



U.S. Department of Energy
Office of Inspector General
Office of Audit Services

Audit Report

The Department of Energy's
Program to Assist Federal Buyers in
the Purchasing of Energy Efficient
Products



OAS-RA-10-08

April 2010



Department of Energy
Washington, DC 20585

April 27, 2010

MEMORANDUM FOR THE SECRETARY

FROM:

Greg Friedman
Gregory H. Friedman
Inspector General

SUBJECT:

INFORMATION: Audit Report on "The Department of Energy's Program to Assist Federal Buyers in the Purchasing of Energy Efficient Products"

BACKGROUND

The American Recovery and Reinvestment Act of 2009 (Recovery Act) established a series of energy-related goals, one of which was to make Federal facilities more energy efficient. The Department of Energy (Department) plays an integral part in this process. The Department's Federal Energy Management Program (FEMP), established in 1973, helps Federal agencies achieve energy efficiency and conservation goals by developing and publishing energy efficiency specifications. According to FEMP, Federal agencies spend approximately \$10 billion a year to purchase energy consuming products and have the opportunity to save well over \$200 million annually by choosing best-in-class, energy efficient products.

Federal agencies are required to purchase products which are FEMP-designated or those qualified as energy efficient under the ENERGY STAR program, a separate program jointly managed by the Department and the U.S. Environmental Protection Agency to promote energy efficient consumer and commercial products. In fact, FEMP often adopts or incorporates ENERGY STAR efficiency standards in its specifications with the goal of serving as a clearinghouse for energy efficiency information. Of the 43 efficiency specifications published by FEMP, 27 were for products that were also rated by ENERGY STAR (See Attachment 1).

FEMP utilized one of the Department's national laboratories to support its program by identifying product categories and updating energy efficiency purchasing specifications. For Fiscal Years (FY) 2006 through 2009, approximately \$1.6 million was spent to develop and/or maintain such specifications and perform program-related activities. Based on the goals of the Recovery Act to promote energy conservation and because of the significant opportunities for reducing energy consumption government-wide, we initiated this audit to determine if FEMP had effectively managed its program for designating energy efficient products.

CONCLUSIONS AND OBSERVATIONS

The Department's management of the FEMP had not always provided the Federal procurement community with up-to-date energy efficiency product specifications. Due to a lack of adequate documentation, we were unable to objectively evaluate the effectiveness of a number of Program

activities. Nonetheless, we identified several opportunities to improve FEMP's standard setting and maintenance efforts, a major mission component. Specifically, FEMP:

- Had not always maintained up-to-date energy efficiency specifications. For some products, FEMP had not updated its specifications for as long as nine years despite well-known, demonstrated efficiency gains in the intervening period;
- Could not demonstrate that it had adequately pursued the development of new energy efficiency specifications; and,
- Had not effectively managed relevant contractor efforts essential to the Program.

Addressing these issues would, in our opinion, improve FEMP's ability to effectively assist Federal agencies in purchasing the most energy efficient products available.

As acknowledged by Department officials, the problems occurred, in large part, because insufficient attention had been devoted to FEMP operations in the past. In particular, program officials told us that internally imposed resource constraints prevented FEMP from developing new product specifications and maintaining up-to-date energy efficiency product specifications for the wide array of products purchased by the Federal government. FEMP officials asserted that staffing levels were severely constrained during FYs 2006 through 2009 due to what they described as other mission-critical priorities. During that period, they noted that the specification development component of the program was staffed by one part-time Federal employee. Given the resource constraints, FEMP managers told us that they focused on updating existing specifications, especially those not rated by ENERGY STAR. To help address staffing shortages, FEMP officials noted they were adding one staff position to the program during FY 2010.

Viewing the program in its entirety, it was our conclusion that the Department could not ensure that it was providing Federal agencies with up-to-date information needed to help ensure that the products they were purchasing were among the most energy efficient available. As detailed in the remainder of our report, additional actions are necessary if the Program's effectiveness in reducing energy demand in the Federal sector is to be maximized.

Policies and Procedures

FEMP had not documented its policies and procedures to evaluate Federal procurement patterns, review and update product specifications, ensure that FEMP designated products were the most efficient in the market, and coordinate specification development efforts with ENERGY STAR. The U.S. Government Accountability Office's *Standards for Internal Control in the Federal Government* provides that agencies should document their systems of internal control, including policies and procedures that are necessary to have reasonable assurance about the efficiency and effectiveness of operations. In our judgment, the lack of documented policies and procedures undermined the credibility of the Program. Even though officials acknowledged that formal policies did not exist, they asserted that specification development efforts had been based on detailed data collection and analysis, including analysis

of federal procurement patterns, market research, and collaboration with other standard setting bodies. Such claims however, could not always be objectively evaluated.

For example, while the FEMP website contains criteria for selecting new products for specification development, we found that there was no formal system in place outlining the requirement to complete periodic reviews of published specifications and track changes in the marketplace. In fact, program officials stated in a written response to our inquiry that there were no formal or documented internal policies and procedures for specification development and updating. In response to our concerns, FEMP officials told us that they plan to determine a priority ranking for all product specifications in FY 2010 which will be used to guide the work plans for product updates and additions in FYs 2011 and 2012. FEMP also noted that it intends to better document its current policies and procedures.

Specification Development

FEMP had not, in the recent past, developed information to identify products currently procured by Federal purchasers that offer opportunities to promote energy efficiency. In the past, the Department had been directed under the *National Energy Conservation Policy Act* to identify products for which Federal purchasing power would promote the development and commercialization of energy efficient products. Such information is critical to developing a program that provides Federal buyers with relevant, up-to-date energy related assistance. FEMP officials, however, told us that Federal purchasing patterns were difficult to determine since data is highly dispersed and difficult to obtain, if available at all. In spite of this concern, FEMP officials noted that the Department made a decision in FY 2009 to increase funding for gathering just such product information in FY 2010. Specifically, the Program has initiated several studies that will help it to identify additional Federal procurement patterns. Further, FEMP officials stated that they are working with the General Services Administration and the Defense Logistics Agency in assessing their product catalogs to identify Federal procurement patterns.

Specification Updates

Further, FEMP had not always ensured that it had maintained product specifications that were current with the energy efficiency specifications established by ENERGY STAR for the same product categories. In particular, we identified 11 specifications in which delays occurred in updating FEMP's purchasing specifications as compared to the energy efficiency recommendations issued by ENERGY STAR. For example, under FEMP, the Department delayed at least nine years in updating the information that it provided to the Federal buyer for the very important "computer" category. In fact, FEMP issued its most recent purchasing specification for computers in July 2000. In contrast, since that time, ENERGY STAR had published at least two specifications for computers with increasingly stringent criteria, the first in July 2007 and the second in July 2009.

FEMP officials, however, asserted that they had not updated specifications to remain current with those published by ENERGY STAR because: (i) the differences in the energy saving requirements were, in some cases not significant; and, (ii) anecdotal evidence suggested that Federal agencies were complying with the ENERGY STAR requirements. FEMP noted, for

example, that while it had a draft update for the computer purchase specification, it did not consider the update to be a high priority because there was an alternate ENERGY STAR specification available for Federal computer acquisitions. Officials told us that they are not required to develop a FEMP designation where an ENERGY STAR specification already exists. FEMP officials, however, indicated that the Program was considered to be a clearinghouse for the government's purchasing community. Yet, despite this expectation, the FEMP website did not provide up-to-date purchasing specifications for computers. Unless FEMP maintains current specifications, it cannot be assured that it is effectively serving as a clearinghouse to which Federal procurement officials can obtain up-to-date information about the most energy efficient products.

Despite a number of attempts to obtain supporting information, we were also not able to determine if the Program had adequately coordinated its efforts with ENERGY STAR on the 27 products covered by both programs. To address this concern, FEMP's managers explained that they planned to work with ENERGY STAR to establish a production schedule for ENERGY STAR specifications and include those milestones in its production schedule for revision of FEMP specifications.

Contract Management

Over a two-year period, FEMP authorized its selected management contractor to expend about \$875,000 to evaluate and update product specifications as well as other related activities. Based on the information provided by program officials, we noted that FEMP had not ensured that all tasks specified in pertinent work authorizations had actually been performed. Further, there was no information available to indicate that FEMP had monitored the contractor's performance and progress, as required. In fact, FEMP's work authorizations between 2007 and 2009 lacked the necessary details and deliverables to evaluate the contractor's work.

Our review of instructions to the contractor contained in work authorizations revealed that they were, in our judgment, insufficiently detailed to hold the contractor accountable for the development of new, and the updating of existing, purchasing specifications. Specifically, FEMP had not established a detailed statement of work, milestones, deliverables, and/or performance-based targets as required by Department Order 412.1A, *Work Authorization System*. For example, the FY 2007 work authorization called for the development of one to two purchasing specifications and the FY 2008 work authorization called for the development of one to five purchasing specifications for new product categories. The instructions, however, did not include details regarding the timing of work or the type and quantity of documentation needed to support completion of deliverables. Symptomatic of this lack of specificity, and even though officials indicated that the contractor had completed a number of activities, no new purchasing specifications were developed during FY 2007 and 2008.

Further, work authorizations failed to identify and prioritize the updating of specifications or provide information regarding the depth of analysis required for specification changes or updates. Instead, the authorizations instructed the contractor to revise existing specifications "as necessary." Our review of the 21 specifications updated since 2006 showed that, in some cases, the updates were limited to reformatting specification presentation and revising cost savings calculations rather than making fundamental revisions to the energy efficiency

technical requirements. FEMP officials told us that in such cases there was no need to update the technical specification because there was no significant market change, but that critical decision making cost data was updated. Program officials could not always, however, provide information to support research into market changes. For example, FEMP officials provided documentation dated 2008 showing that it had analyzed energy efficient products on the market for the update of only one product category – chillers (refrigeration units used in large, commercial cooling systems) as of the end of our field work. In fact, in response to a preliminary draft of our report, FEMP officials stated that data used to develop product specification was archived by the contractor and this information has not been readily accessible to FEMP for prior years. To correct the issue, FEMP indicated that the contractor has been directed to provide all data used for product specification development to FEMP on an annual basis.

As a result of our review, FEMP told us that it had initiated actions to improve contract management related to the purchasing specification program. Specifically, FEMP noted that it had established a formal documentation process for review of quarterly contractor reports to ensure strict compliance with Departmental requirements. Additionally, FEMP planned to review the relevant product specification statements of work and modify those necessary to ensure strict compliance with DOE Order 412.1A. Finally, FEMP stated that it had established product specification milestones. Based on the timing of FEMP's responses, we were unable to verify that the actions had been completed.

PROGRAM RESULTS

In our judgment, the lack of formal, documented policies and procedures, combined with the inadequate management of related work authorizations, had adversely impacted the effectiveness of FEMP's purchasing specification program. Given FEMP's responsibility to assist Federal buyers in procuring the most energy efficient products; the \$10 billion in government expenditures each year on energy consuming products; and the national imperative to reduce energy demand, we concluded that the FEMP needs to be adequately resourced and effectively managed to meet these challenges. This specifically includes reviewing Federal procurement trends and patterns; adding new products to the FEMP, as appropriate; and, evaluating and updating specifications in a timely manner. These actions should allow the Department to better assist the Federal government in achieving the potential energy savings from efficient procurements, currently estimated at over \$200 million annually.

RECOMMENDATIONS

To improve its designation of energy efficient products and help ensure that Federal purchases achieve maximum available energy savings, we recommend that the Assistant Secretary, Energy Efficiency and Renewable Energy:

1. Take the necessary steps to ensure that FEMP has the resources needed to meet mission objectives;
2. Develop policies and procedures for reviewing Federal procurement patterns, adding new products, and evaluating and updating product specifications;

3. Ensure that work authorizations are administered in accordance with Departmental Orders, including developing detailed statements of work, requiring deliverables and reviewing work performed; and,
4. Coordinate with ENERGY STAR officials to ensure that efforts to provide energy efficiency specifications are not duplicated.

MANAGEMENT COMMENTS

Management pointed out that resources in prior years were not adequate to develop new product specifications and to update existing specifications. Management acknowledged a need to improve its documentation of policies, procedures and contractor work authorizations. FEMP officials plan to carry out a number of actions to implement our recommendations including:

- Reviewing all options for improving the delivery of product procurement information to Federal customers, including associated resource requirements;
- Using the results of ongoing studies to guide future actions and the development of policies and procedures;
- Improving documentation to better demonstrate compliance with Department requirements and policies and procedures; and,
- Enhancing coordination with the ENERGY STAR program.

AUDITOR RESPONSE

Management's planned actions are responsive to our recommendations and, if successfully implemented, should improve the Department's ability to provide up-to-date product energy efficiency information to the Federal procurement community. Management comments are included in their entirety in Attachment 3.

Attachments

cc: Deputy Secretary
Under Secretary of Energy
Assistant Secretary for Energy Efficiency and Renewable Energy, EE-1
Chief of Staff
Team Leader, Office of Risk Management, CF-1.2
Audit Liaison, Energy Efficiency and Renewable Energy, EE-3A

FEMP PURCHASING SPECIFICATIONS

<u>Product Category</u>	<u>Organization Issuing Purchasing Specification</u>	<u>Fiscal Year of FEMP's Purchasing Specification</u>
1. Beverage Vending Machines	FEMP and ENERGY STAR	2009
2. Clothes Washers	FEMP and ENERGY STAR	2007
3. Commercial Fryers	FEMP and ENERGY STAR	2007
4. Commercial Griddles	FEMP and ENERGY STAR	2009
5. Commercial Unitary Air Conditioners	FEMP and ENERGY STAR	2002
6. Compact Fluorescent Lamps	FEMP and ENERGY STAR	2007
7. Computers	FEMP and ENERGY STAR	2000
8. Copiers	FEMP and ENERGY STAR	2001
9. Dishwashers	FEMP and ENERGY STAR	2007
10. Fax Machines	FEMP and ENERGY STAR	2001
11. Freezers	FEMP and ENERGY STAR	2006
12. Ground-Source Heat Pumps	FEMP and ENERGY STAR	2001
13. Hot Food Holding Cabinets	FEMP and ENERGY STAR	2007
14. Ice Machines	FEMP and ENERGY STAR	2009
15. Monitors	FEMP and ENERGY STAR	2001
16. Pressureless Steamers	FEMP and ENERGY STAR	2007
17. Printers	FEMP and ENERGY STAR	2001
18. Refrigerators	FEMP and ENERGY STAR	2006
19. Commercial Refrigerators and Freezers	FEMP and ENERGY STAR	2002
20. Residential Air Source Heat Pumps	FEMP and ENERGY STAR	2009
21. Residential Central Air Conditioners	FEMP and ENERGY STAR	2008
22. Residential Gas Furnaces	FEMP and ENERGY STAR	2009
23. Residential Gas Water Heaters	FEMP and ENERGY STAR	2006
24. Residential Ground-Source Heat Pumps	FEMP and ENERGY STAR	2001
25. Residential Windows	FEMP and ENERGY STAR	2007
26. Roof Products	FEMP and ENERGY STAR	2003
27. Room Air Conditioners	FEMP and ENERGY STAR	2006
28. Faucets	FEMP and WaterSense ¹	2006
29. Urinals	FEMP and WaterSense	2006

¹ WaterSense is an EPA-sponsored partnership program that promotes water conservation by setting efficiency standards for water consuming products.

<u>Product Category</u>	<u>Organization Issuing Purchasing Specification</u>	<u>Fiscal Year of FEMP's Purchasing Specification</u>
30. Boilers: Commercial	FEMP	2007
Residential	ENERGY STAR	2002
31. Air-cooled Chillers	FEMP	2004
32. Commercial Heat Pumps	FEMP	2002
33. Distribution Transformers	FEMP	2004
34. Downlight Luminaires	FEMP	2007
35. Electric Motors	FEMP	2006
36. Fluorescent Ballasts	FEMP	2001
37. Fluorescent Luminaires	FEMP	2008
38. Fluorescent Tube Lamps	FEMP	1999
39. Industrial HID Luminaires	FEMP	2007
40. Pre-rinse Spray Valves	FEMP	2009
41. Residential Electric Water Heaters	FEMP	2006
42. Showerheads	FEMP	2006
43. Water-cooled Chillers	FEMP	2004

SCOPE AND METHODOLOGY

This review was performed between April 2009 and March 2010 at the Department of Energy's (Department) Headquarters in Washington, DC. The scope of our audit included a review of the Department's management of its program for publishing energy efficiency purchasing specifications in an effective and efficient manner. To accomplish the objective, we:

- Interviewed Federal Energy Management Program (FEMP) and a contractor official;
- Reviewed laws, regulations, and Departmental policies and procedures applicable to the Federal Energy Management Program;
- Evaluated program requirements and documentation;
- Compared the purchasing specifications issued by FEMP with those of ENERGY STAR and WaterSense;
- Interviewed ENERGY STAR officials from the Department;
- Interviewed General Services Administration officials; and,
- Reviewed an assessment addressing the use of energy efficient products within the federal government.

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 finding and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our finding and conclusions based on our 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.

During the audit, we assessed the Department's compliance with the Government Performance and Results Act of 1993. We concluded that the Department had not established performance measures for FEMP's purchasing specifications program. We did not rely on computer generated data to perform the audit.

We held an exit conference with Department officials on April 26, 2010.



Department of Energy
Washington, DC 20585

MEMORANDUM FOR: GREGORY H. FRIEDMAN
INSPECTOR GENERAL
OFFICE OF INSPECTOR GENERAL

FROM: KATHLEEN B. HOGAN(508 VERSION)
DEPUTY ASSISTANT SECRETARY FOR
ENERGY EFFICIENCY
OFFICE OF TECHNOLOGY DEVELOPMENT
ENERGY EFFICIENCY AND RENEWABLE ENERGY

SUBJECT: Response to the Office of the Inspector General Audit
Report on the *Department of Energy's Program to Assist
Federal Buyers in the Purchasing of Energy Efficient
Products*

The Office of Energy Efficiency and Renewable Energy (EERE) appreciates the opportunity to respond to the Office of the Inspector General's (IG) draft audit report on the *Department of Energy's Program to Assist Federal Buyers in the Purchasing of Energy Efficient Products*.

The Department of Energy takes seriously its role in promoting energy savings across the Federal government and leading by example across the country. The Federal Energy Management Program (FEMP) program within EERE is essential to these efforts. The Department agrees with the report's recommendations and has already taken a number of steps to implement them, including prioritizing the development of new product specifications, restoring funding, increasing staff, and expanding coordination between the Federal Energy Management Program, the appliance standards program and the ENERGY STAR program to capitalize on the specification and technical work on energy efficient products already underway.

The steps being taken will ensure that the program meets its requirements and aggressively pursues all opportunities to improve energy efficiency in the Federal government, reduce carbon pollution and save money for taxpayers.

The FEMP program for product procurement includes a comprehensive set of activities which if fully implemented can deliver significant savings. These efforts include:

- Developing Federal policy on product procurement and issuing related regulations on the types of products Federal agencies are required to purchase;
- Keeping product specifications up to date and expanding product specifications to new product categories where appropriate;
- Maintaining lists of products that exhibit acceptable levels of stand-by energy use;
- Providing training to procurement professionals from other agencies;

- Reporting annual energy savings; and
- Monitoring other agencies' compliance with their annual energy and environmental scorecards.

To see that this program delivers on its potential, EERE has already:

- Restored funding and increased staff resources for product specification development;
- Provided clear direction on the importance of this work so as to overcome mixed messages in 2007 and 2008 on the priority of this work that included reducing the funding for this work area by 50% in FY2009;
- Entered into a new partnership agreement with EPA to enhance the ENERGY STAR program, including adding more products more quickly to the program and revising existing product specifications more frequently. This will allow the program to better maximize each agency's strengths and expertise, which will allow FEMP to leverage the ENERGY STAR efforts more effectively to meet the needs of the Federal government;
- Enhanced coordination between the FEMP program and the Appliance Standards program in order to leverage related EERE technical work and develop standardized approaches for determining product priorities for appliance standards, FEMP-designations, and ENERGY STAR.

The Department believes that a number of the issues identified by the IG result from the resource issues of the 2006 to 2009 period. The steps DOE has taken to restore the necessary program resources, combined with the new and expanded partnerships and coordination, will allow the FEMP program to quickly overcome these issues. Once again, EERE's management appreciates this opportunity to work with the IG. More detailed comments follow.

SPECIFIC IG CONCLUSIONS AND RECOMMENDATIONS

Maintaining up-to-date energy efficiency specifications and pursuing new specifications:

- The Department of Energy agrees with the Inspector General that as a result of resource constraints, the FEMP program has not always updated all product specifications when new levels of efficiency were available, especially in those instances where ENERGY STAR product specifications applied. When there is an ENERGY STAR designation, that specification becomes the purchase standard for Federal agencies not the FEMP-designated product based on current statute and executive orders.
- Additionally, because the existing FEMP and ENERGY STAR specifications cover the vast majority of high energy using products, the program focused its limited resources on updating existing product specifications instead of issuing

new specifications. For instance, from 2006 to 2009 FEMP published 21 updated product specifications. EERE is working with the Environmental Protection Agency (EPA) under a new partnership agreement to enhance the rate at which new products are added to the ENERGY STAR program and will review the role for additional FEMP-designated products as part of this assessment process.

Managing contractor efforts and establishing detailed statements of work, milestones, and deliverables:

- While FEMP has followed the Department's contracting guidelines and has established policies and procedures to oversee contractor work consistent with Department guidelines, the program recognizes that additional specificity and standardization in the statements of work (SOW), milestones, deliverables, performance-based targets and project/product review activities, would have helped maintain contractor accountability. FEMP has now taken actions to improve contract management, including implementing a formal review and documentation process for contractor reports and establishing more specific milestones for product specifications.

Evaluating Federal procurement patterns and coordinating specification development efforts with ENERGY STAR:

- The Department of Energy initiated a series of improvements earlier this year. Improvements are being made in how FEMP reviews Federal procurement patterns, updates existing specifications, and adds new products.
- This year FEMP is funding a continuation of an earlier study analyzing agency compliance with Federal procurement policies. FEMP is also in the process of evaluating the Department of Energy's procurement patterns to assess its purchasing behavior and opportunities for additional product specifications. These expanded efforts were made possible with an increase in funding for FY 2010 and will be used to inform the program's future actions and to develop aggressive policies and procedures that will help achieve energy efficiency improvements in Federal facilities.
- FEMP is also now formally documenting the process used to select and update FEMP-designated products. The Department is building on its previous efforts to coordinate with the ENERGY STAR program and this year will work with ENERGY STAR to establish a production schedule for ENERGY STAR specifications, and include those milestones in the FEMP production schedule for revision of related FEMP materials. This will ensure that FEMP updates its information whenever the ENERGY STAR program issues new product requirements.

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