

GAO

Report to Congressional Requesters



April 1989

ENERGY  
CONSERVATION

Federal Shared Energy  
Savings Contracting



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**Resources, Community, and  
Economic Development Division**

B-232922

April 17, 1989

The Honorable Philip R. Sharp  
Chairman, Subcommittee on Energy  
and Power  
Committee on Energy and Commerce  
House of Representatives

The Honorable Claudine Schneider  
Vice Chairman, Subcommittee on  
Natural Resources, Agriculture  
Research and Environment  
Committee on Science, Space  
and Technology  
House of Representatives

Your letter of December 3, 1987, asked us to review the reasons why federal agencies have not entered into performance contracts for the purpose of saving energy in federal buildings and facilities. In a performance contract, known in the federal sector as a shared energy savings contract, a contractor installs and maintains energy conserving equipment. The contractor is paid a percentage of the energy cost savings directly resulting from the energy conservation measures during the life of the contract. At the time of your request, no federal agency had entered into a shared energy savings contract, and you asked us to look into the matter. You also asked us to conduct a limited examination of progress with performance contracts in state governments and the private sector.

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## Results in Brief

A number of impediments have discouraged federal agencies from using shared energy savings contracts. As of November 30, 1988, only two federal agencies—the U.S. Postal Service (USPS) and the Department of the Army—had awarded such contracts even though they can yield significant energy and cost savings. The three major impediments we identified were

- uncertainty about the applicability of a particular procurement policy and practice,
- lack of management incentives, and
- difficulty in measuring energy and cost savings.

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To address the first impediment, the Department of Energy (DOE) developed a manual on shared energy savings contracting. The second impediment was addressed when the 100th Congress authorized incentives for federal agencies to enter into shared savings contracts. DOE addressed the third impediment by developing a methodology for calculating energy consumption and cost savings. However, because of differing methodological preferences, this issue will need to be addressed on a contract-by-contract basis.

Some state governments and private sector firms are using performance contracts to reduce energy costs in their buildings and facilities. We were able to identify six states that were using performance contracts. Five have established programs, and all six states have projects under contract. The seven energy service companies we contacted indicated interest in federal shared energy savings contracting.

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## Background

In fiscal year 1987, the federal government used about 853 trillion British Thermal Units, or the equivalent of about 146 million barrels of oil, to provide energy to over 500,000 buildings and facilities at a cost of about \$3.9 billion. Both the magnitude of energy consumption and the potential for energy savings have prompted legislative initiatives to achieve energy conservation in federal buildings.

The Consolidated Omnibus Budget Reconciliation Act of 1985, Public Law 99-272, enacted on April 7, 1986, authorized federal agencies to enter into contracts for the purpose of achieving energy and related cost savings in federal buildings and facilities. The contracts are referred to as shared energy savings or performance contracts and are authorized for periods of up to 25 years. DOE is responsible for monitoring and reporting to the Congress on the agencies' progress in using shared energy savings initiatives.

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## The Shared Savings Concept

Shared energy savings contracting is a means of procuring energy conservation improvements for federal buildings and facilities. The approach is innovative because it uses a unique method of financing the improvements and because it involves contracting for a complete package of services at one time. The law states that the contractor is to incur the costs of implementing energy savings measures or projects—including the costs incurred in making energy audits, acquiring and installing equipment, and training personnel—in exchange for a share of any

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energy cost savings directly resulting from the implementation of such measures during the term of the contract.

This method of contracting differs from the standard public procurement process in which each phase of the project is contracted out sequentially and to different contractors. In a shared savings project, the contractor may also direct the ongoing operation of the improvements to ensure that the anticipated energy and cost savings will be realized. The contractor assumes most of the risks of a shared savings energy conservation project by agreeing to receive payment only in proportion to the savings realized. Payment and operating requirements, as well as other contract terms, may vary from project to project.

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## Federal Agencies' Shared Energy Savings Contracts

Over the past several years, federal agencies have initiated various actions to implement shared energy savings projects. As of November 30, 1988, contracts had been awarded on projects at two sites and projects at 10 additional sites were planned (see app. I).

The first contract was awarded by USPS on December 14, 1987, and covers a 7-year shared savings project involving lighting retrofits at the General Mail Facility in San Diego, California. The energy savings from this project were estimated to be 66 percent, with a resulting cost savings of about \$139,000 per year. The contractor will receive 39 percent of the cost savings, and USPS will retain 61 percent. USPS' portion of the total cost savings is estimated to be \$593,000 over the life of the contract. Thereafter, USPS will receive all of the savings.

The second federal shared energy savings contract was awarded by the Army on September 7, 1988. Under the terms of the contract, the contractor will replace and operate a water chilling system at the Corpus Christi Army Depot, Corpus Christi, Texas. At no cost to the federal government, the contractor is to provide all the materials, equipment, and labor necessary to remove the existing water chiller and install, operate, maintain, and repair a new system for the 25-year term of the contract. In compensation for the services and equipment, the contractor will receive 68.6 percent of the energy cost savings, or about \$7.6 million, and the government will receive 31.4 percent, or about \$3.5 million. Savings are estimated to total about \$11.1 million over 25 years.

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## Impediments and the Actions Taken to Address Them

Our review indicated three impediments to agencies' using shared energy savings contracts: (1) a question about the applicability of a specific procurement policy and practice, (2) the lack of an incentive for managers to use shared savings contracts to make their buildings and facilities more energy efficient, and (3) the need for establishing an energy-use baseline for a building or facility. These issues and the actions taken to resolve them are discussed below.

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### Applicability of a Procurement Policy and Practice

According to agency officials and documents they provided, one reason for the delays by federal agencies in using the shared energy savings contracting authority has been the uncertainty regarding the applicability of OMB Circular A-76 to this new form of contracting. The circular requires that before an agency contracts for certain functions, it must compare the estimated cost with the cost of performing that function in-house. These comparisons can become quite lengthy and involved.

In February 1988, the Department of Defense (DOD) requested the Office of Management and Budget's (OMB) Office of Federal Procurement Policy (OFPP) to provide specific written guidance on the applicability of the circular to shared energy savings contracts. As of September 1988, OMB/OFPP had not officially responded to DOD's request. However, according to OMB/OFPP officials, they have determined that the circular does not apply to shared energy savings contracts, and DOD has been orally informed about their determination. They indicated that a formal response would be sent to DOD on this matter. Meanwhile, as our review showed, DOD has incorporated OMB/OFPP's determination into an October 1988 draft memorandum on shared energy savings contracting policy, which is to be issued to all DOD organizations.

Another procurement-related issue that has impeded agencies' use of shared energy savings contracts concerns the preparation of the documents necessary for awarding the contracts. The agencies were initially preparing voluminous requests for proposals that described in detail the shared savings projects. But according to energy service company representatives, when the solicitations are so specific, contractors are reluctant to respond because they cannot explore other energy savings options that might maximize their financial returns from the contract.

Both the Department of Housing and Urban Development (HUD) and the Navy have addressed this issue by asking contractors to suggest conservation measures. For example, HUD's request for proposals sought a mixture of mandatory and contractor-specified energy conservation

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measures for its headquarters building. The Navy's prototype shared energy savings request for proposals calls for the contractor to identify any combination of energy conservation measures.

To further address this issue, DOE has prepared a manual on shared energy savings contracting. This document, recently used in a General Services Administration (GSA) training course on shared energy savings, addresses the design and content of shared savings solicitations. It also addresses the selection of candidate projects, proposal evaluation, and contract award and implementation. The training course—designed for facility managers, contract specialists, and building engineers—was first offered on December 6, 1988.

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### Providing an Incentive for Management

Another issue identified as a reason for agencies' not using shared savings contracts was the absence of adequate incentives for saving energy. In particular, if the agencies reduced their energy consumption and related costs through greater efficiency, their budgets were likely to be cut.

This issue has been recognized by the Congress, and in the Federal Energy Management Improvement Act of 1988, Public Law 100-615, enacted on November 5, 1988, an incentive provision was included. The provision allows agencies to retain a portion of the funds appropriated for energy expenses in a fiscal year; the portion would be equal to the amount of cost savings realized for that fiscal year from shared energy savings contracts. These funds are to remain available, without further appropriation, for additional energy conservation measures. To implement this provision, DOE has drafted an OMB circular that provides guidelines for agencies to establish a program of incentives to conserve energy through the use of shared energy savings contracts.

The National Defense Authorization Act, Fiscal Year 1989, Public Law 100-456, enacted on September 29, 1988, provides an additional incentive for the military departments to enter into shared energy savings contracts. This legislation authorizes the use of (1) one-half of first-year energy cost savings under these contracts to acquire additional energy conservation measures and (2) one-half to enhance the quality of life of members of the armed forces at the installations realizing the energy cost savings. DOD believes that this additional incentive will accelerate shared energy savings contracting in the military departments and is developing procedures to implement this provision.

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## Establishing an Energy-Use Baseline

A major issue impeding agencies' use of shared savings contracts has been the lack of an energy-use baseline for a building. The baseline identifies energy use before conservation equipment is installed and thus provides the basis for measuring the energy and cost savings resulting from the contractor's work. Establishing prior energy use, or the baseline, in federal buildings is difficult because very few buildings are individually metered, preventing agencies from maintaining detailed data on the energy used in each of their buildings.

DOE sponsored the development of one methodology, ASEAM 2.1—A Simplified Energy Analysis Method, which is being used at HUD, and is funding research to develop additional methodologies that can be used for this purpose. DOD has indicated that it would prefer to use engineering calculations for establishing baselines. The energy service companies would prefer metered data, although they have indicated that they are willing to consider accepting the use of ASEAM or other methodologies for federal projects. In this respect, at an industry briefing held at HUD, potential contractors' reactions were generally favorable to the use of an ASEAM-calculated baseline for the shared savings project at HUD headquarters. Since preferences for baseline methodologies differ, this issue will need to be addressed through negotiation on a contract-by-contract basis.

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## State and Private Sector Use of Shared Energy Savings Contracts

State and local governments as well as private sector firms are using shared savings contracts to reduce energy costs in their buildings and facilities. According to the National Association of Energy Service Companies, as of February 1988, about 12 states were actively pursuing these contracts.

Six of the seven energy service companies we contacted advised us that they have developed and administered shared energy savings projects for private, public, and nonprofit sectors of the marketplace. Projects are under contract in residential, commercial, and institutional buildings and facilities, including schools and hospitals. For example, one contractor, Viron Corporation, reported a \$7 million project covering 395 buildings at 16 sites in Iowa. This project is structured to pay for itself out of savings achieved over a multiyear period. Annual cost savings are estimated to be \$1.2 million.

Five of the six states from which we obtained information have performance contracting programs, and all six states have projects under contract. As of June 1988, Washington had 15 projects ranging from

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\$75,000 to \$1.5 million with an average length of 7 years; Michigan had eight projects under contract and was working to get several more started.

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## Conclusions

Shared energy savings contracting is a concept with the potential to save federal agencies a substantial portion of their energy budgets. Shared energy savings contractors install energy saving measures and are paid a share of the savings only if the proposed level of savings actually occurs. The concept has been applied by private industries and state and local governments.

Several federal agencies have initiated the process for shared energy savings contracts, and within the past year two contracts have been awarded that could result in significant energy and cost savings. Further, several issues that have impeded agencies' use of the shared savings concept have been addressed. In this respect, DOE developed a manual that GSA used in the first training course on shared energy savings, and both HUD and the Navy are asking contractors to suggest conservation measures in their requests for proposals. An incentive for agency management to enter into shared savings contracts was included in recently enacted legislation. Lastly, DOE has sponsored the development of a baseline methodology. However, different methodological preferences for measuring energy and cost savings exist; therefore, this issue will need to be addressed on a contract-by-contract basis.

Since steps have already been taken to address the impediments that our review indicated were discouraging agencies from using shared energy savings contracts, we are not recommending any further actions at this time. We anticipate that the removal of the impediments will help DOE take more of a leadership role in this area, as well as enable other agencies to move forward with shared energy savings contracts.

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In performing this assignment, we reviewed the shared energy savings legislative history and pertinent agency documents, correspondence, and reports. We obtained documents from and interviewed officials at the Office of Management and Budget, Department of Energy, Department of Housing and Urban Development, General Services Administration, Department of Defense, Department of Veterans Affairs, and the U.S. Postal Service concerning actions taken to use shared energy savings contracts. Further, we discussed the issue with representatives of seven



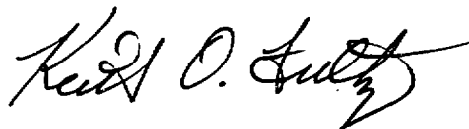
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energy service companies or contractors, their trade association, and other relevant research organizations.

To obtain information on state efforts in this area, we spoke with DOE and National Association of Energy Service Companies officials, and from these contacts we were able to identify six states that were using performance contracts: Michigan, Washington, New York, Iowa, Massachusetts, and Georgia. We reviewed information provided by these states and/or spoke with state officials. Our work was conducted from January through November 1988 and was performed in accordance with generally accepted government auditing standards.

We discussed the facts in this report with DOE staff and incorporated their views where appropriate. As requested, we did not ask DOE to review and comment officially on this report.

Unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from the date of this letter. At that time we will send copies to the appropriate congressional committees and the agencies identified in this report. We will also make copies available to others upon request. Major contributors to this report are listed in appendix II.



Keith O. Fultz  
Director, Energy Issues



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## Abbreviations

|       |   |
|-------|---|
| ASEAM | A Simplified Energy Analysis Method         |
| DOE   | Department of Energy                        |
| DOD   | Department of Defense                       |
| GSA   | General Services Administration             |
| HUD   | Department of Housing and Urban Development |
| OFPP  | Office of Federal Procurement Policy        |
| OMB   | Office of Management and Budget             |
| USPS  | U.S. Postal Service                         |



# Summary of Federal Shared Energy Savings Project Initiatives as of November 30, 1988

| Agency                       | Sites identified | Number of:                        |                | Contracts awarded |
|------------------------------|------------------|-----------------------------------|----------------|-------------------|
|                              |                  | Requests for proposals In process | Issued         |                   |
| <b>Department of Defense</b> |                  |                                   |                |                   |
| Army                         | 3                | 0                                 | 2 <sup>a</sup> | 1                 |
| Navy                         | 2                | 0                                 | 2              | 0                 |
| Air Force                    | 3                | 2                                 | 1              | 0                 |
| <b>Civilian agencies</b>     |                  |                                   |                |                   |
| USPS                         | 1                | 0                                 | 0              | 1                 |
| HUD                          | 1                | 0                                 | 1              | 0                 |
| DOE                          | 2                | 2                                 | 0              | 0                 |
| <b>Total</b>                 | <b>12</b>        | <b>4</b>                          | <b>6</b>       | <b>2</b>          |

<sup>a</sup>The Army's two requests for proposals have been issued in draft.

Source: Source Sheet: Federal Shared Energy Savings Initiatives, DOE.

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