United States General Accounting Office

GAO

Resources, Community, and Economic Development Division

148891

April 1993

Energy and Science Reports and Testimony: 1992

GAO/RCED-93-131

Foreword

Energy and science concerns remain at the forefront of significant national issues. The continuing dependence on imported oil, the staggering costs that will be required to clean up the nuclear weapons complex, and the expectations for science and technology to improve the nation's ability to compete globally are among the energy and science concerns that are intertwined with current efforts to address the federal budget deficit and improve the nation's economy. Because of this, energy and science will play key roles in public policy decisions for the foreseeable future.

During 1992, the U.S. General Accounting Office (GAO) issued reports related to these and other energy and science issues. Highlights of GAO's work include:

- Science and Technology. Widespread overcharges for indirect costs (or overhead) were being incurred on federally funded research at universities. As a result, federal actions must be taken to limit overhead costs and simplify the overall reimbursement system. (See p. 50.)
- Managing the Department of Energy (DOE). DOE does not have an effective system to ensure that uncosted (unspent) obligations are analyzed as part of its budget formulation process. DOE ended fiscal year 1991 with about $9.7 billion in uncosted obligations—a 45-percent increase since fiscal year 1989—but does not know the extent that these funds may be used to reduce future appropriation requests. (See p. 35.)
- Energy Supply and Demand. Six policy options could be pursued to reduce gasoline consumption and air pollution. However, relying on just one option could be difficult and costly; consequently, a strategy incorporating the best designs of each policy option is preferable. (See p. 22.)
- Nuclear Waste. A program to build facilities to dispose of high-level wastes stored in tanks at the Savannah River Plant in South Carolina is now 5 years behind schedule and expected to cost $4 billion. Moreover, DOE needs to assess and compare alternative technologies to determine if it should accelerate efforts to replace existing technology. (See p. 9.)

This annual index includes information on these and other GAO documents directly related to energy and science that were issued between January and December 1992. This index should be useful for general information and research purposes and for understanding the energy and science issues that GAO is addressing.

Questions can be directed to me at the U.S. General Accounting Office, Room 1842, 441 G Street, N.W., Washington, D.C., (202) 512-3841. Readers interested in ordering documents or in requesting bibliographic searches

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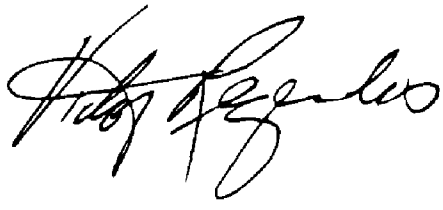

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Energy and the Environment

Energy and the Environment

Nebraska Low-Level Waste

GAO/RCED-93-47R, 10/14/1992

Pursuant to a congressional request, GAO provided information on the site selection for a low-level radioactive waste facility in Nebraska, focusing on the Boyd County Low-Level Waste Monitoring Committee's (BCLLWC): (1) reservations about the proposed site in the county; (2) concern about the facility licensing proceeding and any plans to store mixed and decommissioned wastes at the site; and (3) concern that the site might receive wastes from other states. GAO found that: (1) although they did not find the site unsuitable, two BCLLWC geology consultants reported that groundwater could become contaminated and be discharged into a nearby creek, and therefore the site would not meet regulatory requirements; (2) the site developer did not include mixed wastes and decommissioned wastes in its application for state licensing but would request such permission later; (3) BCLLWC believed the plans for mixed and decommissioned wastes should have been raised at the licensing proceeding; and (4) the Nuclear Regulatory Commission (NRC) alone could grant emergency access to the Nebraska facility if the denial of access would pose a public health threat, but NRC said that applicants first had to exhaust all other alternatives, and it did not anticipate any such situation arising.

Nuclear Waste: New York's Adherence to Site Selection Procedures is Unclear

GAO/RCED-92-172, 8/11/1992

A New York commission charged with choosing a site for a low-level radioactive waste facility announced in September 1989 that it planned limited investigations at five potential sites. Four of the sites were chosen as a result of a statewide screening process, while the fifth site had been offered to the commission by an owner. The counties where the sites are located have raised objections to the site-selection process. GAO concludes that the commission's consideration of the offered site was inconsistent with some of its procedures and may not have followed others.

Nuclear Health and Safety: Mortality Study of Atmospheric Nuclear Test Participants is Flawed

GAO/RCED-92-182, 8/10/1992

A 1979 report from the Centers for Disease Control suggested that the incidence of leukemia among servicemen who had participated in atmospheric nuclear tests in the 1950s may have been seriously underestimated. In response, the Defense Nuclear Agency commissioned the National Academy of Sciences to study how low-level radiation affected participants in other atmospheric tests. The Academy's 1985 report concluded that the death rate from cancer in the five tests reviewed was generally less than that which would be expected in the general population. New information developed by the Defense Nuclear Agency in 1989, however, raised doubts about the validity of the Academy study. GAO provides information on the actions or omissions by the federal government in connection with the 1985 National Academy of Sciences report. GAO discusses (1) the accuracy of the data supplied to the Academy, (2) when and how inaccuracies in the data were discovered, (3) when and how the inaccuracies occurred, and (4) what actions have been taken to correct the data and update the 1985 mortality study.

Environmental Technology: Comments on S. 2632, the National Environmental Technologies Agency Act

GAO/T-RCED-92-81, 7/21/1992

Testimony presented by Victor S. Rezendes, Director, Energy and Science Issues, before the Senate Committee on Governmental Affairs.

Innovative technologies are needed to clean up the environment and protect it in the future. The combined public and private cleanup effort in the United States alone may cost more than half a trillion dollars during the next 30 years, while the recent summit in Rio de Janeiro underscores the growing global dimensions of the environmental problem. Proposed legislation before the Congress—S. 2632—would create an agency to promote the development and commercial application of environmentally safe technologies and to improve the nation's competitiveness in meeting world demand for such technologies. Although the bill highlights the need for innovative environmental technologies, it also raises fundamental questions that the Congress may want to consider before committing considerable federal investment in a new agency. For example, what are the research and development needs? What are the needs for transfer of

technology? What are the regulatory barriers to more widespread use? In any case, GAO believes that some of the bill's provisions could be clarified to avoid potential problems and help ensure success. Finally, the Congress may want to examine the roles of existing government organizations and how they should be integrated to promote the development and deployment of innovative environmental technologies.

Hydroelectric Dams: Proposed Legislation to Restore Elwha River Ecosystem and Fisheries

GAO/T-RCED-92-80, 7/9/1992

Testimony presented by Keith O. Fultz, Director, Planning and Reporting, before the Energy and Power Subcommittee, House Committee on Energy and Commerce; Water, Power and Offshore Energy Resources Subcommittee, House Committee on Interior and Insular Affairs; and Fisheries, Wildlife Conservation and the Environment Subcommittee, House Committee on Merchant Marine and Fisheries. GAO discussed the Elwha River Ecosystem and Fisheries Restoration Act, focusing on: (1) the Federal Energy Regulatory Commission's (FERC) authority to license dams on the Elwha River; (2) the Department of the Interior's position on removal of the dams to restore fisheries; and (3) who should pay the costs if the dams are removed. GAO noted that: (1) the Glines Canyon Dam is within the boundaries of a national park, where FERC does not have the authority to license dams; (2) Interior, FERC, and the National Marine Fisheries Service believe that removing both dams offers the best prospects for restoring the Elwha River fisheries and their surrounding ecosystem; and (3) the cost of removing the dams should be allocated among parties in proportion to the benefits they have received from the dams or will receive from the restoration of the river.

Nuclear Waste: Improvements Needed in Monitoring Contaminants in Hanford Soils

GAO/RCED-92-149, 7/6/1992

Since so much of the radioactive and hazardous waste stored at the Department of Energy's Hanford site either has been buried or has leaked from underground storage tanks, monitoring is vital to detect whether contaminants are seeping toward groundwater. GAO has discovered, however, that programs to spot contamination in the vadose zone—the unsaturated soil layer above the groundwater level—have received scant

funding, are operating with out-of-date and uncalibrated equipment, and are not comprehensive enough to assess the migration of contaminants. The several different programs and organizations now spending vadose zone funds are often unaware of each other's activities and tend not to share data, personnel, or knowledge. Furthermore, DOE has no plan for improving its vadose zone activities. Vadose zone technology could help DOE save money by reducing the need for doing laboratory analyses and drilling wells.

Nuclear Waste: Defense Waste Processing Facility—Cost, Schedule, and Technical Issues

GAO/RCED-92-183, 6/17/1992

Since the early 1980s, the Department of Energy has been planning or building facilities to treat and dispose of 34 million gallons of high-level radioactive waste stored in underground tanks at the Savannah River Site in South Carolina. The program has experienced cost increases and is now expected to cost nearly $4 billion and run about 5 years behind schedule. Further cost increases and schedule delays are possible because of technical issues and other uncertainties. Much of the cost increases and schedule slippages resulted from ineffective program management. In addition, because of the way in which DOE reported funding and budget information about the program in the past, the Congress did not have a clear picture of the cost increases and schedule slippages. DOE has taken steps to correct these problems. Two key pretreatment processes continue to be plagued by technical problems. At the same time, an alternative pretreatment method with lower operating costs has become available, raising questions about which pretreatment technology can come online quickest and offer environmental, safety, performance, and cost advantages. GAO recommends that DOE assess and compare the existing and alternative pretreatment technologies to see whether DOE should accelerate its planned efforts to replace the existing technology.

Nuclear Waste: Status of Actions to Improve DOE User-Fee Assessments

GAO/RCED-92-165, 6/10/1992

The Department of Energy is required to build a deep underground repository for the safe, permanent disposal of nuclear waste from government and the private sector. According to DOE estimates, the

program could cost as much as $34 billion if two repositories are built. In a June 1990 report (GAO/RCED-90-65), GAO noted that DOE's methods for estimating program costs and revenues and for assessing fees did not adequately take into account uncertainties like inflation that are inherent in such a long-term program. GAO discusses DOE's periodic assessment of whether the fees charged to utilities running nuclear power plants are adequate to cover the costs of the civilian nuclear waste disposal program. GAO also discusses the need to disclose in the fund's financial statements the possibility that a portion of the one-time user fees due from utilities may be uncollectible because of the uncertain condition of some utilities.

Nuclear Waste: DOE's Repository Site Investigations, a Long and Difficult Task

GAO/RCED-92-73, 5/27/1992

More than 20,000 metric tons of highly radioactive wastes are stored at more than 70 sites across the country. Because these wastes will remain dangerous for thousands of years, the Department of Energy is seeking to develop an underground repository for safe, permanent disposal of this material. Under 1987 legislation, DOE must consider Yucca Mountain, Nevada, as the sole potential repository site. This report focuses on (1) DOE's efforts to investigate Yucca Mountain since 1988; (2) DOE's efforts to ensure the early identification, primarily through surface-based tests, of any conditions that could disqualify the site; and (3) the effects of delays in DOE's obtaining environmental permits from the state of Nevada.

Nuclear Health and Safety: More Can Be Done to Better Control Environmental Restoration Costs

GAO/RCED-92-71, 4/20/1992

For more than 40 years, the nuclear weapons complex run by the Department of Energy has been disposing of hazardous and radioactive waste at sites across the country. DOE estimated in 1988 that its environmental restoration effort, a process to clean up these sites and meet federal and state standards, could cost as much as $64 billion. Although data are unavailable to determine aggregate cost growth associated with DOE's environmental restoration program, indications are that costs are soaring. In response to these increases, DOE began reviewing the causes of cost growth in 1990 to determine whether the cost escalation could be minimized. DOE, concluding that some cost growth has been

unnecessary and should be better controlled, has begun (1) conducting program cost reviews, (2) developing procedures that require preparing documentation to support cost estimates, and (3) instituting cost-estimating review procedures. GAO questions the direction and pace of DOE's actions. Specifically, DOE still lacks some basic management tools, such as baselines for individual projects and an information system for monitoring cost growth, to properly understand and analyze environmental restoration cost growth. While these tools would not in themselves stem the program's cost growth, they would help DOE better identify and understand the reasons behind the cost increases, allowing DOE management to deal with the problem.

Cleanup Technology: Better Management for DOE's Technology Development Program

GAO/RCED-92-145, 4/10/1992

The Department of Energy has implemented its technology development program for environmental cleanup and has funded major research and development projects. The program's funding for fiscal year 1992 is about $303 million, and DOE is requesting about $315 million for fiscal year 1993. The agency has not, however, developed measurable performance goals, overall cost estimates and schedules, and key decision points for evaluating program projects. Without these basic management tools, DOE will have a hard time determining what its objectives are, how best to achieve them, and when it has achieved them. Moreover, the Congress will have difficulty determining what investments the program is making and what funding is needed.

DOE's Clean Coal Technology Program

GAO/RCED-92-143R, 4/3/1992

Pursuant to a congressional request, GAO commented on the Department of Energy's response to a previous GAO report on improvements needed in the DOE Clean Coal Technology Program. GAO noted that: (1) DOE believes that the GAO report does not portray the larger picture of the program's successes and that the Clean Coal Technology Program is achieving significant successes and (2) of the five GAO recommendations included in the report, DOE disagrees with one, agrees with or is taking action on two others, and believes its current procedures are sufficient to meet the intent of the remaining two.

Connecticut Low-Level Waste

GAO/RCED-92-137R, 3/17/1992

Pursuant to a congressional request, GAO provided information on states' efforts to implement the Low-Level Radioactive Waste Policy Amendments Act of 1985, focusing on Connecticut's program for developing a disposal facility for commercial low-level radioactive waste. GAO noted that: (1) 13 states, including 8 states that are members of state compacts, plan to develop new disposal facilities; (2) only California, a member of a 4-state compact, may have a facility operational by the January 1, 1993, deadline, and the other planned facilities could be completed between 1993 and 1999; and (3) Connecticut's facility development schedule is unknown, since it suspended site-specific testing after determining that its site-screening contractor made some errors in its technical investigation of three candidate sites.

Nuclear Waste: Development of Casks for Transporting Spent Fuel Needs Modification.

GAO/RCED-92-56, 3/13/1992

So that it can start removing radioactive wastes from the nation's nuclear plants in 1998, the Department of Energy is developing two kinds of high-capacity casks for shipping spent fuel by truck or by rail and barge. The pace and direction of DOE's cask development program are based on the agency's conviction that a storage facility can be developed in time to receive and store the spent fuel by 1998. GAO doubts that DOE will have a facility up and running by then. Despite grant applications from possible host jurisdictions, the likelihood that a volunteer site will be found remains uncertain. This situation affords DOE an opportunity over the next several years to reevaluate the course and direction of the cask development program while conserving funds until there is a clear need to produce casks. With more time available, DOE can address whether possible technical and operational concerns might affect cask designs.

Cleanup Technology: DOE's Management of Environmental Cleanup Technology

GAO/T-RCED-92-29, 2/26/1992

Testimony presented by Victor S. Rezendes, Director, Energy and Science Issues, before the Environment Subcommittee, House Committee on Science, Space, and Technology.

To clean up its nuclear weapons complex in a cost-effective way, the Department of Energy believes that it needs improved cleanup technologies. As a result, it has begun a technology development program and has started funding eight integrated cleanup research and development projects. The number of these demonstration projects is expected to change as DOE reassesses its program strategy. Nonetheless, DOE's focus to date has been on setting up the program, not on its future management. GAO testified that DOE needs to develop key management tools fundamental to the program's effectiveness. These tools include measurable performance goals, overall project cost estimates and schedules, and major decision points. Without them, DOE will have problems in measuring the technology development program's progress, informing the Congress about the investments being made and funding required, and weeding out poorly performing projects that are no longer beneficial.

Nuclear Waste: DOE Assistance in Funding Route Improvements to Waste Isolation Plant

GAO/RCED-92-65FS, 1/14/1992

Located near Carlsbad, New Mexico, the Waste Isolation Pilot Plant is intended to be an underground repository for the permanent disposal of transuranic waste—material contaminated with radioactive elements that have atomic numbers greater than uranium. The Department of Energy produces this waste at various facilities in its nuclear weapons complex. This fact sheet provides information on DOE's fulfillment agreements with New Mexico to assist the state in obtaining federal funds to improve roads in connection with the plant.

Nuclear Waste: Weak DOE Contract Management Invited TRUPACT-II Setbacks

GAO/RCED-92-26, 1/14/1992

The Department of Energy spent about $3 million to buy 24 defective shipping containers intended to transport transuranic waste to storage sites in New Mexico. The containers were built under a subcontract with Westinghouse, DOE's managing contractor for the Waste Isolation Pilot Plant. While smoothing welded surfaces on the containers, the contractors ground the walls too thin to meet the Nuclear Regulatory Commission's approved design. NRC later rejected the thin-walled containers. Concerned that the contractor might declare bankruptcy and jeopardize the opening of the plant, DOE allowed Westinghouse to enter into an agreement with the contractor to build 15 NRC-approved containers and purchase the defective ones. This report details several ineffective contracting practices that led to DOE's purchase of the defective containers. Ineffective oversight by Westinghouse and DOE exacerbated the situation. Historically, DOE has given its contractors wide latitude but has done little oversight. Although DOE is trying to improve its contract-management approach, instituting effective, lasting changes will be difficult.

Nuclear Health and Safety: Radiation Events at DOE's Idaho National Engineering Laboratory

GAO/RCED-92-64FS, 1/13/1992

The Idaho National Engineering Laboratory, established in 1949, is an engineering facility whose primary function is to build, test, and operate nuclear reactors and support facilities. During the 1950s and 1960s, the Laboratory released radioactive materials into the atmosphere on several occasions. This fact sheet provides information on nuclear events at the Laboratory through the 1980s and on the extent to which the Department of Energy considered such events in determining the award fee paid to the Laboratory contractor. GAO focused on (1) airborne radiation release that may have exposed the public to radiation levels greater than the current public exposure standards and (2) events that resulted in one or more workers receiving an exposure exceeding the current annual standards for protecting workers from radiation.

Nuclear Waste: Slow Progress Developing Low-Level Radioactive Waste Disposal Facilities

GAO/RCED-92-61, 1/10/1992

Each year, nuclear power plants, businesses, hospitals, and universities generate more than 1 million cubic feet of hardware, rags, paper, liquid waste, and protective clothing that have been contaminated with radioactivity. While most of this waste has been disposed of in facilities in Nevada, South Carolina, and Washington State, recent legislation made the states responsible—either individually or through groups of states called compacts—for developing new disposal facilities. This report discusses (1) the states' progress and problems in meeting facility development milestones in the law, (2) federal and state efforts to resolve issues related to mixed waste (low-level waste that also contains hazardous chemicals) and waste with very low levels of radioactivity, and (3) the Department of Energy's progress in discharging the federal government's responsibility under the law to manage the most hazardous low-level waste.

Energy Research and Development

Energy Research and Development

Federal Research: Foreign Contributions to the Superconducting Super Collider

GAO/RCED-93-75, 12/30/1992

The Department of Energy may have a hard time getting the foreign contributions needed to meet its $1.7 billion goal for the Superconducting Super Collider. As of the end of fiscal year 1992, DOE had received about $15 million in foreign contributions consisting of pledges and contributions of labor and materials from India, Russia, and China. This amount is close to the $20 million DOE estimated that it would receive by the end of fiscal year 1992. The Superconducting Super Collider funding profile, however, calls for DOE to obtain an additional $1.1 billion in foreign contributions through fiscal year 1996. Although most of this money will have to come from Japan, Japanese officials have said that they are still studying the merits of the project and have yet to decide whether to contribute. If the foreign contributions do not materialize, the tab for U.S. taxpayers will increase regardless of whether the Congress decides to make up for the funding shortfall or let the project's schedule slip. According to DOE, a 1-year slippage in the project's overall completion schedule would boost costs by about $400 million—or roughly $1 million a day.

Nuclear Science: Status of DOE's Self-Supporting Isotope Program

GAO/T-RCED-92-88, 8/12/1992

Testimony presented by Victor S. Rezendes, Director, Energy and Science Issues, before the Environment, Energy and Natural Resources Subcommittee, House Committee on Government Operations.

Isotopes have important applications in medicine, industry, and scientific research. Although the Department of Energy's program to produce and distribute isotopes is relatively small, it is an important domestic source of this material. GAO testified that DOE faces significant obstacles in trying to run the program on a self-supporting basis. Because DOE has been unable to recoup program costs through isotope sales, its original $16 million operating fund has been depleted, and the agency is borrowing money to keep the program solvent. High, uncontrollable operating costs; lack of capital funding; and foreign competition—much of it subsidized—have been the main barriers to the program's self-sufficiency. DOE has hired a consulting firm to help redesign the program. DOE and the firm will then

seek ways to finance DOE's newly defined role in the isotope field. But continued government funding is likely to be needed to keep the program afloat. GAO testified that had DOE completed such a study before reorganizing its isotope program in 1989, many of these problems could have been avoided.

Federal Research: Implementation of the Super Collider's Cost and Schedule Control System

GAO/RCED-92-242, 7/21/1992

The Superconducting Super Collider project, estimated to cost $8.25 billion and to be completed over a 10-year period ending in 1999, is designed to produce intense proton collisions, thereby providing insights into the fundamental components of matter. In April 1992 testimony (GAO/T-RCED-92-48), GAO indicated that the Department of Energy lacked an integrated system for monitoring cost and schedule performance. DOE argued that GAO's testimony relied on 1990 audit work and did not accurately reflect present conditions. This report provides information on (1) the time frame and the basis of GAO's data that supported the April 1992 testimony and (2) the status of both GAO's review and DOE's system for managing the Superconducting Super Collider's cost and schedule.

Nuclear Science: Monitoring Improved, but More Planning Needed for DOE Test and Research Reactors

GAO/RCED-92-123, 7/15/1992

As its stock of nondefense nuclear reactors dwindles due to lower demand and higher operating costs, the Department of Energy must decide which reactors to shut down and which to maintain or replace. In DOE's view, the small number of remaining reactors and their specialized functions makes unnecessary formal long-range planning that would compare the capabilities, ages, and conditions of the reactors. Yet GAO believes that, given the ages of the test and research reactors and the deterioration taking place, it is not premature to plan for the timely retirement or replacement of these reactors. The absence of such planning could lead to safety problems, diminished reactor performance, increased costs to maintain existing safety levels, and gaps in service to experimenters using the equipment. Safety, or at least the identification of safety problems, has improved at DOE's nondefense test and research facilities. DOE now has an inventory of identified problems at these facilities that will take years to

correct. Ensuring safer operations, however, demands continued identification and correction of problems.

Nuclear Science: Consideration of Accelerator Production of Tritium Requires R&D

GAO/RCED-92-154, 6/15/1992

Tritium, a crucial material used in nuclear weapons, gradually decays and must be continually replaced. The Department of Energy is responsible for producing tritium and has traditionally generated it at its nuclear reactors. The reactors are getting old, however, and it is unclear how much longer they will last. An alternative—producing tritium with a particle accelerator—was first proposed in 1989 by scientists at Los Alamos and Brookhaven National Laboratories. DOE has devoted scant funds to test the concept, however, and the full extent of the accelerator's abilities remains unknown. DOE declined to pursue this idea because it doubted that enough time existed to develop the concept, given the immaturity of the technology and the urgency with which DOE believed new tritium production capacity would be needed. Reductions in the nuclear weapons stockpile have eliminated the need for an urgent schedule and have given DOE more time to study the accelerator. To sufficiently develop the technology for an accelerator so that it can be compared with reactors for tritium production would require a research and development program.

Nuclear Science: DOE's Self-Supporting Isotope Program Is Experiencing Problems

GAO/RCED-92-122FS, 6/3/1992

Production and distribution of isotopes, which have medical, industrial, and scientific applications, has been a long-standing mission of the Department of Energy. DOE now generates less than 5 percent of all worldwide isotope sales. DOE is having problems running its isotope sales program on a self-supporting basis, and, since 1990, program operating costs have exceeded revenues. Foreign competition and high operating costs have been the main factors discouraging the program's self-sufficiency. U.S. isotope users are concerned that DOE's commitment to operating the program on a self-sufficient basis may limit the domestic availability of some isotopes if DOE cannot produce them cost-effectively.

Energy R&D: DOE's Prioritization and Budgeting Process for Renewable Energy Research

GAO/RCED-92-155, 4/29/1992

This report examines how the Department of Energy plans and budgets research and development projects for renewable energy technologies. Such technologies include electricity generation from solar, wind, and geothermal energy sources. GAO discusses how DOE (1) determines the annual budget for energy technologies, including renewal, fossil, and nuclear energy, and the role played in this process by the Office of Management and Budget; (2) allocates research and development funds among renewable energy technologies; and (3) ensures that specific congressional directives for research and development projects for renewable energy technology are followed.

Energy R&D: DOE's Prioritization and Budgeting Process for Renewable Energy Research

GAO/T-RCED-92-57, 4/30/1992

Testimony presented by Victor S. Rezendes, Director, Energy and Science Issues, before the Investigations and Oversight Subcommittee, House Committee on Science, Space, and Technology.

See abstract for GAO/RCED-92-155, 4/29/1992

Federal Research: Concerns About the Superconducting Super Collider

GAO/T-RCED-92-48, 4/9/1992

Testimony presented by Victor S. Rezendes, Director, Energy and Science Issues, before the Investigations and Oversight Subcommittee, House Committee on Science, Space, and Technology.

So far, the Congress has provided about $1.3 billion toward construction of the Superconducting Super Collider and is now considering the President's request for another $650 million for fiscal year 1993. GAO testified that several factors could delay the project, increase its cost to the U.S. government, or reduce potential benefits. GAO believes that, as the investment increases and construction advances, it is more likely that

project funding will continue even if costs increase and other countries do not help pay for it. Accordingly, correcting the problems cited by GAO and obtaining firm funding commitments from other nations are necessary to protect the U.S. investment in the project. Continuation of federal funding could also be made contingent on the Department of Energy putting in place an integrated cost and schedule system, assessing the impact on the domestic economy of using foreign subcontractors, and obtaining firm commitments for contributions for other nations by a certain date.

Nuclear Science: Fast Flux Test Facility on Standby, Awaiting DOE Decision on Future Missions

GAO/RCED-92-121FS, 4/9/1992

The Fast Flux Test Facility, located at the Hanford Reservation in Washington State, is the Department of Energy's newest and largest test and research reactor facility. In operation since 1982, the facility is designed primarily to test how well materials and components proposed for use in advanced reactors work in an operating test reactor. This fact sheet explores the rationale for DOE's 1990 decision to shut down the facility as well as DOE's response to proposals to keep the facility operating.

The SP-100 Nuclear Reactor Program: Should It Be Continued?

GAO/T-NSIAD-92-15, 3/12/1992

Testimony presented by Mark E. Gebicke, Director, NASA Issues, before the Investigations and Oversight Subcommittee, House Committee on Science, Space, and Technology.

The SP-100 Space Nuclear Reactor Program was created to develop technology for space reactor power systems used in future NASA and Defense Department space missions. The program has been struggling, and the government is at a point at which it must decide whether to continue it. GAO's testimony discusses (1) the program's past and projected costs, (2) missions identified by potential users of the technology, (3) recent events that raise questions about the program's continued viability, and (4) possible options for the program's future.

Energy Supply and Demand

Energy Supply and Demand

Nuclear Safety: Concerns About the Nuclear Power Reactors in Cuba

GAO/RCED-92-262, 9/24/1992

If Cuba obtains the help needed to complete construction of its two Soviet-designed nuclear power reactors, the United States will need assurances that they are built and will be operated in a way that does not pose a risk to the United States in the event of an accidental release of radioactive material. Although work has halted on the two reactors, the first unit is believed to be virtually finished while the second is between 20 and 30 percent complete. The main reactor components have not yet been installed, and the nuclear fuel has not been delivered. Concerns about the reactors center on the questionable quality of the construction, limited regulatory oversight, inadequate training for operators, lax safety standards, and the absence of a Cuban industrial infrastructure to support the reactors' operation and maintenance. Concerns also exist that the upper portion of the containment dome was designed to withstand pressures of only 7 pounds per square inch. Because Russia demands hard currency as payment for—and Cuba now lacks the money to buy—equipment needed for the reactors, when the reactors will start up is unclear. Continued monitoring of Cuba's progress toward completing the reactors is warranted.

Electricity Regulation: Electric Consumers Protection Act's Effects on Licensing Hydroelectric Dams

GAO/RCED-92-246, 9/18/1992

The Federal Energy Regulatory Commission faces a major challenge. By the end of 1993, the long-term operating licenses for more than 15 percent of the nation's nonfederal hydroelectric power projects will expire. In relicensing these projects, FERC must balance electricity needs with environmental and other considerations, as spelled out in the 1986 Electric Consumers Protection Act. This report: (1) reviews the effects of that legislation on FERC's licensing process for and decisions about hydroelectric power projects, (2) provides information on FERC's use of temporary licenses for projects seeking relicensing, and (3) identifies FERC's requirements for ensuring public safety at hydroelectric projects.

Energy Policy: Options to Reduce Environmental and Other Costs of Gasoline Consumption

GAO/RCED-92-260, 9/17/1992

GAO evaluated six policy options—a higher gas tax, a tax on tail pipe emissions, subsidies for alternative fuels, higher fuel economy standards for new vehicles, surcharges for cars that are less fuel efficient and pollute more, and financial rewards for people who voluntarily scrap older vehicles—to determine their effect on the economy, the environment, traffic congestion, and other issues. These policy options can be modified or combined to more effectively reduce gasoline consumption and air pollution from cars and light trucks and to meet other important policy objectives. Options that send consumers clear market signals, such as higher gasoline or tail pipe taxes, could help ensure that the costs of gasoline use in these vehicles are visible and fully considered by consumers when they buy, maintain, drive, and trade in vehicles. These options could also increase the demand for more fuel-efficient and alternatively fueled vehicles. Relying on just one option to meet multiple and sometimes conflicting policy objectives, however, could be difficult and costly. This, in turn, could reduce the chance that any policies will be adopted. An eclectic strategy incorporating the best designs of individual policy options seems desirable.

Energy Policy: Options to Reduce Environmental and Other Costs of Gasoline Consumption

GAO/T-RCED-92-94, 9/17/1992

Testimony presented by Victor S. Rezendes, Director, Energy and Science Issues, before the Environment Subcommittee, House Committee on Science, Space, and Technology.

See abstract for GAO/RCED-92-260, 9/17/92

East European Energy: Romania's Energy Needs Persist

GAO/NSIAD-92-257, 8/4/1992

Modernization of Romania's energy sector and increased production are crucial if that country is to achieve market reforms and reinvigorate its economy. Because the changing energy economies of Romania and other

East European countries may open up new markets for Western energy technologies, this report provides information on (1) trends and problems linked to Romania's energy production and imports, (2) Romania's energy needs and the steps being taken or planned to address them, (3) factors that discourage U.S. trade with and investment in Romania's energy sector, and (4) U.S. government and international efforts to develop Romania's energy sector.

Alternative Fuels

GAO/RCED-92-240R, 7/24/1992

Pursuant to a congressional request, GAO provided information on: (1) tunnel restrictions for gaseous-fueled vehicles in Baltimore, Boston, and New York; (2) the implications of Department of Transportation (DOT) regulations requiring recertification of compressed natural gas (CNG) cylinders; and (3) the consistency of provisions for alternative-fuel tax benefits in recently proposed legislation. GAO noted that: (1) regulatory agencies in Baltimore, Boston, and New York have recently supported relaxing their regulations that block access for gaseous-fueled vehicles and have been working with the CNG and liquified petroleum gas industries to resolve potential safety issues associated with gaseous fuels; (2) DOT requires CNG cylinder recertification only for those vehicles involved in commerce, but some state and local governments require all CNG vehicle users to maintain DOT certification; and (3) inconsistencies among the proposed legislation's provisions for tax deductions could result in some acceptable fuels' not receiving tax benefits.

Gasohol: Federal Agencies' Use of Gasohol

GAO/T-RCED-92-73, 6/24/1992

Testimony presented by Victor S. Rezendes, Director, Energy and Science Issues, before the Investigations Subcommittee, House Committee on Armed Services.

This testimony examines federal agencies' use of gasohol—gasoline containing 10 percent ethanol. Bulk purchases of gasohol for use in federal motor vehicles have been limited, and the extent to which gasohol has been used by federal credit card purchasers of motor fuel is unknown. Eliminating or tightening exemptions from requirements for the use of gasohol and promoting its use among credit card users may increase

demand. The Department of Defense (DOD) has advertised in trade publications its need for more suppliers, generating increased supplier inquiries about future federal contracts. Yet questions remain about the ability of DOD and industry to meet increased demand, particularly given the current limited availability of gasohol, pending environmental regulation that may spur ethanol demand, and the expense of gasohol when handling and other costs are factored in.

Energy Conservation: Efforts Promoting More Efficient Electricity Use

GAO/T-RCED-92-74, 6/23/1992

Testimony presented by James E. Wells, Jr., Associate Director, Energy and Science Issues, before the Environment, Energy and Natural Resources Subcommittee, House Committee on Government Operations.

Utility-sponsored "demand-side management" programs encourage consumers to use less energy by better insulating their homes and businesses and by replacing appliances with more efficient models. This testimony discusses (1) the likelihood that such programs will result in energy conservation; (2) impediments that must be overcome; and (3) Department of Energy efforts to promote demand-side management and integrated resource planning, including efforts identified in DOE's National Energy Strategy.

Uranium Enrichment: Unresolved Trade Issues Leave Uncertain Future for U.S. Uranium Industry

GAO/RCED-92-194, 6/19/1992

Total U.S. imports of Soviet-produced natural and enriched uranium were 17 times greater in 1991 than they were 5 years earlier. Department of Energy uranium enrichment officials and U.S. miners view these imports as a threat to the domestic uranium market, and in November 1991, the miners filed an antidumping petition against Soviet importers. This report discusses (1) the increasing volume of natural and enriched uranium imported into the United States from the Soviet Union; (2) the ongoing antidumping case initiated by U.S. uranium miners; (3) other factors that will play a large role in determining the future of the domestic uranium market—namely, the breakup of the Soviet Union and the commercial use

of highly enriched uranium originally produced for nuclear weapons; and (4) DOE's uranium inventories.

South American Oil: Marginal Producers Not a Likely Source for Increased U.S. Imports

GAO/NSIAD-92-227, 6/16/1992

GAO reviewed the petroleum industries of the following eight South American countries that produce petroleum but are not major exporters: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Peru, and Trinidad and Tobago. This report discusses (1) the amount of crude oil the United States imports from the eight countries, (2) expected crude oil production for these countries through the year 2010, and (3) investment reforms that these countries have recently made in their petroleum industries. In general, although the United States imports some oil from these countries, as a group, the eight countries are currently net oil importers because combined domestic oil consumption exceeds oil production. Furthermore, the net oil imports are expected to continue to increase through the year 2010, making it unlikely that the United States will obtain increased oil shipments from these countries.

Alternative Fuels: Experiences of Brazil, Canada, and New Zealand in Using Alternative Motor Fuels

GAO/RCED-92-119, 5/7/1992

The oil crisis of the 1970s spurred the governments of Brazil, Canada, and New Zealand to seek domestic alternatives for their motor fuels. Each government was the catalyst for action on alternative fuels, and this leadership proved crucial in removing economic and technological barriers and persuading industry and consumers that alternative fuels were important. Participation by the fuel, automotive, and utility industries was vital in attracting and retaining consumers for alternative fuels and vehicles in each country. Finally, consumer acceptance was essential to the use of alternative fuels in these countries, and incentives such as reduced taxes or subsidies helped boost consumer use of alternative fuels. These countries' experiences, however, show that introducing and sustaining the use of alternative fuels is neither a quick nor an easy undertaking. For example, consistent long-term government commitment was sometimes hard to maintain because of resource limitations and other reasons. In some cases, failure to maintain this

commitment undercut sustained use of alternative fuels. Furthermore, alternative fuel initiatives struggled when industry was not actively involved in vehicle development, fueling system construction, and marketing.

Electricity Supply: Efforts Under Way to Improve Federal Electrical Disruption Preparedness

GAO/RCED-92-125, 4/20/1992

This report examines the federal government's plans and policies for meeting major disruptions in the supply of energy, such as those caused by severe weather or sabotage. GAO discusses (1) to what extent the Department of Energy includes other federal, state, local, and utility organizations in its preparedness planning; (2) how sufficient the statutory authorities available to federal agencies are for responding to major electrical disruptions; and (3) whether emergency plans incorporate restoration priorities and measures to help ensure adequate supplies of electrical equipment.

Energy Conservation: DOE's Efforts to Promote Energy Conservation and Efficiency

GAO/RCED-92-103, 4/16/1992

The Department of Energy is responsible for spearheading federal efforts to encourage energy conservation. This report focuses on DOE programs promoting electricity and overall energy efficiency. GAO examines (1) the scope of DOE's energy conservation and efficiency programs, including its Integrated Resource Planning Program; (2) the way in which policy options identified in the National Energy Strategy promote conservation and efficiency, as well as increased energy supplies; and (3) the extent to which DOE evaluates program results and considers evaluation results when planning and budgeting for these programs. GAO also discusses the role of the Federal Energy Regulatory Commission, which regulates most wholesale electricity transactions, in promoting energy conservation and efficiency.

Electricity Supply: Regulating Utility Holding Companies in a Changing Electric Industry

GAO/RCED-92-98, 4/9/1992

How adequately are consumers and investors protected in the electric utility industry? This report looks at (1) recent changes within the electric utility industry that involve utility holding companies; (2) the effect of these changes on the Securities and Exchange Commission's (SEC) administration of the Public Utility Holding Company Act of 1935; and (3) the relationship between SEC, the Federal Energy Regulatory Commission, and state regulators in protecting consumer and investor interests in the changing industry.

Mexican Oil: Issues Affecting Potential U.S. Trade and Investment

GAO/NSIAD-92-169, 3/18/1992

This report deals with issues affecting potential future U.S. trade with and investment in Mexico's petroleum industry. GAO discusses (1) recent trends in Mexican oil production and exports and the main factors affecting Mexico's ability to meet current production and export goals, (2) the views of U.S. oil-producing and oil service contracting companies on principal barriers to and possible benefits of U.S. trade with and investment in Mexico's oil industry and the response of Mexican officials, and (3) U.S. government efforts to help Mexico's petroleum sector.

Natural Gas: Factors Affecting Approval Times for Construction of Natural Gas Pipelines

GAO/RCED-92-100, 2/26/1992

During the period of GAO's review, the median processing time for the Federal Energy Regulatory Commission to approve applications to build natural gas pipelines was about 1 year, but some approvals took much longer. FERC has tried to shorten the time it takes pipeline companies to receive approval to start construction, and the Congress is considering several bills aimed at speeding or eliminating the need for FERC approval. Nevertheless, FERC could further improve its timeliness and performance in processing applications by better informing and training its staff and others on policy changes, negotiating generic agreements with other federal agencies on their environmental reviews of pipeline applications, and strengthening its management information system.

International Energy Agency: Response to the Oil Supply Disruption Caused by the Persian Gulf Crisis

GAO/NSIAD-92-93, 1/21/1992

The rapid increase in worldwide oil prices after Iraq's invasion of Kuwait in 1990 focused renewed attention on how the use of emergency oil stocks held by members of the International Energy Agency can mitigate the effects of an oil supply disruption. This report reviews (1) the International Energy Agency's decision on whether to draw down emergency oil stocks in response to the disruption in oil supplies following the Iraqi invasion, (2) the U.S. policy on restraining oil demand, (3) the U.S. position on domestic sharing of oil supplies in an emergency and oil companies' views on that position, and (4) the extent of Department of Energy efforts to educate the American people about U.S. participation in the International Energy Agency.

Electricity Supply: Potential Effects of Amending the Public Utility Holding Company Act

GAO/RCED-92-52, 1/7/1992

Seeking to reap the potential benefits of greater competition, proposals to exempt some electric generators from the ownership restrictions of the Public Utility Holding Company Act of 1935 could alter the structure of the nation's $170 billion electric utility industry. This report evaluates how the proposals might affect (1) the reliability and cost of the U.S. electricity supply and (2) state and federal regulation of electric utilities.

Managing the Department of Energy

Federal Contracting: Cost-effective Contract Management Requires Sustained Commitment

GAO/T-RCED-93-2, 12/3/1992

Testimony presented by J. Dexter Peach, Assistant Comptroller General, before the Oversight and Investigations Subcommittee, House Committee on Energy and Commerce.

Loose administration of government contracts has resulted in contractors getting bonuses for mediocre performance and billing agencies for millions of dollars in unallowable or questionable costs, such as employee parties, tickets to sporting events, and liquor. Civilian agencies now spend about $55 billion per year on contracts. Although contractors can play a key role in delivering needed services, once contracts are awarded federal agencies often give short shrift to overseeing the quality and cost of completed work. More thorough and timely contract auditing could help minimize the government's vulnerability to waste, fraud, and abuse. Currently, a significant backlog exists of audits of costs incurred by contractors. Civilian agencies could also beef up their audit effectiveness by clarifying which agency has responsibility for contractor audits, clearly spelling out unallowable and questionable costs, and making clear the government's position on the use of contractor discounts. At the core of contracting problems, GAO has discovered a lack of senior management attention to agency contracting. In some cases, senior officials have remained ignorant of waste and abuse because agencies have no way of flagging contracting problems. In other instances, senior officials have neither made managers accountable for effective contract administration nor committed themselves to correcting contracting problems that have surfaced.

TVA Bond Sales

GAO/RCED-93-43R, 10/23/1992

Pursuant to a congressional request, GAO provided information on the extent to which minority and regional bond underwriters that participated in the Tennessee Valley Authority (TVA) bond sales were actually located in the TVA service delivery area. GAO noted that: (1) the number of underwriting firms considered in the TVA region differed depending on the definition used; (2) between October 1989 and July 1992, TVA conducted seven bond sales totalling $12.8 billion; (3) underwriters located in the

seven-state region, but not in the TVA service area, were responsible for 7.6 percent of sales, and underwriters located within the TVA service area were responsible for 4.6 percent; (4) four of seven bond sales included the participation of a single minority firm that was responsible for sales ranging from $5 million to $20 million; (5) another regional minority firm was responsible for $5 million in a January 1992 bond sale, $9 million in a November 1989 bond sale, and $10 million in an October 1989 bond sale; and (6) neither of the two minority firms were located in the area actually served by TVA.

Department of Energy: Project Management at the Rocky Flats Plant Needs Improvement

GAO/RCED-93-32, 10/16/1992

Various studies of the Department of Energy's Rocky Flats Plant in Colorado have highlighted numerous management weaknesses that have affected some projects at the plant. GAO identified two ongoing projects—the supercompactor and upgrades to the plant's low-level waste transfer system—that have experienced massive cost growth during the past 4 years. In both cases, project managers did not properly oversee the early stages of the projects' development. Both the plant contractor and DOE have taken steps to address some of these weaknesses, but GAO is concerned that these actions may not be comprehensive enough to resolve all the problems. Although the plant contractor has developed corrective action plans and has made progress implementing them, the plans were based only on the contractor's business management review study and may not include some urgently needed corrective actions. DOE officials have said that they have addressed the problems cited in previous management studies but have not yet developed a comprehensive corrective action plan with detailed tasks and completion milestone dates. DOE officials believe that such a plan is necessary and have designated someone to draft one. The agency, however, still needs to define the plan's scope and set a date when the plan should be finished.

Department of Energy: Better Information Resources Management Needed to Accomplish Missions

GAO/IMTEC-92-53, 9/29/1992

Although the Department of Energy relies heavily on information in dealing with everything from massive environmental damage to unsafe

nuclear weapons facilities, staff throughout the agency are not always receiving the information they need. This situation could increase the likelihood that the public will be unnecessarily exposed to dangerous contaminants; the safety and health of workers will not be adequately protected; outdated weapons components will continue to be manufactured and discarded; and facilities, secrets, and employees will not be adequately protected from threats. In addition, DOE is wasting money developing and running information systems that overlap or duplicate existing systems. These problems exist because DOE has not (1) implemented a strategic information resources management (IRM) planning process that focuses information resource investments on achieving strategic mission objectives and (2) exercised adequate management control to ensure that IRM activities are conducted in accordance with the law. Underlying DOE's ineffective IRM planning and management control is a lack of top management attention to managing information.

UEC Net Present Value

GAO/RCED-92-294R, 9/23/1992

Pursuant to a congressional request, GAO provided information on cash flow projections for the proposed Uranium Enrichment Corporation (UEC), as envisioned by proposed legislation. GAO noted that: (1) it adjusted Department of Energy estimates for revenue and expenses associated with uranium enrichment operations from 1993 through 2011 to project the present value of UEC net operating income to be about $5.2 billion; (2) any estimate of earnings from uranium enrichment operations is subject to major uncertainties because of the inherent difficulty of determining the amount and selling price of enrichment services; and (3) it computed the net present value of UEC payments to the Treasury for loans, royalties, leases, and dividends to be about $3.2 billion, but that projection is also subject to major uncertainties.

UEC Cash Flow Projection

GAO/RCED-92-292R, 9/17/1992

Pursuant to a congressional request, GAO evaluated a consultant's cash flow projections for the Uranium Enrichment Corporation that would be created by proposed legislation. GAO noted that the projections: (1) incorporate several assumptions that would not apply to the

corporation, as envisioned by the proposed legislation, and (2) use revenue and cost figures that do not reflect recent program changes. GAO also noted that its revised projection: (1) uses more recent Department of Energy revenue and cost estimates; (2) makes adjustments to reflect recent changes in the proposed legislation; and (3) shows that, from 1993 through 2005, the corporation will return to the government revenues totalling about $3.8 billion.

Department of Energy: Status of Reporting Compliance for DOE's Major System Acquisitions

GAO/RCED-92-204FS, 8/24/1992

This fact sheet provides information on the Department of Energy's compliance with documentation and reporting requirements for its Major System Acquisitions, which are defined as projects critical to fulfilling an agency's mission. GAO looks at whether certain key documents for each Major System Acquisition have been approved by senior DOE management. These documents include a mission needs statement, a project plan, and an independent cost estimate. Approval of these documents is required before or at the start of a project, which begins upon the completion of the conceptual design.

DOE Management: Impediments to Environmental Restoration Management Contracting

GAO/RCED-92-244, 8/14/1992

The Department of Energy's proposed new contracting approach for cleaning up contaminated nuclear weapons sites would rely on environmental restoration management contractors, who would assume sole responsibility for handling the cleanup effort. Although DOE has set several important goals for this contracting effort, constraints such as the lack of qualified cleanup personnel would make it hard to achieve them. GAO believes that evaluation should be a major component in the implementation of the 5-year pilot tests at DOE sites in Fernald, Ohio, and Hanford, Washington. DOE has not, however, established final criteria for measuring the concept's success, identified the information needed to evaluate the concept, or established a timetable for conducting the evaluation. In addition, DOE has not yet hired all the staff needed to oversee the pilot tests or developed plans to train current staff in their new oversight duties.

Energy Management: Entertainment Costs Under DOE's Uranium Enrichment Production Contract

GAO/RCED-92-230FS, 7/30/1992

As part of a contract to produce enriched uranium at government-owned facilities in Paducah, Kentucky, and Portsmouth, Ohio, Martin Marietta Energy Systems was allowed to bill the government for more than half a million dollars in entertainment and liquor costs. The final tab included golf outings, musical performances, receptions, tours, and a charter boat ride. These parties were thrown for utility executives who are either current or potential customers for the government's enriched uranium. GAO questions the legality of spending federal dollars on alcohol and the presence of bureaucrats and contractor employees at such social gatherings. GAO is waiting to hear from the Department of Energy's Office of General Counsel as to why these costs were allowed.

Nuclear Waste: Questionable Uses of Program Funds at Lawrence Livermore Laboratory

GAO/RCED-92-157, 5/28/1992

Lawrence Livermore National Laboratory spent the bulk of its $32.5 million in nuclear waste program funding on scientific and technical work. About $1.5 million of this money, however, went for apparently unrelated research that the Department of Energy authorized even though such funds may be used only for purposes spelled out in the Nuclear Waste Act. DOE, in allowing at least two of its other laboratories to use nuclear waste funds for independent research, did not ensure that the laboratories limited the use of these funds to activities covered by the act. While Livermore's yearly spending on scientific and technical work has fallen by about 60 percent since 1989, the expense of managing this declining work load is expected to decrease only by about 17 percent. Livermore officials attribute the relatively small decline in management costs to the need to meet basic regulatory and project control requirements. DOE has not determined if more efficient ways exist to manage the limited work assigned to Livermore, such as transferring this work to another project contractor. Finally, Livermore awarded all of its project subcontracts on a noncompetitive basis without adequate justification, bringing into question whether the contracts were reasonably priced or other qualified contractors were fairly considered. Livermore is now instituting new

procurement policies and procedures that may correct this procurement weakness.

DOE Management: Better Planning Needed to Correct Records Management Problems

GAO/RCED-92-88, 5/8/1992

This report examines how the Department of Energy responded to a 1988 National Archives and Records Administration evaluation of DOE's record management program, which involves some of the most important and extensive scientific information in existence. That evaluation cited major problems affecting every phase of record management—from creation and maintenance through disposal. GAO looks at (1) the potential impact of these deficiencies on DOE operations, (2) how DOE has responded to the evaluation, and (3) additional actions DOE should take to improve its responsiveness to the recommendations.

Energy Management: Vulnerability of DOE's Contracting to Waste, Fraud, Abuse, and Mismanagement

GAO/RCED-92-101, 4/10/1992

The Department of Energy spends about 90 percent of its budget—more than $17 billion in fiscal year 1990—on contractors, primarily those managing nuclear weapons facilities. Persistent weaknesses in DOE's oversight and management of contractors have led GAO to designate DOE contracting as 1 of 16 government programs at high risk for waste, fraud, abuse, and mismanagement. This vulnerability arises mainly from DOE's long-standing management approach of indemnifying nearly all contractor costs and not exercising adequate oversight over contractor operations and activities. This report discusses in detail (1) problems resulting from DOE's approach to contracting and (2) DOE's recent efforts to address these problems.

Energy Management: Systematic Analysis of DOE's Uncosted Obligations Is Needed

GAO/T-RCED-92-41, 3/24/1992

Testimony presented by Victor S. Rezendes, Director, Energy and Science Issues, before the Investigations and Oversight Subcommittee, House Committee on Science, Space, and Technology.

GAO testified on how the Department of Energy analyzes uncosted obligations when formulating its budget requests. Generally, uncosted obligations are obligations that DOE has made to contractors for goods and services that have not yet been provided and for which no costs have been incurred. Thus, costs relating to the obligations will be incurred in the future. GAO discusses (1) the size of DOE's growing uncosted obligations, (2) their significance in the budget formulation process, (3) why the uncosted balances exist, and (4) DOE's analysis of uncosted obligations for its fiscal year 1993 budget request.

Nuclear Health and Safety: Increased Rating Results in Award Fee to Rocky Flats Contractor

GAO/RCED-92-162, 3/24/1992

In 1989 GAO pointed out problems in the Department of Energy's award fee process and recommended that DOE restructure it to reduce the level of discretion exercised in making a final determination. Although DOE tried to improve the process, the final outcome of the first award fee determination for EG&G—the contractor now running the Rocky Flats Plant in Colorado—indicates that some of the same problems persist. Despite findings of significant deficiencies and marginal environmental, safety, and health performance, the contractor's overall performance was deemed "good" and slightly more than $1.7 million was awarded. This increase was possible through discretion exercised by the fee determination official with the concurrence of DOE's Defense Programs Office, suggesting that the process remains subjective. Furthermore, the fee was awarded without clearly showing that at least 51 percent of the fee was based on environmental, safety, and health performance—a DOE requirement.

Energy Management: Better Federal Oversight of Territories' Oil Overcharge Funds Needed

GAO/RCED-92-24, 2/21/1992

About $68 million from two oil overcharge cases was made available to five U.S. territories—American Samoa, Guam, the Mariana Islands, Puerto Rico, and the Virgin Islands. In response to congressional concerns about whether these funds have been spent appropriately, this report examines (1) the amount of funds the territories have spent and whether this amount has been accurately reported to the Congress and (2) whether the Departments of Energy and Health and Human Services have adequate monitoring procedures and have taken steps to ensure that the territories' use of oil overcharge funds is in accordance with legal requirements.

Tennessee Valley Authority: Issues Surrounding Decision to Contract Out Construction Activities

GAO/RCED-92-105, 1/31/1992

The Tennessee Valley Authority has traditionally used its own employees to do most of its engineering, construction, and modification work. In a significant departure from its long-standing reliance on an in-house construction work force, TVA announced a new policy in May 1991 to contract out all construction and major modification work. Concerns were raised that this decision could mean that thousands of TVA employees would lose their jobs. This report examines the (1) basis for TVA's decision to contract out construction and major modification work; (2) rationale for certain procedures TVA has followed in complying with the Government in the Sunshine Act; (3) effect of the decision on TVA employees, including the number and type of employees affected; and (4) effect of the decision on TVA operations.

Producing Nuclear Weapons Safely

Nuclear Weapons Complex: Weaknesses in DOE's Nonnuclear Consolidation Plan

GAO/RCED-93-56, 11/19/1992

The end of the cold war and expected reductions in the nation's nuclear weapons arsenal has prompted the Department of Energy to study ways to consolidate the agency's nuclear weapons complex. The agency's first choice is to centralize most of its nonnuclear operations, which produce nonnuclear components for weapons, in Kansas City, Missouri. A number of other nonnuclear activities would move to other DOE facilities or be privatized. GAO is concerned because the costs associated with this plan are uncertain and the technical risks of consolidation have not been thoroughly explored. DOE recognizes some of these weaknesses and is looking into other options, such as moving specific operations to the national laboratories. It is also doing more detailed cost estimates on other options. Some weaknesses, however, continue to receive little attention. Further analysis of additional policy options and technical risks is needed to assure the Congress and the public that all reasonable options have been explored and that DOE's approach will minimize risks. Moreover, a specific size for the complex has yet to be decided. GAO believes that the selection of the complex's size and capabilities sets a critical baseline for consolidation planning. Once parameters are placed on the future production capability of the complex, consolidation planning to establish that capability can go forward.

Nuclear Security: Improving Correction of Security Deficiencies at DOE's Weapons Facilities

GAO/RCED-93-10, 11/16/1992

Although it is critical that the nation's stock of nuclear materials be properly secured and safeguarded, routine Department of Energy security inspections in 1989 and 1990 uncovered more than 2,100 security deficiencies at 39 of its contractor-run weapons facilities. This report reviews attempts by DOE operating contractors to correct security deficiencies and examines how DOE supervises such contractor efforts. GAO evaluated 20 security deficiency cases at four nuclear weapons facilities and found that contractors are not adequately conducting four of the eight procedures considered necessary to ensure proper correction of deficiencies. The contractors cannot always prove that they have done three critical analyses—root cause, risk assessment, and cost-benefit—and

do not always adequately verify that corrective actions are appropriate, effective, and complete. At the same time, DOE oversight has been hampered by computer system incompatibility. DOE reviews of contractors' corrective action plans are sometimes untimely, and DOE cannot always show that it has validated contractors' corrective actions.

Nuclear Security: Safeguards and Security Planning at DOE Facilities Incomplete

GAO/RCED-93-14, 10/30/1992

Pursuant to a congressional request, GAO evaluated the Department of Energy's planning process for safeguards and security at numerous sensitive facilities and sites, focusing on: (1) the extent to which DOE has completed safeguards and security plans for sensitive facilities; (2) the extent to which DOE has completed such plans for the areas, or sites, surrounding these facilities; and (3) recently proposed modifications to the DOE safeguards and security planning process. GAO found that: (1) as of September 1992, DOE had not completed safeguards and security plans for 15 of its 27 sensitive facilities; (2) DOE may not complete many of the unfinished sensitive facility plans for some time because field offices have not completed vulnerability assessments for 8 of the 15 facilities; (3) reasons cited for slow progress in completing plans include lack of field office and headquarters staff to adequately support the planning effort and evolving program guidance throughout the planning process; (4) more than three-fourths of the safeguards and security plans for the sites surrounding the sensitive facilities were not complete as of September 1992; and (5) modifications to streamline and improve the DOE safeguards and security planning process include combining sensitive facility and site plans into one overall summary document, issuing a guide to facilitate the preparation of the document, and reorganizing the program offices to better monitor field offices' compliance with safeguards and security requirements.

Nuclear Weapons Complex: Issues Surrounding Consolidating Los Alamos and Lawrence Livermore National Laboratories

GAO/T-RCED-92-98, 9/24/1992

Testimony presented by Victor S. Rezendes, Director, Energy and Science Issues, before the House Committee on Science, Space, and Technology.

This testimony focuses on the Department of Energy's nuclear weapons laboratories. GAO discusses three main issues: (1) the research, development, and testing capabilities of the Los Alamos and Lawrence Livermore National Laboratories; (2) recent trends in staffing and funding at DOE's weapons laboratories; and (3) the options identified by the laboratories and DOE for consolidating the Los Alamos and Livermore research, development, and testing programs.

Nuclear Materials: Removing Plutonium Residues From Rocky Flats Will Be Difficult and Costly

GAO/RCED-92-219, 9/4/1992

The Department of Energy's Rocky Flats Plant, near Denver, Colorado, processed plutonium for nuclear weapons for nearly 40 years. Plutonium residues, a by-product of this activity, have been accumulating at the plant, and DOE now faces removing this material. The plant's latest inventory records for lean residues (materials with relatively low amounts of plutonium) show that 97,000 kilograms of solid residues and 14,000 liters of liquid residues—together containing about 2,900 kilograms of plutonium—are stored at the plant. To clean up Rocky Flats, DOE will have to remove these residues, a difficult task because the residues contain combustible materials and other characteristics that preclude shipping. DOE has not yet decided how it will eliminate the residue backlog at Rocky Flats. The agency is considering three basic alternatives—processing the residues to separate out the plutonium, shipping them to other facilities for processing, or disposing of them as wastes.

Nuclear Materials: Plutonium Processing in the Nuclear Weapons Complex

GAO/RCED-92-109FS, 8/20/1992

This fact sheet describes the methods and facilities that the Department of Energy uses to process plutonium for use in nuclear weapons. Plutonium is not found in nature and has to be artificially produced. DOE no longer manufactures new plutonium, however. Instead, DOE processes and recycles the plutonium from retired nuclear weapons and the plutonium that remains as scrap or residue from plutonium processing. In summary, DOE recovers plutonium in two main ways—aqueous and pyrochemical—at four processing sites. Due to environmental and safety

concerns and cuts in the numbers of nuclear weapons, only the Los Alamos processing facility is now up and running.

Nuclear Security: Weak Internal Controls Hamper Oversight of DOE's Security Program

GAO/RCED-92-146, 6/29/1992

The Department of Energy, overseer of the nation's nuclear weapons program, runs a broad range of plants and laboratories to carry out research, development, and production. Given the potentially devastating consequence of radiological sabotage or terrorism, tight security is a must at these facilities. Accordingly, DOE spends nearly $1 billion annually to protect them. GAO reviewed DOE's practice of granting exceptions to the agency's safeguards and security orders. Approved exceptions have ranged from exceptions to administration requirements, involving, for example, the labeling or marking of classified documents, to more substantive exceptions involving the inventory or storage of special nuclear materials. This report (1) cites the number of exceptions that have been approved, (2) determines whether DOE's written policies and procedures for reviewing and approving exceptions have been followed, and (3) describes the kind of internal control system used for monitoring and following up on individual exceptions.

Nuclear Weapons Complex: Status of Restart Issues at the Rocky Flats Plant

GAO/RCED-92-176FS, 6/22/1992

GAO reviewed the Department of Energy's efforts to resume plutonium operations at the Rocky Flats Plant in Colorado. This fact sheet provides information on (1) the process that is being used at Rocky Flats to identify and manage environment, safety, and health issues; (2) the overall status of these issues at Rocky Flats; and (3) the status of these issues at the buildings where DOE plans to resume plutonium operations.

Nuclear Weapons Complex: GAO's Views on Reconfiguring the Complex

GAO/T-RCED-92-49, 4/1/1992

Testimony presented by Victor S. Rezendes, Director, Energy and Science Issues, before the Department of Energy Defense Nuclear Facilities Panel, House Committee on Armed Services.

In addition to long-standing safety and environmental problems plaguing the nuclear weapons complex, the Department of Energy faces a major new challenge—how to reconfigure the weapons complex to meet the nation's defense needs in the 21st century. Key decisions still need to be made about the size of the complex; where, if necessary, to relocate various operations; what technologies to use for new tritium production; and what to do with excess weapons-grade material. The choices confronting DOE and the Congress are difficult given the conflicting demands for limited resources.

Nuclear Weapons Complex: Improving DOE's Management of the Environmental Cleanup

GAO/T-RCED-92-43, 3/30/1992

Testimony presented by Victor S. Rezendes, Director, Energy and Science Issues, before the Department of Energy Defense Nuclear Facilities Panel, House Committee on Armed Services.

Sound, credible management systems are essential to the Department of Energy's cleanup of the nation's nuclear weapons complex. Addressing the environmental problems created by nearly half a century of nuclear weapons production is a herculean task. DOE and the Congress will need to make hard choices between the weapons complex cleanup and other national needs. Management systems to set priorities, estimate project costs, and track programs will be critical to this decision-making. While DOE is making progress on these systems, further steps are necessary to improve the prioritization system and determine how it will be used, refine how DOE estimates costs, and complete and expand the Progress Tracking System.

Nuclear Weapons Complex: Major Safety, Environmental, and Reconfiguration Issues Facing DOE

GAO/T-RCED-92-31, 2/25/1992

Testimony presented by J. Dexter Peach, Assistant Comptroller General, before the Senate Committee on Governmental Affairs.

The Department of Energy faces a monumental task in addressing the legacy of safety and environmental problems created by almost a half century of nuclear weapons production and, at the same time, addressing important issues about the size and structure of the complex in light of a substantially reduced nuclear weapons arsenal. The cost will be large and the difficulties immense. This testimony discusses the (1) progress DOE has made in developing and implementing a safety policy and culture, (2) major challenges DOE faces in cleaning up the weapons complex, and (3) key issues DOE faces in reconfiguring the complex in light of weapons reductions.

Science and Technology

Federal Research: Assessment of the Financial Audit for SEMATECH's Activities in 1991

GAO/RCED-93-50, 12/11/1992

GAO found no indication during its review that the opinion of Price Waterhouse on SEMATECH's 1991 financial statements, its report on internal control structure, or its report on compliance with laws and regulations cannot be relied upon. In its report on SEMATECH's 1990 financial statements, GAO recommended that the Pentagon require funds to be disbursed through a letter of credit instead of being disbursed in advance through quarterly payments to SEMATECH. The Defense Department has agreed to modify its procedure in January 1993, when it revises the grant agreement, by providing advance payments to SEMATECH on a monthly basis. Five member companies acknowledge including part of their SEMATECH contributions as overhead costs on government contracts that they held. Although allowable under government cost accounting principles, reimbursing members' contributions through overhead serves indirectly to increase the government's overall support for SEMATECH. GAO notes, however, that even if the amounts included as overhead were added to federal and state government contributions, member companies would still have paid their required 50 percent of SEMATECH's costs.

Technology Transfer: Barriers Limit Royalty Sharing's Effectiveness

GAO/RCED-93-6, 12/7/1992

Despite the introduction of royalty-sharing programs at government laboratories, federal scientists' interest in patenting has not increased. Many scientists said that the small financial rewards, such as those paid under some royalty-sharing programs, offer little incentive to patent. For example, 17 of 21 agencies GAO reviewed use royalty-sharing formulas that often pay an individual only a few hundred dollars for an invention. GAO also found inadequate financial controls over payments to inventors. In addition, agency management is using virtually all of the laboratory's share of invention income to cover the administrative costs of transferring federal technology to U.S. companies, meaning that the benefits of royalty sharing are not visible to other potential inventors.

Federal Research: Lessons Learned From SEMATECH

GAO/RCED-92-283, 9/28/1992

SEMATECH—formed in 1987 to help the United States regain its leadership role in semiconductor production—has shown that a government-industry research and development alliance can help improve a U.S. industry's technological position while protecting the government's interest that the consortium be managed well. Whether this feat can be replicated and what conditions would lead to this result in other cases is uncertain. This report discusses the specific strengths and weaknesses of SEMATECH and makes suggestions to the Congress in considering any future support for consortia intended to improve the competitive position of U.S. manufacturers.

High-Technology Competitiveness: Trends in U.S. and Foreign Performance

GAO/NSIAD-92-236, 9/16/1992

Debates about U.S. policy on everything from trade to education have increasingly focused on the ability of American producers to compete successfully in global markets. High-technology products have received considerable attention because their strong performance has been linked to increases in overall economic performance and growth. This report assesses U.S. competitiveness in high-technology areas, considering, in particular, trends in U.S. performance over the last decade and comparisons with Japan. GAO considers several basic questions. First, what is the significance of high-technology performance and how well can it be measured? Second, what do measures of overall U.S. performance in high-technology areas suggest? And third, for 11 industries—pharmaceuticals, civilian aircraft, telecommunications equipment, fiber optics, semiconductors, semiconductor equipment and materials, robotics, flexible manufacturing systems, supercomputers, advanced materials, and consumer electronics—what has been the relative performance of U.S. producers and U.S. research efforts during the past decade?

Federal Research: System for Reimbursing Universities' Indirect Costs Should Be Reevaluated

GAO/RCED-92-203, 8/26/1992

For every dollar spent on federally funded university research, the government pays another 50 cents for overhead, or indirect costs. Because of inadequate federal guidance and oversight and weak internal controls at the universities, the government has been charged millions of dollars for unallowable and questionable overhead costs, including entertainment, foreign travel, and utility bills. Although the universities and government have sought to address problems with overhead billing, their actions could escalate indirect costs even further. For example, the universities will likely try to bill the government for any costs associated with (1) improving their accounting systems and internal controls and (2) responding to new government requirements. In GAO's view, the depth and persistence of the problems and the upward trend in indirect charges over the years make this an opportune time to consider basic changes to the reimbursement system. This report discusses advantages and disadvantages of several alternative approaches to restructuring the reimbursement system. GAO believes that regardless of any long-term solution chosen, it is inefficient to have both the Department of Health and Human Services (HHS) and the Defense Department running the program, particularly when they are using fundamentally different approaches. HHS negotiates indirect cost rates that limit the federal reimbursement, resulting in an average indirect cost rate of about 50 percent, whereas DOD provides for full recovery of the universities' claimed allowable indirect costs, resulting in a cost rate of 59 percent.

Federal Research: SEMATECH's Technological Progress and Proposed R&D Program

GAO/RCED-92-223BR, 7/16/1992

SEMATECH—the government-industry research and development consortium formed in 1987 to help the United States regain world leadership in semiconductor manufacturing by the end of 1992—appears to be on schedule for achieving its objective, but the Pentagon plans to phase out future direct funding for the consortium despite member companies' support for continued funding. The 1992 goal of producing state-of-the-art semiconductors using only U.S. equipment will likely be achieved, although this capability will enable U.S. industry to only reach parity with—not surpass—the Japanese. U.S. semiconductor

manufacturers and equipment suppliers seem to have stemmed the decline in their worldwide market share. How much credit SEMATECH should get for this turnaround is unclear, however. The Defense Department has proposed phasing out funding earmarked for SEMATECH at the end of this year. Under the proposal, projects at SEMATECH and other groups would be funded on a case-by-case basis. The agency plans to spend $80 million annually on semiconductor research during the next 5 years. SEMATECH member companies, citing both national defense and economic benefits, support continued federal backing for SEMATECH. This report also details SEMATECH's expenditures during its first 5 years and its proposed budget after 1992.

Grant Management: Benefits and Burdens of Increasing NSF Financial Reporting Requirements

GAO/RCED-92-201BR, 7/13/1992

The National Science Foundation (NSF), an independent federal agency established more than 40 years ago to bolster scientific progress in the United States, funded more than 25,000 active research grants in 1992, mainly at universities. Because of congressional concerns about NSF's ability to effectively manage its growing volume of grants—NSF relies heavily on grantee institutions to ensure that funds are spent in accordance with federal guidelines—this fact sheet provides information on NSF's financial reporting requirements. GAO discusses (1) NSF financial reporting requirements, (2) the extent to which NSF grant funds have been shifted between budget categories and whether large individual budget shifts were used appropriately under current NSF guidelines, and (3) the views of NSF and university officials on increased financial reporting requirements.

University Research: Controlling Inappropriate Access to Federally Funded Research Results

GAO/RCED-92-104, 5/4/1992

During the 1980s, the increasing importance of university research to technological innovation forged new links among industry, academia, and government. The federal government spent $9.6 billion sponsoring research at universities in fiscal year 1990, while business outlays for such research topped $1 billion that year. Closer ties between universities and the private sector raise concerns, however, about possible conflicts of

interest or other relationships that might give businesses inappropriate access to and therefore an unfair advantage in commercializing the results of federally funded research. Requiring that investigators and other key personnel disclose outside interests as part of the grant award process, which both the National Institutes of Health and the National Science Foundation are considering, is an essential first step toward improving university management controls over potential conflicts of interest. But GAO believes that additional steps are warranted to strengthen these controls and to address the ability of industrial liaison program members to get advance access to the results of federally funded research.

Federal Research: Assessment of the Financial Audit for SEMATECH's Activities in 1990

GAO/RCED-92-97, 4/9/1992

In this third annual audit of the financial statements of SEMATECH, Inc., a consortium of U.S. semiconductor manufacturers and the Defense Department, GAO concludes that Price Waterhouse's opinion on SEMATECH's 1990 financial statements and its reports on internal control structure and compliance with laws and regulations should be reliable. While it has incorporated GAO recommendations in its 1990 financial statements, SEMATECH did not disclose postemployment payments to its former chief operating officer as GAO had suggested. An earlier GAO report found that at least two of SEMATECH's member companies had included part of their SEMATECH contributions for reimbursement as overhead costs on government contracts they held, a practice that indirectly boosts the federal government's overall outlay for SEMATECH's research and development activities. One of these companies has changed its accounting practices so that its SEMATECH contributions are now primarily expensed against profits from its commercial business. SEMATECH retains larger on-hand balances of government funds than it needs to meet normal operating expenses, reimbursing interest earned on these cash balances to the U.S. Treasury. If DOD continues to fund SEMATECH activities or participate in other joint industry-government consortia, it should disperse funds through a letter of credit rather than by advance payments to the consortium.

NSF Review: Review Process for the National Science Foundation's Science and Engineering Pipeline Study

GAO/T-RCED-92-24, 4/8/1992

Testimony presented by James E. Wells, Jr., Associate Director, Energy and Science Issues, before the Investigations and Oversight Subcommittee, House Committee on Science, Space, and Technology.

The National Science Foundation's 1987 study entitled "The Science and Engineering Pipeline" was approved by several layers of NSF officials, and the internal review the study received appears to have followed NSF procedures. Information reported in a September 1991 NSF letter, however, may have given the impression that the study received more formal external review than was the case. GAO contacted nine individuals mentioned in the letter and discovered that eight of them had not provided formal review in the form of written or oral comments. When GAO brought this matter to the attention of NSF officials, they said that they used the word "review" to mean "professional interaction," which includes discussions within the professional community on concepts and topics related to the study.

Federal Research: Small Business Innovation Research Program Shows Success but Can Be Strengthened

GAO/T-RCED-92-45, 3/31/1992

Testimony presented by James E. Wells, Jr., Associate Director, Energy and Science Issues, before the Innovation, Technology, and Productivity Subcommittee, Senate Committee on Small Business.

GAO discussed the Small Business Innovation Research Program (SBIR), focusing on: (1) whether the SBIR Program has met its goals; (2) the reasons for minority and disadvantaged businesses' low level of Phase III SBIR Program activity; (3) the level of foreign investment and attention that SBIR awardees have attracted; and (4) changes that could improve the program. GAO noted that: (1) the SBIR Program is showing success in Phase III activity even though many projects have not had sufficient time to achieve their full commercial potential; (2) SBIR-funded research and development is moving toward increased private-sector commercialization, since the majority of sales and additional developmental funding comes from the private sector; (3) the quality of SBIR research compared favorably with other federal research; (4) minority

and disadvantaged businesses are achieving a lower level of activity than other companies in Phase III and lower sales levels; (5) domestic involvement in SBIR is substantially higher than foreign involvement; and (6) project sales averages vary by agency. GAO believes that, to strengthen the program: (1) the Department of Defense needs to increase private-sector commercialization without weakening its commitment to meeting its own mission-related goals; (2) federal officials need to clarify the contractual procedures for entering into Phase III follow-on non-SBIR-funded production contracts; and (3) federal officials need to determine whether the company or the agency should perform additional post-program work.

Federal Research: Small Business Innovation Research Shows Success but Can Be Strengthened

GAO/RCED-92-37, 3/30/1992

As a nation competing in a global economy, the United States depends heavily on research and development. The Small Business Innovation Research Program was created in 1982 to strengthen the R&D role of small, innovative companies. Even though many program projects have not yet had enough time to achieve their full commercial potential, the program is showing success in Phase III, which involves the use of nonfederal funds for commercial application of a technology. Most Phase III activity took place in the private sector, showing a trend toward one of the program's goals—increasing private-sector commercialization. Major federal agencies, however, differ in their responses to this goal, as shown by their wide variation in average sales per project and the percentage of sales to the private sector. GAO notes three issues that need to be addressed: (1) the extent of the Defense Department's commitment to the goal of increasing private-sector commercialization, (2) inconsistent practices in requiring competition for projects entering Phase III, and (3) the need to clarify the circumstances under which an agency may work on its own or continue working with the company through follow-on contractors after program funding ends.

Federal Research: Small Business Innovation Research Program Shows Success But Can Be Strengthened

GAO/T-RCED-92-32, 2/26/1992

Testimony presented by Keith O. Fultz, Director, Planning and Reporting, before the Technology and Competitiveness Subcommittee, House Committee on Science, Space, and Technology.

See abstract for GAO/RCED-92-45, 3/31/92

Federally Sponsored Research: Indirect Costs Charged by Selected Universities

GAO/T-RCED-92-20, 1/29/1992

Testimony presented by J. Dexter Peach, Assistant Comptroller General, before the Oversight and Investigations Subcommittee, House Committee on Energy and Commerce.

In testimony last year, GAO discussed how Stanford University charged excessive indirect research costs, or "overhead" as it is commonly known, to the federal government. (See GAO/T-RCED-91-18, 3/13/1991). This testimony focuses on three other institutions: Harvard Medical School, the Massachusetts Institute of Technology, and the University of California at Berkeley. GAO found many deficiencies in the cost allocation methods and charging practices at the three schools. In some cases, GAO discovered problems that the university, the university's external auditors, or government agencies had already reviewed but had not questioned. These problems arose because (1) certain Office of Management and Budget (OMB) Circular A-21 criteria were inadequate for determining which types of costs should be allowed or how costs should be properly allocated among different university functions; (2) universities generally lacked adequate systems and internal controls to ensure that only allowable indirect costs were charged to the government; and (3) lax oversight practices by federal agencies had resulted in universities claiming excessive indirect costs. Since the March 1991 hearings, all parties involved have taken steps to address these problems. However, GAO believes that this is an opportune time to reexamine the federal government's approach to reimbursing universities for indirect costs. Both OMB and the Department of Health and Human Services have already established task forces on the cost reimbursement system. Several proposals have been offered, both for simplifying the process and for

reducing overall expenditures for indirect costs through the application of caps or fixed rates on the various categories of indirect costs. GAO plans to revisit this issue in an upcoming report.

Special Publications

Special Publications

Energy Issues

GAO/OCG-93-13TR, Dec. 1992

The transition series, a set of 28 reports, summarizes GAO's findings on major problems confronting federal agencies, as well as economic and management issues facing the Congress and the incoming administration. One cluster of transition reports, including those on the budget deficit and investment, addresses broad policy issues affecting government as a whole and its relationship to the economy. Another group of reports addresses issues affecting specific federal agencies, such as the Defense Department and the Internal Revenue Service. A third group of reports looks at cross-cutting management issues—everything from financial management to information management. GAO highlighted many of these problems in a similar set of reports issued in 1988. In some instances, progress has been made; all too often, however, the problems have continued to fester and grow worse. In general, the state of management in the federal government is poor. Too many management ideas—and resulting agency structures and processes—that worked well in the past now hinder the government from responding quickly and effectively to a world in tremendous flux. Most agencies have no strategic vision of the future, lack sound systems to collect and apply financial and program information to gauge operational success and accountability, and too often do without people with the skills necessary to accomplish their missions.

Department of Energy Contract Management

GAO/HR-93-9, Dec. 1992

Many GAO audit reports have spotlighted the effect of management failures in the federal government—waste, inefficiency, and even scandal. Political leaders have been forced to spend too much time reacting to surprises like the Department of Housing and Urban Development debacle rather than doing the work the agencies were created to do. GAO began its high-risk program to identify those high-dollar government programs most vulnerable to fraud, waste, abuse, and mismanagement. The resulting high-risk series of reports, which examine the federal government's efforts to identify and correct problems in 17 especially vulnerable areas, fall into three main categories: lending and insuring, contracting, and accountability. Many of the root causes of the problems afflicting these government programs are traceable to the absence of fundamental processes and systems. GAO urges that future congressional oversight

focus on the agency reports and audited financial statements required by the Chief Financial Officers Act, agency management's progress in correcting material weaknesses in program internal control and accounting systems, and federal agency efforts to develop and implement performance standards.

Energy Reports and Testimony: 1991

GAO/RCED-92-120, Mar. 1992

From the Persian Gulf War to the collapse of communism, world events significantly shaped GAO's work on energy topics in 1991. This annual index references GAO documents published last year in this issue area. Summaries of GAO reports and testimony are grouped under several subject headings. To assist the reader in obtaining documents, an order form is included.

Meeting the Energy Challenges of the 1990s: Experts Define the Key Policy Issues

GAO/RCED-91-66, Mar. 1991

The nation's economy, environmental quality, defense, and international strategy are inextricably linked to energy choices. Past GAO work has identified five major issue areas associated with energy policy: energy supply and demand, energy and the environment, management challenges at the Department of Energy, DOE's nuclear weapons complex, and energy research and development. In July 1990, GAO sponsored a conference to examine emerging issues in these five areas. Representatives from government, industry, research institutions, and citizens' groups assessed the challenges facing the federal government, the states, and industry on these topics during the 1990s. This report is a compendium of the presentations made by attendees during five panel discussions.

Energy Reports and Testimony: 1990

GAO/RCED-91-84, Jan. 1991

This annual index provides a listing and summary of GAO documents directly related to energy that were issued between January and December 1990.

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☐ Nuclear Health and Safety: Mortality Study of Atmospheric Nuclear Test Participants Is Flawed GAO/RCED-92-182, 8/10/92

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