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ENERGY

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DEPARTMENT OF ENERGY
AGENCY TEAM REPORT

NATIONAL PERFORMANCE REVIEW

INTERNAL WORKING DOCUMENT--NOT FOR DISTRIBUTION
SCIENCE AND TECHNOLOGY TEAM
August 5, 1993

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Section I

Introduction

DEPARTMENT OF ENERGY

The Department

The Department of Energy was established by the Department of Energy Organization Act on October 1, 1977. The act consolidated the major federal energy functions into one cabinet-level department. The agencies incorporated into the new department were the Federal Energy Administration (FEA), the Energy Research and Development Administration (ERDA), the Federal Power Commission (FPC), and units of several other agencies. Today, the department provides the framework for a comprehensive national energy plan by coordinating and administering the energy functions of the Federal Government. The DOE also is responsible for long-term, high-risk research and development of energy technologies; marketing federal power; promoting energy conservation; a greatly reduced nuclear weapons program and an increased nuclear clean-up program; energy regulatory programs; and, a central energy data collection and analysis program.

The genesis of the department was the Manhattan Engineer District of the U.S. Army Corps of Engineers, which was established in 1942 to manage the development of the atomic bomb. After the war, Congress decided that control over design and development of nuclear weapons should be vested in a civilian agency. The Atomic Energy Commission (AEC) was established in January 1947 pursuant to the provisions of the Atomic Energy Act of 1946. The AEC managed the design, development and production of nuclear weapons, and efforts to develop reactors for naval vessels as well. An additional role of the AEC, with great significance in later years, was the regulation of civilian nuclear power plant reactors. By 1975, in response to pressure to regulate the civilian nuclear power industry independent of the AEC, the Commission was replaced by two new agencies. The Nuclear Regulatory Commission (NRC) was established to regulate the commercial nuclear power industry and the ERDA was created to manage the nuclear weapon, naval reactor, and energy development programs.

The decade of the 1970s proved to be a period of energy crises. The 1973 Middle East War and a subsequent oil embargo underscored the need for unified energy

organization and planning. President Nixon created the Federal Energy Office in the Executive Office of the White House and then the FEA to deal with the energy crisis.

Stimulated by a shortage of natural gas during the bitter winter of 1976-77, President Carter proclaimed a national emergency and appointed James Schlesinger to develop national energy policy strategies. Ultimately, the Department of Energy Organization Act created a new cabinet rank department with Schlesinger as first Secretary of Energy. The new department combined all headquarters, field, and staff programs from component agencies into a unified Department of Energy with approximately 20,000 employees and an annual budget of \$10.4 billion.

The Schlesinger Administration (1977-79) promoted energy conservation, developed alternative fuels, and initiated programs to reduce oil consumption. Enactment of the National Energy Act of 1978 keynoted this administration. This period was marked by two energy shocks: oil shortages resulting from the crisis in Iran, and an accident at the Three Mile Island nuclear power plant.

During the Reagan Administration, the department's mission was recast to reflect policies dedicated to eliminating government regulations and price controls which inhibited domestic energy production. A new national energy plan stressed privatization and energy in a free market economy, a significant break with the former administration.

Secretary Donald Hodel (1982-85) sought to broaden the consensus on energy policy between the Reagan administration and Congress. During Hodel's Administration, gasoline and oil prices were deregulated, heating restrictions were abolished, the Nuclear Waste Act was passed in 1982 and the National Energy Policy Plan was passed in 1983.

During Secretary John Herrington's Administration (1985-89), public concerns developed over security and environmental protection at DOE weapons production and laboratory facilities largely as result of the 1984 Bhopal chemical plant disaster in India and the 1986 Chernobyl nuclear reactor incident in Russia. Public sensitivities over safety and environmental issues increased throughout the decade.

A major shift in departmental focus resulted from the Persian Gulf war in 1990-91. Secretary James Watkins (1989-92) demonstrated the department's ability to provide energy information to calm the international energy market and efficiently conduct a draw-down of

the Strategic Petroleum Reserve. Watkins set a new course stressing compatibility between production and environmental protection and improving DOE's internal and external relations.

Today the department faces the following challenges: (1) redirecting its facilities in the post cold war era, (2) initiating and expanding partnerships with private industry to enhance U.S. competitiveness in a global marketplace, (3) managing limited fiscal resources, and (4) cleaning up environmental degradation at its facilities in a responsible and fiscally sound way.

The National Performance Review

DOE is an enthusiastic partner in the NPR process developing innovative ways to improve customer service, reduce bureaucracy, cut costs, and increase operating efficiency.

The NPR has helped identify a number of ways to ensure that environmental clean-up activities at DOE weapons production sites can be accomplished with better value for the dollar and increased responsiveness to local stakeholders. The first of those recommendations encourages the department to allow true competition among environmental restoration contractors. In addition, DOE should improve management at clean-up sites by adopting a variety of measures to improve cost estimates and reduce costs, and by using outcome oriented performance measures. The department is also encouraged to work with local partners to identify future land uses of sites to assure a reasonable level of clean up.

The NPR has also worked with the department to develop mechanisms to be more accountable to customers through the laboratory contracting process. Operation and program management at the national laboratories need to become more outcome oriented. This goal coincides with the agency's struggle to do more with less in these fiscally challenging times by reducing costs and stimulating more private sector involvement in research and development.

In another effort to do more with less and stimulate market dynamics, the NPR encourages DOE to upgrade the status of the office responsible for directing a government-wide energy efficiency and water conservation program. This program takes advantage of

private sector incentives that save federal dollars and stimulate business.

As all federal agencies struggle to maximize limited resources, the NPR and DOE have identified ways to adjust the mission and operations of its national laboratories and former weapons production facilities to meet the challenges of a post cold war era. These laboratory assets should be more effectively shared with other agencies, industry and universities.

To further save costs and generate revenues, the NPR and DOE jointly recommend that restrictive legislation be amended to provide incentives for private sector involvement in constructing and operating new cogeneration power plants at government facilities. This program can greatly reduce costs to the government and increase business opportunities and growth. Finally, there are opportunities for increasing revenues through existing federal power sales to local utilities without having a negative affect on economic growth.

The NPR work is estimated to provide a net benefit to the federal government of more than \$2 billion [note: the estimates are incomplete, as noted in the fiscal impact summary, and are being updated]. There is expected to be some increase in federal employment to ensure stronger management of the field facilities, but this is expected to be offset by reductions in contractor costs at these sites.

This post-Cold War, highly competitive technological era provides DOE a compelling opportunity to combine the talents of its technical and management personnel with its impressive array of facilities to sustain the environment, secure the nation's energy supplies, and boost economic growth. Working in concert with the NPR, the department is prepared to meet the challenge to change as set forth by President Clinton.

Section II

Issue Papers and Recommendations

II. A. Shifting From Red Tape to Results

IMPROVE ENVIRONMENTAL CONTRACT MANAGEMENT

Background

The Environmental Restoration and Waste Management Program (EM) at the Department of Energy (DOE) was created in 1989 and has grown to comprise one-third of the total DOE budget. The EM program is responsible for two primary tasks: (1) managing the safe storage and disposal of radioactive, hazardous and solid waste at DOE sites; and (2) cleaning up the environmental pollution at these same sites. EM's total fiscal 1993 budget is \$5.8 billion, much of which is spent on contracts (in fiscal 1992, 67 percent of the total budget was expended on contracts). A former Assistant Secretary estimated that, due to wasteful and inefficient expenditures of funds, the program was operating at 60 to 65 percent efficiency.¹ If this is the case, the program could waste \$2 billion this year. Given that the program is estimated to cost \$200 billion over 30 years, as much as \$70 billion could be saved if the current course is changed. Many of these inefficiencies could be eliminated through improved contract structures and management of contractors. DOE is sensitive to the need for change in contract management, and has begun a wholesale review of DOE contracting practices.²

DOE generally executes its environmental programs using Management and Operating Contractors (M&Os), and Environmental Restoration Management Contractors (ERMCs). M&Os are general contractors who have been traditionally hired to manage DOE's defense production mission. M&Os are unique to DOE; they are issued a letter of credit which allows them to draw funds directly from the Treasury, and they are granted considerable latitude in deciding how to manage a DOE facility. Part of their management responsibilities include the provision of environmental restoration services at DOE weapons, research and laboratory facilities that are still in operation.

The ERMC is a new contracting concept that was put into place in late 1992. ERMCs are general contractors with specific environmental expertise; they exclusively manage environmental restoration at DOE weapons production facilities that have been closed (Hanford Reservation near Richland, Washington and the former Feed Materials

Production Center in Fernald, Ohio).³ Only the ERMC at Fernald is currently in place and operating. The ERMC contracting mechanism is still very new; it was devised to bring contractors with cleanup expertise into the DOE system, reduce potential conflict of interest, improve management control of the environmental restoration program, reduce cleanup costs, enhance technology exchange throughout the environmental restoration program, and facilitate a more timely restoration of DOE facilities.⁴ Under both of these contract mechanisms (the M&Os and the ERMCs), contractors are paid on a cost-plus-award fee basis, whereby DOE covers all the contractors costs and, in addition, pays them an award fee (a percentage of the total cost) based on their performance in meeting DOE requirements.⁵ The award fee is not only based on the total cost incurred by the prime or management contractor, but also on total costs incurred by every subcontractor. The more layering of subcontractors, therefore, the more advantageous it is to the management contractor.

There are several problems with the DOE contracting system. The M&O contracts have been widely criticized by DOE program officials, the Office of Management and Budget (OMB), the General Accounting Office (GAO) and Congress as being excessively expensive and difficult to control because of their lack of accountability and DOE's traditionally lenient approach to M&O management. M&Os have been found to be minimally accountable because performance measures and criteria in the contracts are vague and subjective. Additional weaknesses in M&O contracting include the use of sole-source, cost-plus-award-fee subcontracts, non-standard contract clauses that hamper DOE's ability to correct contractor abuses, and inadequate auditing, cost accounting and cost estimating mechanisms to oversee the M&Os. Furthermore, DOE lacks sufficient personnel to properly oversee the M&Os. The lack of oversight personnel is especially acute in EM as the program has fewer total staff per program dollar than any other DOE program including defense production and nuclear energy.⁶

Specifically with regard to environmental management, M&O contractors are perceived as not having adequate incentives to assure rapid cleanups. There is also some concern that DOE should not be using the very contractors who created the pollution, and that many M&Os have insufficient cleanup expertise to address the problem. Further,

because DOE has had such a close relationship with its M&Os, it has been quite difficult to seek expertise beyond the M&O community. For example, DOE is involved in approving salary levels, benefit packages and, in some cases, retirement plans for M&O personnel. In terminating a contract with an M&O, DOE does not only have to close out the contract but has to make provisions for terminating its involvement in the M&Os operating processes. Even when an M&O contract is terminated it is replaced by another M&O thereby preserving the staff and operating procedures. There is, therefore, great administrative difficulty and little incentive to seek expertise beyond the M&O community. DOE should ultimately be able to access the growing environmental expertise available outside the DOE weapons production complex and introduce more competition among contractors for environmental restoration work.

The ERMIC was developed to correct some of the problems associated with the M&Os. Primarily, the ERMIC was supposed to reduce contracting costs 15 to 20 percent by using more fixed price sub-contracts and by reducing labor costs. Program management and contractor performance was to be improved by using a single contractor responsible for cleanup and by setting up clear delineations of responsibility and authority. The ERMIC was also intended to speed site restoration by using contractors who could focus exclusively on cleanup, were provided with incentives for rapid cleanup, and could apply their RCRA/CERCLA (RCRA: Resource Conservation and Recovery Act; CERCLA: Comprehensive Response, Compensation and Liability Act) experience. Although several concerns have been raised about the ERMICs, this contract mechanism has been in place at Fernald for only nine months, it is probably too early to know whether the ERMIC concept will remedy the weaknesses that it was intended to address.⁷

Contracting for environmental services under both the M&Os and the ERMICs is hampered by a number of general conditions. Many of the concerns regarding contracting at DOE are related to oversight and management of the contractors. EM has difficulty performing requisite management and oversight function as it has too few staff with, in some cases, insufficient technical capability to ensure contractor performance. EM has far fewer federal employees overseeing program dollars, contracts, and contract employees than other programs in DOE and than other programs doing comparable work. For example, in

fiscal 1993, EM will have 1,780 employees overseeing 37,000 contractors, a ratio of one federal employee to 21 contract employees. By contrast, the Environmental Protection Agency (EPA), as a whole, employs 17,500 federal employees who oversee nine to 10,000 contract employees, a ratio of approximately two federal employees for every one contract employee.⁸

EM also has significantly less staff per program dollar than any other DOE program or comparable program in other agencies. For example, in EM there is \$3 million in program funding for every one federal employee versus approximately \$2.35 million dollars per federal employee in the DOE defense production program and \$300,000 per federal employee at the EPA.⁹ An inter-agency review by OMB and the Corps cited the lack of EM personnel with the appropriate skills as a primary reason for high contract costs.¹⁰ Secretary of Energy Hazel O'Leary states that: "These disparities [in federal-to-contractor employee ratios] are, I believe, a significant factor in the Department's weaknesses in program and contract management. Most fundamentally, they impede our ability to give adequate direction to our contractors and ensure that this direction is followed."¹¹

The current DOE cost-plus-award fee contracts are expensive and may be inappropriate for the purchase of all environmental services. The DOE cost-plus-award fee contracts provide little incentive to control costs, because there is little financial exposure for the contractor and few penalties for poor performance. Other agencies such as the Army Corps of Engineers, the Navy, the Air Force and EPA use a mix of fixed price and cost-plus-award fee contracts to pay for their environmental services.

Furthermore, the award fee is intended to reflect the relative risk associated with a service and provide an incentive for the private sector to perform a task. The new Assistant Secretary for Environmental Restoration and Waste Management (EM), questioned the applicability of the current award fee system by saying that the weights for judging contractor performance seem "arbitrary" and that the subjectivity of the process is "problematic" ¹² The GAO was similarly critical of the award fee incentive system in its report entitled *Impediments to Environmental Restoration Contracting*.¹³

With regard to assuring contractor performance, DOE contracts for environmental services contain general work statements which do not adequately define the terms and

conditions of the work to be done, do not lay out strong performance objectives, and do not shift the risk of poor performance to the contractor.¹⁴ The new Assistant Secretary for the EM program has already voiced concerns about DOE's ability to measure contractor performance, describing the decisionmaking process for evaluating contractor performance as deeply troubled, and registering concern over the level of information that DOE is provided with which to make decisions about millions of dollars in awards.¹⁵

DOE's contracting practices have also been criticized for their lack of incentives to safeguard worker safety and health. Under the DOE cost-plus-award-fee system, 51 percent of the variable fee is to be awarded on the basis of contractor performance in environment, safety, and health, yet studies show that the award fee contracting provisions are not functioning as they should be. A report by the Occupational Safety and Health Administration (OSHA) stated that M&Os have avoided being penalized for not meeting health and safety standards by negotiating higher base fees.¹⁶ In 1990, at the Nevada Test Site, the contractor was rated "average" in their environment, safety and health performance. Theoretically this rating should have resulted in a lower award fee. The DOE Inspector General found, however, found that DOE field personnel adjusted the maximum fees so that the contractor could receive fees similar to those previously received even with a lower performance rating.¹⁷

DOE has some difficulty defining a scope of work and providing accurate cost estimates for environmental restoration contracts. This is due in part to the lack of agreement on future site uses and acceptable cleanup standards. It is exacerbated by the fact the DOE lacks sufficient numbers of trained cost engineers and estimators. EM relies on the contractors to do their own cost estimates but does not have enough staff or expertise to review the contractors' estimates.¹⁸ For example, a joint study by EPA Region 10 and the State of Washington Department of Ecology found that one DOE person at the DOE Richland Operations Office had to review contractor cost estimates for 325 projects within a two week period.¹⁹ In those cases where DOE was able to review a contractor's cost estimates with a "check estimate", the Department found unnecessarily high estimates. For example, for the Oak Ridge/K-25 site solar pond cleanup, the contractor's cost estimate to DOE was \$157 million while the DOE program office estimate was \$50 to \$70 million.²⁰

DOE's inability to review contractor cost estimates with their own "check estimates" means missed opportunities for cost savings. Furthermore, DOE cost estimators, in some cases do not have sufficient training or expertise to perform reliable cost estimates. In 1992, an audit by the U.S. Army Corps of Engineers (Corps) found that:

...DOE's estimated costs were higher than the Corps estimates for comparable environmental restoration and waste management projects. Specifically, after a detailed evaluation of nearly \$1 billion (18 percent of the ERWM program), costs were found to be higher than the amounts the Corps would expect to pay for the same work by 42 percent. The primary difference in the estimates can be attributed to overhead and administrative costs that may be saved through changes in management and contracting procedures.²¹

DOE has a cost estimation mechanism in place which is currently underutilized. Each field office is equipped with a local cost estimating guide designed to standardize cost estimating in the region. The guides are not consistently used and often the contractors develop and rely upon their own cost estimating handbooks. The Corps of Engineers, which has experience performing hazardous waste remediation work (although no experience performing radioactive waste cleanup), is generally recognized for its proficient cost estimating capabilities.²² All cost estimates at the Corps are prepared in-house by a multi-talented technical team which include cost estimators and environmental engineers. The Corps also uses an automated cost estimating software package which allows for consistency and the collection of baseline data.

DOE officials originally intended to control overall costs by reducing labor costs under the ERMC. However, both ERMC requests for proposals contain provisions that salary levels at the sites will not change. Furthermore, both ERMCs will be required to hire as much of the old M&Os workforces as they can effectively employ at current salary and benefit levels. This has occurred despite the fact that the ERMCs will require a workforce with different skills.²³

It appears that DOE has yet to achieve the optimum balance in the allocation of responsibilities between its headquarters and field operations. This problem was recognized early by Secretary O'Leary and is being addressed at headquarters by a recent realignment of functions and responsibilities. Many decisions regarding contracts and environmental

policy must travel up and down the chain of command for Headquarters input.²⁴ The ratio of headquarters versus field employees needs to be reexamined to implement the Secretary's operating philosophies.

Recommendations

1. **Introduce competition and innovation in contracting for environmental cleanup services.** The Department of Energy should allow for true competition among environmental cleanup contractors and the M&Os in bidding for DOE environmental remediation and management work. In assuring that it exercises fair, open and competitive contracting, DOE will be able to attract the most qualified companies (whether they be M&Os, ERMCS or others) in the field of environmental restoration and management to perform the work in the most effective and efficient manner possible. Furthermore, all environmental restoration work should be awarded on a cost reimbursement basis rather than a letter of credit. In order to assure the above mentioned conditions at the sites that EM does not control, environmental restoration and management work should be separated out from the Management and Operations contractors.
2. **Enhance the management of DOE waste management and environmental restoration contracts by providing for qualified on-site DOE personnel to assume greater environmental project management and project design responsibilities.** In order for DOE to adequately manage its contractors and ensure competitive and innovative contracting, the EM program at DOE should build capable, technically trained teams of DOE personnel who work at DOE cleanup sites. Adequate authority to manage and oversee the site coupled with clear accountability should be delegated to these teams from DOE Headquarters. As the federal presence is increased in EM tasks, care needs to be taken to clearly delineate federal/contractor responsibilities for decision making and accountability. Consistent with priorities cited by the new DOE leadership, the EM program should reexamine

the distribution of responsibilities and personnel between headquarters and the field.²⁵

3. **Adopt measures to reduce costs.** To maintain management convenience and minimize transition time between the various phases of a cleanup at very large sites, as well as achieve economies of scope and scale it appears that it would be prudent to remain with a single management contractor. At smaller sites, however, it might be appropriate to have several special purpose contractors working under federal management. Whatever the arrangement might be, in order to manage costs, it will be important to distinguish the methods of contracting for various services. For example, site characterization and site assessment services should be purchased on a cost-plus-award fee basis due to the relative uncertainty of this kind of work. Other relatively finite and discrete services such as landlord functions (grass-cutting, janitorial services) and actual remediation services (moving earth, pouring concrete, digging wells) should be purchased on firm-fixed-price basis. To guard against excessive overhead charges (that accumulate when they are applied to each subcontractor), DOE should devise a policy clearly stating when to emphasize subcontracting and when to emphasize direct services from the contractor.
4. **Build tangible, outcome-oriented performance measures into its environmental restoration contracts to ensure objective, measurable assessments of contractor performance.** For example, positive and negative incentive fee criteria should be built into environmental management contracts. DOE could furnish the contractor with interim payments that are contingent upon the outcome of the contractor's work. Fees would reward contractors who exceeded contract specifications, but contractors would have to reimburse the Department if the work did not meet specifications.
5. **For the award of such environmental restoration contracts and the disbursement of fees, put more emphasis upon the contractors' record for**

ensuring worker safety and health. Management systems and oversight controls in contracts should include accountability, monitoring, feedback reporting, and oversight of performance to ensure that safety and health requirements are implemented and adhered to.

6. **To control costs, the waste management and the environmental restoration programs should build a reliable methodology for estimating costs that is applied uniformly at all EM sites.** Although DOE has gone to considerable lengths to build their cost estimating capabilities, the Department needs to continue efforts to develop and implement effective cost estimating methodologies. DOE programs should issue a directive (followed up with prompt promulgation of a formal order) requiring that the local cost estimating guide be used by all DOE contractors in the region. Where necessary, DOE should work with the Corps and EPA to revise the cost estimating guides so that they provide a consistent system for measuring the thoroughness of project definition, the degree of technological complexity, the variety and type of contaminated media and contaminants present, and contingencies and escalation rates.²⁶ In order to build contract management capability throughout the EM program, environmental program managers should receive contracts training in addition to the contract officers.
7. **Build capable cost estimating/cost engineering teams at each DOE site who will be able to proficiently determine the contractors' scope of work and review cost estimates.** One possible means of building such capability might be through the U.S. Army Corps of Engineers. Currently, the U.S. Army Corps of Engineers has extensive experience in estimating contract costs for hazardous waste remediation and construction and, furthermore, is attempting to "downsize." Experienced senior Corps cost estimators could be loaned/transferred to DOE and tasked with building cost estimating teams at individual DOE sites.

8. **For those environmental services that are paid for on a cost-plus-award or a cost-plus-fixed fee award basis, perform systematic and timely audits on costs incurred by every contractor to verify that costs charged are legitimate and reimbursable.** DOE signed a Memorandum of Understanding with the Defense Contract Audit Agency (DCAA), whereby DCAA performs the majority of cost-incurred audits for DOE on non-M&O contracts and M&O subcontractors. If environmental restoration and management contracts are separated from the M&Os and awarded on a cost-plus-award fee or other basis, responsibility for auditing will fall to the DCAA.^{27 28}
9. **Re-evaluate the merits of requiring environmental restoration contractors to hire as many of the former M&O's staff, at current salary and benefit levels, as they can effectively employ.** DOE should use the existing contractor workforce for those positions that are similar in nature and retrain employees to the maximum extent possible. DOE should, however, verify that their contractor workforce strategy maximizes the effective application of worker skills to skill requirements in order to ensure successful environmental restoration.
10. **Finally, examine options to increase the ratio of federal workers to contract employees to improve management and oversight and control costs.** DOE should determine whether the Department's current federal personnel "ceiling" could be raised in exchange for reductions in contractor funding, or if contractor positions can simply be converted into federal positions. On the whole, it is cheaper to perform certain functions through a federal employee than it is through a contract employee. For example, on average, a Department of Energy contract employee costs \$120,000 versus \$90,000 per DOE employee. Equalizing the ratio between federal employees and contractors, especially out in the field, could improve contractor management, ensure that DOE activities are being administered by the appropriate people, and save money in the process.

Implications

These recommendations move DOE towards a more active role in planning and managing environmental restoration at a DOE site. The speed of cleanup should increase by delegating authority to the field, the quality of decisions and oversight should improve by building technically capable oversight teams, and rising cost should be mitigated with accurate cost estimating procedures and credible DOE oversight.

Fiscal Impact

The environmental cleanup program at DOE is estimated to cost \$200 billion over 30 years. This number, however, is subject to change given the fact that DOE still has not ascertained the full extent of the contamination at its sites.

Beginning in 1989, the program's budget allocation increased at a rate of 30 percent a year or more. Beginning in 1995, the President's budget plan calls for a 3 percent real growth plus inflation in EM's budget authority. The EM program will have to make considerable adjustments and achieve significant efficiencies to accomplish their mission within this budget scenario. The recommendations on site-wide future land use planning and on contract management should help the Department achieve these efficiencies.

It is difficult and perhaps imprudent to estimate savings for each recommendation individually. Taken as a whole, however, these recommendations should achieve collective savings through competition among environmental contractors, a reduction of fees and overhead in environmental contracting, increases in productivity, enhanced management and oversight of contractors, cost control and cost reduction through better cost estimation of environmental services, increased use of federal employees in place of contractors, and a remedial decision making process based on reasoned land use assumptions.

Viewed as a reform package, contracting reform and site-wide future land use planning could achieve a 15 to 25 percent cost savings over 5 years. In other words, within the limits of their resources, the EM program at DOE should become 15 to 25 percent more efficient in administering the cleanup program over five 5 years. In essence, the above changes should enable DOE to perform more cleanup, more effectively for each dollar

spent and potentially mitigate the escalation of costs for the whole environmental restoration and waste management program.

Endnotes

1. Douglas Pasternak and Peter Cary, "A \$200 billion scandal", *U.S. News and World Report*, (December 14, 1992), p.34; and "Frustrated Duffy Reviews DOE Cleanup", *Inside Energy*, (November 18, 1992); and, U.S. Congress, House Subcommittee on Oversight and Investigations of the Committee on Energy and Commerce, "Contracting at the Department of Energy," Opening Statement of the Honorable John D. Dingell, May 26, 1993.
2. U.S. Congress, House Committee on Energy and Commerce, Subcommittee on Oversight and Investigations, Statement by Hazel O'Leary, Secretary of Energy, May 26, 1993.
3. The ERM C at the Hanford Reservation is currently under protest, and is therefore not yet in place. Furthermore, the Hanford ERM C will do remediation work only, while the M&O contractor will continue to manage the site. At Fernald the ERM C is responsible for both environmental remediation and site management.
4. *The Federal Register*, Vol. 55, No. 211, Wed. October 31, 1990, p. 45845. The ERM C at Fernald, Ohio has been in place for about a year. The ERM C at Hanford, Washington is currently under protest.
5. ERM Cs are paid on a reimbursement basis rather than through a letter of credit.
6. Dingell "Contracting at the Department of Energy," Opening Statement; and Pasternak and Cary, "A \$200 billion scandal", *U.S. News and World Report*, pp.34-46; and U.S. Department of Energy, *Analysis of Findings from the First Sixteen Tiger Team Assessments*, DOE/EH-0191 (Washington, DC, May 1991); and U.S. General Accounting Office, *Energy Management: Vulnerability of DOE's Contracting to Waste, Fraud, Abuse, and Mismanagement*, GAO/RCED-92-101 (Washington, DC, April 1992); and U.S. General Accounting Office, *Energy Management: Types of Allowable and Unallowable Costs Incurred Under Two DOE Contracts*, GAO/RCED-93-76FS (Washington, DC, January 1993), ; and U.S. General Accounting Office, *Nuclear Health and Safety: Corrective Actions on Tiger Teams' Findings Progressing Slower Than Planned*, GAO/RCED-93-66 (Washington, D.C., March 1993).
7. U.S. General Accounting Office, *DOE Management: Impediments to Environmental Restoration Management Contracting*, GAO/RCED-92-244 (Washington, D.C., August 1992); and U.S. Congress, House Committee on Armed Services, "Managing the Environmental Cleanup of DOE's Nuclear Weapons Complex" testimony by Victor S. Rezendes before the Department of Energy Defense Nuclear Facilities Panel, GAO/T-RCED-91-27 (Washington, DC, April 11, 1991) , p.7-11.
8. These figures do not include contractors working under the EPA Construction Grants Program (water works construction), or personnel working on EPA initiatives funded through cooperative agreements.

9. Source: OMB

10. Interagency Review Group (U.S. Army Corps of Engineers, U.S. Department of Defense, U.S. Department of Energy, U.S. Environmental Protection Agency, U.S. Department of Justice, Office of Management and Budget), *Interagency Review of the Department of Energy Environmental Restoration and Waste Management Program, Final Report*, (Washington, D.C. April 29, 1992), p.iv.

11. U.S. Congress, House Subcommittee on Oversight and Investigations of the Committee on Energy and Commerce, Statement by Hazel O'Leary, Secretary of Energy, May 26, 1993, p.18.

12. George Lobsenz, "Grumbly Takes Stock, Sees Need for Changes", *The Energy Daily*, (Washington, D.C., July 19, 1993), p.3.

13. U.S. Government Accounting Office, *DOE Management: Impediments to Environmental Restoration Management Contracting*, GAO/RCED-92-244 (Washington, D.C., August 1992), p.8.

14. U.S. Government Accounting Office, *Energy Management: Vulnerability of DOE's Contracting to Waste, Fraud, Abuse, and Mismanagement*, GAO/RCED-92-101 (Washington, DC, April 1992), pp.15-18, p.21.

15. Lobsenz, "Grumbly Takes Stock, Sees Need for Changes", *The Energy Daily*, p.3.

16. Occupational Safety and Health Administration, U.S. Department of Labor, *Evaluation of the U.S. Department of Energy's Occupational Safety and Health Program for Its Government-Owned Contractor-Operated Facilities*, (December, 1990). For example, the M&O contractor at Oak Ridge in Tennessee, increased the amount of the award fee that it received in 1992 compared to 1991, even though its performance in the environmental safety and health fields had declined. They did so by increasing their base fee. *Weapons Complex Monitor*, "IG Report Criticizes Field Office Management" (Washington, DC: Exchange Publishers) June 22, 1992. Cited in U.S. Congress, Office of Technology Assessment, *Hazards Ahead: Managing Cleanup Worker Health and Safety at the Nuclear Weapons Complex*, (Washington, DC, February 1993), p. 64.

17. *Weapons Complex Monitor*, "IG Report Criticizes Field Office Management," (Washington, DC: Exchange Publishers), June 22, 1992, cited in U.S. Congress, Office of Technology Assessment, *Hazards Ahead...*, p.64.

18. Interagency Review Group (U.S. Army Corps of Engineers, U.S. Department of Defense, U.S. Department of Energy, U.S. Environmental Protection Agency, U.S. Department of Justice, Office of Management and Budget), *Interagency Review of the Department of Energy Environmental Restoration and Waste Management Program, Final Report*, p.iv.

19. U.S. General Accounting Office, *Nuclear Health and Safety: More Can Be Done to Better Control Environmental Restoration Costs*, GAO/RCED-92-71 (Washington, D.C., April 1992) , p.37.

20.Ibid. p.36.

21.Department of the Army, U.S. Army Corps of Engineers, Report to the Associate Director for Natural Resources, Energy and Science Office of Management and Budget, *Supplemental Report on Cost Estimates*, (Washington, D.C., April 29, 1992), p.i; See also U.S. Congress, Office of Technology Assessment, *Complex Cleanup; The Environmental Legacy of Nuclear Weapons*, (Washington, DC, February 1991) pp.55-59.

22. Due to their experience in estimating costs for environmental remediation work, the Corps was tasked by an Interagency Group (IAG) of senior Administration officials concerned with environmental cleanup issues, to do a detailed cost analysis of the DOE's 1993 budget request for Environmental Restoration and Waste Management entitled *Supplemental Report on Cost Estimates*, Department of the Army, U.S. Army Corps of Engineers, Report to the Associate Director for Natural Resources, Energy and Science, Office of Management and Budget. (April 29, 1992).

23. U.S. General Accounting Office, *DOE Management: Impediments to Environmental Restoration Management Contracting*, p.8.

24. Some of these management problems have been documented by DOE's Tiger Team Assessments performed on the Environment, Safety and Health programs at DOE's plants and facilities. For example, the analysis of the West Valley Demonstration Project states: Potential civil and/or criminal sanctions arising out of environmental non-compliance determinations are impeding effective communications within the DOE's Idaho Operations Office, and also are impacting the efficient utilization of staff resources with environmental capabilities. DOE management needs to address Department-wide the legitimate concerns of field office ES&H and program groups regarding dealing with environmental non-compliance issues. Protocols that will permit timely and effective interactions between field office program groups and environmental compliance auditors without compromising the roles of the parties need to be developed.

U.S. Department of Energy, *Analysis of Findings from the First Sixteen Tiger Team Assessments*, (Washington, DC, May, 1991), Appendix F, p.3. See also, U.S. General Accounting Office, *Nuclear Health and Safety: Corrective Actions on Tiger Teams' Findings Progressing Slower Than Planned*, GAO/RCED-93-66 (Washington, DC, March 1993).

25. U.S. Congress, House Subcommittee on Energy of the Committee on Science, Space, and Technology, statement by Thomas P. Grumbly, Assistant Secretary for Environmental Restoration and Waste Management, U.S. Department of Energy, July 15, 1993, pp.9-10.

26. See Interagency Review Group, *Interagency Review of the Department of Energy Environmental Restoration and Waste Management Program*, p.v; and U.S. GAO, *Nuclear Health and Safety: More Can Be Done to Better Control Environmental Restoration Costs*, p.35.

27. Interviews with DOE personnel have indicated that DCAA is generally prompt and accurate in its audits. In addition, a congressional subcommittee report shows that DCAA auditors can unearth substantial cost savings as they return approximately \$25 for every dollar spent on their salaries. U.S. Congress, House Subcommittee on Oversight and Investigation of the Committee on Energy and Commerce, *Government Contract Mismanagement*, December 3, 1992, pp.102-166.

28. The ERMIC at Fernald is an exception to this arrangement. The DOE Inspector General's office has staff on-site at Fernald, therefore the DCAA will perform cost incurred audits on corporate and home office expenses only. The Office of the Inspector General will be responsible for performing a traditional cost-incurred audit.

INCORPORATE SITE-WIDE FUTURE USE PLANNING INTO THE CLEANUP PROCESS

Background

Cleanup at federal sites is guided primarily by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The National Contingency Plan (NCP), which is the blueprint for implementing CERCLA, specifies that cleanup remedies must protect human health and the environment, and comply with all applicable or relevant and appropriate requirements (ARARs, which are federal and state environmental standards).¹ The NCP also identifies cost as a criterion for consideration when cleanup remedies are evaluated.² To determine what cleanup remedies will protect public health and the environment, satisfy applicable requirements, and be cost-effective, an understanding of existing and anticipated exposure of individuals to contamination is necessary. Because future land use decisions often are not an explicit part of the CERCLA cleanup process, there is not an effective approach for establishing cleanup objectives based on anticipated future uses of the site and level of exposure to the population, or for measuring and comparing the benefits of alternative cleanup strategies.

In assessing the risks posed by contamination, unrestricted residential land use is virtually always assumed, whether or not such an assumption is reasonable. As a result, the assessment and remedy selection process may lead to unnecessary or inappropriate cleanup decisions. Often the scope of the assessment and remedy selection process is expanded greatly to account for all possible outcomes associated with residential use, even when such future use at large, federally-owned sites is unrealistic. In addition, technologies may be selected which result in excessive expense for little demonstrable benefit to human health or the environment. This situation is exacerbated by the fact that there are no national standards for radioactive waste and mixed waste cleanup. CERCLA defers to state and federal standards for waste, water and air contamination; neither state law nor federal law, however, comprehensively addresses the issue of how to mitigate the risk of exposure to radioactive waste or to radioactive waste mixed with hazardous waste. Furthermore, public expectations that a site or facility will be cleaned up to allow unrestricted use may

be disappointed if this level of cleanup cannot be achieved because of technology or resource limitations.

Without reasonable assumptions about future land use being determined early in the cleanup process, remedy selection tends to focus on which technologies could be employed at the site. Absent a clear objective as to the future use of the land or facility after cleanup, the cost-effectiveness of a particular technology cannot be evaluated. In addition, emerging technologies may be ignored in favor of known technologies, even when such technologies may be cost prohibitive or have been shown, by sound science or through actual application, to be ineffective.

In the past, DOE's decision making processes have been largely isolated from public, although DOE is currently working aggressively to remedy this situation. As a result, DOE's credibility among the general public and state and local stakeholders needs further improvement.³ Stakeholders affected by DOE's cleanup decisions have voiced concern for everything from slow cleanup to creating "national sacrifice zones."⁴ In addition, local stakeholders are not always fully informed about the resource, technical and statutory constraints within which cleanup decisions are made. The stakeholders' inability to access information and their level of distrust can result in opposition to DOE's cleanup decisions which, in turn, results in delays and increased costs.

DOE has successfully implemented an important first step in a land use planning process at the Hanford Reservation which was formerly devoted to producing plutonium for nuclear warheads. The 560 square mile site houses large plutonium production facilities and constitutes DOE's most difficult cleanup problem in the 12-state nuclear weapons complex. Although it is too early to be able to say what the full impact will be on the cleanup process, it is possible to identify some benefits of the Hanford future use planning process. At Hanford a broad based group of stakeholders worked together and developed an array of land use options for various portions of the Hanford Reservation. One outcome of the process was identification of an option to restrict use of a part of the site, known as the 200 area, for waste management. The 200 area is severely contaminated and therefore will be used temporarily as a waste management site for the rest of the reservation. As a result, two other plots of land totaling 260 square miles on the Hanford site can be turned

over for recreation use beginning next year because the small amounts of waste on that land will be deposited in the 200 Area.⁵

Furthermore, public participation provided data to DOE and regulatory agencies about public needs and preference for land use. For instance, through the Hanford study, representatives of the agricultural sector stated that they did not see agricultural value in much of Hanford land because public perceptions of radioactive contamination might give Washington state produce an unmarketable image. Such important information might not come to government's attention with such public forums. Finally, early and effective public participation as evidenced at Hanford, while a benefit in its own right, may help to build support for subsequent remedy selection decisions.

Recommendations

1. **CERCLA should be amended to provide more explicit encouragement of, and direction for a cleanup process that incorporates early future use planning (i.e. the identification of a reasonable set of future land and facility use assumptions based on a number of criteria including current and expected future site use).** The intent is that reasonable land use assumptions would guide the cleanup process, from development of risk scenarios to remedy selection. This suggested clarification of the statute would help to ensure that such planning would occur as cleanup progresses across federal sites. In anticipation of an eventual reauthorization of CERCLA, the administration should also issue an explicit policy encouraging the implementation of future site use planning early in the remediation process regardless of what statute governs cleanup.
2. **DOE, federal and state regulators, and other stakeholders should work together to address land use planning at DOE sites while CERCLA is being reauthorized.** While it is true that CERCLA and the NCP do not expressly support future site use planning, it is also true that such planning is not prohibited. In addition, identification of possible future site uses has many potential benefits. The future use of land and natural resources is the clearest means of defining cleanup

objectives. Establishing baseline risk assessments and identifying methods of attaining regulatory and statutory requirements can more effectively be done once such cleanup objectives are established.

For future use planning to achieve the greatest benefits, such planning should:

- be done early in the site remediation planning process;
- be a collaborative process involving all stakeholders;
- guide risk assessment and remedy selection to ensure that scenarios identified and evaluated are realistic, and that cleanup standards are identified that are based on the best available science, protect human health and the environment, and achieve land use objectives; and
- be carried out from a site-wide perspective, unless impossible or impracticable, so that remedial action alternatives include the range of future site use assumptions applicable to the site, and can then be considered in light of their impacts on site-wide restoration strategies.

3. **The cleanup of contaminated land should achieve specific standards based upon the future intended use of the site.** Cleanup should ensure protection of human health and the environment in conjunction with such future site uses. Health assessment criteria developed by the Environmental Protection Agency (EPA), the Nuclear Regulatory Commission (NRC), the National Institutes of Health (NIH), and the Agency for Toxic Substances and Disease Registry (ATSDR) should also be used. Furthermore, DOE should work collaboratively with these agencies to gather and analyze data on exposure rates, risk and related issues as a basis for the regulatory agencies to develop standards for cleanup of radioactive and mixed (containing both radioactive and hazardous materials) waste. As national cleanup standards are developed, they should be designed to accommodate future land use planning, although health based considerations should remain the primary basis for cleanup standard setting.⁶ Finally, EPA should work with DOE and other federal agencies responsible for cleanup to define various land categories broadly and

clearly. This will help to insure that various land use categories can be understood and applied consistently.

Implications

Early incorporation of future site use planning (identifying a reasonable set of future land and facility use assumptions) and clarification of cleanup objectives can help to streamline the cleanup process, making it both more effective and efficient, while still maintaining the protection of human health and the environment as the highest priority. Clear cleanup objectives can: guide the development of risk assessments so that they can be tailored to specific alternatives for future use, potentially saving considerable time and resources; and aid the selection and implementation of cleanup remedies. Furthermore, agreement about the appropriate remedy could potentially be achieved more easily, and expectations concerning the results of the remedial action would be clearer.

Statutory changes and development of administrative policy would help ensure that as the law and policy are implemented, land and facility use planning would be incorporated into the cleanup process. This would be particularly helpful for agencies like DOE which are responsible for cleanup and regulated by CERCLA.

DOE has several advisory boards in place, and is currently reviewing them and establishing others based on the recommendations of the Federal Facility Environmental Restoration Dialogue Committee. With these boards, DOE has or will have the institutional mechanisms in place to ensure a collaborative land use planning process. Within this context, land use and facility use planning could take place.

In the absence of national cleanup standards, future land and facility use could be instrumental in determining cleanup levels which would be protective of human health and the environment. These cleanup levels would be tied to specific land and facility use objectives.

Targeting cleanup objectives based on future land and facility use will help identify emerging technologies that may be appropriate at a particular site. In addition, the development of new technologies can be focused clearly on meeting cleanup objectives.

The funding allocated for research and development of new and emerging technologies can be targeted more effectively at meeting needs clearly defined by early future use planning.

Fiscal Impact

The environmental cleanup program at DOE is estimated to cost \$200 billion over 30 years. This number, however, is subject to change given the fact that DOE still has not ascertained the full extent of the contamination at its sites.

Beginning in 1989, the program's budget allocation increased at a rate of 30 percent a year or more. Beginning in 1995, the President's budget plan calls for a 3 percent real growth plus inflation in EM's budget authority. The EM program will have to make considerable adjustments and achieve significant efficiencies to accomplish their mission within this budget scenario. The recommendations on site-wide future land use planning and on contract management should help the Department achieve these efficiencies.

It is difficult and perhaps imprudent to estimate savings for each recommendation individually. Taken as a whole, however, these recommendations should achieve collective savings through competition among environmental contractors, a reduction of fees and overhead in environmental contracting, increases in productivity, enhanced management and oversight of contractors, cost control and cost reduction through better cost estimation of environmental services, increased use of federal employees in place of contractors, and a remedial decision making process based on reasoned land use assumptions.

Viewed as a reform package, contracting reform and site-wide future land use planning could achieve a 15 to 25 percent cost savings over 5 years. Within the limits of their resources, the EM program at DOE should become 15 to 25 percent more efficient in administering the cleanup program over 5 years. In essence, the above changes should enable DOE to perform more cleanup, more effectively for each dollar spent and potentially mitigate the escalation of costs for the whole environmental restoration and waste management program.

Endnotes

1. "Remedies" are particular methods chosen to clean up a site. ARARs are still primarily federal standards promulgated under other laws such as the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act, etc. Over the last few years, however, states have begun to promulgate their own state regulations under these statutes, and CERCLA has had to increasingly defer to state regulations. In some cases, state regulations are more stringent than federal regulations, which means that DOE will have to meet different standards depending on the state in which the facility is located.
2. The nine criteria applicable to the remedy selection decisions, as specified by §300.430(e) (9) (iii) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) are: (1) overall protection of human health and the environment; (2) compliance with ARARs; (3) long term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume through treatment; (5) short term effectiveness; (6) implementability; (7) cost; (8) state acceptance; (9) community acceptance. The nine criteria are divided into three categories. Protection of human health and compliance with ARARs are "threshold criteria" that all alternatives must satisfy (unless an ARAR waiver is granted). The next five criteria, including cost, are "primary balancing criteria," less important than threshold criteria but of equal weight among themselves. State and community acceptance are "modifying criteria" and are given less weight than threshold or balancing criteria".
3. The proposed final report of the Secretary of Energy Advisory Board Task Force on Radioactive Waste Management described public trust and confidence in the EM program in this way: "The institutional context within which the Office of Environmental Restoration and Waste Management (EM) operates presents opportunities for developing institutional trustworthiness. EM has a broader conception of what is needed to build trustworthiness and has set in place an elaborate structure doing so. It has not demonstrated, however, that it can sustain trustworthiness as it grapples with highly contentious issues nor has it developed a strategy for managing constraints that might create vicious cycles for it as well". U.S. Department of Energy, Secretary of Energy Advisory Board, *Earning Public Trust and Confidence: Requisites for Managing Radioactive Waste, Proposed Final Version*, (Washington, D.C., June 1993), Executive Summary and pp.46-48.
4. National Sacrifice Zones refer to areas that might be deemed so contaminated that they would not be cleaned up.
5. Thomas W. Lippman, "Nuclear Arms Center Heads Slowly to Oblivion", *The Washington Post*, (May 15, 1993), p.A4.
6. Future use considerations should be an important component of setting cleanup standards, however future uses cannot be guaranteed indefinitely. Nor can it be assumed that active institutional controls (e.g. security guards, on-site management, etc) will remain in place over the long term. In fact, EPA Standards for the Disposal of Spent Nuclear Fuel, High Level and Transuranic Nuclear Waste (40 CFR Part 191 b) authorized under the Atomic Energy Act and the Nuclear Waste Policy Act) specifically states that, for the

purposes of radioactive waste disposal, active institutional controls cannot be assumed to be in place for any longer than 100 years. Standards, therefore, must be primarily driven by health risk considerations.

II. B. Introducing Market Dynamics

MAKE CONTRACTS AT DOE FIELD FACILITIES MORE OUTCOME-ORIENTED

Background

The Department of Energy's (DOE) national laboratories, including weapons laboratories and production plants were established by the federal government to attract the best and brightest minds in the country to conduct scientific research and development (R&D) projects of national significance. DOE operates 16 major R&D laboratories and several production installations through management and operating (M&O) contracts with large, private sector research and development companies, universities and not for profit organizations (for example, Westinghouse, Martin Marietta, Universities of California, Chicago, Princeton, and others).

At the national laboratories and nuclear weapons production centers, the government owns all the land, facilities, and equipment while the contractor manages the facility and employs research, development and production personnel, and various support and maintenance personnel needed to operate the entire installation. The national laboratories represent a partnership between government and private industry to develop and maintain worldwide leadership and competitiveness in various scientific disciplines (nuclear research, high energy physics, mathematics, high speed computing, engineering, and others). The DOE laboratories have played an integral part in developing the country's defense capability, and in carrying out energy R&D and basic research in all major fields.

Management and operating (M&O) contracts amount to \$16 billion annually at DOE and currently employ 140,000 people¹. They were initiated in the 1940s and 1950s primarily for nuclear weapons and other nuclear research, design and production. The projects developed into programs of extraordinary scale, challenge and uncertainty. For example, the contractor for Argonne National Laboratory located near Chicago is the University of Chicago. The installation employs 4,840 employees and operates 26 major research facilities. R&D includes experimental and theoretical research in the physical, life and environmental sciences to support development of energy technologies and to advance

scientific understanding. The 1993 operating budget was \$426 million. Lawrence Livermore National Laboratory outside San Francisco is run by the University of California. The Laboratory employs 8,000 employees and conducts national security, energy, environmental and biological R&D. Its 1993 annual operating budget was \$1.1 billion.

Each site is unique because of its location, physical arrangement, size and mission. The mission at a site can involve theoretical research, applied research, weapons research, nuclear weapons production, non-nuclear production, environmental restoration, or a combination of these missions.

Because the research has been so technical and of such critical national importance, the M&O contracts for the national laboratories have traditionally contained broad oversight and performance requirements, and special provisions for the contractor. The contractor requires no capital investment. The government sets up a special bank account to cover operating expenses and the contractor writes checks against this account. These provisions were necessary during the early, uncertain, and urgent stages of nuclear weapons development. However, now that the cold war is over and there is no longer a need for continued nuclear weapons development and production, the M&O contract approach used in the past has come under increasing criticism from DOE program officials, the Office of Management and Budget (OMB), the General Accounting Office (GAO) and the Congress. Criticism includes poor business management practices, and inadequate cost accounting procedures.

An M&O contract typically includes: 1. long-term, core² scientific and technological research or production missions, 2. special one-time research and development projects, and 3. support functions and daily operations and maintenance activities at the installation. The M&O contract for each laboratory and weapons center has typically been awarded on a cost reimbursement type contract basis that covers five year periods with options for contractor renewal. While such contracts may be appropriate for complex and high-risk scientific projects, they may not be the most cost effective management arrangement for routine support functions.

A close association has developed between DOE program managers at headquarters and contractor laboratory managers. Congress appropriates funds for research and

development by program (laboratories get no appropriation). Program managers direct major research funding to the specific laboratories they oversee (defense programs, energy laboratories and others) based on proposals from those laboratories. Within program areas, laboratory managers compete with others in their scientific field for this R&D funding.

The complexity of the projects, the close association between the contractor and the government and special provisions in M&O contracts have resulted in a number of complications that have been documented in GAO and DOE Inspector General (IG) reports. In 1990, GAO designated DOE's contract management as one of 16 high risk areas government wide because of its extensiveness and history of inadequate oversight of contractors. For example, DOE's nuclear weapons labs have routinely reported quantities of nuclear materials as "in use" or "needed" when they were actually "excess". Sandia National Laboratory reported \$500,000 worth of excess uranium as "needed." Lawrence Livermore, Los Alamos and Savannah River also reported incorrectly. These inaccuracies affect DOE's ability to forecast nuclear materials requirements and result in purchasing and storage costs that are larger than necessary, as well as added safety and environmental risks³.

Many other documented incidents involving complications in security and contracting, have been serious and costly. For example, through limited DOE and contractor oversight, tens of thousands of documents relating to secret nuclear weapons and laser technology could not be located. Also, since 1986, Lawrence Livermore Laboratory leased 58 vehicles from the University of California (the M&O contractor) using a sole source contract and at a cost of \$987,000, when the vehicles could have been obtained through General Services Administration at a cost of \$396,000. In addition, in 1989, Los Alamos Laboratory, when performing work for non-federal parties, exceeded sponsor advances by \$460,000 and exceeded its approved budget authority by \$719,000, putting DOE at risk for financing the sponsors' work⁴.

Subcontracting by DOE's M&O contractors amounts to roughly \$5 billion per year and has also been subject to criticism. DOE reviews have disclosed excessive use of sole-source subcontracts, inadequate separation of duties and initial prices below review thresholds that are subsequently raised by contract modifications.⁵ They have also revealed significant deficiencies in record keeping and analysis needed to ensure that prices were fair

and reasonable. When M&O contractors do not take full advantage of competition and fixed price mechanisms in their subcontracts, they pay more than they should for the goods and services they buy on behalf of the government.

Oversight of contract management and operations is performed by government officials in program offices and operations offices. Program managers oversee the science, technology, research and development aspects of laboratory and weapons production activity. Operations office managers oversee contractual and cost accounting matters and provide field presence. Relative to the size of the contracts being managed and the complexity of the work being performed, the government oversight staff is considered to be small and inadequately trained. Oversight is also hampered by a lack of specificity in the descriptions of products of M&O contracts and performance requirements, expectations and measurement criteria.

In many cases, DOE officials are limited in their ability to specify objective measures in contracts because entities outside DOE who sponsor or regulate DOE activities have failed to provide adequate performance criteria to DOE. That is particularly true for work done in defense programs and environmental restoration. Moreover, in areas involving basic science, where outcomes cannot be specified, performance criteria based on peer review are needed to promote the best basic science without discouraging creative research.

Alternative management and contracting arrangements exist that would improve both the control and cost of operations and support at laboratories and weapons production plants. One option is to separate large M&O contracts into their major components and replace them with more traditional contracts. Another is to assume direct government management for selected activities of existing M&O contracts as those contracts expire. Under this option, government operations office officials would manage, rather than oversee, certain carefully chosen contractor and subcontractor functions that are now managed by the M&O contractor.

In the Budget chapter of the National Performance Review it is recommended that managers should have the flexibility to spend their available dollars in a manner that will most effectively achieve the agency's mission. Managers should consider both government employees and contractor personnel within their personnel ceilings, and should select the

appropriate and cost effective combination. Long range financial plans and sound accounting systems must first be in place before the government transitions to this philosophy. Assuming support for this position, DOE program managers and operations officials should consider the mix of contractor and government personnel at laboratories and weapons production centers and recommend changes to optimize the use of available funding.

The Secretary of Energy is well aware of the weaknesses in the contracting system she has inherited. In testimony before the House Committee on Energy and Commerce on May 26, 1993⁶, she summarized her concerns and announced a series of initiatives to improve DOE contract management. Included was the formation of a Contract Reform Team to perform a top-to-bottom review of the Department's contracting mechanisms and practices. The team is tasked to present a report to the Secretary by December 31, 1993 containing recommendations to improve accountability, stimulate competition and simplify administration.

Recommendations

1. **DOE program managers should increase the use of performance objectives and goal-based-budgeting when establishing funding levels for programs and projects.** DOE should provide contractors with performance-based contracts containing clear, specific directions, incentives and measures to test performance and compliance. Performance criteria should be crafted for each mission area to capture its unique features. DOE program managers and Department of Defense (DOD) officials should jointly define tests for performance of defense activities. Environmental cleanup activities should be measured against predetermined definitions of acceptable outcomes.
2. **DOE program managers should promote better coordination and more active competition at and among facilities.** Program officials should be encouraged to rely less on sole-source arrangements with DOE labs and to solicit bids on projects from all government facilities and the private sector. This should be done in

conjunction with a thorough scientific evaluation of proposals using the best elements of peer review.

3. **DOE should strengthen the authority of government field managers and hold them accountable.** Federal field managers should be more active in cost estimating, cost accounting and oversight of core contracts, and the management of support functions and non-core activities.
4. **DOE should test and assess alternatives to the cost reimbursement contract model traditionally used by the agency at laboratories and weapons production plants.** Since DOE's facilities and their missions are varied, a number of different contracting mechanisms is likely to be more appropriate than a single mechanism for all sites. Tests should be conducted at individual sites before adopting them more broadly at national laboratories and weapons centers.

When significant cost savings can be achieved, serious consideration should be given to a structure in which federal managers on-site play a more direct role in managing a facility, for example, managing one-time projects, and such support functions as security and maintenance of buildings, grounds and roads.

DOE should also increase the use of competitive, fixed-price contracts, subcontracts and grants for non-core activities including discrete environmental cleanup projects, one-time R&D projects and routine installation management and operations services.

5. **DOE should improve the capability of the financial management systems used to accumulate data from laboratories and weapons centers to measure, analyze, report and control spending uniformly, accurately and rapidly for programs and facilities.** All contractors and all facilities should be required to report to DOE using a standard financial reporting system, except in cases where the cost to implement the system would exceed the benefits. Federal program managers should

be more active in the management of funds, obligating them for clearly defined activities with specified outcomes.

Implications

The operation of national labs including the advancement of science, research and development as well as normal maintenance and support of buildings roads and grounds would be conducted in a more open, fair and objective environment. Enhanced competition among labs and cooperation with industry and universities will improve performance while lowering costs.

Fiscal Impact

Under present conditions, government employees at DOE operations offices oversee contractors who manage and operate government owned laboratories and nuclear weapons production sites. As proposed, at selected locations, government employees would become actively involved in, and responsible for the management and operations of the site, and for the contracts in effect there. Reconsideration of the mix of government and contractor personnel is expected to result in net reductions in personnel, overhead, and prime contractor fees for subcontractor activities. Savings will begin to materialize in 1995.

Net Savings/Changes to Baseline

In Millions of Dollars

Fiscal Year	1994	1995	1996	1997	1998	Total
Budget Authority	0	60	90	120	150	420
Outlays	0	36	78	108	138	360

Endnotes

1.U.S. Congress, House Committee on Energy and Commerce, Subcommittee on Oversight and Investigations, "Contract Management and Administration at the Department of Energy," testimony by Hazel R. O'Leary, May 26, 1993, p.3.

2. "Core missions" are missions at specific laboratories or weapons production sites designated by the Secretary of Energy based on established expertise and demonstrated capabilities.

3. Vulnerability of DOE's contracting to Waste, Fraud, Abuse, and Mismanagement GAO/RCED-92-101, April 1992, p.20.

4. Vulnerability of DOE's contracting to Waste, Fraud, Abuse, and Mismanagement GAO/RCED-92-101, April 1992, p.19.

5. DOE Actions to Improve Oversight of Contractors' Subcontracting Practices GAO/RCED-92-28, October 1991, p1,3.

6.Testimony by Hazel R. O'Leary, May 26,1993.

INCREASE REVENUES THROUGH SALE OF ELECTRICAL POWER AND STUDY MARKET-RATES OF ELECTRICITY

Background

The Federal government owns and operates major water resource management systems comprised of nearly 130 dams. The systems control river flows, create navigable waterways, provide recreational areas, and generate hydroelectric power. The hydroelectric power is sold by the Department of Energy (DOE) through organizations known as Power Marketing Administrations (PMAs) at below-market rates to public, cooperative and private utility customers. In most cases, PMA power supplements the electricity those utilities sell to their customers. Utilities in 34 states in the southeast, southwest, west and northwest receive PMA power.

The Flood Control Act of 1944 provides that PMA electricity should be sold "at the lowest possible rates to consumers, consistent with sound business principles."¹ PMA electricity rates are established on an "at cost" basis to cover the costs of construction, interest, operation and maintenance of the hydroelectric facilities. Also, the PMA's hydroelectric power is cheaper because it is renewable energy that does not require the purchase of fuel to generate electricity. Even though PMA's power is provided to utilities at rates substantially below market rates, the U.S. Treasury receives over \$3.6 billion annually from the sale of PMA electricity. There are two opportunities for the Federal government to increase its revenues through the sale of PMA hydroelectric power.

The first opportunity for increasing revenues would not increase PMA charges to their utility customers. Currently, a number of power utilities offer their consumers energy conservation and efficiency programs called "Demand Side Management" (DSM). Considerable energy savings can be obtained if the utilities' DSM programs are promoted well and offer strong incentives to consumers to participate. The programs can be win-win situations because they reduce consumer's electricity bills, reduce fuel consumption, reduce impact to the environment, stimulate growth in industries that produce energy efficient technologies, and reduce the demand for electricity that might otherwise force utilities to build costly new power generators. Utilities that purchase and distribute PMA power can

be encouraged to expand their current energy conservation programs or develop new ones. If a utility increases or initiates a new conservation program, the energy savings could be shared between the utility and the PMA. For example, the PMAs could agree that utilities would sell the "saved" energy to other utilities at market rates. The proceeds from such sales would then be shared between the utility and the U.S. Treasury. The increase in revenue could be substantial.

A second alternative for increasing government revenues would entail slight increases in rates PMAs charge their customers. In recent years, these rates have not kept pace with the government's costs of financing the construction of the dam systems. Since the first federal hydroelectric projects were built, the Treasury's cost of money (its long-term interest rates) has increased while interest rates on PMA hydroelectric projects and project additions have been kept artificially low at 1930 and 1940 levels. As Treasury long-term interest rates began to increase in the 1960s, 1970s and 1980s, they exceeded the interest rates which the PMAs elected to pay on project debts. The resulting differential created federal subsidies for these projects. Since the 1950s, PMAs have been allowed to pay interest rates on new debt that is considerably below the government's cost of borrowing money. According to an Office of Management and Budget (OMB) study on PMA debt repayment,² the Treasury has made a practice of borrowing money for the PMAs at six to twelve percent and accepting loan repayments on that debt at two to four percent. This process, which continues today, results in an estimated revenue loss of over \$430 million annually and an estimated \$15 billion loss over the life of the PMA loans. This is inconsistent with the application of "sound business principles" required by the Flood Control Act. The revenue loss amounts to a taxpayer subsidy for those fortunate enough to live in PMA regions and receive PMA power through their local utility.

According to the OMB report, if the PMA rates were increased to cover the total cost of financing, the one time rate increase to consumers would vary between one and seven percent, depending primarily on the amount of power each utility purchases from a PMA in relation to the utility's total power output.³ Utilities that receive only a small portion of their power from their regional PMA would pass on only a slight increase in rates. Utilities that receive a significant portion of their power from a PMA would pass on

a more noticeable increase in monthly electricity bill. It is estimated that the average consumer receiving PMA power would experience a rate increase of about five percent-- or an additional estimated \$3.13 per month for a typical bill.⁴ Even after this increase, the utilities receiving PMA power would still be providing the cheapest electricity in the country. The rate increases would be too small to have a macro-economic effect in PMA regions.

While the interest rates on the debt for most PMAs is established by the DOE, the interest rates for a few loans is determined by legislation. Thus, the decision to recover the full costs of government financing is a policy decision that can be made administratively by the Secretary of Energy.

Finally, the Federal government is hampered by legislation that restricts its ability to oversee electrical power issues. Currently, the government cannot study the effect of applying "market rates" to the sale of PMA power. Some contend that studying market-based rates of electrical power would automatically lead to raising PMA rates to market levels. To prevent this possibility, Congress has included a provision in either the Energy and Water Development Appropriations Acts or Continuing Appropriations each year since 1982 which prohibits use of government funds for the purpose of studying electricity market rates.

However, the prohibition from studying market rates could deter the DOE from developing and implementing programs that can be beneficial to the industry. For instance, in the energy conservation program recommended above, a DOE study of electricity market rates would help determine appropriate levels of revenue sharing between PMAs and utilities. There may be future instances when programs of potential benefit to the electric power industry cannot be promulgated because of the DOE's inability to collect and analyze needed information. This prohibition prevents the DOE from carrying out its mission and acting in the best interests of the country as a whole.

Recommendations

1. **The Secretary of Energy should authorize Power Marketing Administrations in the Southeast, Southwest, Western Areas, Bonneville and the Tennessee Valley Authority to enter into energy savings programs with their subscriber utilities.** These utilities should be permitted to sell the PMA's electric power saved under conservation programs to other customers. Sale of the saved PMA power should be at market rates. The preferred utilities and the Treasury should share in the proceeds from the sale of "saved" PMA power. The opportunity to sell PMA power at market rates should be an incentive for utilities to expand or start up new energy conservation programs with their customers.
2. **The Secretary of Energy should establish a new rate structure policy for Power Marketing Administrations in the Southeast, Southwest, Western Areas and Bonneville.** The new policy should require that, where allowed by law, the PMAs recover full operating costs, including differentials in interest rate financing, of each PMA hydroelectric facility. Annual repayment rate studies are conducted by PMAs and can be used as a basis for analysis by the DOE. By establishing PMA electrical power rates that cover all operating costs, the Federal government will eliminate direct taxpayer subsidy of the PMAs and also take responsible steps toward reducing the federal deficit.
3. **The Congress should remove the Energy & Water Development Appropriations Act prohibition against expending federal funds to conduct studies of "market rates" or other noncost-based methods for the pricing of hydroelectric power by federal Power Marketing Administrations.** Any market-based electrical rate studies conducted by the DOE should be made available to the public. Any market-rate studies should apply to the Southeastern, Southwestern, Western and Bonneville Power Marketing Administrations. While the Tennessee Valley Authority (TVA) is not a PMA, it is also protected under the restrictive legislation. In fairness, the TVA

should not be excluded from study. The government needs to be able to collect and analyze market information that is necessary to carry out its mission and act in the best interests of the country as a whole. Any such studies should be conducted by the Department of Energy using available resources.

Implications

The recommendation to implement energy conservation programs would be beneficial to a broad range of stakeholders. Consumers of PMA power would take advantage of energy conservation rebates and incentives that would save money on their electrical bills. Utilities purchasing the "saved" energy would obtain additional power to help meet market demands. The utilities and the U.S. Treasury would receive additional income from the sale of the "saved" power.

The recommendation to recover the full cost of PMA power would simply allow the Federal government to meet all of its expenses while providing this service. Electricity bills for some consumers in portions of more than 34 states would increase slightly. However, those consumers currently pay substantially less for the electricity they consume than others who are not fortunate enough to live in areas receiving PMA subsidized power.

The recommendation to allow market-rate studies provides the DOE with the authority it needs to carry out its mission.

Fiscal Impact

The OMB has projected that the sale of "saved" electrical power at market rates could provide in the first year of the program a modest \$31 million in additional federal revenues. OMB expects that the program would pick up momentum in succeeding years and accrue in years two through four, an estimated \$71 million, \$91 million, and \$159 million respectively. These are conservative estimates.

The OMB has projected that increasing PMA electrical rates to cover the cost differential between Treasury costs of money when the projects went into service and the interest rates the PMAs are applying to their debt would increase Federal government annual revenues by the following amounts:

Revenue In Millions of Dollars

Fiscal year	1994	1995	1996	1997	1998	1999
Conservation	0	31	71	91	159	
Cost Recovery	432	453	458	456	450	
Total	432	484	529	547	609	

The recommendation to study market rates does not represent any revenue sharing opportunities to the government.

All three of these recommendations can be implemented by the DOE using current personnel and program resources. There should be no additional costs to the government.

Cross Reference

Refer to: the Environmental Systems report "Increased Energy and Water Efficiency in Federal Buildings."

Endnotes

1. Flood Control Act of 1944, ch. 665, sec. 5, (Dec. 22, 1944).
2. Office of Management and Budget, *Fact Sheet on Reform of Federal Power Marketing Administration Debt Repayment Practices*, 1990, p.3.
3. Ibid., p.4.
4. Ibid.

II. C. Creating a Quality Management Culture

STRENGTHEN THE FEDERAL ENERGY MANAGEMENT PROGRAM

Background

The Federal government is the largest single energy consumer in the U.S. In fiscal year 1991, the government's total energy expenditures were \$11.3 billion.¹ Of this amount, \$4 billion was spent on energy consumption in over 500,000 Federal government-owned or leased buildings. Executive Order 12759 in 1991 and the National Energy Policy Act of 1992 (EPACT) combine to establish a requirement to reduce energy consumption in federal buildings by 20 percent by the year 2000, as compared to 1985 consumption. This requirement can be met by implementing energy efficiency measures in all federal buildings.

The Federal Energy Management Program (FEMP) was initiated in 1974 to coordinate, direct and assist all federal agencies in implementing energy efficiency programs in their agencies. Currently, it provides information and consulting services to the Federal government and reports federal energy use to the President and Congress. In addition, FEMP provides similar assistance to state and local governments and the private sector. In 1993 FEMP began a series of training programs to provide federal building engineers and procurement officers with technical training in energy efficient technologies and cost-saving, Energy Savings Performance (ESP) contracts. This type of contract can save a portion of the funds needed to install energy efficient equipment in federal buildings. This is important because increasingly tight constraints on the federal budget may prevent full funding of energy efficiency programs in the future. Over 100 engineers and procurement specialists have been trained and 1,000 are budgeted to be trained annually through 1998. As part of its training effort, FEMP is developing technical guides on energy efficient technologies and manuals on how to implement the ESP contracts. As extensive as this multi-year training program is, it will not reach all personnel who oversee and contract for maintenance of federal sites.

The EPACT mandated 31 new or additional responsibilities for FEMP, including:

1. implementing programs in the Federal Energy Efficiency Fund, water conservation, and renewable and solar energy;
2. increasing capabilities in energy data analysis and

verification; 3. developing on-site audits, baseline methodologies, and measurement protocols for ESP contracting; 4. expanding current training opportunities through such new methods as teleconferencing, videos, and computerization; 5. initiating new technology demonstrations and design assistance for new building design; 6. sponsoring product expositions for industry to show federal facility managers new energy, water, and renewable savings products and technologies; and 7. forming rapid response technical assistance teams. FEMP can incorporate some new responsibilities in its current work. For instance, water conservation efforts can be included in the energy efficiency training package already being provided by FEMP staff.

FEMP is currently one of three offices in the Office of Building Technologies (OBT) which is under the Office for Energy Efficiency and Renewable Energy. While the bulk of FEMP's activities affect federal buildings, it also has some program responsibilities in the transportation and industrial sectors, which are outside OBT responsibilities. Because of these cross-sector responsibilities, it is important that FEMP be empowered to work effectively with all elements of the Energy Efficiency and Renewable Energy office.

FEMP's operating budget was \$4 million in fiscal year 1992 and \$4.6 million in fiscal year 1993, representing a nearly four fold increase from its 1990 appropriation. The FEMP's fiscal year 1994 budget request was \$19.6 million, including \$8 million to start up the Federal Energy Efficiency Fund. Minus that fund, the FEMP program budget will increase more than 250 percent in fiscal year 1994.

FEMP currently has nine professional and two support full time employees (FTEs). Eight additional employees are to be added in fiscal year 1994 to meet the increased EPACT mandates.

These findings indicate that the FEMP is in a position to make some progress in carrying out its new responsibilities. However, that progress must be sustained and the FEMP's role enhanced to meet its government-wide leadership role mandated by EPACT.

Recommendations

1. **The Secretary of Energy should upgrade the Federal Energy Management Program to Deputy Assistant Secretary (DAS) status.** This action will provide the FEMP office with the increased stature needed to carry out its various new program functions. The increased status will allow FEMP to work more directly with other DAS offices within DOE. Also, it will enable FEMP to interact more directly with senior administrators of other federal agencies in conducting its government-wide coordination, assistance and training responsibilities. The new status at the DAS level will enable FEMP to negotiate more directly in the normal intra-agency adjustments in funding disbursement.
2. **The Secretary of Energy should support a priority status for funding FEMP's budget requests for fiscal years 1994 and 1995.** Because the FEMP's budget is projected to increase exponentially from 1990 levels, there may be a tendency to cut appropriations or reduce those funds after the budget is approved. In order to meet EPACT mandates, the FEMP should receive as close to full funding of its requested budget as possible. Full funding will enable FEMP to successfully carry out its responsibilities in current and new program areas.
3. **The Secretary of Energy should act promptly to fill the eight new staff scheduled for fiscal year 1994.** Many of the additional responsibilities mandated to FEMP have time-sensitive deadlines that cannot be met with existing resources. A priority status should be designated to FEMP to assure that the needed staff are quickly brought on board. It is important that FEMP be able to attract the most technically qualified candidates and those with fresh insights into FEMP program issues. Because the recommended new DAS level office would be considerably smaller than other DAS offices, consideration should be given to continuing FEMP's administrative support functions within the OBT, for at least a transition period.

This would reduce the need, at least initially, for hiring redundant support staff. It would help ensure that the projected new positions remain program-related.

Implications

The government will not reach the desired 20 percent reduction in energy consumption unless the FEMP office is empowered to complete its mission. The budget obligations and projected FTE staffing levels are already established. This program puts a new twist on the old adage: it is necessary to spend money in order to save money. The budget and staffing for FEMP are minuscule compared to the potential savings that can be realized through its programs.

The program can help stimulate growth in private-sector energy-efficiency companies. Economic analyses estimate 40 jobs are created for every \$1 million invested in conservation efforts.² Because energy and water consumption and environmental issues are closely linked, a successful energy-efficiency program can be used as an example of the Federal Government's commitment to environmental issues.

Fiscal Impact

Increases in fiscal year 1994 budget mentioned in this report are already requested, as are the increases in staff. No additional funding or employees will be needed beyond what is planned.

Energy consumption in federal buildings cost approximately \$4 billion in fiscal year 1991. A 20 percent reduction in energy use, were the technology in place today, would have amounted to \$800 million in savings. As a result of past efforts and new programs, the Federal sector is making energy and dollar savings now. The savings can be expected to increase with effective programs such as FEMP. An annual \$1 billion savings for the Federal Government is possible by the year 2000.

Cross References

Refer to: Environmental Systems report "Increased Energy Water Efficiency in Federal Buildings" and the Reinventing Support Services report "Buy for the Environment."

Endnotes

1. U.S. Department of Energy, *Federal Government Energy Management and Conservation Programs, Fiscal year 1991, Annual Report to Congress*, DOE/CE-0343P, (Washington, D.C., October 1992), p. 10.
2. Skip Laitner, *Using Input-Output Analysis in Energy Policy Review--A Brief Methodology Working Paper for the Department of Energy*, (Eugene, Oregon, Economic Research Association, January 1993).

II. D. Doing More With Less

REDIRECT THE MISSION OF DOE LABORATORIES, PRODUCTION AND TESTING FACILITIES TO MEET POST-COLD-WAR NATIONAL PRIORITIES

Background

For the first time in fifty years, the United States is not engaged in producing or testing nuclear weapons. Significant reductions in funding (\$1.25 billion in fiscal year 1994¹) for nuclear weapons related activities have already occurred. Further reductions have recently been made possible by the President's decision not to resume testing of nuclear weapons. DOE officials must transition their facilities to the post-cold-war environment. This means that it will be necessary to take a hard look at the DOE weapons complex including production facilities, testing sites and laboratories to determine what is needed in the post-cold-war era and to plan for closure or consolidation of excess facilities. They must also take care that a lower level of nuclear weapons research, production and testing activities is used effectively to meet our defense requirements.

At the same time, the Department of Energy's (DOE) weapons laboratories and production plants represent an investment in world-class intellectual, research and development, and computing capability that was cultivated for five decades and would be difficult to redevelop. With adequate planning, the laboratories can redirect some of their world-class talents and equipment to partnerships with industry and to meeting non-defense government requirements.

New post-cold-war era projects of national scope and importance which combine public benefits with the potential to advance technology, further the growth of knowledge, promote industrial development and stimulate the creation of productive, high quality jobs are being discussed. DOE laboratories may be able to contribute to these projects because they have special capabilities that are not available elsewhere. These include basic and applied research involving large scale and multidisciplinary problems that would be difficult for others to tackle because of their size, complexity, and long term nature. These same capabilities could be put to use to meet the needs of government agencies other than DOE. In some cases, the DOE laboratories may be able to meet those needs better than the other

agencies' own R&D institutions, perhaps better than any government or private R&D institution. There is probably room for a good deal more work for other government agencies by DOE laboratories, on a competitive basis, in which the lab best suited to perform the work is awarded it, on the merits. Similarly, within DOE there could be more flexibility in the competition among DOE laboratories for DOE research programs.

Activities to transfer technological knowledge and promote closer partnerships among government agencies and between government and industry have received new interest and attention in recent months. The national laboratories can help industry use science and technology to become more competitive and technology transfer has been established as a mission at all of them. A number of initiatives totaling more than \$250 million have been proposed in the DOE fiscal year 1994 budget.² Most of these funds are for support to Cooperative Research and Development Agreements (CRADAs) which require matching funds from private industry and universities.

To make the laboratories a user-friendly, customer-oriented environment and to achieve successful government-industry partnerships, a distinct cultural change will be required in headquarters program offices and at field facilities by both government officials and the contractors who operate the laboratories. Institutional barriers will need to be removed, and some legislative and regulatory actions may be necessary.

Altogether, the redirection of DOE laboratories and other facilities will be an extensive undertaking that requires both the establishment of a uniform review of all facilities, and actions tailored specifically to each site.

Recommendations

- 1. DOE should continue to reduce funding for nuclear weapons production, research, testing programs and infrastructure that are not needed to meet current defense requirements.**
- 2. The Secretary of Energy should review the mission and facilities of DOE laboratories, weapons production facilities and testing sites and recommend the**

phased consolidation or closure of obsolete or redundant facilities. The recommendations should be developed in consultation with the Office of Science and Technology Policy, the Secretary of Defense and other appropriate Federal officers. Facilities to be retained should be targeted for refurbishment. Functional facilities and equipment no longer needed by DOE or other Federal agencies should be sold or leased, with the proceeds used to offset capital improvements within the DOE complex.

3. **The Secretary of Energy should convene a group to design and implement mechanisms for identifying intellectual assets, test facilities and research capabilities at national labs that can be useful to other government agencies.** These mechanisms would promote development of joint research and development projects within government and improve efficiency, consistency, and responsiveness.
4. **DOE should encourage laboratory managers to bid on Federal contracts and to apply for government grants that are within their technical capabilities. They should be encouraged to seek projects from program offices throughout government to optimize the use of local people and facilities.**
5. **Laboratory managers should also be encouraged to work more closely with the private sector on high priority R&D needs** and to bid for contract or cooperative work on such projects. The laboratories should be able to work on the projects either alone or in consortia with other laboratories, the private sector, and universities, where such cooperative arrangements foster unique blends of talent and resources. In bids for contract work for others, overhead costs of these laboratory activities must be fully recovered to assure that the DOE laboratories do not have an unfair competitive advantage, but managers should have flexibility concerning cost allocation and pricing comparable to the flexibility available to managers of private businesses in transition. Legislative and regulatory impediments that inhibit collaboration between the national labs and industry and universities should be

identified and removed.

6. **DOE, the contractors who manage the laboratories, and laboratory managers should work to make access to the laboratories' resources more accessible to the private sector, removing unnecessary layers of approval for cooperative R&D agreements and contract work-for-others, and taking other steps to simplify and speed up the process.**

Implications

Cost savings would result from program reductions as well as the closure of obsolete or redundant facilities and the sale or lease of excess functional equipment and facilities. DOE is not currently allowed to use the proceeds from the sale or lease of excess facilities and equipment to offset its continuing capital improvement needs. Legislation allowing them to do so is required.

Taxpayers return on investment in DOE's scientific and technical facilities would be improved by maximizing the use of national laboratory facilities.

The nation's ability to address its most critical technological challenges would benefit substantially. A formidable integrated resource would be mobilized to stimulate U.S. competitiveness in world markets. Increased use of cooperative partnerships and transactions with industry and universities would improve the connections between laboratory research, education, and the market place.

Disruption to DOE laboratory work forces and local communities due to defense program cutbacks would be minimized. The requirement for, and cost of severance pay would be reduced.

Fiscal Impact

Significant reductions in funding for research, development, testing and production of nuclear weapons are already included in current baseline budgets. Additional reductions

of \$400 million or more are being considered by DOE for the fiscal year 1995 budget.

The sale or lease of excess facilities and equipment could average \$20 million per year from 1995 through 1998.

DOE estimates that severance payments and other costs of laying off contractor employees averages about \$25,000 per employee. We assume that about 1,000 workers (who would otherwise be laid off) are retained to work on other projects of national significance in 1995 and 1996, thus saving \$25 million each year. Funding to retain these contractor employees would come from currently funded non-defense programs in DOE, from other federal agencies, and possibly from the private sector.

	Net Savings/Changes to Baseline					
	In Millions of Dollars					
	1994	1995	1996	1997	1998	Total
Budget Authority	0	445.0	445.0	420.0	420.0	1,730.0
Outlays	0	311.5	431.7	427.5	420.7	1,591.4
Change in FTEs	0	0	0	0	0	0

Endnotes

1. U.S. Department of Energy, *Budget Highlights FY 1994*, Hazel R. O'Leary, April, 1993, p.3.

2. Ibid., p.54.

SAVE COSTS THROUGH COGENERATION OF POWER

Background

Private sector construction of needed new power plants at government installations represents a cost-savings opportunity to the Federal Government. The Department of Energy (DOE) owns and operates under contract approximately 100 steam plants at production centers and national laboratory sites around the country. Most of the plants have been in operation for 40 or more years and are at or beyond the limits of their design lives. Many need either refurbishing or complete rebuilding. New, state-of-the-art gas or oil-fired cogeneration generators can operate up to 80 percent energy efficiency (producing both steam and electricity in the same operation) while the average, electricity-only generators operate at about 33 percent efficiency.¹ Refurbishing older electricity generators to improve performance, capacity, or burn alternative fuels can improve energy efficiency from five to ten percent.² Older plants use less efficient technologies which are more harmful to the environment and more expensive to operate than new, state-of-the-art facilities.

In the near term, the DOE must either expend considerable funds to refurbish or rebuild these steam plants or provide incentives to utilities and independent power producers in the electrical power industry (power providers) to rebuild and operate new plants for the DOE. Many power providers are eager to construct and operate new cogeneration plants (producing both electricity and steam) at government installations--at no cost to the government. Such projects offer profit-making opportunities for the power providers while providing both short-term and long-term savings for the government.

Under this arrangement, the DOE would "avoid" the costs of refurbishing or rebuilding the existing facility. In addition, the DOE would receive a cost savings of 10 to 25 percent on future steam and electricity bills, depending on fuel and other factors at each installation. In return for these services, the power provider would: (1) own and operate the facility for up to 25 years, (2) contract with the government facility to supply power and steam at lower rates than currently paid by the facility, and (3) sell any excess power to the local utility. The incentives of a long term government contract and the

opportunity to sell excess power off-site make such cogeneration projects potential profit making ventures for the power providers.

Power providers seek these opportunities because they are guaranteed a steady government customer for a long period of time and because the permit process to replace an old plant is less cumbersome than obtaining permits to build a new, stand-alone facility elsewhere.

The obstacle to securing such private sector initiatives is a provision in the 1986 Shared Energy Savings amendment to the National Energy Conservation Policy Act (NECPA).³ While the amendment provides the only government long-term contract authority (up to 25 years) at non-military government installations, one provision restricts power plants at those installations from selling excess electrical power off-site. However, it is the sale of excess capacity off-site that, in many cases, makes the venture economically viable for power providers. The restrictive legislation effectively prevents the private sector and the government from entering into such ventures. No new power plants using private sector investment have been built at non-military government installations since this restrictive legislation was enacted.

If the NECPA is amended to remove the restriction, the government would have the potential opportunity to obtain new power plants at no cost, and pay reduced utility bills. A Department of Energy (DOE) initial analysis of six aging government steam plants reveals the following potential savings in avoided construction costs: 1. if all six plants were refurbished--the least expenditure--the minimum estimated obligation would be \$183 million for the DOE, and 2. if all six were rebuilt--the maximum expenditure--the total estimated obligation would be \$735 million. Because of the age of the existing facilities, an expenditure somewhere in between these two figures must be obligated within the next ten years by the Federal Government. If the plants were built by power providers, that cost could be avoided.

Because the new power and steam is produced with high-efficient generators, the utility costs for the new power, spread out over 25 or 30 years, represents a considerable savings in electricity and steam costs. DOE estimates the long-term utility savings at the six sites would be approximately \$1 billion. The DOE believes that similar savings

potential is available at 11 other government installations that can be considered as potential sites for private sector investment in cogenerated power.

The window of opportunity for one site may have passed. The DOE's Savannah River Site (SRS) production facility is powered by a 37-megawatt (MW) electrical and steam power plant. The plant has high operating and maintenance costs and is operating beyond its 50-year design life. Refurbishment or rebuilding is needed now. In 1991, the local, regulated utility proposed construction of a larger power plant at the site at no cost to the government. The utility also would have provided substantial discounts in electricity and steam costs for 20 years. However, because the DOE could not allow the utility to sell excess power off-site, the utility withdrew its offer and has constructed a new plant elsewhere to meet its demand. It is estimated that the SRS project would have saved \$72 million in refurbishment costs--which are now included in the fiscal 1995 budget--and utility costs totalling more than \$200 million over 20 years. While another power provider may want to pursue such a cogeneration facility at SRS, such an opportunity may be lost because the demand for off-site power should be met by the utility's new power plant.

In a similar situation, the DOE's Richland Field Office received an unsolicited proposal from a private developer to build a power plant at the government's Hanford Reservation (Washington), a weapons research, development and production center. The proposal has the potential for saving as much as \$50 million in refurbishment costs in the short term (including \$11 million expended on partial refurbishment in fiscal year 1992) and at least \$360 million in energy bills over a proposed 30 year contract period. At present, the Richland Field Office has issued a request for proposals to construct a facility that would power only the Hanford Reservation and not sell excess power off-site. If bidding is unsuccessful, the \$50 million refurbishment will have to be obligated at least by fiscal year 1998. If the restrictive legislation is removed, a contract more beneficial to both the government and the private sector can be negotiated.

The restrictive language in the Shared Energy Savings provisions does not apply to military bases. Consequently, power providers are generating electrical power on at least nine military bases and selling that power to those installations and to their local utilities. The arrangement at the China Lake Naval Base in California is lucrative enough that the

contract generates approximately \$3.5 million annual savings for the Navy. By contract, the savings will increase steadily to approximately \$20 million annually after ten years. Although specific savings will depend on site-specific negotiations, the China Lake facility represents an example of further cost savings that might be negotiated through the shared energy savings program. There is no logical reason to preclude the Federal Government from pursuing shared energy savings opportunities with the private sector.

When the restriction was implemented, there was a general surplus of electrical power in the U.S. The restriction was supported by utilities as a way of circumventing the Public Utilities Regulatory Policy Act of 1978 (PURPA). PURPA requires utilities to purchase electricity from other power sources which meet certain cogeneration performance criteria. However, there is now a shortage of electrical power in several sections of the country and local and regional utilities are purchasing increasing quantities of power from privately constructed power plants.

Recommendation

Congress should amend section 804(2)(B) of Title VIII, the Shared Energy Savings amendment of The National Energy Conservation Policy Act to remove the restriction which limits the sale or use of cogenerated electricity to federally-owned facilities. If this restriction is removed, power providers would have an incentive to build and operate cogeneration power plants, at no expense to the government, at DOE and other non-military government installations. The DOE would have the option of refurbishing or rebuilding with government funds or avoid such construction costs by contracting with power providers. Removal of the restriction would not require that such work be undertaken through private sector initiatives. Rather, it would provide the government and the electrical power industry with the opportunity to work together for the benefit of the government, the industry and the taxpayer.

Implications

On a case-by-case basis, the government would have the option of avoiding the cost of renovating old, and constructing new, steam plants. The government would receive new plants at no costs. In addition, the government's costs for power and steam generated by new, energy-efficient, cogeneration technologies would be substantially less than the amount currently paid for steam and electricity used by the facilities. Cogenerated power would help meet the demand for electrical power in many utility service areas. Finally, new, state-of-the-art cogeneration plants are also less damaging to the environment because they use new generating technologies.

Shared energy savings contracts include provisional commitments from the government to purchase designated amounts of steam and electricity over the 25 year life of the contract. Because government policy could change the use of installations (expand, reduce or close), there may be instances when the power needs of the installation might change. Thus, a contingency clause should be negotiated in shared energy savings contracts to account for possible changes in power needs and reduce taxpayer liabilities.

Within the U.S. electrical power industry, utilities generally supported the restrictive legislation in 1986 when there was little or no demand for additional electrical power. However, many utilities now need additional power generated by independent power producers, and would support removal of the restriction. The independent producers support removal of the restriction as it provides them with increased market opportunities and stimulates industry growth.

Fiscal Impact

The cost to refurbish a facility can be as much as \$50 million. New plant construction, depending on the size, is estimated at over \$100 million. Whether and when a refurbishment or replacement is conducted depends on the condition of each existing steam plant and the power demand situation for the local utilities surrounding each installation. Only the Savannah River Site generator at \$72 million is obligated for fiscal year 1995. This amount must remain obligated as the facility cannot continue to operate safely without an upgrade. Refurbishment of the Hanford Reservation generator is not totally obligated at

present but must be upgraded before Fiscal 1998. These represent over \$120 million in direct costs to the federal government that could be saved through shared energy savings contracts for cogeneration facilities.

Indirect savings from reduced electricity and steam utility bills at these two facilities (over 25 to 30 year contract periods) can be roughly estimated at \$550 million.

Endnotes

1. J.N. Pestle, "Is Self-Generation for You," *1990 Cogeneration Project Handbook*, (Fairfield, Connecticut: Perquot Publishing), 1990, pp.6-14.
2. Office of Technology Assessment, *New Electric Power Technologies: Problems and Prospects for the 1990s*, OTA-E-246 (Washington, D.C.: July 1985), p. 26.
3. U.S. Congress, *Title VIII, Shared Energy Savings amendment to National Energy Conservation Policy Act*(42 U.S.C. 8201), P.L. 96-294, Sec. 804, "Definitions, For purposes of this subchapter, the following definitions apply: (2) The term "energy savings" means a reduction in the cost of energy, from a base cost established through a methodology set forth in the contract, utilized in an existing federally owned building or buildings or other federally owned facilities as a result of (B) the increased efficient use of existing energy sources by cogeneration or heat recovery, excluding any cogeneration process for other than a federally owned building or buildings or other federally owned facilities." U.S. Congress, 99th Cong., 2nd sess., 1986, Pub. L. 99-272.

SUPPORT THE SALE OF ALASKA POWER ADMINISTRATION ASSETS TO THE STATE OF ALASKA AND LOCAL UTILITIES

Background

The federal government markets power from its 129 hydroelectric projects throughout the United States through five Power Marketing Administrations (PMAs). These multi-purpose projects, constructed and owned by the Department of the Interior's Bureau of Reclamation and the U.S. Army Corps of Engineers for flood control, navigation, irrigation and more recently, for recreational purposes, generate 45 percent of the Nation's hydroelectric power as a by-product, which is sold by the PMAs to local public, private and cooperative utilities at cost. Supplemental power from these projects is provided to all but sixteen states.

Unique among the PMAs, the Alaska Power Administration (APA) owns, operates and maintains two hydroelectric projects, Eklutna and Snettisham. Not only are these two projects confined to local Alaska markets, but, unlike the other PMAs, the APA's single-purpose projects are not the result of a water resource management plan nor are they intended to remain indefinitely under federal government control¹. Instead, they were created to encourage and promote economic development and to foster the establishment of essential industries in Alaska by providing and encouraging the most widespread use of hydroelectric power at the lowest possible rates, consistent with sound business principles². It was for these purposes, rather than flood control, navigation, irrigation and recreation, that the 30 megawatt (MW) Eklutna project was built in 1955 to serve the Anchorage and Matanuska Valley areas, and the 78MW Snettisham project was constructed to serve Juneau in 1975.

To date, the two projects have served their original purposes well³. Findings indicate that not only have they provided widespread, relatively low cost, long term supplies of renewable energy to the areas served and recovered the federal costs as intended in the authorizing legislation, but economic and industrial development has occurred to the point where their role in the state as major providers of electric power has greatly diminished. Together, these projects provide only about eight percent of the total energy

requirements of Alaska's electric utilities. Individually, the Eklutna project provides about five percent of the power needs in its market area and Snettisham provides eighty percent of Juneau's power requirements⁴

These findings indicate that the time for the federal government's divestiture of these projects is ripe, since the goals as originally intended have been met. It is no longer necessary for the federal government to operate a small, separate power program in Alaska⁵ because: 1) the projects fill a small market niche; 2) economic and industrial development of the regions served has evolved as planned; 3) other providers have emerged that can provide and serve the region's needs; and, 4) the state and local electric utilities are poised to manage the projects in a manner consistent with Alaska's future energy and development needs. It is against this backdrop that divestiture of the APA projects must be reviewed.

Although informal discussions of divestiture date back many years, it was not until 1986 that the formal proposal first appeared in the budget. Subsequent to this, a public comment process resulted in invitations of proposals to purchase the projects being extended in the spring of 1987 to electric utilities served by the APA projects. In response to solicitations requests, the Alaska Energy Authority proposed to purchase the Snettisham Project, while three utilities, the City of Anchorage, the Matanuska Electric Association and the Chugach Electric Association, submitted a joint proposal to purchase Eklutna. Finding both perspective purchasers well qualified to own, operate and maintain the projects, the APA moved forward to draft purchase agreements.

The APA and the proposing parties negotiated the purchase agreements which set forth the terms, conditions and responsibilities of each party for the orderly sale and transfer of the projects. The final agreements, signed in 1989 have been amended twice to extend the purchase deadline to February, 1995. They reflect great care and deliberation to incorporate and address, to the extent possible, all views and concerns of interested parties to ensure a balance between federal taxpayers, federal agencies affected, state and local utilities, and retail customers. As a result, the divestiture proposal has widespread support.

Since the initiation of the proposal, the Alaska Congressional delegation⁶, three governors⁷, local officials, the utilities, DOE, OMB and the House Appropriations

Committee⁸ have supported the divestiture proposal. The only matter pending for the purchase agreements to take effect is for authorizing legislation to be enacted. HR 5516 was introduced but was not considered by the 102nd Congress. Current plans call for a similar bill to be presented to Congress this summer. Failure to pass the bill will result in the status-quo and perpetuate the current administratively inefficient federal operation of these two projects.

Recommendation

Congress should enact legislation the same as, or similar to, HR 5516 prepared for the 102nd Congress that authorizes the sale of the two Alaska Power Administration projects in accordance with the previously-negotiated purchase agreements.

The sale of the APA assets will result in the transfer of approximately \$80 million to the U.S. Treasury. This amount represents approximately 95 percent of the present value of the interest and principal payments the government would receive under continued federal ownership. The government would no longer be responsible for staffing and for funding the operation, maintenance, repair and replacement costs of the two projects, and would avoid potential future claims and liabilities, such as the 1964 earthquake damage to Eklutna⁹.

Implications

The public process leading to the purchase agreements was conducted in a manner that ensured that the views of all interested parties were heard and, to the extent possible, accommodated and reflected in the current purchase agreements. Nevertheless, the General Accounting Office (GAO), some members of Congress and public power interests may raise concerns once the legislation is re-introduced.

GAO's objections center around the fact that the sale price is "negotiated" rather than market based. While this would certainly result in an increase in the asking price, it would do so at the expense of Alaska ratepayers and stakeholders¹⁰, and raise objections from members of Congress who argue consistently that the government should not make a

profit from the sale of such government property. In objecting to market rate studies of PMA electrical power,¹¹ Congress has indicated that these public facilities should provide services at the lowest possible cost to consumers, consistent with sound business principles. Selling at market price would defeat this purpose: rates charged to consumers would increase substantially to enable the buyers to recover the market based selling price.

Some public power interests are concerned that the APA sale will establish a precedent and lead to the sale of other PMAs assets. This concern is unfounded since the APA's unique situation cannot be considered as precedent setting for other PMAs. Instead, divestiture of the APA should be viewed as a unique situation which supports the concept of identifying unique circumstances where divestiture is beneficial to both the federal and state governments, and affected local sectors. Another concern of the public power interests is that public utilities and cooperatives be given preference in any such sale of PMA assets. In the case of the APA, the purchasers are either public power utilities or rural electric cooperatives, all of which have a history of effectively serving the regions of the APA projects.

While opposition to the sale has been voiced mildly by different stakeholders, the current terms and conditions are expected to be approved by Congress. On the whole, there should be minimal opposition to the sale and transfer of these projects. By all measures, the time to divest is ripe. Studies indicate that the state and the local power utilities can operate and maintain the projects and align their management in a manner consistent with Alaska's energy needs and future growth requirements.

Fiscal Impact

The federal government will be relieved of the responsibility of owning and operating two small, isolated hydroelectric projects in Alaska and of any liabilities for future maintenance, equipment replacement, and claims. Equally important, proceeds from the sale will recover nearly 95% of the present value of the original federal investment in the APA projects and prescribed interest (estimated between \$73.5 and \$80.3 million, depending on certain conditions when the sale is approved), and foregone annual revenues of approximately \$10 million, will be nearly off-set by the avoidance of annual

expenditures averaging \$4 million for management and operations, and \$6 million in principal and interest on the outstanding debt on these two projects:

Table I (millions)

	1994	1995	1996	1997	1998
Revenue ¹²	10.24	-10.47	-10.71	-10.39	-10.48
Proceeds from Sale ¹³	80.27				
Total Revenues	90.51	-10.47	-10.71	-10.39	-10.48
Expenses:					
O & M ¹⁴	4.01	4.01	4.01	4.01	4.01
Transfer Cost ¹⁵	1.90				
Principal ¹⁶		1.81	1.92	1.73	2.06
Interest		4.87	4.82	4.82	4.72
NPV P& I ¹⁷	81.42				
Total Expenses	87.33	10.69	10.74	10.56	10.79
Revenue - Expenses	4.18	- .22	- .03	- .17	- .31

In designing a "break even" or "cost recovery" sale of these two projects, the federal government meets two goals: first, it optimizes on the taxpayers' interests by recovering nearly all of the original investment, and second, it addresses the consumers' concerns that hydroelectric power continue to be provided without a significant increase in rates.

The fiscal impact of the sale of these two projects will be as follows:

	In Millions of Dollars				
	1994	1995	1996	1997	1998
Budget Authority	\$ 0.00	\$ 3.85	\$ 3.99	\$ 4.12	\$ 4.26
Outlays	\$ 0.00	\$ 3.81	\$ 3.94	\$ 4.07	\$ 4.21
Revenues*	\$ 0.00	\$-10.47	\$-10.71	\$-10.39	\$-10.48
Change in FTEs	0.00	-35.00	-35.00	-35.00	-35.00

The figures presented do not include future maintenance or repairs to the hydroelectric equipment, the dams, or to the infrastructure of transmission facilities and power lines, which is estimated to be approximately \$5,040,000 between fiscal 1994 through 1998.¹⁸

Endnotes

1. *Eklutna Project Act of July 31, 1950*, P.L. 81-628, 64 Stat. 382 (1950).
2. Ibid.
3. Letter from Secretary Hazel O'Leary, Department of Energy, to Chairman George Miller, House Committee on Natural Resources, July 2, 1993.
4. Alaska Power Administration, U.S. Department of Energy, *Sale of Eklutna and Snettisham Hydroelectric Projects*, Divestiture Summary Report, (Juneau, Alaska, April 1992), p. 1.
5. Letter from Secretary Hazel O'Leary, Department of Commerce, to Chairman George Miller, House Committee on Natural Resources, July 2, 1993.
6. Letter from Secretary Hazel O'Leary, Department of Energy, to Alaska Congressional Delegation, March 4, 1993.
7. Letter from Governor Walter J. Hickel, to Secretary Hazel O'Leary, Department of Energy, March 15, 1993; and Letter from Governor Steve Cowper, to Secretary Watkins, Department of Energy, April 20, 1990.
8. House Appropriations Committee, Report 103-105 to accompany H.R. 2445, Energy and Water Development Appropriations Bill, June 17, 1993, p. 129.
9. Eklutna Project, Alaska-Rehabilitation (P.L. 90-523, 82 stat. 875).

10. Letter from Executive Director Ronald A. Garzini, Alaska Energy Authority, to Secretary Hazel O'Leary, Department of Energy, May 19, 1993.

11. *Joint Resolution Making Continuing Appropriations for fiscal year 1983*, Section 166, P.L. 97-276, 96 Stat. 120 (1983).

12. Four year revenue estimates used in FY 1995 budget preparation, based on 1992 repayment studies.

13. Eklutna sales price is fixed at 8,818,000 and Snettisham is estimated between 64,741,000 and 71,456,000, depending on the current revenue bond rate, estimated between 6.5-7.5%. Estimate is made for sales transaction date of October 1, 1993.

14. 1994 Operating and maintenance budget is \$4,010,000. For the purpose of this paper, it is kept constant throughout the five years.

15. Alaska Power Administration, U.S. Department of Energy, *Sale of Eklutna and Snettisham Hydroelectric Projects*, Divestiture Summary Report, (Juneau, Alaska, April 1992), p. 35.

16. FY 1992 Alaska Power Administration power repayment study for Eklutna and Snettisham projects.

17. Net Present values (NPV) for principal and interest (P& I) is derived by adding the remaining principal and interest payments on both projects and discounting them by 7.9%.

18. Replacement costs based on Alaska Power Administration investment replacement estimates, July 16, 1993.

Section III

Agency Reinvention Activities

DEPARTMENT OF ENERGY REINVENTION ACTIVITIES

Secretary Hazel O'Leary came to office January 22, 1993, bringing to the Department extensive private-sector experience in market dynamics and quality management. She has placed strong emphasis on results, strategic planning, workforce empowerment and customer satisfaction. In response to the Administration's commitment to change, Secretary O'Leary leads the Department of Energy (DOE) as an active participant in the reinvention activities of the National Performance Review (NPR).

Getting Started and Motivating Participation

In an interactive Town Hall meeting at Department of Energy (DOE) headquarters, broadcast live via satellite to 40 DOE sites nationwide, Vice President Gore stated that DOE "has been leading the way" in efforts to make the federal government more efficient and effective in the way it does business.

As part of her emphasis on improving the department, in February Secretary O'Leary established 15 teams, called Priorities Teams, to take a hard look at the critical issues that are important to the future of the department. The teams, which include members from across the department, are addressing management, process and technical policy issues. These teams will report their progress to the Secretary in September.

On March 4, 1993, Secretary O'Leary announced a new organizational structure for DOE geared to achieve the Clinton Administration's energy, environmental, and economic objectives for a changing world. The new focus is on developing clean energy sources to meet the needs of the economy while protecting the environment, transferring technologies from laboratories to the private sector to enhance U.S. competitiveness, and cleaning up former weapons production facilities to protect public health and safety. "Our goal," the Secretary said, "is to carry out our piece of the promise President Clinton brought with him into office: to reinvent government to make it responsible, accountable, and cost effective and to put the public's interest first."

On May 10, in a department-wide Town Hall meeting, Mrs O'Leary shared her vision on how quality management and a quality culture would be used throughout the

department to achieve DOE's new priorities.

Secretary O'Leary headed a "class" of 60 department executives including laboratory directors, all field operations managers, and key program managers at a July 8-10 training session. The objective of the training program was to begin the process of building a DOE management and leadership team dedicated to meeting the expectations of their stakeholders and customers by providing quality products and services in a timely manner, and at a reasonable cost. The overall goal was to develop a plan for reinventing the DOE enterprise by applying key quality management principles.

Evolving from teamwork and town meetings, the elements of a strategic planning process for the department that addresses long-term as well as short-term needs were formulated. The long term strategy includes two key groups that will lead the department into the future: the Leadership Group and the Quality Council.

The Secretary is the active chairperson of the Leadership Group. Senior managers from throughout the DOE complex are members of the group. The Leadership Group was formed to promote implementation of quality management in the department. Specific responsibilities include: (1) promoting the department's strategic direction; (2) committing required resources to the process of quality improvement, customer satisfaction, and work force empowerment; (3) establishing policy to support quality and process improvement initiatives; (4) overseeing the activities of the Quality Council by evaluating, recommending, approving and implementing proposals; (5) supporting the development of department-wide performance measures; (6) modeling the department's core values in all aspects of work; and (7) coordinating implementation of the National Performance Review (NPR) and the DOE team activities.

The Quality Council is a diverse group of 27 employees selected from all levels and organizations in the department. The Quality Council's objective is to design and develop the department's quality implementation plan. In this capacity, the Quality Council will provide advisory support and coordination for all quality activities in the department.

A direct result of this introspective evaluation and strategic planning is a substantial change to the department's organizational structure. The new structure, adopted June 10, 1993, is designed to emphasize the new focus of the department. The organization

will meet the new challenges set forth by President Clinton by stressing energy security, sustaining the environment, and boosting economic growth. The department is now organized in functional clusters that include energy programs, science and technology programs, and weapons and waste clean-up programs.

Reinvention Laboratories (Labs)

Secretary O'Leary's request for candidate reinvention labs received enthusiastic response. Among many candidates, the six programs described below are being developed under the NPR auspices. Others are planned for development after September 7, 1993. The labs are ongoing projects to improve program and management operations, using basic reinventing government principles.

Reinventing the Federal/State/Local Partnership for Energy Efficiency and Renewable Energy Laboratory (Lab)

The Office of Energy Efficiency and Renewable Energy (EE) is sponsoring a DOE reinvention lab on "Reinventing Federal/State/Local Partnerships." The mission of this pilot project is to broaden DOE's network of external stakeholders, to increase understanding of EE's capabilities and goals, and to invent better partnerships. Three specific activities are the focus of this reinvention lab: (1) involve stakeholders earlier and more completely in strategic, multi-year, annual operating and budget planning; (2) to invent more effective and flexible ways to implement state and local provisions of the Energy Policy Act of 1992; and (3) to build stronger public/private collaborations to deploy new energy efficiency and renewable energy technologies in the marketplace.

The lab will employ a two-step strategy to open dialogue with its customers on how partnerships should be reinvented. The first step was the creation of an ad hoc "Core Stakeholders Committee" to serve as a gateway to a larger universe of customers. The committee includes representatives of the DOE, plus senior managers representing 16 stakeholders organizations.

The committee first met July 27-28, 1993, at the National Renewable Energy Laboratory in Golden, Colorado, to develop three products: (1) a list of changes the EE

and the stakeholder group must make to improve their partnerships; (2) ideas and mechanisms that stakeholders and the EE should pursue for future partnerships; and (3) performance measures that EE and its customers will use to determine whether the reinvention lab has succeeded.

The Reinvention Lab on Federal/state/local partnership is designed to foster a frank and open dialogue between the EE and its stakeholders. It also should broaden the EE's list of stakeholders in order to explore new partnerships for technology deployment.

The EE anticipates that the outcome of the two-step process will be a candid and thoughtful list of recommendations on the cultural and procedural changes needed in the department to deal with state and local governments, industry, and private organizations more effectively, and, in partnership with them, to more effectively execute the DOE's programs.

National Clean Industry Initiative (Lab)

U.S. industry generates nearly 11 billion metric tons of waste each year and roughly one ton of waste each week for every American citizen. One estimate indicates that U.S. industries produce approximately five times more waste per dollar of goods sold than Japanese companies, and more than twice as much as German companies. While posing a significant environmental threat, this waste also represents a costly drain on our economy and our natural resources. It signals the inefficient use of energy and materials -- inefficiencies that contribute to our rapidly eroding ability to compete internationally. In addition, it signals inefficiencies that may eventually shut out some international markets: the European Commission recently identified "green product" standards as one of the fastest-growing kinds of non tariff trade barriers. As the world's population and output continue to grow, so will the economic opportunities associated with developing clean, efficiency technologies and industries.

Against this backdrop, the United States is in the process of increasing the general productivity and competitiveness of its industrial base. The Administration has recently announced an aggressive technology policy to accomplish this. Several bills have been introduced which are designed to increase the competitiveness of U.S. industry -- expanding

on the core capabilities and assets of various federal agencies, including the DOE. Environmental considerations and environmentally conscious manufacturing are integral to the Administration's plan and the proposed legislation.

Realizing the specific goal of clean industry will require leadership that stresses integrated policies, strategies and plans that recognize the crosscutting, multi-dimensional nature of this objective. The core capabilities exist in many agencies, most notably the DOE, the Environmental Protection Agency and the Department of Commerce. These resources must be pooled and directed in a way that provides seamless, transparent services and support to U.S. industry -- the ultimate end users. Additionally, the problem is not just one of technology, it is one of market incentives, regulations, the business environment, public attitudes and values, corporate "mind set," international markets, trade barriers, educational and skill levels in the work force, technical assistance, finance and communication. These are all areas where the Federal Government can and must exert major positive influence. This influence must be coordinated and managed as a single system under guiding national environmental and economic principles and policies. The need for a national clean technology initiative is compelling. It pulls together the pieces under a guiding framework and synthesizes the combined efforts of the major stakeholders.

One of the three major goals of the current Administration's technology policy is to promote long-term economic growth that creates jobs and protects the environment. A National Clean Industry Initiative that integrates and expands on existing federal and state efforts would provide exactly this kind of stimulus. By accelerating the development of innovative clean manufacturing technologies and processes, DOE can make the U.S. industry more competitive, encourage the U.S. leadership in a new generation of "green" commercial products, and reduce the impact of economic growth and human consumption on environment.

Reinventing Government at Hanford Reservation (Lab)

After 45 years of serving the nation's defense production needs, the end of the Cold War has allowed the Hanford site (Richland, WA.) to move from a defense weapons production site to an environmental cleanup site. Also it is changing from a closed and

secretive government organization to an open and interactive partnership between government, industry, and community focused initially on cleanup and ultimately on economic viability.

The Hanford reinvention lab has focused initially on two key activities. One is the peeling back of the multiple layers of defense security built up during 45 years of weapons production. The second is the creation of an economic trade environment at Hanford, encouraging entrepreneurs and the private sector to use the laboratories and site operations to develop new technologies.

The reinvention approach to economic transition at Hanford is community based, not government based. Hanford has joined the existing local and regional economic development entities and sets policies jointly with outside partnerships. A Northwest Economic Cabinet was formed between the DOE's Richland Operations Office and the directors of trade and commerce from Washington, Oregon, and Idaho state governments. The cabinet will develop broad economic issues and coordinate specific business opportunities as the site changes from a government to a private facility.

To date, the economic transition activities have saved over \$22 million and created new private sector jobs in the local community. Cleanup milestones have been accelerated and inactive DOE facilities have been put back into economic use. The government has been proactively supporting local economic diversification while conducting its own cleanup business.

Real-Time Access to Oil and Gas Information (Lab)

There is an effort being undertaken by the Energy Information Administration's Office of Oil and Gas to find new avenues to make oil and gas data and information more readily available to a broader constituency. Early efforts will concentrate on developing an interagency cooperative program with the Department of Commerce to use its Economic Bulletin Board and Internet link. (This approach will enable DOE to use an existing network at minimal cost. It represents a synergistic link between the energy information being provided and the economic data provided by the Department of Commerce.)

The information system comprises approximately 100 documents that detail the domestic petroleum and natural gas industries including reserves and extraction from the ground, importation, ultimate consumption or exportation. The system will be running by September, when the reinvention experiment is to start. Two important advances reflected in this system are: (1) it presents an integrated representation of domestic oil and gas; and (2) it is available electronically, in machine readable form, rather than paper.

As part of the reinvention lab experiment, the Office of Oil and Gas plans to carry out user response and marketing surveys to determine the extent of use, characteristics of the user community, and success of the information system in meeting the user's needs and requirements. The customer base includes state and local governments, congressional offices, other federal agencies, industry and economic planners, consultants, academics, and other members of the public who need integrated into "information" and made available on line.

Declassification of Information (Lab)

The DOE and its predecessor agencies have a long history of classifying nuclear weapons-related information for valid national security reasons such as minimizing nuclear proliferation. Withholding classified information from potential nuclear proliferants inevitably withheld it from the public. Beginning in World War II and throughout the Cold War period that followed, tens of millions of documents were so classified in support of the U.S. nuclear weapons program.

Today, as a result of the dramatic changes over the last few years in the international arena, much information in classified documents no longer warrants classification and could be released to the public. Additionally, unclassified information is often intermingled with nuclear weapon technology that is still very sensitive. For example, a document may contain unclassified information relevant to environmental, safety, and health concerns yet still contain legitimately classified technology that no one would want to see fall into the hands of a proliferant group or country.

The real-time access to oil and gas information system will provide weekly, monthly, and annual oil and gas information and will be updated as appropriate. It will be

available to the 10 million members of the world wide Internet community as well as the 35,000 monthly users of the bulletin board. Currently the data are not integrated to a single information system.

As a result of new domestic objectives, the classification culture of the DOE must be expanded beyond its traditional national security focus to include new areas such as environmental restoration, worker radiation dose reconstruction and technology transfer. The DOE's customers, broadly defined as "the public," a large constituency ranging from off-site neighbors, environmental researchers, historians and science and industry workers, to state and other federal personnel, must have access to the information they need in these areas. In order to meet these new mission objectives, the DOE must take radical steps away from its old way of doing business. The document declassification review process itself must be made more effective and efficient to get the needed information into the customers' hands as soon as possible. In addition, we must review the policies underlying that vast amount of restricted data information which we now regard as classified.

Bonneville Power Administration: Implementing a Business Model for Power Marketing Operations in the Pacific Northwest (Lab)

For the entire 55 years of its existence, the Bonneville Power Administration has taken a one-size-fits-all approach to meeting the needs of its customers in the Pacific Northwest. Increasingly these customers--all 130 electric utilities and a number of large industries in the region--have asked Bonneville to be more customer focussed, market-driven, cost-conscious, and results-oriented. Bonneville supplies half the electricity and 80 percent of the high voltage transmission capacity in the region.

Bonneville's management volunteered as a DOE reinvention lab and launched "The Competitiveness Project." The aim of the project is four-fold: (1) develop a new marketing strategy that would offer a wide array of power and transmission products tailored to the different desires and business plans of Bonneville's customers; (2) streamline, realign and downsize Bonneville's internal systems to reduce costs, increase responsiveness to support the new marketing approach; (3) change the organization from

government to a business-oriented management style; and (4) change to a government corporation.

Looking Ahead

The DOE has found strong, early enthusiasm among its customers, plus a need to demonstrate to them that the current Administration and the department are committed to reinvention, even when reinvention demands fundamental, cultural and procedural changes.

The strategic planning process at the DOE has accomplished much to set the direction for the future. The department has agreed on a mission statement and a set of core values to guide the department's future service to the nation. External trends have been identified that are most likely to shape the environment in which the department operates a decade from now. The next steps in the strategic planning process will be to develop strategies and action plans to respond to those externally driven trends.

The Federal/state/local Partnership for Energy Efficiency and Renewable Energy Lab anticipates that this partnership will lead to a better understanding between the DOE and its stakeholders about the forces that influence their behaviors. Also the lab will help identify new stakeholders who are critical to successfully commercializing new energy technologies.

The National Clean Industry initiative, lead by the Cabinet Cluster on Energy, Environment, and Natural Resources, would effectively respond to the Administration's new criteria for the U.S. investments in advanced technology by: (1) Strengthening America's industrial competitiveness and creating jobs; (2) creating a business environment where technical innovation can flourish and where investment is attracted to new ideas; (3) ensuring coordinated management of technology all across government; (4) forging a closer partnership among industry, federal and state government workers and universities; and (5) redirecting the focus of our national efforts toward technologies crucial to today's business and a growing economy, such as information and communication, flexible manufacturing and environmental technologies.

Private sector involvement at Hanford will save hundreds of millions of dollars while establishing a business and job base that will flourish in a post cleanup era.

Cooperative efforts between the community, organized labor, industry and the DOE will create thousands of new private sector jobs to clean up the base.

By 1995, this example of rethinking government is expected to reduce the Hanford security budget by at least one-third of the fiscal year 1992 level. Savings will be returned to programs and will be used in the environmental cleanup of the Hanford site. The security transition is attempting to assure that the process of change becomes part of the Hanford culture. To the extent that the security transition succeeds, it holds out hope for additional changes to the ongoing programs and projects at the site that will complement the privatization efforts of the economic transition.

Bonneville managers see their efforts as a first of its kind attempt to establish strategic business objectives in the Pacific Northwest. Its industrial customers see this as a "radical turn" in its management, and have said that 10,000 jobs are at stake, including one third of the nation's aluminum smelting capacity.

Times have changed, less information merits the protection of classification and, therefore, classification itself at the DOE needed to be reinvented. Bureaucratic obstacles to efficiency must be overcome (for example, improving government coordination and streamlining the information declassification process). State-of-the-art information processing technology must be developed and utilized to increase productivity and better serve our customer base (both external and internal).

In view of the above, and in response to the opportunities afforded by the Vice President's and the Secretary's initiatives, a multi-faceted plan has been initiated in order to move the DOE from the past to a new era. An era that recognizes the importance of serving customers, increasing productivity, and providing the tools and incentives to focus on results.

The DOE has begun a reinvention process that will continue far beyond delivery of the NPR report to the President. With enthusiastic leadership from the Secretary, and an energized, empowered work force, the DOE is on its way to becoming an agency that sets the trend for enthusiastic and effective service to the nation.

Section IV

Fiscal Impact Summary

DEPARTMENT OF ENERGY
FISCAL IMPLICATIONS SUMMARY

CHANGE IN BUDGET AUTHORITY
Numbers in Millions

Ch. Ref.	Recommendation	Fiscal Year							Change in FTEs
		1994	1995	1996	1997	1998	1999	CUM	
DE 1	Improve Environmental Contract Management	*							
DE 2	Incorporate Land Use Planning in Cleanup	*							
DE 3	Make Field Facility Contracts Outcome-Oriented	\$0.0	\$60.0	\$90.0	\$120.0	\$150.0	\$0.0	\$420.0	1,000.0
DE 4	Increase Electrical Power Revenues and Study Rates	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	0.0
DE 5	Strengthen the Federal Energy Management Pgm	*							
DE 6	Redirect Energy Laboratories to Post-Cold War	\$0.0	\$445.0	\$445.0	\$420.0	\$420.0	\$0.0	\$1,730.0	0.0
DE 7	Save Costs through Power Cogeneration	\$0.0	\$72.0	\$10.0	\$10.0	\$10.0	\$10.0	\$112.0	
DE 8	Support Sale of Alaska Power	\$0.0	\$3.9	\$4.0	\$4.1	\$4.3	\$0.0	\$16.3	(35.0)
	Total, Department of Energy	\$0.0	\$580.9	\$549.0	\$554.1	\$584.3	\$10.0	\$2,278.3	

CHANGE IN OUTLAYS
Numbers in Millions

Ch. Ref.	Recommendation	Fiscal Year							Change in FTEs
		1994	1995	1996	1997	1998	1999	CUM	
DE 1	Improve Environmental Contract Management	*							
DE 2	Incorporate Land Use Planning in Cleanup	*							
DE 3	Make Field Facility Contracts Outcome-Oriented	\$0.0	\$36.0	\$78.0	\$108.0	\$138.0	\$0.0	\$360.0	0.0
DE 4	Increase Electrical Power Revenues and Study Rates	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	0.0
DE 5	Strengthen the Federal Energy Management Pgm	*							
DE 6	Redirect Energy Laboratories to Post-Cold War	\$0.0	\$311.5	\$431.7	\$427.5	\$420.7	\$0.0	\$1,591.4	0.0
DE 7	Save Costs through Power Cogeneration	\$0.0	\$37.0	\$10.0	\$10.0	\$10.0	\$10.0	\$77.0	
DE 8	Support Sale of Alaska Power	\$0.0	\$3.8	\$3.9	\$4.1	\$4.2	\$0.0	\$16.0	0.0
	Total, Department of Energy	\$0.0	\$388.3	\$523.6	\$549.6	\$572.9	\$10.0	\$2,044.4	

CHANGE IN REVENUES
Numbers in Millions

Ch. Ref.	Recommendation	Fiscal Year							Change in FTEs
		1994	1995	1996	1997	1998	1999	CUM	
DE 1	Improve Environmental Contract Management	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	0.0
DE 2	Incorporate Land Use Planning in Cleanup	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	0.0
DE 3	Make Field Facility Contracts Outcome-Oriented	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	0.0
DE 4	Increase Electrical Power Revenues and Study Rates	\$432.0	\$484.0	\$529.0	\$547.0	\$609.0	\$0.0	\$2,601.0	0.0
DE 5	Strengthen the Federal Energy Management Pgm	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	0.0
DE 6	Redirect Energy Laboratories to Post-Cold War	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	0.0
DE 7	Save Costs through Power Cogeneration	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	0.0
DE 8	Support Sale of Alaska Power	\$0.0	(\$10.5)	(\$10.7)	(\$10.4)	(\$10.5)	\$0.0	(\$42.1)	0.0
	Total, Department of Energy	\$432.0	\$473.5	\$518.3	\$536.6	\$598.5	\$0.0	\$2,559.0	

* NPR expects that there will be substantial fiscal benefits, some being indirect. Nevertheless, no specific estimates are presently available.

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**NATIONAL PERFORMANCE REVIEW
AGENCY TEAMS
ISSUE DECISION PACKAGE**

TEAM: Science & Technology

Date: August 5, 1993

Issue No.	Issue Title	5-Year Impact (Million \$)	NPR Team Position	Agency Position	Action from Tollgate 4 Meeting
1	Improve Environmental Contract Management	*	The Environmental Restoration and Waste Management Program (EM) now comprises one-third of the DOE budget and is estimated to cost \$200 billion over 30 years. The EM program has produced little return for the large sums spent. DOE must make fundamental changes to the way in which it provides for these activities.	DOE concurs.	
2	Incorporate Site-Wide Land Use Planning into Cleanup	*	In assessing the risk posed by contamination, DOE assumes unrestricted residential land use. This is not always reasonable. In addition, DOE has traditionally undertaken too little cooperation with local authorities in conducting cleanup. DOE should seek legislative changes and take other initiatives to work closely with local authorities and establish reasonable cleanup objectives and strategies at the outset of cleanup projects.	DOE concurs.	
3	Make Field Facilities Contracts More Outcome-Oriented	\$420m	To manage each of its large weapons labs, production plants and multi-purpose sites, DOE uses management and operations (M&O) contracts that give the contractors a dominant role. M&O contracts amount to \$16 billion annually and employ about 140,000 people. These contracts have been criticized for poor business management and inadequate cost accounting. DOE must improve contracting for these sites. This includes goal-setting, management accountability, lab competition and standard financial systems.	DOE concurs with the need to revise the management structure for these facilities. DOE has formed a contract reform task force, which will report its results in December 1993.	

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TEAM: Science & Technology

Date: August 5, 1993

Issue No.	Issue Title	5-Year Impact (Million \$)	NPR Team Position	Agency Position	Action from Tollgate 4 Meeting
4	Increase Revenues from Electric Power Sales and Study Rates	\$609m	The federal government owns and operates nearly 130 dams that control river flows, create navigable waterways, provide for recreation areas, and generate hydro-electric power. DOE sells the power through Power Marketing Administrations (PMAs) by law at the lowest possible rates to consumers. This amounts to a subsidy available to the electricity customers served by PMAs in 34 states. DOE should authorize PMAs to enter into energy savings programs with subscriber utilities, set new rates to recover full operating costs and remove legislative restrictions against studying and reporting on comparable market rates.	DOE concurs with the technical merits of the proposal but notes that this issue is highly controversial. The reinvention lab at Bonneville Power is seeking to establish variable rates for its customers and feels that this proposal would undermine customer confidence.	
5	Strengthen the Federal Energy Management Program	*	The Federal Energy Management Program (FEMP) was established in 1974 to help federal agencies in implementing energy conservation. This undertaking has not received high priority, and the federal government will not reach the required 20 percent reduction in energy consumption unless FEMP is empowered to complete its mission. DOE should upgrade the program's management status, budget priority and staffing.	DOE concurs.	

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NATIONAL PERFORMANCE REVIEW
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Issue No.	Issue Title	5-Year Impact (Million \$)	NPR Team Position	Agency Position	Action from Tollgate 4 Meeting
6	Redirect the Mission of DOE Lab, Production and Testing Facilities	\$1,730m	The U.S. has sharply curtailed its programs to develop and produce nuclear weapons. The large facilities established for these purposes must be redirected to ensure coverage of remaining defense-related, missions, preservation of contingency capacities, and use of these scientific and technical assets, as appropriate, to support post-Cold War national priorities. DOE should continue reductions to meet current defense requirements; review and recommend consolidation or closure of facilities as appropriate; in consultation with OSTP and others, determine assets that may be applied to competition for work with other government agencies. DOE should encourage appropriate availability of lab assets to the private sector.	DOE concurs.	
7	Save Costs Through Cogeneration of Power	*	DOE owns and operates under contract about 100 steam plants at sites around the country. Most have been in operation for 40 or more years and are reaching the limit of their design lives. DOE should seek removal of legislative restriction which limits the sale or use of cogenerated electricity to federally owned facilities. This will provide private power companies an incentive to build and operate these plants at no expense to the government. The government will also save on utility bills, because new, efficient generators will produce the electricity at lower cost.	DOE concurs.	

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[illegible]

* Significant fiscal benefits can be anticipated from these measures, but they have not yet been fully defined.