



U.S. Department of Energy
Office of Inspector General
Office of Audits and Inspections

Audit Report

The Department of Energy's Energy Conservation Efforts

OAS-L-11-02

February 2011



Department of Energy
Washington, DC 20585

February 9, 2011

**MEMORANDUM FOR THE ASSISTANT SECRETARY FOR ENERGY EFFICIENCY
AND RENEWABLE ENERGY**

A handwritten signature in cursive script, reading "George W. Collard".

FROM: George W. Collard
Assistant Inspector General for Audits

SUBJECT: INFORMATION: Audit Report on "The Department of Energy's
Energy Conservation Efforts"
Audit Report Number: OAS-L-11-02

BACKGROUND

The Energy Independence and Security Act of 2007 (EISA) requires Federal agencies to apply energy efficiency measures to Federal buildings so that by Fiscal Year (FY) 2015, each agency's energy intensity is reduced by 30 percent from the baseline established in FY 2003. Energy intensity is calculated as the energy consumption in British Thermal Units (BTUs) per gross square foot of the Federal buildings. The Department of Energy's (Department) FY 2003 energy consumption baseline for its sites around the Nation was 23 trillion BTUs, supplied by energy acquired at an annual cost of around \$229 million. If the Department achieves the 30 percent energy conservation requirement in FY 2015, its energy consumption would be reduced by nearly 7 trillion BTUs, resulting in a savings of nearly \$80 million annually. This equates to the power necessary to operate nearly 180,000 housing units.

The Department's approach to meeting its EISA requirement has been to rely, to the maximum extent possible, on its individual sites obtaining third-party financing agreements, known as Energy Savings Performance Contracts (ESPCs), to fund energy conservation projects. An ESPC is a financing mechanism in which a private sector energy services company develops and installs multiple energy efficiency projects in exchange for a share of the future savings over the contract period.

The Department has emphasized the need for its actions to set the example for energy conservation in the Federal Government, the Nation's largest energy consumer. Because of the Department's commitment to reduce energy consumption and greenhouse gas emissions, we initiated this audit to determine whether the Department had developed an effective approach for meeting EISA's energy intensity reduction requirement.

CONCLUSIONS AND OBSERVATIONS

The Department's current approach was not sufficient to permit it to achieve the EISA imposed energy conservation requirement. The Department has achieved a 16 percent energy intensity

reduction; however, under its current approach, the Department is unlikely to meet the required 30 percent reduction by FY 2015. In fact, at the time of our review, Department sites had cumulatively planned enough conservation measures projected to reduce the Department's energy intensity by only 22 percent by FY 2015. Further, according to their FY 2010 plans for reducing energy consumption, only half of the Department's sites (18 of 35) reported they would be able to meet their individual 30 percent reduction requirement. Six sites reported they were at risk of not realizing a 30 percent reduction by 2015, and 11 did not indicate whether they would meet the requirement.

We found that not all of the Department's sites could successfully manage or pursue ESPCs to meet the energy conservation requirement. For example, as we noted in our report on *Management of Energy Savings Performance Contract Delivery Orders at the Department of Energy*, (DOE/OIG-0822, September 2009), the Department had not always adequately managed these financing mechanisms properly, resulting in unnecessary expenditures and the failure of some projects to achieve expected efficiencies. In addition, we found that several sites, including Lawrence Livermore National Laboratory (LLNL) and SLAC National Accelerator Laboratory (SLAC), had not pursued or implemented ESPCs because they were determined to be not economically viable. For example, LLNL had awarded an ESPC in July 2008; but, because of challenges in creating a viable project, was unsuccessful with the development of a second ESPC in 2009. In the absence of ESPCs, Department sites had difficulty securing appropriated funds to support their energy conservation efforts. Officials at both SLAC and Los Alamos National Laboratory told us that they had been unable to obtain funds to implement energy conservation measures due to competing mission priorities.

The Department's Federal Energy Management Program (FEMP), which is responsible for supporting the Federal Government's effort to implement cost-effective energy management and investment practices, recognized that the Department's current approach to energy conservation is unlikely to achieve the required reductions in energy consumption. Specifically, FEMP reported in FY 2010 that the Department's reliance on ESPCs would not be sufficient to achieve a 30 percent reduction in energy intensity. In fact, FEMP stated that without direct funding, the Department will fail to meet the energy conservation requirement.

While we recognize that funding for energy conservation projects must compete with mission needs for increasingly scarce Federal resources, we noted in the past the Department lacked a systematic approach to funding energy conservation measures. In our previous report on *The Department of Energy's Opportunity for Energy Savings Through Improved Management of Facility Lighting* (DOE/IG-0835, June 2010), we found that (i) the Department had not planned for energy efficiency improvements in the budgeting process; and, (ii) the savings accruing from energy conservation projects had not been tracked or reinvested as required by the Department. In response to that report, management indicated that it generally concurred with our recommendations to improve the budgeting process. Specifically, Department management stated the Department's FY 2012 budget guidance requested that Department programs submit funding plans for lowering their greenhouse emissions and improving energy efficiency.

To its credit, the National Nuclear Security Administration (NNSA) had requested \$6.6 million for FY 2011 for an Energy Modernization and Investment Program to support energy conservation projects across the nuclear security enterprise.

Strategic Sustainability Performance Plan

In September 2010, the Department established a Strategic Sustainability Performance Plan (Sustainability Plan) as required by Executive Order 13514 on *Federal Leadership in Environmental, Energy, and Economic Performance*. This order called on Federal agencies to improve their energy efficiency and achieve target reductions in greenhouse gas emissions. The strategies described in the Sustainability Plan, if fully implemented, should advance the resolution of the issues identified in this and our previous reports and help the Department meet the EISA mandate. Specifically, under the Sustainability Plan, the Department plans to establish a process to prioritize projects that most cost-effectively meet the Sustainability Plan's energy and environmental goals, while generating the greatest cost savings for the Department as it executes its mission.

The Department's Under Secretaries are responsible for meeting the 30 percent energy reduction requirement, including management of planning, budgeting, development, implementation, and oversight. In October 2010, the Department established a Sustainability Performance Office to coordinate corporate oversight, perform data collection, evaluate performance, facilitate information management, and report progress towards the sustainability requirements.

When we discussed our conclusions with Department officials, they acknowledged that improvements could be made to the process, but pointed out that the Department had made significant progress in addressing the energy conservation goals. We acknowledge the progress that the Department has made to date; however, we remain concerned with the Department's ability to meet the FY 2015 goal based on the current strategy. Because the recently released Sustainability Plan could, if fully implemented, address the issues identified in our report, we have not made formal recommendations regarding specific conservation methods or investment controls. In our judgment, implementation of the Plan will require close monitoring by the Department's senior officials. Given the Department's mission and its stature as a leader in the Federal government's energy conservation effort, such senior level attention appears to be warranted. Since no formal recommendations are being made in this report, a formal response is not required. We appreciate the cooperation of your staff and the various Department elements that provided information or assistance.

Attachment

cc: Deputy Secretary
Acting Under Secretary of Energy
Under Secretary for Science
Under Secretary for Nuclear Security/Administrator, National Nuclear Security Administration
Chief of Staff
Director, Office of Management
Chief Financial Officer

SCOPE AND METHODOLOGY

The audit was performed from March 2010 through December 2010, at the Department of Energy's (Department) Headquarters in Washington, DC and Germantown, Maryland; Savannah River Site in Aiken, South Carolina; Fermi National Accelerator Laboratory in Batavia, Illinois; Lawrence Livermore National Laboratory in Livermore, California; SLAC National Accelerator Laboratory in Menlo Park, California; and Los Alamos National Laboratory in Los Alamos, New Mexico. The scope of the audit was limited to the Department's efforts to conserve energy at its facilities.

To accomplish the audit objective, we:

- Reviewed the Department's energy conservation strategy and site Executable Plans;
- Interviewed key personnel at Department Headquarters and each of the sites;
- Analyzed the funding options for energy conservation projects;
- Calculated the Department's energy conservation reduction from the projects listed in the site Executable Plans;
- Analyzed the effectiveness of the Department's strategy to implement the energy conservation projects; and
- Calculated the potential cost savings from the Department's energy conservation reduction.

We conducted this performance audit in accordance with generally accepted Government auditing standards. Those Standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective. The audit included tests of controls and compliance with laws and regulations to the extent necessary to satisfy the audit objective. Because our review was limited, it would not necessarily have disclosed all internal control deficiencies that may have existed at the time of our audit. Also, we assessed the Department's compliance with the Government Performance and Results Act of 1993 and found the Department had not established performance measures related to achieving the energy conservation requirement. Finally, we relied on a limited amount of computerized data to accomplish the audit objective and found the data reliable. Specifically, we relied on computer data from the Department's Energy Management System to determine the baseline for calculating the Department's energy conservation reduction. To determine the data's reliability, we reviewed selected system controls used to enter, assess, and edit the data.

Management waived the exit conference.

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