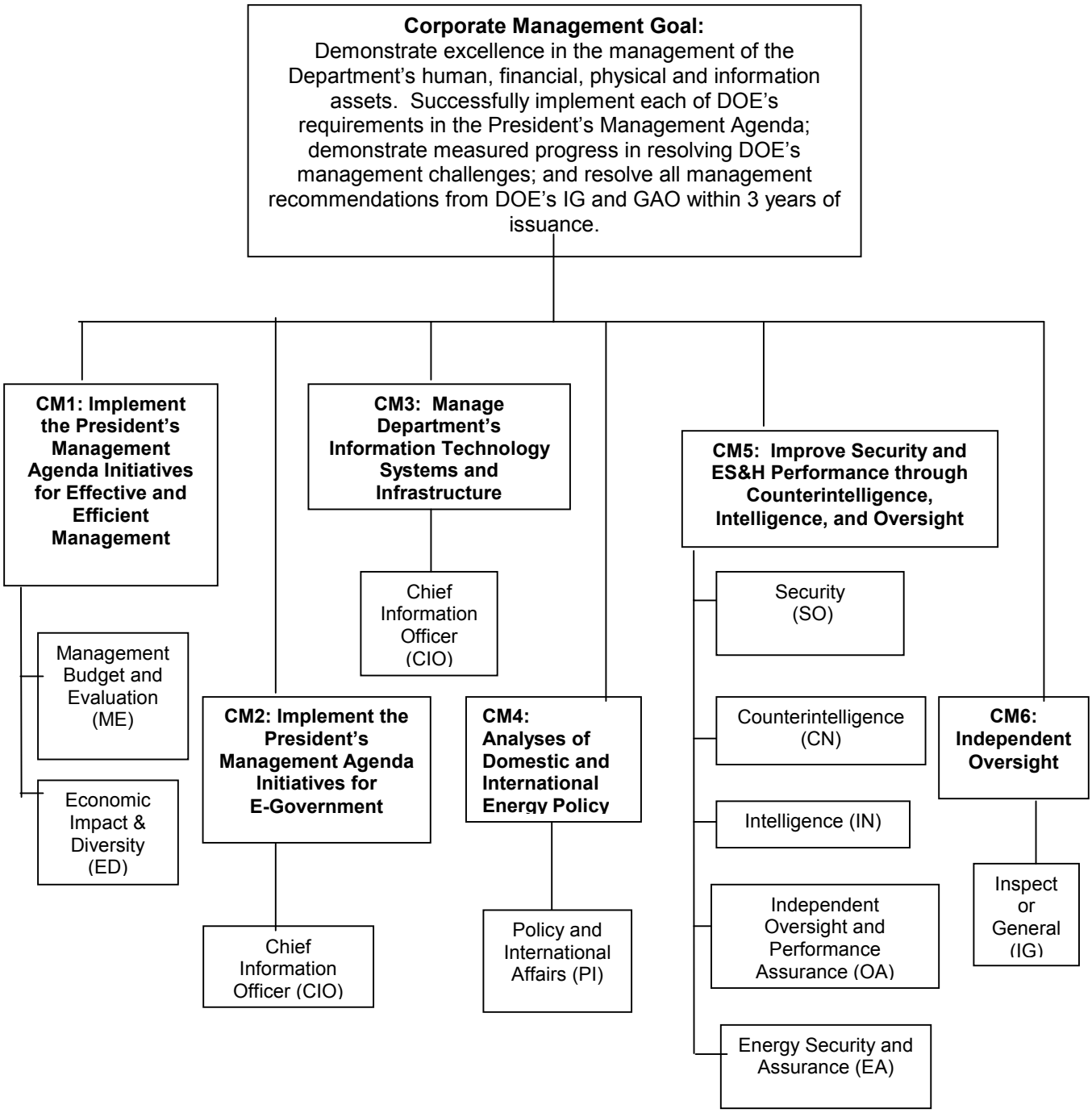
CM6: Operate a robust review program and provide timely performance information and recommendations to facilitate: (1) implementation of the President's Management Agenda; (2) resolution of Management Challenges; (3) execution of the Secretary's priorities; (4) completion of statutory Inspector General mandates; (5) recovery of monies and opportunities for savings; and (6) the integrity of the Federal and contractor workforce. (IG)

The following table maps the Presidential Budget's Program and Financing (P&F) accounts and program activities to the Department of Energy's offices and GPRA Program Activities. The alignment includes aggregation, disaggregation, and consolidation of budget decision units. The chart that follows this table shows how the GPRA Program Activities support the Department's Strategic Objectives for the Corporate Management goal.

Presidential Budget Program and Financing (P&F) Accounts and Program Activities	FY2003 Budget Request ($M)	DOE Program Office	GPRA Program Activities
270 Energy			
Departmental Administration			
Office of the Secretary*	5	S1	
Board of Contract Appeals*	1	HG	
Chief Information Officer	84	CIO	Departmental Administration - Chief Information Officer
Congressional and Intergovernmental Affairs*	5	CI	
Economic Impact and Diversity	7	ED	Departmental Administration - Economic Impact and Diversity
General Counsel*	24	GC	
Economic Regulation - Hearings and Appeals*	2	HG	
Other Defense Activities - Hearings and Appeals*	3	HG	
Management, Budget and Evaluation/ Chief Financial Officer	111	ME	Departmental Administration - Management Budget, and Evaluation
Office of Policy and International Affairs	22	PI	Departmental Administration - Policy and International Affairs
Public Affairs*	5	PA	
050 Other Defense Activities			
Office of Security	187	SO	Security
Office of Counterintelligence	39	CN	Counterintelligence
Office of Intelligence	42	IN	Intelligence
Office of Independent Oversight and Performance Assurance	23	OA	Independent Oversight and Performance Assurance
Energy Security and Assurance	28	EA	Energy Security and Assurance
Office of the Inspector General	39	IG	Office of the Inspector General
Subtotal for Departmental Support and Staff Offices	624		
Adjustment- Miscellaneous Revenues ($138M) Revenues from Colorado River Basin ($22M), FERC Receipts ($13M)	(173)		
Cost of Work for Others	70		
TOTAL – Corporate Management	521		

* These are not treated as GPRA Program Activities, but are listed to complete the budget information. They are primarily program direction accounts that fund salaries of Federal employees who are responsible for delivering on the results of the GPRA Program Activities.

Six Strategic Objectives support the Corporate Management goal. Each strategic objective is being pursued through long-term strategies. In this Annual Performance Plan, these long-term strategies have been stated in terms of Program Strategic Performance Goals (PSPGs) against which outcome performance indicators and annual (output) performance targets have been established. To make the linkage of these outcomes and outputs to the budget resources, we have organized the plan by GPRA Program Activities, which are aligned with the budget decision units through aggregation, disaggregation, and consolidation. The Program Strategic Performance Goals and indicators and annual targets are discussed with the GPRA Program Activities on the following pages. This approach allows us to clearly link annual performance with annual budget resources and the strategic plan objectives. The chart below gives an overview of the linkage of GPRA Program Activities and Strategic Objectives for Corporate Management.



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GPRA Program Activity: Departmental Administration-Management, Budget and Evaluation

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
270 Energy					
Departmental Administration – Management, Budget and Evaluation		ME	117	113	111

Management, Budget and Evaluation/Chief Financial Officer:

The Office of Management, Budget and Evaluation provides the Department centralized direction and oversight of the full range of financial and planning activities, as well as management administration services contributing to Strategic Objective CM1, " Achieve effective and efficient management of the Department of Energy by implementing the President's Management Agenda initiatives on Strategic Management of Human Capital; Competitive Sourcing; Improved Financial Performance; and Budget and Performance Integration." Financial activities include strategic planning and program evaluation; budget formulation, presentation and execution; oversight of DOE-wide internal controls; operation and maintenance of the Department's payroll and financial management systems; project and contract oversight; and program evaluation. Management and administration activities include establishing Departmental human resource and procurement policies, providing human resource and procurement services to DOE headquarters staff, managing headquarters facilities, and providing an array of other administrative services critical to the proper functioning of the Department of Energy.

The budget for the Office of Management, Budget and Evaluation also supports the activities of the Secretary of Energy Advisory Board (SEAB), an external advisory board chartered under the Federal Advisory Committee Act of 1972 (Public Law 92-436). The Board and its subcommittees allow the Secretary of Energy to obtain timely, balanced, and independent external advice on issues of national importance related to the missions of the Department of Energy. The Board maintains two standing subcommittees, the Openness Advisory Panel and the Laboratory Operations Board. The Board forms additional subcommittees as required to address the needs of the Secretary of Energy and the Department.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

CM1-1: Implement the DOE 5-Year Workforce Restructuring Plan.

Performance Indicator: Improved functioning of the Department's Human Capital Management program.

Related FY 1999 Results	Related FY 2000 Results
Improve Federal technical workforce capabilities at defense sites by implementing the FY 1999 milestones in the Revised Implementation Plan for DNFSB Recommendation 93-3. (MET GOAL) *Improve workforce skills and reduce training costs by implementing the FY 1999 milestones in the DOE Corporate Education, Training, and Development Plan.* (MET GOAL)	*Improve Federal technical workforce capabilities at defense sites by implementing the FY 2000 milestones in the Revised Implementation Plan for DNFSB Recommendation 93-3.* (MET GOAL) *Improve workforce skills and reduce training costs by implementing the FY 2000 milestones in the DOE Corporate Education, Training, and Development Plan.* (MET GOAL)

Related FY 2001 Results	CM1-1 FY 2002 Targets (Revised Final)	CM1-1 FY 2003 Targets
Improve Departmental Human Capital Management by initiating comprehensive human resources strategies which will: *- Implement the FY 2001 milestones in the DOE Corporate Training Plan;* *- Increase the electronic transfer of documents in CHRIS, resulting in 15 percent of the documents processed electronically.* (MET GOAL) *Recruit and hire additional personnel to address immediate needs in HQ critical financial functions*. (MET GOAL)	*Improve Departmental Human Capital Management by initiating comprehensive human resources strategies which will:* *- Streamline the DOE hiring process through process reengineering, automated recruitment, and other means that reduce the time it takes to fill jobs by at least 20 percent at DOE Headquarters;* *- Increase employee access to mission-related training by at least 30 percent through "on-line" and other technology assisted learning capabilities;* *- Achieve cost savings and reduce traditional manually-generated personnel and training paper records by at least 20 percent utilizing CHRIS;* *- Address skills gaps and aging workforce challenges by hiring at least 15% of new administrative, technical and professional employees at entry levels;* *- Reduce managerial layering and shift staffing resources to front line, mission critical positions consistent with Administration guidelines.*	*Improve Departmental Human Capital Management by initiating comprehensive human resources strategies which will:* *-Cascade a new performance management system (based upon the SES model) down to all GS-15 and below managers and supervisors;* *-Initiate implementation of a workforce planning methodology that identifies critical skills for key scientific and technical positions;* *-Integrate expanded use of hiring incentives and flexibilities with budget and performance plans;* *-Ensure Departmental leadership succession by developing a cross-cutting succession planning process within DOE for mission critical occupations; and* *-Reduce managerial layering and shift staffing resources to front line, mission critical positions consistent with Administration guidelines.*
Complete the milestones listed in the FMFIA corrective action plan for the Departmental challenge of human capital management. (FMFIA) (NEARLY MET GOAL)	*Complete the milestones listed in the FMFIA corrective action plan for the Departmental challenge of human capital management. (FMFIA)*	*Complete the milestones listed in the FMFIA corrective action plan for the Departmental challenge of human capital management. (FMFIA)*

Program Strategic Performance Goal

CM1-2: By the end of FY 2003, complete competitive sourcing studies on 15 percent of the Department's inventory of positions that are not inherently governmental. Conduct additional studies in FY 2004 and beyond based on requirements established by the Office of Management and Budget.

Performance Indicator: Cumulative number of positions covered by competitive sourcing studies that have been initiated and that have been completed as of a given fiscal year.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*There were no related targets.*

FY 2001 Results	CM1-2 FY 2002 Targets (Revised Final)	CM1-2 FY 2003 Targets
There were no related targets.	*Establish an Agency plan for ensuring the accuracy of Federal Activities Inventory Reform (FAIR) Act data for 2002.* *Plan public, private or direct conversion competitions for 15 percent of the Department's inventory of commercial positions.*	*Complete public, private or direct conversion competitions for 15 percent of the Department's inventory of commercial positions.*

Program Strategic Performance Goal

CM1-3: Manage the Department's financial resources and other assets; obtain an unqualified opinion by independent auditors on the Department's annual financial statements; and integrate financial, budget, and program information.

Performance Indicators:

- Schedule variations of annual financial statement issuance, interim financial statement issuance, and systems implementation; and
- Independent auditor attestation with regard to the Department's annual financial statements, and reports regarding internal controls.

Related FY 1999 Results	Related FY 2000 Results
Identify functional and technical systems requirements for developing a Business Management Information System (BMIS) with a special emphasis on financial management, and develop business scenarios for its evaluation. (FMFIA) (NEARLY MET GOAL)	*Complete the development of requirements and the creation of a new account structure. Purchase commercial Core Financial System software for 150 users for a pilot implementation at one of the three accounting service centers and two of its satellite sites. Begin implementation of solutions for special DOE requirements.* (MET GOAL)
Verify progress against established project scope, schedule, and cost baselines on projects valued at $5 million or more. (BELOW EXPECTATIONS)	*By April 2000, implement new project management policies and procedures that strengthen the management of projects, and by July 2000, have new systems in place to verify progress against established project scope, schedule and cost baselines on projects valued at $5 million or more.* (NEARLY MET GOAL)
Complete four Energy Systems Acquisition Advisory Board (ESAAB) critical actions on required strategic and major systems. (MET GOAL)	*By September 30, 2000 reestablish the Acquisition Executive and ESAAB processes for use on critical decisions for projects of $5 million or more.* (MET GOAL) *Complete all planned External Independent Reviews (EIRs) of projects on schedule, to support both the needs of the project managers and timely delivery of EIR reports. (with the programs' corrective action plans)* (MET GOAL)
Accomplish the milestones of the FMFIA corrective action plan for the Departmental challenge of project management. (FMFIA) (BELOW EXPECTATIONS)	*Complete the milestones listed in the FMFIA corrective action plan for the Departmental challenge of project management. (FMFIA)* (NEARLY MET GOAL)

Related FY 2001 Results	CM1-3 FY 2002 Targets (Revised Final)	CM1-3 FY 2003 Targets
Complete the implementation of the BMIS Phoenix core financial system at a minimum of one service center cluster as part of a phased deployment strategy. (BELOW EXPECTATIONS)	*By September 30, 2002, complete the project design phase for the Phoenix core financial system; update the Project Plan/Baseline, and the Business Case; and begin the Configure/Build Phase to prepare the system for deployment.*	*Deploy the BMIS Phoenix core financial system at one service center cluster by September 30, 2003.*
	Obtain an unqualified audit opinion on the Department's FY 2001 financial statements with no material internal control weaknesses reported by auditors by February 27, 2002.	*Obtain an unqualified audit opinion on the Department's FY2002 financial statements with no material internal control weaknesses reported by auditors by February 1, 2003.*
	Issue interim financial statements by May 31, 2002.	*Issue timely and accurate quarterly financial statements within 45 days of the end of each quarter.*
	By September 30, 2002, define requirements for integrating financial information with budget and program information.	*Issue policies and guidance and modify and test financial systems for integrating financial information, with budget and program information to ensure implementation in FY 2004.*
Complete all planned External Independent Reviews (EIRs) of projects on schedule, to support both the needs of the project managers and the validation of the performance baselines. (MET GOAL)	*Complete all planned External Independent Reviews (EIRs) of projects on schedule, to support both the needs of the project managers and the validation of the performance baselines.*	*Publish the Departmental directive related to the implementation of a facilities and infrastructure program by June 2003.*
Improve External Independent Review procedures and Statements of Work. (MET GOAL)	*Review and revise the Department's policy on program and project management for the acquisition of capital assets, and the Project Management Manual and Practices. (FMFIA)*	*Pilot six of eleven core courses on Project Manager Career Development Program.*
By April 2001, resolve all recommendations from the National Research Council's report, "Improving Project Management in the Department of Energy." (MET GOAL)		*Resolve 10 and have an action plan in place for six of the sixteen remaining recommendations requiring action identified in the National Research Council report, "Progress in Improving Project Management at the Department of Energy, 2001."*

Program Strategic Performance Goal

CM1-4: Make resource decisions based on performance, and fully integrate the Department's budget and performance by FY 2004.

Performance Indicator: Improvement in OMB's rating of progress against the President's Management Agenda.

Related 1999 Results	Related FY 2000 Results
There were no related targets.	*There were no related targets.*

FY 2001 Results	CM1-4 FY 2002 Targets (Revised Final)	CM1-4 FY 2003 Targets
There were no related targets.	*Establish a Program Analysis and Evaluation Office to enhance performance analysis capability.* *Implement a new performance tracking system.* *Expand applied research and development investment criteria to all applied research programs.* *Establish a 5-year process, with integrated performance data, for the preparation of the FY 2004 budget.* *Issue guidance and begin development of an updated Department Strategic Plan.* *Complete the milestones in the FMFIA corrective action plan for the Departmental Challenge of Performance Management. (FMFIA)*	*Track the performance measures contained in the Department's Annual Performance Plan using the new tracking software.* *Complete Departmental Strategic Plan and initiate the development of Program Plans based upon the revised Strategic Plan.*

Program Strategic Performance Goal

CM1-5: Improve the efficiency and effectiveness of DOE's contract management to become a model for government.

Performance Indicator:

- Percent of eligible service contracts that are performance-based.
- Status of contract management as a management challenge.
- Percent of new competitive awards made electronically.

Related FY 1999 Results	Related FY 2000 Results
Convert all management and operating (M&O) contracts awarded in FY 1999 to performance-based contracts. (MET GOAL)	*Convert all M&O contracts awarded in FY 2000 to a Performance-Based Service Contract (PBSC) using government-wide standards [FAR, 48 CFR Part 39 and Office of Federal Procurement Policy letter 91-2].* (MET GOAL) *Convert one support services contract at each major site to PBSC using the government-wide standards [Federal Acquisition Regulations (48 CFR Part 39), and Office of Federal Procurement Policy letter 91-2].* (MET GOAL)

Related FY 2001 Results	CM1-5 FY 2002 Targets (Revised Final)	CM1-5 FY 2003 Targets
Convert all M&O contracts awarded in FY 2001 to Performance-Based Service Contract (PBSC) management contracts. (MET GOAL) *Award approximately 50 percent of service contracts as PBSC using government-wide standards.* (MET GOAL) *Select and begin implementation of DO-wide electronic contracting for large procurements.* (MET GOAL)	*Increase the use of on-line procurement and other E-Government services and information so that for 100 percent of acquisitions valued at over $25,000, all synopses for which widespread notice is required, and all associated solicitations (unless covered by an exemption in the Federal Acquisition Regulation), will be posted on the Government wide point of entry website (www.FedBizOpps.gov)*	*Increase the use of on-line procurement and other E-Government services and information so that* *- 100 percent of acquisitions valued at over $25,000, all synopses for which widespread notice is required, and all associated solicitations (unless covered by an exemption in the Federal Acquisition Regulation), will be posted on the Government-wide point of entry website (www.FedBizOpps.gov);* *- 30 percent of all new competitive awards will be made via electronic methods.*
	Increase the use of performance-based contracts so that: *- 60 percent of total eligible service contracting dollars (over $100K) will be obligated as performance-based service contracts; and* *- 66 percent of total eligible new service contracts (over $100K) will be performance-based service contracts.*	*Increase the use of performance-based contracts so that:* *- 60 percent of total eligible service contracting dollars (over $100K) will be obligated as performance-based service contracts; and* *- 66 percent of total eligible new service contracts (over $100K) will be performance-based service contracts.*
Complete milestones listed in the FMFIA corrective action plan for the Departmental challenge of contract management. (FMFIA) (MET GOAL)	*Complete milestones listed in the FMFIA corrective action plan for the Departmental challenge of contract management. (FMFIA)*	

Means and Strategies:

During FY 2003, the Office of Management, Budget and Evaluation/Chief Financial Officer (ME) will continue serving as the Department's primary administrative and management support and corporate lead for the President's Management and Performance Agenda (PMA) activities. ME will accomplish this by implementing OMB approved PMA Plans to support management reforms for the Human Capital, Budget and Performance Integration, Competitive Sourcing, and Financial Performance initiatives. While the Expanding E-Government initiative is assigned to the Chief Information Officer, ME will support all initiatives as the corporate lead. Additionally, ME will continue its efforts to improve the efficiency and effectiveness of contract management.

In support of the Administration's recent management reform initiatives, ME will work with DOE line managers to meet the goals of the PMA approved plans. Examples of activities for each initiative include:

- Human Capital Management: Initiate comprehensive human resource strategies for a new performance management system, improve workforce planning, and eliminate unnecessary layers of management.
- Competitive Sourcing: Meet the target of 15 percent conversion of the Department's inventory of commercial positions.
- Improve Financial Performance: Deploy the BMIS Phoenix financial system at one service center, obtain an unqualified audit opinion, issue timely and accurate quarterly financial statements, and begin the process of integrating financial information with budget and program information.
- Budget and Performance Integration: Implement a new tracking database for tracking and reporting of performance measures, and initiate development of Program Plans based on the published Strategic Plan.
- Contract Management: Increase the use of on-line e-government services such as posting appropriate solicitations on the Government-wide website, award 30 percent of competitive contracts via electronic methods, and increase the use of performance-based contracts.

Collaboration Activities:

ME coordinate with a broad range of external Federal agSencies including the Office of Management and Budget, Office of Personnel Management, the General Services Administration, various Congressional offices, and numerous private sector companies and organizations. Due to its administrative, management and corporate role for the PMA, ME also work closely with all DOE organizations and DOE Management and Operating contractors.

External Factors Affecting Performance:

Office of Management and Budget direction on the PMA, Administration policies, Congressional guidance, Departmental activities and requests, as well as other external factors could impact ME performance.

Validation and Verification:

Data Sources:	Customer, stakeholder, and staff feedback, reports to Congress and the Office of Management and Budget.
Baselines:	Various baselines established through the Executive Scorecard for PMA's, ME Action Plans.
Frequency:	Monthly, quarterly, or annually depending on requirements
Data Storage:	Various ME tracking systems and feedback mechanisms.
Verification:	Internal Program Reviews and reporting structures, customer feedback from surveys and focus groups.

Planned Program Evaluation:

For the PMA and other performance-based programs, ME is implementing a new performance tracking system to measure performance that links ME's strategic goals to the activities necessary to achieve desired results. Each ME organization has developed action plans for their primary functions, and meets with the Director of Management, Budget, and Evaluation/Chief Financial Officer on a regular basis to discuss the status of products and services. Quarterly reports will be given to the Office of Management and Budget for the PMA and rated through the Executive Scorecard to the President.

Program Activity: Departmental Administration – Economic Impact and Diversity

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
270 Energy					
Departmental Administration – Economic Diversity		ED	6.9	6.5	6.8

Description of Program:

The Office of Economic Impact and Diversity (ED) consists of the Office of Minority Economic Impact, the Office of Small and Disadvantaged Business Utilization, the Office of Civil Rights and Diversity, and the Office of Employee Concerns/National Ombudsman. The mission of the Office is to identify the impact of energy policies on minorities, minority businesses and minority institutions and to promote equal opportunity in employment and contracting at DOE's major contractor facilities.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

CM1-6: Promote inclusion in all aspects of the Department's human capital and financial resources by increasing diversity in hiring, contracting, internships, mentoring and other developmental programs.

Performance Indicators:

- Increase in Small Business activities;
- Strengthened diversity in DOE's workplace comparable to that present in the national and local populations;
- Workplace satisfaction surveys;
- Five new written agreements with DOE elements and other organizations on improving diversity in the energy sector.

Related FY 1999 Results	Related FY 2000 Results
Enhance America's science workforce by ensuring that minority-serving institutions are afforded and take advantage of the Federal research, development, education and equipment opportunities for which they are eligible and increasing their awards by five percent over FY 1998. (BELOW EXPECTATIONS)	*Determine how well the Department's diversity goals are being met by tracking the Department's personnel actions on hiring and competitive promotions against the current Civilian Labor Force statistics.* (MET GOAL)
Commit to specific procurement strategies that will increase the participation of women-owned small businesses in the Federal marketplace through a Memorandum of Understanding with the Small Business Administration. (MET GOAL)	*Ensure equitable opportunities for minority educational institutions and small, minority, and women owned businesses to compete.* (BELOW EXPECTATIONS)
Publish in the Code of Federal Regulations the DOE Mentor-Protégée Program. (NEARLY MET GOAL)	*Increase employee awareness by publicizing DOE-wide the scope of the employee concerns program, the availability of the ombudsman function, and the DOE employee concerns program offices at the operations and field offices.* (MET GOAL)

Related FY 2001 Results	**CM1-6 FY 2002 Targets** (Revised Final)	**CM1-6 FY 2003 Proposed Targets**
Achieve the Department's small business percentage goals negotiated with the Small Business Administration and the Office of Federal Procurement Policy.	*Develop a DOE-wide "managing diversity" strategy to ensure consistency in approach; and, educate top leadership on the interdependence of key change initiatives by showing links between managing diversity and related initiatives such as the Task Force Against Racial Profiling.* *Fully implement the Department's Minority Educational Institutions Strategy, and increase management accountability in implementing the DOE Strategic Plan.*	*Develop and implement five projects to ensure economic participation by minority communities in the energy sector.* *Increase small business obligations from the FY 2001 base of $512 million by $80 million.* *Monitor, support and track the Department's progress in achieving workplace diversity in areas such as hiring, professional growth, promotions, leadership development, and training, by using FY 2001 data as a base year.*

Means and Strategies:

The Office of Economic Impact and Diversity (ED) has 42 Full-Time Equivalents (FTEs) and a budget of 6.5 million to devise and oversee innovative strategies that include small business development, minority economic development, workforce opportunities, community outreach and involvement, socioeconomic research, and participation by minority educational institutions.

Current strategies include: conducting social economic research activities, establishing a 3-year small business planning cycle with Program Secretarial Officers; standardizing small business reporting mechanisms to measure progress against goals; conducting an annual Small Business Conference; and conducting a Diversity Review and developing/implementing a department-wide diversity improvement action plan. These strategies will be carried out by the various elements within the Office. To assist us in implementing and monitoring the above strategies, an integrated information management system is needed.

Collaboration Activities:

ED coordinates its small business and diversity programs with the Small Business Administration, White House Initiative Offices on Minority Education, the Equal Employment Opportunity Commission, Environmental Protection Agency, Office of Personnel Management, Department of Justice and others.

External Factors Affecting Performance:

Changes to Small Business Administration regulations or Federal Acquisition Regulations. Regulatory and Executive Orders may affect the implementation of various diversity initiatives.

Validation and Verification:

Data Sources:	Program office reports, Procurement Automated Data System, CHRIS, DOE INFO and Subcontracting Reporting System.
Baselines:	Workforce – 2001 Report; Minority Education 1999 Report; FY 2001 Small Business Achievement.
Frequency:	Quarterly, semi-annual and annual.
Data Storage:	Procurement Automated Data System, Subcontracting Reporting System, Diversity Tracking Systems, CHRIS, DOE Info.
Verification:	Annual Reports.

Planned Program Evaluation:

The Department evaluates the small business program by obtaining contract obligation data from the Procurement Automated Data System, in order to compare the obligations made to small businesses as a percentage of total contract obligations to all organizations, and compares that percentage against SBA goals and the past year's performance. Employee concerns program evaluation is achieved via review/analysis of data covering each calendar year, as well as site visits. Civil Rights/Diversity and Ombudsman programs are evaluated during annual self-assessments; feedback once a year is provided to Departmental elements on their workforce/diversity analysis reports; and semi-annual reports to the Secretary on implementation of the Diversity Review recommendations.

GPRA Program Activity: Departmental Administration – Chief Information Officer

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
270 Energy					
Departmental Administration – Chief Information Officer		CIO	74	75	84

Description of Program:

The Office of Chief Information Officer (OCIO) provides advice and assistance to the Secretary of Energy and other senior managers to ensure that information technology is acquired and information resources are managed in a manner that implements the policies and procedures of relevant legislation, including the Government Paperwork Elimination Act and the Clinger-Cohen Act; and the priorities established by the Secretary. Provides cyber security policy, planning, and technical development, to ensure consistent standards and requirements are implemented for the protection of classified and unclassified information used or stored on Departmental systems. Coordinates and articulates a shared vision and corporate perspective among the Department's information activities and champions. Departmental initiatives to effectively manage information and to provide for corporate systems that add value to the businesses of the Department. Ensures that information created and collected by the Department is provided to internal and external customers and stakeholders in a timely, cost-effective, and efficient manner.

As part of the President's Management Agenda, OCIO will advocate and implement an e-government citizen service delivery office in FY 2003. This office will accelerate the implementation of the geospatial information one-stop project to enhance the implementation of e-government by enabling geospatial data to be more accessible and usable. The OCIO will implement customer/citizen relationship management and utilize intergovernmental best practices to expedite Departmental implementation. In addition, this office will develop an agency strategy for electronic government initiatives. This strategy will establish a framework for existing initiatives underway in the Department, and provide a roadmap for future corporate direction and organization-specific efforts.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

CM 2-1: Advocate and implement an E-government citizen service delivery office in FY 2003.

Performance Indicator

- Ensure that employees and the public are able to do business with the Department of Energy electronically, wherever practicable, by the end of FY 2003.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*There were no related targets.*

CM2-1 FY 2001 Results	CM2-1 FY 2002 Targets (Revised Final)	CM2-1 FY 2003 Proposed Targets
There were no related targets.	*Advocate and implement E-government citizen service delivery by taking the following actions:* - *Assess requirements for the Geospatial One Stop project and develop a project plan by Sept. 30 2002;* - *Develop E-gov framework by June 30, 2002;* - *Develop E- gov roadmap by September 30, 2002, to reduce information collection burden;* - *Identify use of open standards across the Department;* - *Conclude CIO Office e-mail pilot;* - *Increase usage of citizen-centric Energy.gov website by five percent; and* - *Issue draft Departmental policy and guidance on the use of websites, which includes Section 508 compliance, by September 30,2002.*	*Advocate and implement E-government citizen service delivery by taking the following actions:* - *Meet the implementation requirements of the geospatial one-stop project;* - *Convert appropriate paper-centric information collections/business transactions to electronic methods, according to E-gov roadmap;* - *Document burden reduction by use of open standards across the Department;* - *Finalize electronic record keeping guidance;* - *Increase usage of citizen-centric Energy.gov website by 5 percent;* - *Finalize Departmental policy and guidance on use of websites.* - *Support all major systems investments with a business case that meets the requirements of OMB Circular A-11 (Exhibit 53, Form 300).* - *Ensure that on average, all major IT projects operate within 90 percent of Form 300, cost, schedule, and performance targets.* - *Integrate citizen one-stop service delivery through Firstgov.gov, cross-agency call centers, and offices or service centers; and* - *Ensure that IT investment portfolio supports robust cyber security posture.*

Program Strategic Performance Goal

CM3-1: Promote the effective management of Information Technology resources in the Department.

Performance Indicator*:* Complete all Corporate Management Information Program initiative milestones and report status annually to Congress.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*There were no related targets.*

CM3-1 FY 2001 Results	CM3-1 FY 2002 Targets* (Revised Final)	CM3-1 FY 2003 Proposed Targets
There were no related targets.	*Complete Corporate Systems Information Architecture (CSIA) implementation, Strategic Information Management (SIM) process, and complete first CSIA application SIM.* *Complete business case for procurement modernization across the DOE complex.* *Complete the milestones listed in the FMFIA corrective action plan for the Departmental Challenge of Information Technology. (FMFIA)*	*Complete DOE program and DOE field site information systems architectures, and initiate up to four CSIA application SIMS.* *Using results of the Procurement Modernization SIM case, issue solicitation for recommended solution.* *Complete the milestones listed in the FMFIA corrective action plan for the Departmental Challenge of Information Technology. (FMFIA)*

Note: *These are new initiatives responding to the President's Management Agenda, Expanded Electronic Government.

Program Strategic Performance Goal

CM3-2: Ensure that DOE's information assets are secure through effective policies, implementation, and oversight.

Performance Indicators:

- Number of employees trained in cyber security.
- Cyber incident response time.
- Cyber intrusion detection and reporting efficiency.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*There were no related targets.*

Related FY 2001 Results	**CM3-2 FY 2002 Targets** (Revised Final)	**CM3-2 FY 2003 Proposed Targets**
The following results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP targets. Issued DOE Cyber Security Program Action Plan, published numerous policies and memos, published separate Public Key Infrastructure (PKI) and Training Strategies, and continued to review and provide guidance on Implementation Plans from DOE sites.	*Develop and implement a comprehensive cyber security program that implements risk-based policies and guidance for the protection of cyber assets. Specifically:* - *Update and implement DOE Cyber Security Program Action Plan;* - *Launch cyber security performance measurement program;* - *Issue updated Cyber Security Threat Statement;* - *Develop and update Cyber Security Performance Improvement Plan and Cyber Scorecard;* - *Integrate cyber security capital planning process with IT capital planning process;* - *Complete Project Matrix Step One to identify the Department's national critical infrastructure, and launch Project Matrix Step Two to identify the interdependencies in the infrastructure.*	*Maintain a comprehensive cyber security program that implements risk-based policies and guidance for the protection of cyber assets. Specifically:* - *Define roles/responsibilities for Headquarters and line organizations.* - *Develop and implement directives in configuration and risk management, certification and accreditation.* - *Launch independent validation and verification (IV&V) program to test/analyze software and/or systems.* - *Issue updated Cyber Security Threat Statement.* - *Develop and audit implementation of DOE Headquarters cyber security policies to ensure proper reliability and accessibility of classified systems.*
Implemented an effective cyber security education program available to all DOE staff and contractors. As such, approximately 4,200 DOE Federal and contractor personnel were trained in PKI/ISS/Cyber Cop, information systems security, and classified computer security.	*Expand a comprehensive DOE-wide cyber security-training program. Develop and test forensics-training program through a focused pilot. Develop and update course catalog.* *Analyze and disseminate cyber security incident information within DOE, and expand PKI capability department-wide.* *Replace 25 percent of Department's Secure Telecommunication Units (STU) IIIs with Secure Telephone Equipment.* *Upgrade DOE-wide cyber security infrastructure/architecture according to milestones established in the capital planning documentation.*	*Develop consistent core training requirements for cyber security professionals, system administrators, senior management, and general users. Launch DOE—wide forensics training program and test managers' awareness of training through focused pilots. Launch DOE-wide recognition program and update the course catalog.* *Replace an additional 25 percent of the Department's Secure Telecommunication Units (STU) IIIs with Secure Telephone Equipment.* *Upgrade DOE-wide cyber security infrastructure/architecture according to milestones established in the capital planning documentation.*

Means and Strategies:

E-government: The Office of CIO will (1) work with Federal agencies, Departmental councils, teams and elements to develop and implement the E-government, records management, and website policies and roadmap. (2) Verify that departmental websites adhere to established privacy and cookie policies through individual site checks; and (3) will provide support and collaboration on the Geospatial One-Stop Project .

IT Resource Management: The Office of CIO will (1) review and approve IT investments at the Department level before they are forwarded to OMB; (2) Develop measures of performance to ensure that program officials and CIO's are fulfilling their responsibilities with regard to the Government Information Security Reform Act; (3) for high priority initiatives under the Government Paperwork Elimination Act, focus on providing electronic alternatives for the agency's main customer base. Work with the private sector and government to develop and implement Customer relationship Management, utilizing best practices; (4) empower employees through technology, enabling them to be more effective and efficient; and, (5) continue to implement critical Information Technology data and infrastructure protection and security.

Cyber Security: The Office of CIO will (1) work with the private sector and Federal, State and local governments to develop and implement critical cyber security protection initiatives; (2) provide high-level consistent, risk management-based implementation guidance for the protection of cyber assets; (3) provide consistent, core training requirements for cyber security professionals, system administrators, senior management, and general users; and (4) provide Departmental capabilities for cyber incident response, core cyber security architecture, cyber intrusion detection and reporting, and Public Key Infrastructure (PKI) architecture.

Collaboration Activities

E-government: The Office of the CIO, in the area of E-government, participates in a number of departmental groups including: (1) The Office of Management and Budget E-Government Task Force; (2) The Department of Energy CIO Executive Council, Records Management Council, and Web Council; (3) HQ Fore-Most Technical Issues Working Group (4) Federal Geographic Data Committee (5) Open Geographic

Information System Consortium; and, (6) the DOE GIS Users Group.

IT Resource Management: The Office of the CIO in promoting effective management of Information Technology resources, participates in a number of interagency groups and public-private forums, including; (1) Industry Advisory Council (public-private); (2) Federal Electronics Stewardship Forum (public-private, led by the Environmental Protection Agency); (3) IT Working Group (Departmental, OCIO-led); (4) National Communications Systems Working Group (interagency, public-private, DOD-led); (5) Federal Telecommunications System Working Group (interagency); (6) Federal CIO council (interagency); (7) Senior Executive Review Board; and (8) CIO Executive Council.

The OCIO will continue to engage industry as both a partner and in an advisory capacity.

Cyber Security: In the area of Cyber Security, the Office of the CIO participates in a number of interagency groups and public-private forums, including: (1) The Partnership for Critical Infrastructure Security (public-private), Office of Science and Technology Policy (OSTP); (2) CIP Research and Development Working Group (Interagency); (3) Communications and Information Sector Working Group (public-private, led by the Department of Commerce; (4) Energy Infrastructure Assurance Coordination Group (interagency, DOE-led); (5) National Petroleum Council /DOE CIP Subcommittee (public-private); (6) North American Electricity Reliability Council CIP Form (public-private); (7) Critical Infrastructure Coordination Group; and (8) Technical Support Working Group (interagency).

External Factors Affecting Performance

E-government: The E-Government program's indicated performance goals and associated schedules depend heavily on: (1) availability of in-kind support for Geospatial One-Stop activities; (2) funding continuity and sufficiency; and (3) cooperation and support from Departmental elements.

IT Resource Management:

The effective management of Information Technology resources in the Department depends heavily on funding continuity and sufficiency. Another factor is the ability to retain and develop or retrain a knowledgeable and highly skilled Federal workforce to provide project direction and oversight. The human capital issue is significant, given the aging Federal workforce.

Cyber Security: The Cyber Security program's indicated performance goals and associated schedules depend heavily on funding continuity and sufficiency. The program is also affected by various laws and regulations, including GISRA, the Clinger –Cohen Act, OMB Circular A-130 and PDD 63.

Validation and Verification: (E-gov)

Data Sources:	The data is provided through server logging applications and digital storage under the project: "Energy.gov Usage Increase."
Baselines:	The previous year's statistics act as the baseline.
Frequency:	Data is reviewed quarterly.
Data Storage:	The data is stored in digital archives, and is verified by contact with Departmental elements by the proceeding review.
Verification:	Verification of framework data in support of GIS is obtained from inventory and document agency framework data holdings using FGDC Metadata Standard.

Planned Program Evaluation

The Office of the Chief Information Officer conducts Corporate and Major System Reviews of issues, schedules, goals accomplished, and expenditures. The Associate CIO for Operations and cognizant program managers participate to ensure that activities are on schedule and within budget.

The Office of Cyber Security conducts quarterly, detailed reviews of program activities, schedules, and expenditures. The Associate CIO for Cyber Security and all program managers participate to ensure that activities are on schedule.

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GPRA Program Activity: Policy and International Affairs

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
270 Energy					
Departmental Administration - Policy and International Affairs		PI	17	16	22

Description of Program:

The Assistant Secretary for Policy and International Affairs (PI) is the primary advisor to the Secretary and the Department on policy development, analysis and implementation. PI advises the Department's leadership on existing and prospective energy-related policies, based on integrated and well-founded data and analysis. PI represents the Department in interagency discussions on energy and related policy issues, and addresses all aspects of the U.S. energy sector, including energy production, markets, reliability, environmental impacts and economic efficiency.

PI has primary responsibility for the Department's international energy affairs, including international energy policy issues, international energy emergency and national security issues, and international technology cooperation. PI also develops and leads the Department's bilateral and multilateral cooperation, investment, and trade activities with other nations and international agencies. PI works closely with Departmental elements, Federal agencies and other relevant organizations and institutions to coordinate and align national security and energy emergency activities.

In these capacities, PI plays a central role in the development and implementation of the National Energy Policy (NEP).

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

CM 4-1 Provide analysis of domestic and international energy policy, develop implementation strategies, ensure policies are consistent across DOE and within the Administration, communicate analyses and priorities to the Congress, the public, industry, foreign governments, and domestic and international organizations, and enhance the export and deployment of energy technologies internationally.

Performance Indicators:

- Energy supplies are more secure and DOE is better prepared to respond to energy emergencies;
- Trade opportunities for U.S. companies abroad are increased;
- International deployment of clean energy technology is increased;
- Effective policies are established to increase domestic production and enhance energy efficiency;
- National energy, environmental and economic policies are consistent and balanced;
- Energy markets are competitive and energy systems are reliable;
- Energy research and development and science priorities support national objectives.

FY 1999 Results	FY 2000 Results
There were no related targets.	*There were no related targets.*

elated FY 2001 Results	**CM4-1 FY 2002 Targets** (Revised Final)	**CM4-1 FY 2003 Proposed Targets**
Energy Supplies are More Secure and DOE is Better Prepared to Respond to Energy Emergencies		
The following results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP targets. Worked with foreign governments and multilateral organizations to develop and implement policy decisions that will diversify and enhance world oil production and reduce oil demand growth, as recommended in the NEP. Analyzed the likely effects of California price caps. Assessed the effects of and appropriate responses to supply constraints in petroleum product, electricity and natural gas markets. Worked with foreign governments, energy suppliers, other Federal agencies, and State governments to improve responses to energy market disruptions.	*Work with foreign governments and multilateral organizations to develop and implement policy decisions that will diversify and enhance world oil production and reduce oil demand growth, as recommended in the NEP. (FMFIA)* *Provide assessments of the likely effects of supply constraints in petroleum product, electricity or natural gas markets, and work with foreign governments, energy suppliers, FEMA and other Federal agencies, and State governments to enhance responses to energy market disruptions, as called for by the NEP. (FMFIA)*	*Work with foreign governments and multilateral organizations to develop and implement policy decisions that will diversify and enhance world oil production and reduce oil demand growth, as recommended in the NEP.* *Provide assessments of the likely effects of supply constraints in petroleum product, electricity or natural gas markets, and work with foreign governments, energy suppliers, FEMA and other Federal agencies, and State governments to enhance responses to energy market disruptions, as called for by the NEP.*
Trade Opportunities for U.S. Companies Abroad are Increased		
Participated in WTO Energy Services Agreement trade negotiations, regulatory cooperation and commercial advocacy, as recommended by the NEP.	*Advance trade negotiations, regulatory cooperation programs and commercial advocacy, as recommended by the NEP.*	*Advance trade negotiations, regulatory cooperation programs and commercial advocacy, as recommended by the NEP.*

Related FY 2001 Results	CM4-1 FY 2002 Targets (Revised Final)	CM4-1 FY 2003 Proposed Targets
International Deployment of Clean Energy Technology is Promoted		
The following additional results are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP targets.		
Coordinated an interagency working group to implement the Clean Energy Technology Exports initiative as recommended in the NEP.	*Collaborate with USAID to direct an interagency working group to implement the Clean Energy Technology Exports Initiative, as recommended in the NEP. (FMFIA)*	*Collaborate with USAID to direct an interagency working group to implement the Clean Energy Technology Exports Initiative, as recommended in the NEP.*
Organized technology training and other capacity building efforts to accelerate the worldwide adoption of technologies and practices that limit, reduce, avoid, or sequester greenhouse gas emissions.	*Organize technology training and other capacity building efforts to accelerate the worldwide adoption of technologies and practices that limit, reduce, avoid, or sequester greenhouse gas emissions. (FMFIA)*	*Organize technology training and other capacity building efforts to accelerate the worldwide adoption of technologies and practices that limit, reduce, avoid, or sequester greenhouse gas emissions.*
Effective Policies are Established to Increase Domestic Production and Enhance Energy Efficiency		
Coordinated the Department's input to the National Energy Policy Report (NEP). Provided policy analysis and guidance for appliance, equipment and building efficiency standards. Analyzed legislative proposals designed to increase domestic energy production and enhance energy efficiency.	*Coordinate and oversee the implementation of the NEP, including providing analysis and policy guidance, where needed. (FMFIA)*	*Coordinate and oversee the implementation of the NEP, including providing analysis and policy guidance, where needed.*
National Energy, Environmental and Economic Policies are Consistent and Balanced		
Analyzed the potential effects on energy markets of environmental actions, including legislation to integrate Federal regulation of powerplant emissions (NEP); Federal and state requirements for "boutique" motor fuels (NEP); the modification of New Source Review procedures (NEP); Toxic Release Inventory (TRI) requirements; and domestic and international climate change proposals, among others.	*Analyze the potential effects of proposed environmental actions, including regulations, legislation and international agreements on energy markets. Use the results of these analyses to recommend appropriate modifications. Primary areas of activity are likely to include: integration of Federal regulation of powerplant emissions; actions to mitigate any adverse effects of "boutique" fuel regulations; and proposals to reduce, avoid or sequester greenhouse gases*	*Analyze the potential effects of proposed environmental actions, including regulations, legislation and international agreements on energy markets. Use the results of these analyses to recommend appropriate modifications.*

Related FY 2001 Results	CM4-1 FY 2002 Targets (Revised Final)	CM4-1 FY 2003 Proposed Targets
National Energy, Environmental and Economic Policies are Consistent and Balanced (Continued)		
	Coordinate and support initial milestones of the interagency effort to implement the National Climate Change Initiative, the President's recent proposal to enhance voluntary reporting of greenhouse gas emission reduction efforts and other climate policy initiatives. (FMFIA)	
Energy Markets are Competitive and Energy Systems are Reliable		
The following are included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP targets. Developed and analyzed legislative and regulatory proposals to enhance competition and reliability within electricity, natural gas and oil markets, including initiation of the National Transmission Grid Study (NEP), supported efforts of the North American Energy Working Group to improve the integration of electricity transmission and natural gas pipeline infrastructure; and analyzed refinery capacity and utilization to ensure the adequacy of future refining capacity, among others factors.	*Develop and analyze legislative and regulatory proposals to enhance competition and reliability within electricity, natural gas and oil markets, including completion of the National Transmission Grid study and initiation of efforts to implement its recommendations, and analysis of various legislative and regulatory proposals to restructure U.S. electricity markets. (FMFIA)*	*Develop and analyze legislative and regulatory proposals to enhance competition and reliability within electricity, natural gas and oil markets.*
Energy Research and Development, and Science Priorities Support National Objectives		
Initiated the Administration's National Climate Change Technology Initiative by coordinating a multi-agency review of technology needs and priorities and guided the implementation of the Department's technology transfer initiative. Leveraged domestic science and technology resources through new and renewed international collaborations in high priority science and technology areas through work with international partners as called for by the NEP.	*Guide periodic reviews of DOE energy R&D and science priorities to enhance their support of national objectives, including the completion of the National Climate Change Technology Initiative report and the initiation of implementation efforts. (FMFIA)* *Leverage domestic science and technology resources through new and renewed international collaborations in high priority science and technology areas through work with international partners, as called for by the NEP. (FMFIA)*	*Guide periodic reviews of DOE energy R&D and science priorities to enhance their support of national objectives. Analyze the economic impact of policies and programs that reduce greenhouse gas emissions.* *Leverage domestic science and technology resources through new and renewed international collaborations in high priority science and technology areas through work with international partners, as called for by the NEP.*

Means and Strategies:

During FY 2002 and FY 2003, the Office of Policy and International Affairs will continue to concentrate on analyzing the impact of proposals to use market mechanisms to reduce transmission bottlenecks and customer costs in the electric utility sector, strengthening the Nation's energy security through domestic actions, and developing Federal policies that minimize the costs of achieving national environmental goals and commitments to curb greenhouse gas emissions, while avoiding adverse effects on the reliability of energy supplies. PI will continue efforts to assess energy market disruptions, support the Department's efforts to prepare for and respond to energy emergencies, and lead Department-wide reviews and analyses of the energy resources R&D portfolio. Additionally, PI will serve as the primary policy advisor to the Secretary and the Department on international energy policy development, analysis, and implementation, and will focus on promoting the following core areas: 1) the security of global energy markets; 2) international market opportunities for U.S. companies; 3) deployment of clean energy technologies; and, 4) increased leverage for DOE R&D funds through expanded international collaboration.

Collaboration Activities:

PI coordinates with a broad range of external agencies, congressional offices, and business and non-governmental organizations via interagency and public fora. It also works closely with all other elements of the Department.

External Factors Affecting Performance:

Global and domestic economic trends, sector-specific market conditions, Administration environmental and other energy-related policies, Congressional guidance and the concerns of non-governmental organizations affect the focus, priorities and level of effort of PI's analyses of energy policy issues.

Validation and Verification:

Data Sources:	Customer and internal staff feedback.
Baselines:	Anticipated policy outcomes against which feedback is to be measured.
Frequency:	To Be Determined, based on level of effort and progress made.
Data Storage:	PI managers and senior management will develop and maintain the feedback data on our progress.
Verification:	Anticipate customer surveys and internal assessment of progress.

Planned Program Evaluation:

PI will use a process of internal and external reviews and assessments to evaluate progress on these dynamic and evolving domestic and international energy policies. PI will document the number of presentations to public groups on energy policy issues, and measure the number of official correspondence it has responded to on key energy policy issues. PI will document the influence of our analyses within the interagency process.

GPRA Program Activity: Security

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
050 Atomic Energy Defense Activities					
Nuclear Safeguards and Security		SO	84	86	91
Security Investigations		SO	33	45	46
Program Direction		SO	50	49	50
Use of Prior Year Balances		SO	(1)	(5)	(1)
Total			165	174	187

Description of the Program:

The Office of Security (SO) develops and promulgates safeguards and security policy for the Department. The activities of SO support the Nuclear Safeguards and Security program, Security Investigations, and Program Direction.

The Nuclear Safeguards and Security Program consists of domestic protection of nuclear weapons, nuclear materials, nuclear facilities, and classified and unclassified information against theft, sabotage, espionage, terrorist activities, or any loss or unauthorized disclosure that could endanger our National security or disrupt operations. Foreign Visits and Assignments provides a centralized focus to track and analyze the details of all foreign visits and assignments for all DOE facilities, to ensure that these visits and assignments are conducted in a secure manner. Physical Security provides cost-effective plans, policies, and technical solutions to ensure that nuclear weapons, special nuclear materials, classified information, and key Department facilities and personnel are adequately protected from evolving threats. Plutonium, Uranium, and Special Materials Inventory maintains real-time, reliable, and complete information on DOE nuclear materials that are subject to special control and inventory procedures. Classification/Declassification provides the appropriate level of classification of information to help ensure its protection with an emphasis on declassification of previously classified documents for greater public access. The Security Investigations program funds background investigations for all DOE Federal employees and contractors who, in the performance of their official duties, require access authorizations for Restricted Data, National Security Information, or certain special nuclear material. Program Direction provides funds for all Federal personnel and other contractual support required at DOE Headquarters to carry out the program's mission in a cost effective and efficient manner.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

CM5-1: Develop strategies and policies governing the protection of national security and other critical assets entrusted to the Department. Also, manage security operations for DOE facilities in the national capital area.

Performance Indicators

- Office of Independent Oversight and Performance Assurance (OA) findings specific to security policy.
- Number of incidents at Headquarters facilities.

Related FY 1999 Results	Related FY 2000 Results
Accomplish the milestones of the FMFIA corrective action plan for the Departmental challenge of unclassified computer security. (MET GOAL)	*Complete the milestones listed in the FMFIA corrective action plan for the Departmental challenge of security. (FMFIA)* (MET GOAL) *Initiate the correction of DOE infrastructure vulnerabilities identified by the President's Commission on Critical Infrastructure Protection.* (MET GOAL) *Reduce by 15 actions the processing backlog of requests for classified documents submitted under the Freedom of Information Act and Executive Order 12958 mandatory review provisions.* (BELOW EXPECTATIONS: Additional reviewers were obtained but the five-fold increase in priority reviews prevented reaching goal this year.)

Related FY 2001 Results	**Related FY 2002 Targets** (Revised Final)	**Related FY 2003 Proposed Targets**
Complete the milestones listed in the FMFIA corrective action plan for the Departmental challenge of security. (FMFIA) (NEARLY MET GOAL)	*Complete the milestones listed in the FMFIA corrective action plan for the Departmental challenge of security. (FMFIA)* *Improve Headquarters response capabilities for handling and resolving security situations by: Increasing the total interior and exterior perimeter video coverage by at least 20 percent;* - *Increasing portable explosive detection capability by 50 percent;* - *Increasing the number of trained and armed Protective Force Officers by 15 percent.* - *Increasing officer retention by 10 percent through implementation of an innovative "officer retention/recognition" program;* - *Developing and implementing a comprehensive performance testing plan that encompasses Protective Force emergency response responsibilities;* - *Providing chemical and biological response training to 100 percent of Protective Force personnel assigned to critical posts; and* - *Conducting transitional firearms training for 100 percent of armed personnel.* *Publish DOE-wide Strategic Plan for Security.* *Develop and publish facility security performance metrics.*	*Complete the milestones listed in the FMFIA corrective action plan for the Departmental challenge of security. (FMFIA)* *Improve Headquarters response capabilities for handling and resolving security situations by:* - *Achieving 100 percent qualification rating on independent review of firing range operations, weapons qualifications and safety;* - *Increasing presence of armed officers at building exteriors by 20 percent;* - *Establishing two new "armed" posts to control vehicular and pedestrian traffic, screen visitors, inspect vehicles and present an "armed officer deterrent."* *Update DOE-wide Strategic Plan for Security to continue to address emerging security threats.* *Achieve compliance with the centralized tracking of controlled nuclear materials by FY 2003.* *Achieve 100 percent compliance with the centralized tracking of foreign nationals that visit DOE facilities by FY 2003.* *Complete audit of 6,000,000 pages of material at the National Archives and Records Administration (NARA).*

Means & Strategies:

The Office of Security is leading an effort in conjunction with Secretarial Offices to develop and publish a DOE-wide Strategic Plan for Security and security performance metrics to address new problems presented by homeland defense and emerging threats posed by terrorists. The Office of Security will continue to collaborate with the Department's Security Managers to ensure deployment of effective security measures.

Collaboration Activities:

The Office of Security will continue to collaborate with other Federal, State, and local Governments to ensure the security of the Department's critical national assets.

External Factors Affecting Performance:

- Terrorists threats and attacks;
- Funding;
- Presidential, Congressional, and Homeland; Defense direction; and
- Improved technological developments.

Validation and Verification:

DOE-wide Strategic Security Plan B updated annually
External oversight activities and audits.

Planned Program Evaluation:

Internal policy and operational assessments.

GPRA Program Activity: Counterintelligence

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub- Activity	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
050 Atomic Energy Defense Activities					
Counterintelligence	Counterintelligence	CN	45	46	39

Description of the Program:

The Counterintelligence (CN) mission is to identify, neutralize and deter intelligence threats directed at the Department's facilities, personnel, information and technologies. Executive Order 12333, signed December 4, 1981, governs the conduct of intelligence activities by all agencies within the U.S. Intelligence Community (USIC). Classified Presidential Decision Directive/NSC-61 (PDD-61), "U.S. Department of Energy Counterintelligence Program," dated February 11, 1998, established and defined the Department of Energy's CN Program. The existence of the DOE Office of Counterintelligence was further codified in Public Law 106-65, Section 3204, and Subsection 215.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

CM5-2: Increase and enhance the protection of sensitive and classified technologies, information, and expertise against attempts by foreign intelligence, industrial intelligence, and non-traditional collectors to acquire nuclear weapons information or advanced technologies from the National Laboratories and other DOE and NNSA facilities, and support the protection of DOE and NNSA personnel and assets from international terrorist activities.

Performance Indicators: To Be Developed

Related FY 1999 Results	Related FY 2000 Results
Implement the DOE Counterintelligence Action Plan, pursuant to Presidential Decision Directive-61, to strengthen controls and protections of sensitive information, especially at the nuclear weapons laboratories. (NEARLY MET GOAL)	*Complete the Counterintelligence Implementation Plan's recommendations. (FMFIA)* (NEARLY MET GOAL)

Related FY 2001 Results	CM5-2 FY 2002 Targets (Revised Final)	CM5-2 FY 2003 Proposed Targets
Complete the Counterintelligence Implementation Plan's recommendations. (FMFIA) (NEARLY MET GOAL)	*Conduct 10 inspections and two re-inspections in FY 2003 of site Counterintelligence programs, to ensure a comprehensive and quality effort at departmental sites.* *Conduct 9,500 briefings and debriefings of Departmental travelers, as well as those who are host to sensitive country visitors and assignees. In addition, conduct counterintelligence investigations in support of the FBI.* *Develop twenty tactical analysis summaries, four strategic analysis assessments, annually update site-specific threat assessments, and produce the annual DOE threat assessment. These assessments identify targeting of Departmental personnel and assets.*	*Conduct 10 inspections and two re-inspections in FY 2003 of site Counterintelligence programs, to ensure a comprehensive and quality effort at departmental sites.* *Conduct 9,500 briefings and debriefings of Departmental travelers, as well as those who are host to sensitive country visitors and assignees. In addition, conduct counterintelligence investigations in support of the FBI.* *Develop twenty tactical analysis summaries, four strategic analysis assessments, annually update site-specific threat assessments, and produce the annual DOE threat assessment. These assessments identify targeting of Departmental personnel and assets.*

Means and Strategies:

The Office of Counterintelligence will:

- Administer investigations that support mitigation of the intelligence and international terrorist threats and identify matters that require further investigation by the FBI;
- Develop threat assessments that identify targeting of DOE personnel and assets;
- Develop and refine a multi-channel communications awareness program that enhances employee knowledge of Counterintelligence and Counterterrorism issues with measurable employee feedback;
- Develop and deploy an enhanced anomaly detection capability for DOE to address cyber threats;
- Conduct inspections of CN programs to ensure a comprehensive and quality effort at DOE sites; and
- Through polygraph administration and other means, vet employees assigned to or being considered for high-risk position**s.**

Collaboration Activities:

In addition to these CN Activities internal to the Department, DOE will work with the FBI, CIA, and other USIC elements to support national counterintelligence efforts. Specifically, DOE will support joint FBI investigations, joint analysis of threats posed from foreign intelligence and international terrorist activities, joint CN-Cyber investigations and projects to improve capabilities in the cyber arena, participate in and support national training and awareness efforts in the counterintelligence arena.

External Factors Affecting Performance:

The availability of credible intelligence information from the USIC will have a direct impact on the DOE's ability to effectively carry out its counterintelligence activity and produce quality investigations, analysis, and other efforts. In addition, the Counterintelligence Program also relies on the efforts and policies of other DOE elements (Security, Intelligence) in such areas as personnel security, foreign travel and foreign visit management and other related activities that support the effective conduct of the counterintelligence program. Significant changes in these programs activities or policies could impact the counterintelligence program.

Validation and Verification:

Data Sources:	Quarterly Reports, Site Visits, and semi-annual inspections.
Baselines:	Established strategic plan.
Frequency:	Quarterly financial reviews and semi-annual inspections.
Data Storage:	Documents reside at Headquarters on the CN DOCS System.
Verification:	Site Visits and semi-annual inspections.

Planned Program Evaluation:

Counterintelligence program activities undergo a semi-annual comprehensive inspection process. This process reviews all sub-program areas including, executive management, investigations, analysis, CN-Cyber, training, awareness, and high-risk programs to assess site performance providing specific findings and recommendations for corrective action.

GPRA Program Activity: Intelligence

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
050 Atomic Energy Defense Activities					
Office of Intelligence	Intelligence	IN	36	41	42

Description of Program:

The mission of the Office of Intelligence is to provide the Department, other U.S. Government policy makers, and the Intelligence Community with timely, accurate, high-impact intelligence analyses, including support to counterintelligence, to minimize the threat to the nuclear stockpile, national energy infrastructure, and energy security. The Office ensures that the Department's technical, analytical, and research expertise is made available to the Intelligence Community in accordance with Executive Order 12333. The Office provides rapid-response intelligence and applied technology applications to the intelligence, special operations, and law enforcement communities in support of DOE-complex security and homeland security.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

CM5-3: Satisfy diverse customer demands for timely, high-impact intelligence necessary to secure the DOE complex and ensure national energy security.

Performance Indicators: Resulting impacts of the Office of Intelligence products (briefings, studies, assessments, analyses, technologies, operational and counterintelligence support) to the attainment of the missions of the Department of Energy and the U.S. Intelligence Community.

Related FY 1999 Results	Related FY 2000 Results
There were no related targets.	*There were no related targets.*

Related FY 2001 Results	**CM5-3 FY 2002 Targets** (Revised Final)	**CM5-3 FY 2003 Proposed Targets**
The following result is included to provide historical context for the FY 2002 and FY 2003 targets, and do not correspond to a prior year APP targets. Provided significant timely and high-impact foreign intelligence analyses and support to DOE and United States Government energy, arms control, and nonproliferation policy makers.	*Reorganize the Office of Intelligence to reflect post-September 11 intelligence priorities and threats to the DOE complex.* *Establish secure, high-bandwidth connectivity to all major DOE sites to provide timely, mission-critical intelligence support.*	*Complete reorganization of the Office of Intelligence to meet evolving DOE intelligence priorities.* *Complete secure, high-bandwidth connectivity to major DOE sites and provide timely, mission-critical intelligence support.*

Means and Strategies:

The Office of Intelligence strives to minimize the threat to the DOE complex, national energy infrastructure, and U.S. energy security through the analysis and provision of intelligence to Departmental and U.S. Government policymakers. The Office is committed to maintaining the capability to be responsive on short notice to changing world situations. Technical and analytical intelligence support will be focused on minimizing the prospects for disruption of energy supplies worldwide due to political, economic, and social instabilities; improving nuclear materials protection, control, and accountability in the former Soviet Union; assisting in the monitoring and assessment of safe and secure dismantlement of former Soviet nuclear weapons; verifying foreign compliance with international treaties and other commitments in the nuclear arena; assessing international terrorism and supporting DOE assets and interests against foreign-based and transnational threats; addressing the challenge of global nuclear proliferation through the innovative and broad application of DOE technologic expertise; facilitating the application of DOE laboratory expertise to Intelligence Community technology development requirements; and providing technical assistance to intelligence, law enforcement, and special operations activities directed at supporting DOE's missions.

In 2003, the Office will complete the reorganization begun in 2002 to focus attention on emerging threats to the DOE complex and energy security, and tie our efforts tightly to the DOE mission. Efforts to establish secure, high-bandwidth communications to the DOE complex to provide real-time intelligence support will be completed and integrated into Office operations.

Collaboration Activities:

The Office of Intelligence, in partnership with the national laboratories, collaborates and coordinates closely with other components of the Intelligence Community, across a variety of U.S. Government agencies, with selected elements of academia, and with a cross-section of private sector organizations in pursuit of critical information and expertise to support Departmental and national security missions. The Office will continue to work closely with its counterparts on intelligence analysis of foreign nuclear programs and energy systems, to produce assessments reflecting common Intelligence Community positions as well as areas of disagreement on issues of key policy interest. The Office will continue to expedite the transfer of unique DOE expertise to other components of the Intelligence Community, law enforcement organizations, and special operations elements pursuant to Executive Order 12333.

External Factors Affecting Performance:

Activities of the Office of Intelligence are specifically focused on mitigating the impact of external events on Departmental and U.S. Government energy and nuclear assets. External events will thus continue to influence operations of the Office and how we respond to the evolving needs of Departmental and U.S. Government policymakers. The availability of accurate and timely intelligence from collections organizations pertaining to threats against DOE equities and resident expertise at the national laboratories will remain critical variables determining the success of the Office.

Validation and Verification:

Data Sources:	Quarterly reports and program review briefings.
Baseline:	Established annually in approved program plans.
Frequency:	Initial program guidance, quarterly financial and progress reports, mid-year and annual program reviews.
Data Storage:	Electronic and hard copy files.
Verification:	Analytic activities have quarterly reporting periods, which are supplemented by and expanded upon in mid-year and annual program reviews.

Planned Program Evaluation:

An extensive peer and program review process is followed in establishing annual program goals that includes elements of the national laboratories, components of the Intelligence Community, and reviews and responses from policy makers, to assure that the analyses, reports, and technical assistance provided reflect the highest quality, accuracy, and timeliness possible. In addition, intelligence and analytical activities undergo an annual program review each Spring, that both reviews progress and accomplishments in the year to date and previews key issues for the upcoming fiscal year.

GPRA Program Activity: Independent Oversight and Performance Assurance

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
050 Atomic Energy Defense Activities					
Oversight Activities		OA	22	22	23

Description of the Program:

The Office of Independent Oversight and Performance Assurance (OA) is the Department of Energy's exclusive focal point for independent evaluations of safeguards, security, cyber security, emergency management, environment, safety, and health. It has the expertise and skilled personnel needed to effectively provide the Department of Energy's line management programs with the tools and independent program assessments required to preserve and effectively protect critical national security interests, as well as environment, safety, and health programs at Department of Energy (DOE) and National Nuclear Security Administration (NNSA) sites.

The Office provides information needed to ensure that the Secretary of Energy, the NNSA Administrator, and the Congress have an accurate, comprehensive understanding of the effectiveness, vulnerabilities, and trends of the Department's safeguards and security, environment, safety, and health, cyber security, and emergency management policies and programs. The Office provides this information by conducting safeguards and security evaluations, environment, safety, and health evaluations, cyber security reviews, and emergency management reviews.

The Office of Independent Oversight and Performance Assurance is funded in the Other Defense Activities appropriation. The Other Defense Activities program includes: safeguards and security evaluations, environment, safety, and health evaluations, cyber security reviews, emergency management reviews, special reviews, and program direction.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

CM5-4: Provide inspections and reviews that contribute to improved environmental protection, enhanced safety and health of DOE employees, contractors, and the public, as well as enhanced safeguards and security of assets throughout the DOE complex, by identifying and reducing vulnerabilities from environment, safety and health risks, and threats to national security interests.

Performance Indicators: The Office of Independent Oversight and Performance Assurance tracks progress of the effectiveness of Department's safeguards, security, environment, safety and health programs through measuring:

- Reportable events that impact national security;
- Cyber attacks on DOE classified and unclassified information technology systems that lead to a breach in security;
- Number of trained and qualified emergency response personnel;
- Injury and illness rates and environmental releases; and
- Overdue corrective actions.

Related FY 1999 Results	Related FY 2000 Results
Conduct oversight special reviews, assessments, evaluations, and inspections of such topics as emergency management, and safeguards and security. (MET GOAL)	*Conduct oversight special reviews, assessments, evaluations, and inspections addressing emergency management, safety management, and accidents.* (MET GOAL)

Related FY 2001 Results	CM5-4 FY 2002 Targets (Revised Final)	CM5-4 FY 2003 Proposed Targets
Conduct safeguards and security evaluations at 20 major sites per year to provide an independent assessment of the status of safeguards and security programs for the Secretary, and to establish a baseline of findings in a database designed to track and measure improvement in these areas at sites throughout the Department. (MET GOAL*)*	*Conduct eight safeguards and security evaluations and report the baseline of findings in a database designed to track and measure improvement in these areas at sites throughout the Department.* *Expand the program to include the Department's integrated safeguards and security management initiative. Conduct 12 limited scope and/or follow-up reviews to evaluate specific topics and corrective actions. Conduct eight environment, safety and health evaluations at Departmental sites and establish a baseline of findings. Conduct seven limited scope and/or follow-up reviews. Conduct focus reviews on integrated safety management and implementation of DOE systems to protect workers, the public, and environment. Conduct independent safety assessments at the Oak Ridge Operations Office to evaluate the safety posture for defense nuclear facilities, the available technical expertise and the review/approval processes.*	*Conduct eight safeguards and security evaluations and report the baseline of findings in a database designed to track and measure improvement in these areas at sites throughout the Department. Conduct evaluations of the Department's integrated safeguards and security management initiative. Conduct 12 limited scope and/or follow-up reviews to evaluate specific topics and corrective actions.* *Conduct eight environment, safety, and health evaluations at Departmental sites and report the baseline of findings. Conduct seven limited scope and/or follow-up reviews. Conduct focus reviews on integrated safety management and implementation of DOE systems to protect workers, the public, and the environment.*

Annual Results and Targets for CM5-4 (Continued)

Related FY 2001 Results	CM5-4 FY 2002 Targets (Revised Final)	CM5-4 FY 2003 Proposed Targets
Provide for the dedicated oversight of emergency management issues at Department Headquarters and 15 major Departmental sites. This function focuses solely on the effectiveness of the Department's emergency management programs, and establishes a performance baseline of the status of these programs throughout the Department. (MET GOAL)	*Conduct nine dedicated oversight assessments of emergency management issues. Conduct six limited scope and/or follow-up reviews to evaluate specific topics and corrective actions.*	*Conduct nine dedicated oversight assessments of emergency management issues. Conduct six limited scope and/or follow-up reviews to evaluate specific topics and corrective actions.*
Perform continuous cyber security inspections and no-notice reviews at 14 major Departmental sites per year to improve oversight of cyber security and establish a baseline of issues through a new function dedicated solely to cyber security reviews, offsite monitoring of Internet security, and controlled attempts to penetrate security firewalls. This new function represents a substantial increase over previous efforts to evaluate cyber security within the Department (MET GOAL)	*Perform eight cyber security inspections per year. Expand testing to include additional threats to networks and computer systems. Conduct 6 limited scope and/or follow-up reviews to evaluate specific topics and corrective actions. (FMFIA)*	*Perform eight cyber security inspections per year. These inspections results are measures against the baseline of issues to determine the improvement of cyber security, offsite monitoring of Internet security, and controlled attempts to penetrate security firewalls. Conduct testing to include additional threats and hacker techniques as they emerge. Conduct 6 limited scope and/or follow-up reviews to evaluate specific topics and corrective actions. (FMFIA)*
Conduct three special complex-wide reviews of topics such as Fire Safety Initiatives, Albuquerque Diversity Review, and National Emergency Response Assets to determine their effectiveness across the complex. Findings and issues associated with these programs will be maintained in a database, to track corrective actions and assist in measuring improvement in these critical areas throughout the Department. (MET GOAL)	*Establish a program to evaluate the performance of DOE sites in safeguards and security, cyber security, emergency management, and environment, safety, and health. Conduct special complex-wide reviews of topics as directed by senior DOE management. (FMFIA)*	*Conduct evaluations of the performance of DOE sites in safeguards and security, cyber security, emergency management, and environment, safety, and health. Conduct special complex-wide reviews of topics as directed by senior DOE management. (FMFIA)*

Means and Strategies:

In order for the Office of Independent Oversight and Performance Assurance (OA) to achieve its mission, the Office requires the technical support of national-level experts that are at least comparable to Federal personnel at the excepted service level. While Independent Oversight and Performance Assurance have some unique, national-level experts, these are insufficient to perform all necessary oversight activities. Further, because of the nature of the activities, contract or support continues to be more practical and cost-effective to provide a surge pool of technical experts (than expanding the Federal oversight staff) for a number of reasons:
Peak loads associated with onsite inspections make it more effective and efficient to use contractor personnel who are tasked only when needed.
The need for evaluators with national-level expertise in different technical disciplines (ranging from cyber-security to nuclear material control and accountability) is more efficiently provided by contractors. The needs for various types of technical expertise are continually evolving, and frequently change as new needs are identified. Such evolving needs can best be met through the use of contractors, as the Federal staff and personnel systems are unable to rapidly respond to the continually changing skills mix.

Similarly, because of the nature of Independent Oversight and Performance Assurance activities and the intense scrutiny that Independent Oversight and Performance Assurance is under, OA's reviews must be performed in a manner that is demonstrably unbiased.

Collaboration Activities:

No collaboration activities are anticipated.

External Factors Affecting Performance:

Specific safeguards and security and environment, safety and health events, departmental program activities, and requests from field sites will affect the level and deployment of OA's resources.

Validation and Verification:

Data Sources:	The inspection reports provide operating data to OA's various reporting systems.
Baselines:	Technical baselines have been established using historical data.
Frequency:	Data is updated at the conclusion of each inspection.
Data Storage:	Data is stored in OA's databases.
Verification:	Data entry quality control procedures have been established by each OA information system manager.

Planned Program Evaluation:

An extensive peer and program review process is followed to assure that reports reflect the highest quality achievable.

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GPRA Program Activity: Energy Security and Assurance

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
050 Atomic Energy Defense Activities					
Energy Security and Assurance			3	3	24
Program Direction			-	-	4
Total			3	3	28

Description of the Program:

Energy Security activities support the national security of the United States by working to protect the Nation against severe energy supply disruptions. This is accomplished in close collaboration with the private sector, by providing technical expertise to: identify system critical components and interdependencies; identify threats to the systems; recommend actions to correct or mitigate vulnerabilities; plan for response and recovery to system disruptions and; provide technical response support during energy emergencies.

On October 16, 2001, the Administration issued an Executive Order on Critical Infrastructure Protection in the Information Age. As part of this focus, the Department of Energy is organizing a strong public-private program to address this serious problem. Though protecting our energy vulnerabilities will largely be accomplished through the private sector, there is a strong national coordinating and analytical role to be filled by the federal government. To demonstrate the Administration' s commitment to shore up these vulnerabilities, the Department of Energy has established the Energy Security and Assurance program. This office will provide resources to enhance energy assurance critical assessment and response capabilities, conduct infrastructure vulnerability assessments, analyze energy systems and infrastructure security, respond to energy emergencies, and support the National Infrastructure Simulation and Analysis Center (NISAC).

Program Strategic Performance Goals, Indicators and Annual Targets

The Energy Security and Assurance program is in an early stage of formation and formal statements of PSPGs, performance indicators and annual targets are in development.

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GPRA Program Activity: Office of Inspector General

President's Budget Program and Financing (P&F) Accounts and Program Activities	Program Sub-Activities	DOE Office	Comparable Appropriation		FY 2003 Request ($M)
			FY 2001 ($M)	FY 2002 ($M)	
270 Energy					
Departmental Administration – Inspector General		IG	34	34	39

Description of Program:

As mandated by the Inspector General Act (IG Act), the Office of Inspector General (OIG) promotes the effective, efficient, and economical operation of the Department, including the National Nuclear Security Administration (NNSA). The OIG detects and prevents fraud, waste, abuse, and violations of law in agency programs, through audits, investigations, inspections, and other reviews. In addition, the OIG plays an important role in assisting the Department in implementing the Government Performance and Results Act. The OIG also seeks to further serve as a facilitator of management reform by evaluating the Department's program performance as it relates to the President's Management Reform Agenda, the Secretary's priorities for a better managed Department, and the most serious management challenges facing the Department. In addition to the requirements of the IG Act, the OIG performs a number of functions mandated by other statutes, executive orders, and regulations.

The following pages of this GPRA Program Activity present the Program Strategic Performance Goals (PSPGs), Performance Indicators and Annual Targets for FY 1999 – FY 2003 organized by each PSPG. This is followed by a discussion of Means and Strategies, Collaboration Activities, External Factors, Validation and Verification, and Planned Program Evaluations.

Program Strategic Performance Goal

CM6-1: Conduct audits, investigations, inspections and other reviews of those issues, programs and systems having the greatest potential impact on the protection or recovery of public resources; and make associated recommendations for positive change. Evaluate the Department's implementation of the Government Performance and Results Act.

Performance Indicators:
- Percentage of performance audits that incorporate approaches to evaluate performance measures, and how they were applied.
- Percentage of audits planned for the year and the replacement of those audits not started with more significant audits, which identify time-sensitive issues needing review.
- Percentage of inspections planned for the year, and the replacement of those not started with inspections having greater potential impact.
- Percentage of management inspections completed within 12 months.
- Percentage of all cases investigated during the fiscal year where judicial and/or administrative action that facilitates positive change in Department programs and operations was obtained.

Related FY 1999 Results	Related FY 2000 Results
Render, by the designated date, an opinion annually on the Department's consolidated financial statements, system of internal controls, and compliance with laws and regulations. (MET GOAL)	*Complete the required annual financial statement audits by due dates designated in the law.* **(MET GOAL)**
Complete at least 60 percent of the audits planned for the year and replace those audits not started with more significant audits, which identify time-sensitive issues needing review. (MET GOAL)	*Complete at least 60 percent of the audits planned for the year and replace those audits not started with more significant audits, which identify time-sensitive issues needing review.* (EXCEEDED GOAL)
Focus investigations on allegations of serious violations of Federal law by: • *Obtaining judicial and/or administrative action on 30 percent of all cases in open status during the fiscal year;* • *Obtaining acceptance of 75 percent of the cases presented for prosecution.* (MET GOAL)	*Initiate at least 80 percent of inspections planned for the year and replace those not started with inspections having greater potential impact.* (MET GOAL)
Plan and, on a timely basis, conduct reviews based on assessments of risk and/or benefit to key Department programs. (MET GOAL)	*Obtain judicial and/or administrative action on at least 35 percent of all cases investigated during the fiscal year.* (EXCEEDED GOAL) *Obtain at least 75 percent acceptance rate on criminal and civil cases formally presented for prosecutorial consideration.* (BELOW EXPECTATIONS)

Related FY 2001 Results	CM6-1 FY 2002 Targets (Revised Final)	CM6-1 FY 2003 Proposed Targets
Complete the required annual financial statement audits by the due dates designated in the law. (EXCEEDED GOAL)	*Complete the required annual financial statement audits by the due dates designated in the law.*	*Ensure that at least 90 percent of performance audits incorporate approaches to evaluate performance measures, and how they were applied.*
Initiate at least 60 percent of the audits planned for the year, and replace those audits not started with more significant audits, which identify time-sensitive issues needing review. (EXCEEDED GOAL)	*Initiate at least 60 percent of the audits planned for the year, and replace those audits not started with more significant audits, which identify time-sensitive issues needing review.*	*Initiate at least 60 percent of the audits planned for the year, and replace those audits not started with more significant audits, which identify time-sensitive issues needing review.*
Initiate at least 70 percent of inspections planned for the year, and replace those not started with inspections having greater potential impact. (EXCEEDED GOAL)	*Initiate at least 70 percent of inspections planned for the year, and replace those not started with inspections having greater potential impact.*	*Initiate at least 70 percent of inspections planned for the year, and replace those not started with inspections having greater potential impact.*
Obtain judicial and/or administrative action on at least 35 percent of all cases investigated during the fiscal year. (MET GOAL)	*Obtain judicial and/or administrative action on at least 35 percent of all cases investigated during the fiscal year.*	*Obtain judicial and/or administrative action that facilitates positive change in Department programs and operations on at least 35 percent of all cases investigated during the fiscal year.* *Complete at least 80 percent of performance inspections within 12 months.*

Annual Results and Targets for CM6-1 (Continued)

Related FY 2001 Results	CM6-1 FY 2002 Targets (Revised Final)	CM6-1 FY 2003 Proposed Targets
Obtain at least 70 percent acceptance rate on criminal and civil cases formally presented for prosecutorial consideration. (MET GOAL)	*Obtain at least 70 percent acceptance rate on criminal and civil cases formally presented for prosecutorial consideration.*	*Obtain at least 70 percent acceptance rate on criminal and civil cases formally presented for prosecutorial consideration.*
Complete the milestones listed in the corrective action plan for the management challenge of inadequate audit coverage. (FMFIA) (MET GOAL)	*Complete the milestones listed in the corrective action plan for the management challenge of Human Capital Management. (FMFIA)*	*Complete the milestones listed in the corrective action plan for the management challenge of Human Capital Management. (FMFIA)*

Means and Strategies:

The Office of Inspector General (OIG) will continue to promote the effective, efficient, and economical operation of the Department of Energy, including the National Nuclear Security Administration (NNSA), by performing audits, investigations, inspections, and other reviews and detecting and preventing fraud, waste, abuse, and violations of law. In FY 2003 and beyond, the OIG will seek to serve as an aggressive facilitator of management reform by evaluating the performance of the Department's programs and operations as they relate to the President's five key Management Initiatives, the Secretary's priorities, and the most serious management challenges facing the Department.

Also, in the aftermath of the September 11, 2001, tragedy, the OIG plans to further increase its already significant emphasis on reviews relative to national security.

To achieve its performance goals, the OIG will carefully plan and prioritize its work. Examples of basic strategies include:

- Completing required financial statement audits by due dates designated in the law.

- Doubling the number of reviews examining the Department's implementation of GPRA. Currently, planning, budgeting, and performance at the Department are separate activities, which are not integrated. Planned reviews will assess whether performance measures: (1) cover all critical Department activities; (2) are integrated with contractor operations; and (3) address the President's and Secretary's key management initiatives.

- Addressing critical and emerging Homeland Security issues. The events of September 11 have highlighted the importance of protecting the nuclear weapons complex. To ensure the Department has adequate protective measures in place, the OIG plans to conduct reviews of the: (1) controls over nuclear materials, including shipment; (2) adequacy of protective forces; (3) actions to address the deteriorating weapons infrastructure; (4) protection of classified information; (5) security self-assessments performed by Department contractors; (6) the Department's intelligence activities; and (7) adequacy of the Department's Counterintelligence Program.

- Expanding coverage of the NNSA's implementation of the Stockpile Stewardship Program. Recent OIG reviews have disclosed weaknesses in the Stewardship Program's infrastructure, and its ability to carry out its science-based surveillance-testing regime and to expeditiously resolve weapon defects when they are identified. Based on OIG audits, Congress and others have questioned whether the Department can continue to certify the safety and reliability of the Nation's nuclear weapons without resuming underground testing. The OIG will conduct follow-up work in each of these areas, and additional reviews will be performed covering other aspects of the Stockpile Stewardship Program.

- Substantially increasing the number of performance reviews addressing Human Capital challenges facing the Department and its contractors.

- Expanding the number of reviews of the Department's financial and performance management systems. The President's management initiatives have underscored the need to revitalize performance and accountability systems. Additional coverage would address the Department and its contractor efforts to develop and deploy an integrated management information system.

- Initiating a program review of the Department's Expanded Electronic Government and Information Technology (IT) Reform activities. Currently, the Department spends approximately $1.4 billion annually on IT activities. Expanded coverage would include reviewing: (1) compliance with the Government Paperwork Elimination Act; (2) procurement and business system modernization efforts; and (3) the Department's actions taken to meet the Administration's goals of simplifying and reducing redundancy in IT systems Governmentwide.

- Conducting reviews to determine whether Departmental, including the NNSA, programs and operations are using their resources economically and effectively, and whether they have sufficient management controls in place to account for funds and other resources under their cognizance.

- Directing an increase of investigative resources to develop cases that will result in significant monetary returns to the Department. In the past 5 years, the OIG investigative work has resulted in approximately $70 million in recoveries and fines returned to the Department and the U.S. Treasury. Qui Tam-related investigations have resulted in an annual average recovery of $11 million during the same period.

- Increasing OIG investigations of environmental crimes that threaten public health and safety; the safety and reliability of the nuclear stockpile; and the availability of safe, efficient, and effective nuclear power.

- Focusing priority investigative resources on violations most likely to be accepted for criminal prosecution or civil action and which have the most potential for significant recovery of public funds.

- Working with other Federal law enforcement agencies on task force/joint agency investigations.

External Factors Affecting Performance:

- Program funding;
- New statutory requirements;
- Unplanned but nevertheless important work posed by the Secretary, the Congress or others.

Collaboration Activities: In performing its mission, the OIG collaborates with the following external organizations: (1) Federal prosecutors in the Department of Justice and United States Attorneys offices throughout the country; (2) the Defense Contract Audit Agency; (3) the General Accounting Office; (4) other law enforcement agencies on task force/joint agency investigations; (5) State and local prosecutors; (6) other Federal agency OIGs for mandated export control reviews; (7) the Intelligence Oversight Board on intelligence matters concerning violations of law, Executive order, Presidential directive, or Department Intelligence Procedures; (8) intelligence community OIGs for interagency reviews of intelligence issues; and (9) the President's Council on Integrity and Efficiency (PCIE) and its committees.

Validation and Verification:

Data Sources:	OIG Semiannual and Quarterly Reports to Congress; Inspector General Act of 1978, as amended; Government Management Reform Act; GPRA; Government Information Security Reform Act; False Claims Act; Executive Order 12863, "President's Foreign Intelligence Advisory Board."
Frequency:	Annually/Semiannually/ Quarterly.
Data Storage:	OIG Energy Inspector General Project Tracking System.
Verification:	OIG policies and procedures; Yellow Book Standards; PCIE Quality Standards for Investigations and Inspections; and internal and external peer reviews.

Planned Program Evaluations:

The OIG is subject to an external Peer Review conducted by another Inspector General's Office every 3 years (the next review is scheduled for the 2003-2004 cycle). The review is conducted in conformity with standards and guidelines established by the PCIE and usually covers the last two semiannual audit reporting periods. The purpose of this review is to report on the system of quality controls for the audit function, and compliance with that system. In addition, each year the OIG conducts an internal quality assurance review of the entire audit process for financial and performance audit reports issued.

The OIG Inspection Review Team (IRT) program involves internal inspections of investigative offices to evaluate whether they are operating in compliance with established laws, regulations, orders, policies, and investigative objectives and priorities. In FY 2003, the IRT process will be consistent with the newly established PCIE Qualitative Assessment Review, which involves peer reviews on investigative operations in the OIG community.

The Department of Justice conducts biennial audits of the OIG's National Crime Information Center (NCIC) terminals. The audits are designed to ensure that training, security, and information dissemination are in compliance with established policies. An audit is planned for FY 2003.

APPENDIX A

Criteria for Performance Plan Performance Goals and Annual Targets

The following criteria guide the development of annual performance measures & targets:

PRESIDENTIAL	(1) a significant budgetary obligation, (2) White House interest is demonstrated, or (3) there is Secretarial intent to raise the goal/measure at the Presidential level.
SPECIFIC	Plainly and precisely state what will be accomplished.
QUANTIFIABLE	State in objective terms the level of achievement (measured with accuracy and certainty). Naked percentages without a quantified base are no good. When we state we are "improving" something, then we must specify (quantifiable terms) the baseline we are improving from.
MEANINGFUL	Performance goals must provide a context, and stand alone without reference to last year's Plan or performance and annual targets results. State, why it will be done, i.e., the purpose or planned outcome.
ACHIEVABLE	The annual target is a firm statement in quantifiable terms, of what the responsible program manager is committing to accomplish with the resources provided for the program's budget. The expectation is that 100% of the goal/target will be accomplished with the requested resources.
CONCISE	Descriptions of performance goals and measures should be short, direct, and to the point (about 40 words)
WRITTEN FOR TAXPAYERS	Performance measures should be written in plain language, requiring only newspaper level knowledge of DOE and world events.
COMPREHENSIVE	The overall plan must reasonably represent all of the resources with which we have been entrusted to accomplish the Department's mission for the fiscal year.
AUDITABLE	Each performance goal and target should be based on factual information, so that the IG and/or the GAO can satisfactorily conduct program audits/reviews.

APPENDIX B

DOE Office Designations

CI	Congressional & Intergovernmental Affairs
CIO	Chief Information Officer
CN	Counterintelligence
EA	Energy Security and Assurance
ED	Economic Impact & Diversity
EE	Energy Efficiency & Renewable Energy
EH	Environment, Safety & Health
EIA	Energy Information Administration
EM	Environmental Management
FE	Fossil Energy
FERC	Federal Energy Regulatory Commission
GC	General Counsel
HG	Hearings and Appeals
IG	Inspector General
IN	Intelligence
ME	Management, Budget and Evaluation/Chief Financial Officer
NE	Nuclear Energy, Science & Technology
NA	National Nuclear Security Administration
NA (DP)	Defense Programs
NA (NN)	Defense Nuclear Nonproliferation
NA (NR)	Naval Reactors
NA (FO)	Facilities and Operation
NA (MA)	Management and Administration
OA	Independent Oversight and Performance Assurance
PA	Public Affairs
PI	Policy and International Affairs
PMAs	Power Marketing Administrations
RW	Civilian Radioactive Waste Management
S1	Secretary's Office
SC	Science
SO	Security
WT	Worker & Community Transition

APPENDIX C

Crosswalk of the Department's Major Management Challenges

DOE Management Challenge	Related Business Line and Strategic Objectives	DOE Offices	Page Reference	Last Scheduled Corrective Action
1. Surplus Fissile Material	NS2	NA	29	2006
2. Environmental Standards and Stewardship[1]	EQ1	EM	253	2007
3. Nuclear Waste Disposal	EQ2	RW	267	2010
4. Safety[1] and Health	CM5 EQ3 EQ1	OA EH EM	334 275 253	2002
5. Project Management	CM1 NS1	ME NA	293 15	2003
6. Security[1]and Counterintelligence	CM5 CM5 NS4 CM3	SO CN NA CIO	321 325 17 307	2003
7. Energy Markets[1]	CM4	PI	315	TBD
8. Human Capital Management[1]	CM1 CM6	ME IG	289 342	2007
9. Managing Physical Assets[1]	NS1 SC8 EQ1	NA SC EM	15 243 253	2002
10. Information Technology Management[1]	CM3	CIO	307	2003
11. Contract Management[1]	CM1	ME	297	2002
12. Stockpile Surveillance and Testing[1]	NS1	NA	9	2004
13. Performance Management[1]	CM1	ME	295	2003

Notes: Also identified by the Inspector General as a Management Challenges at the Department (DOE/IG-0538).

APPENDIX D

List of Performance Indicators

Development of good performance indicators is a work-in-progress at the Department. The following list is a compilation of performance indicators included in this plan for each of the Program Strategic Performance Goals (PSPGs). During the coming year, the Department will work to refine these performance indicators, establish baselines for those indicators, and begin development of trend charts.

(Definition: A Performance Indicator is quantitative measure of longer-term progress towards a goal. A Performance Indicator demonstrates the effectiveness or efficiency of achieving intended outputs or outcomes).

PSPG (GPRA Program Activity)	Performance Indicator	Brief Description
NNSA Programs		
NS1-1 to NS 5-1		Performance Indicators of a quantitative nature for NNSA goals are to be developed. The Performance Indicators in the plan are sub-goals and do not need any description.
Energy Programs		
ER1-1 (Energy Management)	Energy intensity in standard Federal facilities	This indicator measures the progress in reducing energy use in standard Federal facilities. The goal is to reduce the energy intensity by 30 percent by 2005, relative to the 1985 baseline average of 146 thousand Btu/square foot.
	Energy intensity in DOE facilities	This indicator measures the progress in reducing energy use in DOE facilities. The goal is to reduce energy intensity by 45 percent by 2005, relative to the 1985 baseline average of 444 thousand Btu/square foot.
ER1-2 (Industry Sector)	Annual Energy Savings in specific Industries of the Future (IOF)	This indicator measures the progress in reducing energy use in specific IOF industries. The goal is to achieve total annual savings of 329 trillion Btu in 2005 and 827 trillion Btu in 2010 compared with the EIA conventional baseline.
	Annual energy savings as a result of applying crosscutting energy saving technologies, methods, and assistance in Industries of the Future (IOF)	This indicator measures the progress in reducing energy use with crosscutting technologies applied to IOF industries. The goal is to achieve annual savings of 178 trillion Btu in 2005 and 590 trillion Btu in 2010, compared with EIA's 2002 conventional baseline.
ER1-3 (Transportation Sector)	Cost of high power 25 kW batteries	This indicator measures the progress in developing technologies or production of high-power batteries. The goal is to produce 25 kW batteries (100,000 unit production per year) at a unit cost of $750 in 2006 and $500 in 2010, in comparison to $3,000 in 1998.

ER1-3 (Transportation Sector)	Cost of 50 kW vehicle fuel cell power systems	This indicator measures the progress in developing technologies for production of vehicle fuel cell power systems. The goal is to produce 50 kW vehicle fuel cell power systems (100,000 unit production per year) at a unit cost of $125/kW in 2005 and $45/kW in 2010, in comparison to $275/kW in 2002.
	NOx emissions from light-duty, compression-ignition (diesel) powered vehicles and heavy duty diesel engines	This indicator measures the progress in developing advanced combustion engine technologies to reduce Nitrous Oxide (Nox) emissions. The goal for light-duty, compression-ignition (diesel) powered vehicles is to reduce emissions from 0.10 grams per mile (g/m) in 1998 to 0.05 g/m in 2006 and 0.03 g/m in 2010, and in heavy duty diesel engines from 4.0 grams per brake horsepower-hour (g/bhp-hr) in 1998 to 2.4 g/bhp-hr in 2002 and to 0.2 g/bhp-hr in 2005.
	Cost of lithium ion batteries	This indicator measures the progress in developing technologies for production of lithium ion batteries. The goal is to produce 40kW lithium ion batteries (at a level of 20,000 units per year) at a unit cost of $295/kW in 2004 and $150/kW in 2010, in comparison to $365/kW in 2001.
	Parasitic loss, including aerodynamic drag in large trucks	This indicator measures the progress in developing technologies that enable parasitic loss reduction, such as aerodynamic drag, in large trucks to 24 percent in 2006 compared to a parasitic loss baseline of 39 percent in 1998.
	Particulate matter (PM) emissions in light trucks and passenger vehicles	This indicator measures the progress in developing technologies that reduce engine-out emissions of particulate matter in light truck and passenger vehicles. The goal is to reduce emissions to 0.06 g/bhp-hr in 2008 compared to a baseline of 0.10 (g/bhp-hr) in 2001.
	Cost of carbon fiber	This indicator measures the progress in developing technologies that enable the production of carbon fiber. The goal is to reduce the average production cost to $3 per pound in 2006, in comparison to $12 per pound in 1998.
	Number of alternative fuel vehicles (AFVs) and use of alternative fuel	This indicator measures the progress in transportation technology assistance through the promotion of AFVs. This goal is to increase the number of AFVs in Clean Cities from 110,000 in 2001 to 250,000 in 2007 and to 400,000 in 2010; and nationwide use of 1 million AFVs consuming 1 billion gallons of alternative fuel in 2010.
	Cost of cellulose-based ethanol	This indicator measures the progress in developing technologies that will reduce the cost of production of cellulosic ethanol. The goal is to reduce the cost of cellulosic ethanol to $1.20/gallon by 2005 and $1.07/gallon by 2010, compared to $1.50/gallon in 1998.
ER2-1 (Renewable and Distributed Energy)	Distributed energy resources (DER) generating capacity	This indicator measures the progress in DER electricity generating capacity at point of use. The goal is to increase DER generating capacity to 25 GW in 2005 compared to a baseline of 15 GW in 1997.
	Biorefinery power platform	This indicator measures the progress in developing biomass gasification combined-cycle systems.
	Cost of cellulose-based ethanol	This indicator measures the progress of developing technologies that will reduce the cost of production of cellulosic ethanol. The goal is to reduce the cost of cellulosic ethanol to $1.20/gallon by 2005, and $1.07/gallon by 2010, compared to $1.50/gallon in 1998.

ER2-1 (Renewable and Distributed Energy)	Cost of geothermal electricity generation	This indicator measures the progress of developing technologies for geothermal energy production. The goal is to reduce the cost of geothermal electricity production to $0.03 – 0.05/kWh in 2010 compared to a baseline of $0.05 - 0.08/kWh in 2000.
	Cost of hydrogen production from natural gas	This indicator measures the progress in developing technologies for hydrogen production from natural gas. A goal is to reduce the cost of mass-produced hydrogen from natural gas to $2.50 per kilogram in 2006 compared to a baseline of $3.75 per kilogram in 2000.
	Turbine-induced fish mortality	This indicator measures the progress in developing technologies for reducing fish mortality in hydroelectric power production e.g., reducing turbine-induced fish mortality in commercial turbines to 2 percent or less by 2010, compared to a baseline range of 5-percent-30-percent in commercial turbines in 2000 while achieving other environmental and economic objectives.
	Cost of wind powered electricity generation.	This indicator measures the progress in developing technologies for the production of wind energy. A goal is to reduce the cost of wind powered electricity generation in Class 4 wind areas (13 mph annual average) to 3 cents per kilowatt-hour by 2010 compared to a baseline of 5.5 cents per kilowatt-hour in 2002.
	Price paid for a photovoltaic system by the end user	This indicator measures the progress in developing the technologies that will enable the solar industry to reduce the price paid for a photovoltaic system by the end user (including operation and maintenance costs). A goal is to reduce the cost of a photovoltaic system by the end user to $4.50 per watt in 2006 (equivalent to reducing costs from $0.25 to $0.18 per kilowatt hour) compared to a baseline median value of $6.25 per watt in 2000.
	Power carrying capacity of High Temperature Super-conductive (HTS) wires	This indicator measures the progress in developing technologies to increase the power carrying capacity of HTS wires. A goal is to increase the carrying capacity of HTS wire to 100 times that of comparable copper wire by 2007, with zero electrical resistance, compared to a baseline of 3-5 times the power carrying capacity in 2000.
	Export sales of renewable energy products and services	This indicator measures the progress of international program activities in terms of U.S. industry growth. A goal is to achieve growth in export sales of renewable energy products and services to over 130 MW in 2004 compared to a baseline of approximately 50 MW in 2000.
	Number of new renewable energy projects at publicly and cooperative-owned electric utilities	This indicator measures the progress of the Renewable Energy Production Incentives program. A goal is to increase the total number of new renewable energy projects at publicly and cooperative-owned electric utilities to 75 in 2003 compared to a baseline of 72 in 2001.
	Annual Energy Production by "Qualified Facilities"	This indicator measures the annual energy production by "Qualified Facilities" as a result of Renewable Energy Production Incentive Programs and other support and implementation efforts. There is no goal for 2003.

ER3-1 (Building Technology, State, and Community Programs)	Number of new technology solutions developed and evaluated for use in energy efficient demonstration homes and building projects	This indicator measures the progress in developing technologies for energy efficient homes and buildings. The goal is to develop 30 new technological solutions for use in energy efficient demonstration homes and building projects by 2008, in addition to the 24 such solutions developed and evaluated with program participation between 1996 and 2002.
	Number of improvements to the Model Energy Code	This indicator measures the progress in improving residential building codes through the Community Energy Program. The goal is to propose 20 improvements to the Model Energy Code by 2008, in addition to 100 code changes proposed by DOE and accepted for inclusion into the Model Energy Code between 1994 and 2002.
	Number of large energy efficient model commercial buildings	This indicator measures the progress from providing technical and other assistance to the commercial building industry. The goal is to have 20 large energy efficient model commercial buildings built by 2008, in comparison to 15 such buildings constructed with program participation between 1998 and 2002.
	Number of improvements proposed to the ASHRAE commercial building code standards	This indicator measures the progress in improving commercial building codes through the Community Energy Program. The goal is to propose 20 improvements to the ASHRAE commercial building code standards by 2008, in addition to the 100 code changes proposed by DOE, and accepted for inclusion into the ASHRAE standard, between 1994 and 2002.
	Market share of Energy Star windows	This indicator measures the progress in promoting the use of the Energy Star windows. The goal is to increase the market share of Energy Star windows to 65 percent by 2010, compared to a 40-percent market share in 1999.
	Market share of Energy Star appliances	This indicator measures the progress of promoting the use of Energy Star appliances. The goal is to increase the market share of Energy Star appliances to 20-percent by 2010, compared to a 13 percent market share in 1999.
	Number of new market-ready building products and materials	This indicator measures the progress of developing building equipment, tools, and materials. The goal is to produce five new market-ready building products and materials by 2009, in addition to 14 such products and materials developed through program participation between 1990 and 2002.
	Number of new rulemakings for enhanced product standards and test procedures for appliances	This indicator measures the progress in developing building and appliance standards. The goal is to propose 7 new rulemakings for enhanced product standards and test procedures for appliances by 2008, in addition to 32 such standards and procedures developed with program participation prior to 2002.
	Number of grants awarded to State Energy Offices	This indicator tracks the progress in promoting the education of both consumers and the building industry sector in America's 56 states and territories. The goal is to award 280 grants to State Energy Offices by 2008, in addition to more than 1,700 grants awarded between 1975 and 2002.

	Commercial and institutional building space retrofitted with energy efficient measures	This indicator measures the progress in promoting energy efficiency measures through the community energy program. The goal is to retrofit 400 million square feet of commercial and institutional building space with energy efficient measures by 2008, compared to the 500 million square feet retrofitted through program participation.
ER3-2 (Weatherization Assistance Program)	Number of low-income households weatherized	This indicator measures the number of low-income households receiving weatherization services. The goal is to weatherize an additional 770,900 low-income households by 2008 over the baseline of 5 million homes weatherized through FY2002.
ER4-1 (High Efficiency, No/Low Emissions Power Systems R&D)	Percentage of mercury removed versus cost	This indicator tracks the progress of the FE R&D program in reducing mercury emissions in existing coal-fired plants in the U.S.
ER4-2 (High Efficiency, No/Low Emissions Power Systems R&D)	Efficiency of IGCC systems	This indicator tracks progress in achieving improved efficiency of Integrated Gasification Combined Cycle (IGCC) systems that will in turn improve the cost effectiveness of electricity production from coal.
ER4-3 (High Efficiency, No/Low Emissions Power Systems R&D)	Cost of CO2 capture/storage	This indicator tracks the progress of CO2 capture/storage technology development.
ER4-4 (High Efficiency, No/Low Emissions Power Systems R&D)	Cost and efficiency of SECA fuel cells	This indicator tracks the progress of solid-state, modular fuel cell technology development.
ER4-5 (Clean Fuels R&D)	Cost of producing syngas and hydrogen from natural gas	This indicator tracks the progress of the Clean Fuels R&D program to provide significantly lower cost syngas and hydrogen from natural gas to produce a variety of end-use transportation fuel products.
ER5-1 (Domestic Oil and Gas Supply RD&D)	Oil and Gas exploration and production costs relative to costs for currently available technology	This indicator tracks the progress of Domestic Oil and Gas Supply RD&D potential of advanced technologies to reduce exploration and production cost.
ER6-1 (Petroleum Reserves)	Draw down rate (90 day sustainable drawdown rate)	This indicators measures the draw down rate (in barrels per day) that the SPR can sustain for an initial 90-days to distribute crude oil from underground storage sites to distribution points.
	SPR Site Availability (calculated)	A computer-based availability model calculates the availability of SPR draw down systems and equipment.
	Response time (number of days) to commence SPR crude oil draw down and to complete heating oil reserve draw down	The number of days (within 15 days) required for the SPR to be ready to distribute oil after Presidential notification. The number of days (within 12 days) required to complete the draw down and distribution of heating oil from the reserve after Presidential notification.
ER7-1 (Nuclear Energy R&D)	Percent of stated NERI research project objectives achieved	This indicator tracks the achievement of the stated Nuclear Energy Research Initiative (NERI) research project objectives.

ER7-2 (Nuclear Energy R&D)	No indicators have been established for this goal	Progress will be measured by addressing open issues related to nuclear power plant aging and the development of technologies to improve plant reliability, availability, and productivity.
ER7-3 (Nuclear Energy R&D)	No indicators have been established for this goal	Progress will be measured by the demonstration of untested regulatory and licensing processes for the siting and construction of a nuclear power plant - by getting a private sector order for a new commercial nuclear power plant in the United States by 2005.
ER7-4 (Nuclear Energy R&D)	Number of systems selected with potential for meeting Generation IV technology goals Number of R&D partnerships established with other countries for each selected system	These indicators track the progress in selecting one to three next-generation nuclear energy systems that represent significant improvements in all aspects of nuclear power technology.
ER7-5 (Nuclear Energy R&D)	No indicators have been established for this goal	DOE's support of the Advanced Nuclear Medicine Initiative through research and educational assistance grants.
ER7-6 (NE Educational Infrastructure)	Undergraduate and graduate enrollments in nuclear engineering	This indicator tracks the impact of DOE's university support activities to determine if U.S. universities are producing an increasing number of nuclear engineers.
ER7-7 (Nuclear Energy R&D)	Program milestones achieved	Program progress is measured by achieving the established milestones for development and demonstration of an advanced, proliferation-resistant technology to reduce the quantity and toxicity of U.S. commercial spent nuclear fuel while simultaneously enabling the United States to vastly increase the efficient use of its nuclear fuel resources.
ER7-8 (NE Infrastructure)	Number of unneeded facilities deactivated versus total number of unneeded facilities Readiness of operational facilities	These indicators track the management of the Department's vital resources and capabilities, therefore, ensuring that major research/critical facilities will continue to be operational and available for fulfillment of long-term missions as funded by industry and other Federal agencies while unneeded facilities are deactivated in a safe and cost-effective manner.
ER7-9 (NE Infrastructure)	Percent of customer specifications met Number of annual deliveries	These indicators track the delivery of isotope products and services for commercial, medical, and research applications where there is no private sector capability or sufficient capacity does not exist to meet United States needs.
ER8-1 (Energy Information Administration)	Number of informational briefings for high-level energy decision-makers in the Administration and Congress Number of unique monthly users of EIA's Web Site Number of citations of EIA in major media outlets	These indicators track the ability to provide national and international energy data, analyses, information and forecasts to meet the needs of the energy decision-makers and the public in order to promote sound policymaking, efficient energy markets and public understanding.
ER9-1 (Power Marketing Administrations)	Reliability Performance Principal Repayment Recordable Injury Frequency Rate	These indicators ensure that Federal hydropower is marketed and delivered while passing the North American Electric Reliability Council's Control Compliance Ratings, meeting planned repayment targets, and achieving a recordable injuries frequency rate at or below safety performance standards.

Science Programs		
SC1-1, SC1-2 (High Energy Physics)	Number of significant scientific discoveries	*Number of significant scientific discoveries* is an outcome indicator of long-term progress of the HEP program.
	Precision of final results	The HEP program has established specific targets for precision and errors reduction in scientific measurement.
SC2-1, SC2-2, SC2-3 (Nuclear Physics)	Quality of Research	*Quality of the research* is measured through external evaluation by peers, and through various forms of external recognition. (1) Research Projects: Research projects supported by SC are peer reviewed and competitively selected. (2) Facility Upgrades and Construction: Cost and schedule for upgrades and construction of scientific user facilities are on average within 10% of planned targets. (3) Operation of User Facilities: Scientific user facilities are operated and maintained so that unscheduled operational downtime is kept to less than 20 percent, on average, of total scheduled operating time.
	Relevance of Research	*Relevance of research* is measured through external evaluation by peers, and through various forms of external recognition.
	Leadership	*Leadership* measures the extent to which DOE supports its research in key disciplines that are critical to DOE's mission and the Nation.
	Number of significant scientific discoveries	Same as SC1-1.
SC3-1 (Biological & Environmental Research)	Base pairs of DNA sequenced per year	*Base pairs of DNA sequenced per year* provides a measure of progress in establishing DNA sequences of microbes and other organisms that will underpin development of biotechnology solutions for clean energy, carbon sequestration, environmental cleanup, and bioterrorism detection and defeat.
SC3-2 (Biological & Environmental Research)	Climate model resolution	*Climate model resolution* indicator provides a measure of progress in resolving or reducing uncertainties in predicting the effects of greenhouse gases and aerosols on climate, and to predict, assess and mitigate potential adverse effects of energy production and use on the environment.
SC4-1, SC4-2, SC4-3 (Basic Energy Science)	Validation of results by merit review with external peer evaluation	*Validation of results by merit review with external peer evaluation* provides a measure of the quality and relevance of research in the scientific disciplines encompassed by the BES mission areas, and the development of advanced research instruments needed by diverse communities of researchers.
SC5-1 (Advanced Scientific Computing Research)	Invited presentations at major national and international conferences	*Invited presentations at major national and international conferences* indicator provides a measure of DOE leadership in research programs of applied mathematics, computer science, and network and collaboratory that are important to national and energy security.
SC5-2 (Advanced Scientific Computing Research)	Software released to applications teams	*Software released to applications teams* indicator provides a measure of progress in application of advanced computing capabilities in the development of Scientific Simulation and Modeling Codes.

SC6-1 (Fusion Energy Science)	Range of parameter space over which theoretical modeling and experiments agree	*Range of parameter space over which theoretical modeling and experiments agree* is an indicator of progress in the ability to predict the behavior of magnetically confined plasma.
SC6-2 (Fusion Energy Science)	Percent of milestones met	*Percent of milestones met* is an indicator of progress for installing components developed by the FES enabling R&D program on existing experimental devices.
SC7-1, SC7-6 Science Facilities (Crosscutting Research Programs)	Percent on time/within budget	*Percent on time/on budget* is an indicator of how well the scientific facilities construction projects are being managed (HEP, NP, BER, BES, FES).
	Percent unscheduled downtime	*Percent unscheduled downtime* is an indicator of how well the scientific user facilities are being managed. (HEP, NP, BER, BES, FES, ASCR).

Environmental Quality Programs		
EQ1-1 (Environmental Management)	Number of geographic sites completed	This indicator tracks the Environmental Management (EM) program's geographic site completion progress. A geographic site is an area of land (or series of buildings) where EM has or is conducting cleanup work. Sites range in size from as small as a football field to larger than the state of Rhode Island.
	Number of release site cleanups completed	This indicator tracks the EM program's release site cleanup progress. Remedial action/release site cleanups are conducted at inactive waste sites or facilities where releases or spills have occurred and contamination has been released into the environment.
	Number of facilities decommissioned	This indicator tracks the EM program's facility decommissioning progress. Decommissioning involves the decontamination and dismantlement and removal of nuclear facilities that are no longer active and pose a risk to public health and the environment. Decommissioning operations range from small cleanup activities involving portions of buildings to complete structural dismantlement.
	Number of facilities deactivated	This indicator tracks the EM program's facility deactivation progress. Deactivation activities are done where the intent is to minimize the risks, hazards, and associated costs at facilities and to make those facilities available for potential re-use or eventual decontamination and decommissioning.
EQ1-2 (Environmental Management)	- Canisters of HLW produced for disposal; - Cubic meters of TRU Waste shipped for disposal; - Cubic meters of MLLW disposed. - Cubic meters of MLLW treated; - Cubic meters of LLW disposed.	These indicators track the EM program's amount of waste (i.e., high-level waste, transuranic waste, mixed low-level waste, and low-level waste) disposal progress. Waste disposal is defined as waste emplacement designed to ensure isolation of the waste from the biosphere with no intention of retrieval for the foreseeable future, and requiring a deliberate action to regain access to the waste.
EQ1-3 (Environmental Management)	- Number of containers of plutonium metals/oxides stabilized; - Kilograms bulk of plutonium residues stabilized.	This indicator tracks progress on the stabilization of nuclear materials. Stabilization means that something (i.e., processing from a liquid to a solid form, processing to remove activated waste streams, repackaging, etc.) must be done to the nuclear material so that they pose significantly less risk to workers, the public, and/or the environment. The following types of nuclear material are reported in this plan: kilograms bulk of plutonium residue and containers of plutonium metals/oxides.
	Metric tons of heavy metal (MTHM) of spent nuclear fuel moved to dry storage.	Similar to nuclear materials, spent nuclear fuel must also be stabilized. The number of metric tons of heavy metal of spent nuclear fuel that is moved to dry storage is an indicator of stabilization progress.

EQ1-4 (Environmental Management)	Under development.	This indicator will track progress on the EM program's technology development and deployment efforts.
EQ2-1 (Civilian Radioactive Waste Management)	Meeting program milestones	This indicator measures progress of the Civilian Radioactive Waste Management major systems by tracking the on-time performance of program milestones.
EQ3-1 (Environment, Safety and Health)	Total Recordable Case Rate	Total Recordable case rate measures work-related deaths, as well as injury or illness that results in loss of consciousness, restriction of work or motion, transfer to another job, or medical treatment beyond first aid.
	Occupational Safety Cost Index	Occupational Safety Cost Index is a measure of the direct and indirect costs based on the Cost Index formula, due to safety-related injuries/illnesses.
	Hypothetical Radiation Dose to the Public	Hypothetical radiation dose to public is an estimate of the collective radiation dose to the public within 50 miles of DOE facilities due to airborne releases of radionuclides.
	Worker Radiation Dose	Worker radiation dose is calculated by dividing the collective total effective dose equivalent (TEDE) by the number of individuals with measurable dose.
	Reportable Occurrences of Releases to the Environment	Reportable occurrence of releases to the environment includes releases of radionuclides, hazardous substances, or regulated pollutants that must be reported to Federal, State, or local agencies.
EQ3-2 (Environment, Safety and Health)	Medical Screenings of DOE Workers	These indicators track the progress of ES&H programs in identifying and assessing health concerns of current and former workers who may have been exposed to beryllium and other hazards.
	Assessment of injuries and illnesses in workers across 12 DOE sites	
EQ4-1 (Worker and Community Transition)	Ratio of the annual savings to one-time cost of separation	These indicators track the efficiency and effectiveness of the Worker and Community Transition program in minimizing the social and economic impact to individuals and communities caused by changes in the Department's work force.
	Number of jobs created or retained in the community	

Corporate Management		
CM1-1 (Management, Budget and Evaluation)	Achievement of established milestones in the Five Year Workforce Restructuring Plan	This indicator tracks progress on implementing the Department's Five Year Workforce Restructuring Plan and the Department's Human Capital Management program.
CM1-2 (Management, Budget and Evaluation)	Cumulative number of positions covered by competitive sourcing studies that have been initiated and that have been completed as of a given fiscal year	This indicator tracks the Department's progress on the President's Management Agenda initiative on competitive sourcing.
CM1-3 (Management, Budget and Evaluation)	Schedule variations of issuance of annual and interim financial statements, and systems implementation	These indicators track the Department's progress on the President's Management Agenda initiative on Improved Financial Management.
	Independent auditor attestation with regard to the Department's annual financial statements and report regarding internal controls	
CM1-4 (Management, Budget and Evaluation)	OMB rating of Department's progress on budget and performance integration	This indicator tracks the Department's progress on the President's Management Agenda initiative on Budget and Performance Integration.
CM1-5 (Management, Budget and Evaluation)	Percent of eligible service contracts that are performance based	These indicators track progress on the efficiency and effectiveness of DOE's contract management.
	Status of contract management as a management challenge	
	Percent of new competitive awards made electronically	
CM1-6 (Economic Impact and Diversity)	Percentage of total contracts that are with small businesses	These indicators track progress on workforce diversity.
	Comparison of workplace diversity with national and local populations	
	Workplace satisfaction surveys	
CM2-1 (Chief Information Officer)	Achievement of established milestones for E-government	This indicator tracks the Department's progress on the President's Management Agenda initiative on E-government.
CM3-1 (Chief Information Officer)	Achievement of established milestones in the Corporate Management Information Program	This indicator tracks the Department's progress on effective management of Information Technology resources.
CM3-2 (Chief Information Officer)	Number of employees trained in cyber security	These indicators track progress on the security of DOE's information assets.
	Cyber incident response time	
	Cyber intrusion detection and reporting efficiency	
CM4-1 (Policy and International Affairs)	Security of energy supplies	These indicators track the impact of DOE's domestic and international energy policy analyses.
	Trade opportunities for U.S companies	
	International deployment of clean energy technology	

CM4-1 (Policy and International Affairs) – (Continued)	Domestic energy production and its efficient use	These indicators track the impact of DOE's domestic and international energy policy analyses.
	Balance and consistency of energy, economic and environmental policies.	
	Competition of energy markets	
	Effectiveness of energy R&D and science priorities	
CM5-1 (Security)	Office of OA findings specific to security policy	These indicators track the impact of DOE's security policies and HQ security response capabilities.
	Number of security incidents at HQ facilities	
CM5-2 (Counter-intelligence)	TBD	This indicator tracks the impact of the counterintelligence program.
CM5-3 (Intelligence)	TBD	This indicator tracks the impact of the intelligence program.
CM5-4 (Independent Oversight and Performance Assurance)	Reportable events that impact national security	The Office of Independent Oversight and Performance Assurance uses these performance indicators to track progress of the effectiveness of Department's safeguards, security, environment, safety and health programs.
	Cyber attacks on DOE classified and unclassified IT systems	
	Trained and qualified emergency response personnel	
	Injury and illness rates and environmental releases	
	Overdue corrective actions	
CM6-1 (Inspector General)	Percentage of performance audits that incorporate approaches to evaluate performance measures and how they were applied.	These indicators track progress of the effectiveness of the DOE Office of Inspector General's audits, investigations, inspections, and other reviews.
	Percentage of audits planned for the year, and the replacement of those audits not started with more significant audits that identify time-sensitive issues needing review.	
	Percentage of inspections planned for the year, and the replacement of those not started with inspections having greater potential impact.	
	Percentage of management inspections completed within 12 months.	
	Percentage of all cases investigated during the fiscal year where judicial and/or administrative action that facilitates positive change in Department programs and operations was obtained.	