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Energy Issues



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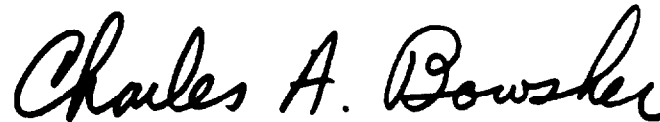
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The President of the Senate
The Speaker of the House of Representatives
The Secretary-designate of Energy

This report is one of a series that summarizes major policy, management, and program issues facing agency heads in the new administration. Through our work in these areas, we have identified many concerns—some relatively new, others long-standing. In a number of cases, we have recommended actions to the Secretary and to the Congress to deal with unresolved problems.

This report on the Department of Energy describes our concerns about the following issues: (1) modernizing and managing the safe operation of the Department's nuclear weapons complex, (2) reducing the nation's vulnerability to oil disruptions, (3) developing a nuclear waste program, (4) commercializing clean coal technologies, (5) responding to changes in the electric utility industry, (6) improving controls over the export of sensitive nuclear data, and (7) revitalizing the uranium enrichment program.



Charles A. Bowsher

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Modernizing and Safely Operating the Nation's Nuclear Weapons Complex

Much of the Department of Energy's (DOE) nuclear weapons facilities have deteriorated and present serious operational, safety, and environmental problems. Dealing with these problems poses formidable but essential tasks, including (1) upgrading existing facilities, (2) decontaminating obsolete facilities, (3) disposing of stored radioactive waste, and (4) cleaning up environmental contamination. While data are preliminary, the costs of dealing with these problems will be over \$100 billion and possibly much higher.

For several years, we have voiced serious concerns about the effectiveness of DOE's management and safety oversight of the weapons complex. Inadequate attention to safety and environmental concerns over the years has created serious credibility problems for DOE. DOE needs to emphasize to line managers their responsibility and accountability for dealing with safety and environmental problems while also strengthening its internal capability for ensuring the problems are being identified and resolved.

The Nuclear Weapons Complex Has Deteriorated

DOE must develop a strategy for prioritizing and addressing problems at the nuclear weapons complex.

In March 1987, we called for DOE to develop a strategic approach for prioritizing and addressing problems at the nuclear weapons complex. DOE has promised to develop a strategy by December 1988 that will include the costs and time frames for modernization. DOE must ensure that this strategy is comprehensive and does not become an academic exercise. It should be a "road map" for the future—an evolving document that changes as DOE's information about the complex is fine-tuned, so that the Congress and the administration can make informed decisions and establish priorities on the most complete, up-to-date information.

The cost of addressing the problems at DOE's defense complex is staggering. While data are preliminary, we estimate the cost will be from about \$100 billion to over \$130 billion. Modernization plans under consideration, including expanded plant capabilities and relocation of some facilities, could add another \$15 billion to \$25 billion. These cost estimates are not firm and are likely to increase. The administration must weigh these costs against competing priorities in a deficit-conscious environment. The December 1988 strategy statement should include preliminary information regarding the timing of these expenditures.

DOE Lacks
Adequate Oversight

Oversight roles and functions regarding both DOE's internal and newly established independent, external review of operations need strengthening.

In concert with developing its modernization strategy, DOE needs to strengthen its internal program to oversee the complex. For example, specifically budgeting and accounting for funds dedicated to waste management and cleanup will provide clear information to the Congress concerning how DOE is funding activities to comply with important environmental laws. DOE should also establish meaningful safety standards and implementation policies to ensure continued safe operation of existing facilities and to use as baseline safety criteria for developing the strategy for the complex. In addition, the Congress should legislatively establish the position of Assistant Secretary for Environment, Safety, and Health to ensure that these important issues have the statutory base that ensures internal visibility and attention by top DOE management, especially when compared with nuclear materials production.

The Congress recently established an external group to independently oversee the health and safety activities of DOE's

nuclear facilities. However, some production and waste storage facilities are exempt from this oversight. Given the sensitivity of public concerns about nuclear power and DOE's track record, such oversight may need strengthening to provide a higher assurance that DOE's current facilities are operated, and new facilities are designed, in a safe and environmentally acceptable manner.

Reducing U.S. Vulnerability to Oil Disruptions

Lower oil prices since 1986 have triggered three potentially negative trends—increasing oil consumption in the transportation sector; rising oil imports, particularly from the Organization of Petroleum Exporting Countries (OPEC); and a further decline in U.S. oil production. A continuation of these trends, together with an anticipated reduction in worldwide non-OPEC oil supplies at some point during the next decade, may increase U.S. dependence on oil from OPEC producers in the Middle East.

Although the United States is currently well-positioned to cope with an oil supply disruption—principally through the continued development of the Strategic Petroleum Reserve (SPR)—its ability to respond to future disruptions could prove inadequate. Policymakers can help reduce both overall dependence on oil and vulnerability to future disruptions by focusing actions in four areas.

The Transportation Sector

Policies should encourage alternative fuels and emphasize more efficient fuel use.

Transportation accounts for two-thirds of all oil used in this country. Not only is this sector 97-percent dependent on oil, it is the only sector of the economy in which oil consumption has continued to increase

over the last decade. Thus, policymakers would be wise to develop alternative fuels and improve energy efficiency in this sector. Four policy instruments available to the government for this purpose are (1) fuel efficiency standards, (2) gasoline taxes, (3) research and development programs for alternative fuels and vehicle prototypes, and (4) regulations governing fuel and/or vehicle use.

There have been two recent governmental actions in this area with potentially different effects on oil use in the transportation sector. Legislation has recently been approved that provides incentives for the manufacturing of vehicles using alternative fuels, e.g., methanol and ethanol. These incentives would provide credits towards meeting automobile efficiency standards for vehicles capable of using alternative fuels and would fund a government demonstration program of alternative fueled vehicles. On the other hand, the Department of Transportation has recently announced the relaxation of the automobile efficiency standards for the 1989 model year from 27.5 to 26.5 miles per gallon.

The Strategic
Petroleum Reserve

Policymakers should continue to build
strategic stocks and resolve early response

disputes in the International Energy Agency.

U.S. policymakers should continue to improve energy security by supporting the development of the SPR and encouraging similar measures in other major industrial countries. Oil stockpiling, however, is not the only measure that can potentially mitigate the effects of a severe disruption. While some International Energy Agency (IEA) members intend to use their oil stockpiles, others have said they intend to rely initially on measures designed to reduce oil demand during a crisis. Many observers contend that some IEA countries will receive a “free ride” if the United States releases its stocks and other members delay the release of their own stocks in favor of using demand restraints. U.S. policymakers need to reach agreement with other IEA members on the appropriateness and timing of these various response measures.

**Other Emergency
Response Measures**

Policies should include standby measures to avoid overreliance on the SPR during a disruption.

Programs to supplement the SPR, such as driving restrictions or low-income energy assistance, may help mitigate the effects of a disruption. If the SPR does not operate

as planned, such measures, if tested and readied for implementation, would be available to help fill the void until problems are resolved. In a related issue, federal-state coordination in energy emergency planning should be an integral component of this nation's energy policy. By maintaining open lines of communication and exchanging information on decisions before, during, and after an emergency, the federal and state governments can better manage the harmful effects of a disruption.

The Economic and
Regulatory
Atmosphere

DOE and others must work to maintain a stable economic and regulatory atmosphere that encourages investments in oil and alternative energy sources.

Rapid price movements are widely perceived as disruptive to the interests of oil producers and consumers alike. Conversely, gradual and predictable price movement provides time for efficient planning by all affected groups. Recent discussions and studies have sought ways to protect against disruptive price swings without excessive government intrusion. Among various proposed measures are a price floor on imported oil to protect domestic energy projects from rapid, and perhaps politically motivated, price reductions and the use of the SPR to avert rapid

price increases even in situations where a full-blown disruption is not imminent. Discussions of the merits and shortcomings of these proposals by the government and industry may lead to increased stability and improve the environment for U.S. energy interests.

Further, a small number of countries may control a significant portion of U.S. energy supplies well into the next century. Access to these sources must remain among the highest priority foreign policy goals of our government. DOE must work closely with the State Department to assure that State is fully informed on issues of energy supply and thus able to pursue U.S. interests effectively in its contacts with foreign governments and international organizations.

Developing a Credible Program for Nuclear Waste Disposal

Thousands of tons of highly radioactive waste continue to accumulate at over 100 commercial reactors and at DOE facilities. The Nuclear Waste Policy Act of 1982 provided for the permanent disposal of these wastes in underground repositories to be financed by fees collected from utilities and DOE.

The Congress revised the act in December 1987, however, in response to continuing opposition to DOE's efforts to identify sites for two repositories and estimates of program costs that had increased from \$23 billion to over \$30 billion (in constant 1987 dollars). The Congress directed DOE to investigate only one candidate repository site—Yucca Mountain, Nevada—but limited the amount of waste that can be disposed of in the repository until a second one is ready to operate. DOE is required to report on the need for a second repository between 2007 and 2010. The Congress also authorized DOE to develop a facility to receive, package, and temporarily store waste prior to its disposal in the repository but conditioned development of the facility on progress in developing the repository.

The estimated cost to develop and operate these facilities and potentially a second

repository, coupled with much lower current projections of waste that will be generated by commercial reactors, raise questions about the amount of disposal capacity required, the timing of facility development, and the adequacy of current disposal fees.

In addition, technical and environmental concerns at the Waste Isolation Pilot Plant, authorized by the Congress to store transuranic waste, raise serious questions that must be addressed before DOE can demonstrate that the facility is suitable as a repository for permanent disposal of this type of waste.

Establish Capacity
of Yucca Mountain
Now

Earlier and more complete evaluation of the disposal capacity of Yucca Mountain could avoid the need for additional, more expensive investigation in the event of a future decision to expand the repository.

DOE intends to investigate the suitability of Yucca Mountain for a repository between 1989 and 1994. If the investigation results are positive and the site is selected, DOE will seek approval from the Nuclear Regulatory Commission to build a repository capable of holding up to 70,000 metric tons of waste. If, in about 20 years, the quantity of waste is expected

to exceed that amount, then DOE will recommend either that the Yucca Mountain repository be enlarged or that a second repository be developed.

We have found that

- the total amount of waste expected to be produced over their useful lives by existing nuclear power plants and government defense programs, originally estimated at about 160,000 metric tons, is currently estimated at only 96,000 to 105,000 metric tons;
- DOE is uncertain if the Yucca Mountain site can accommodate this amount; and
- adding a second repository would increase the cost of the waste program by about \$8 billion.

Reassess Storage
Facility Benefits

DOE needs to identify, with supporting analyses, the benefits and costs of a facility for monitored retrievable storage of wastes when development of the facility is tied to progress in developing a repository.

In March 1987 DOE proposed developing a facility in Tennessee to receive, process, and temporarily store wastes before shipping them to a repository for disposal. DOE estimated that the facility would add

about \$1.5 billion to waste program costs. Among other reasons, DOE wanted to build the facility to meet its contractual obligation to begin accepting waste in 1998 instead of 2003 when it expected to open a repository.

The Congress authorized the facility but, to ensure that the facility will not detract from repository development, prohibited DOE from constructing it until the Nuclear Regulatory Commission has authorized construction of a repository. This and similar conditions will prevent DOE from implementing its waste system early as it had anticipated. For example, the existing conditions would not permit DOE to use the facility to achieve its objectives of

- planning and implementing key waste system elements, such as transportation routing requirements, 5 to 8 years before opening the repository;
- eliminating the need for 10,000 metric tons of new waste storage capacity at nuclear plants, thereby saving utilities up to \$1 billion; and
- gaining experience in interacting with state and local governments that would aid in repository development.

Eliminating these perceived benefits raises questions about whether the facility is now worth its additional cost to the waste program. The Congress has established a Monitored Retrievable Storage Review Commission to study the need for the facility and report its findings to the Congress on June 1, 1989. The Commission needs the benefit of DOE's reevaluation of the facility to ensure that it has the best information for its report.

Address
Uncertainties of
Waste Isolation Pilot
Plant

DOE needs to address many uncertainties with the plant before the facility is used as a repository for transuranic waste.

In December 1979, the Congress authorized DOE to build and operate a facility for the safe disposal of transuranic waste (material that is contaminated with man-made radioactive elements). The facility is essentially constructed, and DOE soon plans to store waste in it; however, we recently testified that a technical issue—the amount of brine seepage that might occur—and environmental concerns might prevent the facility from meeting the Environmental Protection Agency's standards for nuclear waste repositories.

DOE must be prepared to answer several questions about the consequences of the facility being judged unsuitable after a

planned demonstration phase is complete, including (1) the feasibility of retrieving waste from the facility, (2) costs of retrieval, and (3) decisions about where the retrieved wastes would be stored.

Commercializing Clean Coal Technologies

To develop additional electrical generating capacity for expected demand increases, utilities will need to decide whether to build new plants or upgrade existing ones. Because emissions from coal-fired plants contribute to acid rain, utilities' decisions will be largely influenced by the technological options available and acid rain control requirements the Congress may enact. DOE and the Congress need to foster development of cost-effective ways to burn coal more cleanly, both to control acid rain and to improve our energy security by reducing dependence on imported oil and gas.

Clean Coal Program Should Focus on Promising Technologies

DOE should focus the Clean Coal Technology Program on the more promising technologies that utilities will be likely to adopt.

DOE's Clean Coal Technology Program, a 5-year, \$5-billion, cost-shared demonstration program, is designed to encourage the commercialization of emerging clean coal technologies by providing federal funding of up to 50 percent, or about \$2.5 billion, of project costs. Utilities may not adopt emerging clean coal technologies unless they have been proven technically reliable, cost-effective, and environmentally acceptable.

The Electric Power Research Institute has estimated that for similar technologies to those being demonstrated under the Clean Coal Technology Program, the commercial availability dates range from 1992 to 2000, with most potentially available in the mid-1990s. According to the Institute, some technologies are further along the process of commercialization than others but are not "on the market," in the sense of being mature technologies with numerous units installed or ordered for commercial operation, and with well-defined cost, performance, and risk profiles. The Institute pointed out that clean coal technologies need to be replicated in several demonstration projects to encourage their commercialization. Therefore, in addition to funding the development of emerging clean coal technologies, DOE should also support multiple demonstrations of the most promising technologies that utilities would be likely to adopt.

Controlling Acid
Rain Should Be
Linked to Clean Coal
Technologies

Acid rain control legislation should be linked with the Clean Coal Technology Program.

About 20 bills to control acid rain have been introduced in the Congress since January 1987. Most would amend the Clean Air Act by requiring reductions in sulfur

dioxide and nitrogen oxide emissions associated with fossil fuel combustion. The bills contain varying compliance dates, target levels for emissions reductions, or other provisions to control emissions that cause acid rain.

The enactment of acid rain control legislation could affect the future use of emerging clean coal technologies. If legislative compliance deadlines take effect before funded technologies are commercially available, or if target levels to reduce emissions are higher than the technologies can attain, utilities would be likely to comply with the new requirements by switching to low-sulfur coal, cleaning coal before combustion, or using scrubbers to remove sulfur dioxide from coal combustion gases. However, coal switching could disrupt the high-sulfur coal mining industry; current coal-cleaning methods have not been highly effective in reducing emissions; and utilities investing heavily in scrubbers on existing plants are not likely to expend additional resources to acquire newly developed clean coal technologies for those same plants. Consequently, the Clean Coal Technology Program's potential benefits could be unrealized for a large portion of the power plants that now use coal-fired boilers.

While the Congress is debating legislative proposals for controlling acid rain, DOE should propose an approach to the Congress that links compliance dates for emissions reductions with the expected commercial availability of emerging clean coal technologies.

Responding to the Changing Infrastructure of Electric Utilities

In the 1970s electric utilities' previously stable environment dramatically changed following disruptions in the world oil markets and the accident at the Three Mile Island nuclear power plant. By the mid-1980s the electric utility industry was characterized by (1) geographic areas with surplus electric generating capacity, (2) little construction of new power plants, (3) a need for additional generating supplies in some regions to meet electricity demand in the mid-1990s, and (4) financial difficulties for some utilities. As the 1990s approach, the infrastructure of the electric utility industry is changing in response to uncertainties in its operating environment.

Non-Utility Sources of Electricity Supply Are Increasing and Utility Corporate Structures Are Changing

DOE should monitor the current trends in (1) non-utility development of electricity generating sources, with particular emphasis on whether this trend will lead to an adequate and reliable supply of electricity and (2) the utility industry's changing corporate infrastructure.

Rather than initiate new power plant construction, a growing number of utilities are seeking to purchase power from other utilities or from non-utilities that are becoming the new suppliers of electricity. The trend for utilities to purchase power rather than to construct generating facilities appears to stem from the perception of

high financial risks and unfavorable state regulatory treatment of construction costs for power plants.

Additionally, corporate restructuring is occurring in an apparent effort to improve utilities' financial situations. Some utilities are merging, while others are selling and then leasing back generating facilities. In other instances, utilities are diversifying by forming subsidiaries in utility- and non-utility-related business. Another change is increased formation of utility holding companies.

Utilities' reluctance to undertake major construction of power plants and individual utility corporate restructuring efforts have led to concerns by some Members of Congress and others within the industry. Major questions are whether non-utility development of generation sources will result in an adequate and reliable supply of electricity to meet future needs, and what effect corporate restructuring efforts will have on the industry. A clearer understanding of the nature of the changing utility industry would appear to be a first step in resolving these concerns.

Federal Regulatory
Purview Over
Electric Utility
Activities Is
Expanding

DOE should monitor the changing nature of utility regulation and the Federal Energy Regulatory Commission's proposed rulemakings to ensure that issues besides electricity rates are addressed.

Regulation of electricity rates is shifting from the states to the federal government. The number of wholesale electric power transactions, which are regulated by the Federal Energy Regulatory Commission (FERC), is increasing as utilities seek to purchase supplies rather than construct generating facilities. At the same time, federal regulatory proposals signal a trend toward increasing competition among potential power suppliers as a means of establishing electricity rates. Three recent FERC proposed rulemakings are intended to clarify the pricing of power from non-utility sources (cogenerators and small power producers), to promote competitive all-source bidding for new supplies of generation, and to relax the regulation of non-utility power producers.

A concern of many within the electric utility industry related to the FERC proposals is the failure of FERC to address the key issue of transmission access and its inter-relationship to the proposals. While FERC has indicated its plans to address transmission access in upcoming proposals,

industry representatives believe the current proposals, as well as transmission access issues, need to be addressed concurrently. A more comprehensive overview of the changing federal regulatory purview over electric utilities and its consequences appears warranted.

Improving Control Over Nuclear Weapons Information, Technology, and Exports

The proliferation of nuclear weapons remains a global concern. It is widely believed that countries are pursuing—or may have achieved—the capability to produce the necessary plutonium or enriched uranium and to develop the technology and components needed for nuclear weapons. Reports of Israel's nuclear arsenal, Pakistan's nuclear weapons capability, and the possibility that these and other nations try to obtain nuclear weapons information and technology from the United States, have heightened proliferation concerns.

Controls Do Not Protect Unclassified Weapons Information

DOE must have effective controls over information that it develops on nuclear weapons and exports of nuclear material and technology for peaceful purposes.

Since 1974, when India exploded a nuclear device, the United States has tried to limit weapons proliferation by strengthening its controls over information, technology, and equipment that could assist those nations believed to be developing nuclear weapons. The major control mechanism—classification of weapons information and technology—protects only the most sensitive weapons data. However, other nuclear-related technology and components have commercial applications (dual-use) and are readily available. Under the Atomic Energy Act, as amended by the

Nuclear Nonproliferation Act, several agencies, including DOE, oversee and approve the export of U.S. nuclear-related technology and information. In addition, the act provides DOE authority to limit the dissemination of information related to nuclear weapons development and production.

Nevertheless, countries known to be interested in developing weapons routinely obtain unclassified data published by DOE and other commercially available technology that relates to the production of special nuclear material or the development of weapons components. In addition, each year DOE allows into its weapons laboratories thousands of foreign visitors from communist countries and nations deemed sensitive because of proliferation concerns. DOE studies have concluded that unclassified information may provide foreign countries details on sensitive—and even classified—activities that the United States conducts. These situations pose serious threats to U.S. security because they may enable countries to develop and/or improve their nuclear weapons capabilities. As a result, concerns have been raised in the Congress and by nonproliferation experts about the continued dissemination of nuclear information and the export of nuclear-related equipment and technology.

DOE has a number of options to better control information and technology that could be useful to proliferation-risk nations. DOE should strengthen its internal procedures for reviewing unclassified but sensitive scientific and technical information before it is released. DOE should also improve its coordination with other cognizant agencies by providing updated information on the "state-of-the-art" and emerging technologies that warrant greater scrutiny and attention before export licenses are approved. In addition, to prevent security breaches, DOE must improve its controls over foreign visits to the weapons laboratories by strengthening its screening criteria and oversight.

DOE Is Faced With
Conflicting
Legislation

DOE must balance the dual objectives of controlling, yet disseminating, nuclear information and technology.

The Atomic Energy Act requires DOE to control sensitive information and technology, but the Stevenson-Wydler Act and the Technology Transfer Act promote commercialization of unclassified technology by making all government information (unless classified) available to any person who requests it. Because of the scientific nature of its facilities, some groups in DOE seek to publish as much data as possible in order to facilitate scientific understanding

and allow widespread dissemination of technological advances. However, other groups in DOE believe that information dissemination needs to be restricted because some of the data published has nuclear weapons applications as well as peaceful uses. Therefore, by taking the actions specified below, DOE could ensure that technology and information are made available to domestic users but not to countries seeking to develop or improve nuclear weapons.

Actions that we believe DOE could take to meet the sometimes conflicting legislative requirements for disseminating technical data include the following:

- Proposing amendments to the Atomic Energy Act to broaden the types of information that can be protected under the regulations for Unclassified Controlled Nuclear Information.
- Developing approaches to exempt all sensitive technology from disclosure under the Freedom of Information Act. DOE could seek an exemption, similar to the Department of Defense's, for controlling unclassified information related to all aspects of nuclear weapons and nuclear material production.

- Placing additional data in the applied technology category and making them subject to special distribution controls. DOE limits the distribution of applied technology information to domestic recipients, thereby retaining the foreign trade value of the data.

Revitalizing the Nation's Uranium Enrichment Program

DOE's uranium enrichment program faces an uncertain future because of increased foreign competition, mandatory payments for unneeded electricity, and billions of dollars in unrecovered costs. The program's production facilities, built in the 1940s and 1950s, face uncertain decommissioning and environmental cleanup costs.

Conflicting Program Objectives

DOE and the Congress must resolve the program's competing objectives and place the program on sound financial footing.

In 1969, when DOE began producing enriched uranium for commercial customers, it was the world's sole supplier, and the demand for nuclear power was expected to grow rapidly. As a result, in the 1970s DOE decided to build a new plant and signed long-term contracts for large amounts of electricity needed to enrich uranium. Later, electricity demand fell, foreign competition grew, and the program's previously incurred costs, which are to be recovered through program revenues, soared. In 1986, DOE wrote off about \$4.1 billion in unrecovered costs for improvements in existing facilities and for the partially completed new plant because it was not needed to produce enriched uranium. However, DOE did not have legislative authority to take the write-off. By

1988, according to our calculations, these unrecovered costs totaled about \$9 billion, including the write-off.

If DOE is to recoup an estimated \$9 billion for all past unrecovered costs, including almost \$1 billion a year in imputed interest, then it cannot market enriched uranium at prices that are competitive with those of foreign suppliers. Conversely, if DOE is to remain a reliable supplier for domestic nuclear utilities, DOE must make adjustments regarding program cost recovery.

Legislative proposals over the last 2 years would (1) restructure the program as a government corporation, (2) write off almost all past unrecovered costs, (3) require the program to pay for part of the cost of cleaning up uranium mill tailing sites, and/or (4) require the purchase of thousands of tons of unneeded uranium ore from domestic miners. The Senate passed uranium enrichment legislation; the House did not because of opposition to the cost write-off provisions.

To place the enrichment program on firm financial footing, DOE and the Congress must

- determine a reasonable cost recovery amount, which should be consistent with the \$3 billion to \$3.5 billion that DOE estimates it can reasonably expect to generate from its production facilities over the next 10 years;
- provide the program with budget and management flexibility, perhaps by establishing a government corporation under the Government Corporation Control Act;
- allow flexible pricing strategies; and
- require the recovery of decommissioning costs.

Finally, DOE and the Congress must consider the extent to which the enrichment program should be responsible for the domestic mining industry. Under proposals introduced by the 100th Congress, DOE would be required to purchase domestically produced uranium that it does not need. Because this uranium would likely come from existing inventories, the extent to which such purchases would help domestic miners is questionable.

Related GAO Products

Nuclear Weapons Complex

Nuclear Health and Safety: Dealing With Problems in the Nuclear Defense Complex Expected to Cost Over \$100 Billion (GAO/RCED-88-197BR, July 6, 1988).

Key Elements of Effective Independent Oversight of DOE's Nuclear Facilities (GAO/T-RCED-87-32, June 16, 1987).

Environmental, Safety and Health Aspects of the DOE's Nuclear Defense Complex (GAO/T-RCED-87-4, Mar. 12, 1987).

Energy Security

Energy Security: An Overview of Changes in the World Oil Market (GAO/RCED-88-170, Aug. 31, 1988).

Oil Reserves: An Analysis of Oil Fill Alternatives (GAO/RCED-87-145BR, May 21, 1987).

Nuclear Waste

Fourth Annual Report on DOE's Nuclear Waste Program (GAO/RCED-88-131, Sep. 28, 1988).

GAO's Views on Monitored Retrievable Storage of Nuclear Waste (GAO/T-RCED-88-55, July 26, 1988).

Clean Coal Program

Views on DOE's Clean Coal Technology Program (GAO/T-RCED-88-47, June 22, 1988).

Electricity Canadian Power Imports: A Growing Source of U.S. Supply (GAO/RCED-86-119, Apr. 30, 1986).

Nonproliferation Nuclear Nonproliferation: Major Weaknesses in Foreign Visitor Controls at Weapons Laboratories (GAO/RCED-88-31, Oct. 11, 1988).

Nuclear Nonproliferation: Department of Energy Needs Tighter Controls Over Reprocessing Information (GAO/RCED-87-150, Aug. 17, 1987).

Nuclear Nonproliferation: DOE Has Insufficient Control Over Nuclear Technology Exports (GAO/RCED-86-144, May 1, 1986).

Uranium Enrichment Uranium Enrichment: Congressional Action Needed to Revitalize the Program (GAO/RCED-88-18, Oct. 19, 1987).

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