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Audit Case Number	2003-FO-0001

TO: Vickers B. Meadows, Assistant Secretary for Administration, A

//Signed//

FROM: Randy W. McGinnis, Director, Financial Audits Division, GAF

SUBJECT: AUDIT MEMORANDUM - HUD's Energy Management and Conservation Program

INTRODUCTION

We completed an audit of HUD's Energy Management and Conservation (EM&C) program as part of our responsibilities (42 USC, 8262) under the National Energy Conservation Policy Act (NECPA) of 1978 as amended by the Energy Policy Act of 1992 (the Act). The objectives were to determine: (1) HUD's compliance with the Act and other laws relating to energy conservation, and (2) whether HUD has management controls in place to ensure accuracy and reliability of energy consumption and cost data.

To determine HUD's compliance with Federal energy conservation requirements of the Act, we reviewed applicable laws, Federal regulations and requirements, as well as HUD policies and procedures over energy conservation. We also interviewed HUD's Office of Administrative and Management Services (OAMS) staff and reviewed HUD's EM&C program records and reports at the HUD headquarters building. The audit was conducted in accordance with generally accepted Government auditing standards for performance audits. Our audit covered the period October 1, 1995 through August 30, 2002.

In accordance with HUD Handbook 2000.06 REV-3, within 60 days please provide us, for each recommendation without a management decision, a status report on: (1) the corrective action taken; (2) the proposed corrective action and the date to be completed; or (3) why action is considered unnecessary. Additional status reports are required at 90 days and 120 days after report issuance for any recommendation without a management decision. Also, please furnish us copies of any correspondence or directives issued because of the audit.

Should you or your staff have any questions, please contact me at 202-708-0614, Ext. 8107.

SUMMARY OF RESULTS

HUD generally complied with prescribed energy conservation laws, policies, and practices, and established adequate management controls to ensure the accuracy and reliability of energy consumption and cost data. However, HUD did not meet the 10 or the 20 percent energy consumption reduction goals for 1995 and 2000 respectively, as mandated by the Act. HUD identified a number of energy conservation measures and projects, but failed to consistently fund or determine whether the energy reduction measures would achieve the energy reduction goals mandated by the Act or Executive Order.

BACKGROUND

To meet the requirements of NECPA as identified in the Act, Federal agencies were to establish policies and procedures that would achieve the energy efficiency improvement goals of reducing energy consumption by 10 percent in fiscal year 1995, and by 20 percent in fiscal year 2000 using fiscal year 1985 as the base year for measuring the savings. The Act also requires that agencies conduct energy surveys, retrofit existing systems to promote efficiency, and install practicable energy and water conservation measures with payback periods of less than 10 years by 2005.

Executive Order 13123, issued in 1999, mandated that energy consumption be reduced 30 percent by fiscal year 2005 and 35 percent by fiscal year 2010 from the base year. Executive Order 13123 also requires that agencies develop an annual implementation plan for fulfilling the requirements of Federal energy management goals, and that agencies specifically request funding to achieve the goals of the order, including the energy efficiency improvement goals.

Although HUD has many offices throughout the United States, it is only responsible for energy management and conservation at its Headquarters building in Washington, DC. According to our 1993 audit survey report,¹ HUD's ten-year energy conservation plan, developed in 1990, complied with the requirements of the Act. HUD updated the plan as necessary to comply with emerging energy management requirements through 1998. Since 1999, HUD has prepared the annual implementation plan required by Executive Order 13123. Currently, funding for HUD's EM&C program is obtained from the General Services Administration, the Department of Energy, and through HUD's repair and alterations funds and budget requests.

¹ U.S. Department of Housing and Urban Development, *Audit Survey Report, Compliance with Section 160 of the 1992 Energy Policy Act*, Audit Related Memorandum No. 93-AO-165-0802, dated January 26, 1993.

FINDING

Compliance with specific energy reduction requirements

We determined that HUD established and has maintained a formal EM&C program at its Headquarters location. HUD's annual plan also generally complied with prescribed energy conservation laws, and addresses most of the elements required by Executive Order 13123. The elements that are not addressed are discussed in the following paragraphs. However, we also found that HUD reduced energy consumption by 9.3 percent between 1985 and 1995, and by 3.6 percent between 1985 and 2000. The 9.3 percent reduction achieved is not materially different from the prescribed percentage reduction of 10 percent, but the 3.6 percent reduction in energy consumption compared to the 20 percent mandated by the Act requires HUD's attention and action.

OAMS staff stated that the 20 percent consumption reduction goal for fiscal year 2000 was not met due to lack of sufficient funds for the implementation of energy conservation measures, and also because of a significant increase in energy consuming equipment in the workplace. From our audit, we noted that HUD had reported larger demands for steam during winter months in fiscal year 2000 compared to fiscal year 1999. We also noted that funding constraints resulted in the delay of two EM&C projects scheduled for fiscal year 2000, and these projects were still pending in fiscal year 2002. However, we were unable to determine from our audit of the annual plans, program records and reports whether HUD identified a sufficient number of energy conservation measures (initiatives or projects) to achieve its 2000 energy reduction goal or the 2005 and 2010 goals mandated by Executive Order.

In addition, HUD had not consistently followed several of the requirements set forth under Executive Order 13123 or the Act. According to HUD's Executive Order 13123 Energy Scorecard for fiscal year 2000, HUD did not invest direct appropriations to accomplish EM&C projects or request funding to accomplish EM&C projects or goals in its fiscal year 2002 budget request. Also, HUD's annual implementation plans for fiscal years 2001 and 2002 indicate that energy audits have not been done since 2000,² and that decisions to implement ten energy efficiency improvement initiatives or fund twelve energy conservation projects have been pending since 2001.

In summary, mandated energy conservation goals were not achieved as a result of HUD's failure to: (1) follow the requirements of the Act or Executive Orders consistently by installing practicable energy conservation measures, consistently conducting energy audits and obtaining adequate funding to accomplish planned energy conservation measures, and (2) identify whether planned energy conservation measures were sufficient to achieve mandated energy reduction goals.

² In fiscal year 2000, an energy audit was conducted for the entire HUD Headquarters building in compliance with Executive Order 13123, Part 4, Section 402.

AUDITEE COMMENTS

The Assistant Secretary for Administration/Chief Information Officer provided comments to our draft in a memorandum dated November 8, 2002 (Appendix A).

OIG EVALUATION OF AUDITEE COMMENTS

After reviewing our draft audit memorandum, OAMS officials concurred with our findings and recommendations and have identified a number of energy conservation measures (ECMs) that will be implemented to achieve a 12 per cent reduction, but must identify additional measures and funding to comply with the recommendations (See Appendix A), and met a 30 per cent reduction by 2005 and a 35 per cent reduction by 2010 from the base year.

RECOMMENDATIONS

- 1A. We recommend that HUD identify and document strategies or energy conservation measures and projects sufficient to ensure the achievement of Federally mandated energy consumption reduction goals for 2005 and 2010. The documentation of the strategies or energy conservation measures (initiatives and projects) should also identify expected reductions in energy consumption.
- 1B. We recommend that HUD increase its efforts to request and obtain funding from current and alternative funding sources to implement any energy conservation measures (initiatives and projects) identified as a result of implementing recommendation 1A.

MANAGEMENT CONTROLS

In planning and performing our audit, we considered the management controls relevant to HUD's EM&C program to determine our audit procedures, and not to provide assurance on the controls. Management controls include the plan of organization, methods and procedures adopted by management to ensure that its goals are met. Management controls also include the processes for planning, organizing, directing, and controlling program operations. They include the systems for measuring, reporting, and monitoring program performance.

We determined that the following management controls were relevant to our audit objectives:

- Management controls over the accuracy and reliability of energy consumption and cost data.

It is a significant weakness if management controls do not provide reasonable assurance that the process for planning, organizing, directing, and controlling program operations will meet an organization's objectives.

Based on our audit, we believe that overall management controls over the accuracy and reliability of energy consumption and cost data were adequate.

FOLLOW-UP ON PRIOR AUDITS

In our prior audit of HUD's EM&C program in 1993, HUD's ten-year energy conservation plan, developed in 1990, complied with the requirements of the Act. There were no recommendations resulting from this audit.

AUDITEE COMMENTS



U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, D.C. 20410-3000

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OFFICE OF THE ASSISTANT SECRETARY
FOR ADMINISTRATION

MEMORANDUM FOR: Randy W. McGinnis, Director, Financial Audits Division, GAF

Vickers B. Meadows
FROM: Vickers B. Meadows, Assistant Secretary for Administration/Chief Information Officer, A

SUBJECT: Management Response on the Draft Audit Report (FO-2002-006) of the HUD's Energy Management and Conservation Program

This memorandum is in response to your draft audit report, HUD's Energy Management and Conservation Program, dated October 9, 2002. We have reviewed the report and concur with the findings and recommendations. The following management response identifies a number of strategies or energy conservation measures (ECMs) that will be implemented to comply with the OIG's recommendations for 1A and 1B:

Recommendation 1A: We recommend that HUD identify and document strategies or energy conservation measures and projects sufficient to ensure the achievement of Federally mandated energy consumption reduction goals for 2005 and 2010. The documentation of the strategies or energy conservation measures (initiatives and projects) should also identify expected reduction of energy consumption.

Response: Two energy conservation measures have been quantified to estimate consumption reduction amounts. The total reduction generated through these ECMs is approximately 13.7% of the fiscal year 1985 baseline amount of 81,668 Btu/gross square foot. The two ECMs are as follows:

- **Lighting Upgrades**—This ECM provides for upgrading existing lighting to more energy-efficient lighting. The scope includes office lighting, corridors, penthouse (mechanical area), exit lights, and exterior building lighting. Projected consumption reduction is 9,622 Btu/gross square foot or approximately 11.8%. This ECM is approximately 65% funded. HUD will proceed with the accomplishment in FY 03 to the extent funding covers.
- **Installation of Occupancy Sensors in Office Areas**—Projected reduction is 1,546 Btu/gross square foot or approximately 1.9%. This ECM is currently unfunded.

Other potential ECMs which have been identified, but require technical evaluation to

determine the feasibility and/or projected reduction benefits, include the following:

- Testing, adjusting and balancing of HVAC systems
- Installation of variable frequency drives on chiller pumps
- Installation of variable frequency drives on cooling towers
- Photovoltaic solar wall system for penthouse lighting
- Replacement of existing HVAC controls with more efficient direct digital controls

Aside from conservation measures associated with building equipment and systems, there is potential for improvement in other areas. A considerable amount of increased energy consumption since the base year (1985) can be attributed to the increased use of office automation equipment throughout the building. Items such as personal computers, printers, and copiers have proliferated at an enormous rate. In addition to the energy directly consumed at the point of operation of this equipment, further energy is consumed due to the heat load it generates. Also contributing significantly to consumption are personal-type appliances such as microwave ovens, refrigerators, coffee pots, and space heaters, which have become commonplace over time. At this time, consumption amounts distinctly attributed to these items have not been quantified; however, we plan to survey to make a determination on this. Subsequently, Headquarters policy may be recommended in order to maximize and uniformly enforce energy conservation.

In analyzing HUD's potential for energy consumption reduction, there are some important facts to consider:

According to the Department of Energy's (DOE) most recent statistics for energy consumption in commercial buildings (Consumption and Gross Energy Intensity by Census Region for Sum of Major fuels, 1999), the average consumption for a building having the same or similar physical characteristics, built in the same time period, and located in the same geographic region (subjected to similar climatic conditions) as the Robert C. Weaver Building, is 95,590 Btu/gross square foot. Given this, the Weaver Building's energy consumption is well in line with its counterparts.

While HUD has room for improvement with respect to energy consumption and will continue striving to meet Executive Order 13123 goals, as a single facility working against a low baseline, we are at a distinct disadvantage in terms of potential for dramatic reductions.

We will work closely with DOE to obtain additional energy audits to identify further ECM opportunities and to determine the most feasible and cost-effective means for funding all ECMs identified.

Recommendation 1B: We recommend that HUD increase efforts to obtain and request funding from current and alternative funding sources to obtain the funds necessary for the implementation of any energy conservation measures (initiatives and projects) identified as a result of implementing recommendation 1A.

Response: HUD will continue to seek available funding mechanisms to support energy conservation measures. In addition to appropriated funds, other sources to be examined include DOE's Federal Energy Efficiency Fund, energy savings performance contracts (ESPCs), Super ESPCs, and utility energy service contracts. We will pursue these mechanisms through DOE, GSA, and local utility companies.

Should you or your staff have any questions, please contact Glennel M. Cooper in the Office of Budget and Administrative Support on 708-1583.

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Honorable Joseph I. Lieberman, Chairman, Committee on Governmental Affairs
Honorable Fred Thompson, Ranking Member, Committee on Governmental Affairs