



National Archives and Records Administration

8601 Adelphi Road
College Park, Maryland 20740-6001

Date : June 8, 2007

Reply to
Attn of : Office of Inspector General (OIG)

Subject : Audit Report No. 07-08, Audit of NARA's Energy Usage

To : Allen Weinstein, Archivist of the United States (N)

Enclosed is the subject report containing the results of our audit of NARA's energy management practices affecting the efficient use of energy resources. Overall, we found that energy management at NARA was aggressive with numerous energy efficiency projects initiated or completed. These energy efficiency projects resulted in a 12 percent reduction in energy usage in Fiscal Year 2006 compared to Fiscal Year 2003.

Our audit revealed additional opportunities for energy reductions existed and made four recommendations to further increase energy efficiency at NARA. Management concurred with all of our recommendations and began implementation efforts. Management's comments in their entirety are included as Appendix A to the audit report.

In accordance with the requirements of NARA 1201, *Audits of NARA Programs and Operations*, you have up to 45 calendar days to respond with an action plan for implementing the report recommendations and status reports on any completed or in-progress implementation efforts. Should you have any questions concerning the report and recommendations, please e-mail me or Mr. James Springs, or call us at (301) 837-3000.

Paul Brachfeld
Inspector General

Enclosure

AUDIT OF NARA'S ENERGY USAGE

OIG Report No. 07-08

June 11, 2007

EXECUTIVE SUMMARY

The National Archives and Records Administration (NARA) Office of the Inspector General (OIG) evaluated NARA's energy management practices affecting the efficient use of energy resources. We initiated this review to: (1) determine whether NARA could take additional measures to reduce rising energy costs and (2) assess NARA's energy management efforts. Additionally, we reviewed NARA's compliance with National Energy Conservation Policy Act (NECPA) as amended by Energy Policy Act (EPACT) 1992 and 2005 and Executive Order 13123.

We found that NARA's Energy Management team has a positive and passionate attitude toward their responsibilities for energy management and has initiated and completed numerous efforts to reduce its energy and water consumption, thereby, mitigating the rising cost of energy. These current completed efforts include capital improvements such as energy efficiency lighting, room occupancy sensors, and water efficient fixtures. Other energy conservation measures completed include the daily review of the maintenance contractor's operation of the building and revision to air handler run times that has had a significant impact on energy reduction. Examples of efficiency measures planned include a replacement of constant-volume air boxes to variable-volume boxes and installation of a cooling tower well that is estimated to reduce water consumption by one third.

NARA, although exempt from the required energy reduction goals established by NECPA, EPACT 1992 and Executive Order 13123, has generally complied with all reporting requirements. Currently, NARA has requested exemption from energy reduction goals established by EPACT 2005¹. However, we found that NARA has reduced energy consumption (on a BTU² by gross square footage basis) by twelve percent compared to Fiscal Year 2003 (the established base year) surpassing the required two percent reduction goal. Finally, in Fiscal Year 2005, the Office of Management and Budget recognizing NARA's energy management practices gave NARA a Green Star Rating for NARA's ability to complete planned energy reduction projects.

Our audit revealed that additional opportunities exist to realize additional energy efficiencies by updating NARA's last reported comprehensive 1996 Energy Plan³ and making the plan available to Energy Management team members; revitalizing the Employee Energy Awareness Campaign; establishing procedures that ensure adequate documentation of energy projects; and evaluating the potential benefit of a Full-Time Energy Manager position. This report contains four

¹ Section 543 of NECPA as amended by EPACT 2005 gives four criteria for exemption from energy requirements: 1) energy requirements are impracticable; 2) all federal required energy management reports are completed; 3) agency has achieved compliance with all energy efficiency requirements; and 4) implementation of all practicable, life cycle cost effective projects at the excluded building(s). Currently, NARA has not been granted or denied exemption.

² British thermal unit.

³ The 1996 Energy Plan was not available for review by the Office of the Inspector General as NARA personnel were unable to locate it. This plan has been referred to on NARA's Annual Agency Energy Report submitted to the Department of Energy.

recommendations designed to help NARA further reduce energy consumption and realize associated cost benefits.

BACKGROUND

Conservation has been identified not only as a valuable resource in the battle against rising energy costs and uncertainty about foreign sources of oil, but also as a duty of each and every American. And as such, the Federal government has publicly stated that it intends on setting a positive example regarding the use of cleaner, more efficient forms of energy. Executive Order 13123: Greening the Government Through Efficient Energy Management—signed by President Clinton June 3, 1999 requires that, by 2010, each Federal Agency improve energy efficiency by 35 percent compared to 1985 levels.

Executive Order 13123 also requires that agencies develop an annual implementation plan for fulfilling the requirements of Federal energy management goals and those agencies specifically request funding to achieve the goals of the order including the energy efficiency improvement goals.

To meet the requirements of NECPA, as amended by EPACT 2005, Federal agencies were to establish policies and procedures that would achieve the energy efficiency improvement goals of reducing energy consumption per square foot of all Federal buildings 20 percent by fiscal year 2015 using fiscal year 2003 as the base year. To meet this goal Federal agencies should show a 2 percent reduction in fiscal year 2006.

EPACT 2005 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.

Annually, Federal Agencies are required to report energy management activities (see Appendix I for NARA's latest report submission). The purpose of energy management reporting is to provide the Department of Energy with data that will be used to develop DOE's Annual Report to Congress on Federal Government Energy Management and Conservation Programs. This report is required under Section 548 of NECPA and describes energy management activities.

In addition to National Energy Conservation Policy Act (NECPA) as amended by Energy Policy Act (EPACT) 1992 and 2005 and Executive Order 13123 used for the purpose of this audit, President Bush signed Executive Order 13423 Strengthening Federal Environmental, Energy, and Transportation Management on January 24, 2007. The goals for this policy increases energy efficiency reduction to 3 percent per year (EPACT 05 requires 2 percent per year) relative to each agency's energy usage in fiscal year 2003. Additionally, Executive Order 13423: 1) combines energy reduction goals and water conservation with other environmental requirements; 2) requires agencies to implement an Environmental Management System (EMS); 3) assigns OMB the responsibility of periodic evaluation of agency implementation of this order; 4) requests for exemption must be submitted to the President through the Chairman of the Council; and 5)

requires report submittal to the President through the Chairman of the Council not less than once every two years on the activities to implement this order. Executive Order 13423 rescinds Executive Order 13123. The Assistant Archivist for Administrative Services (NA) is responsible for meeting the goals and requirements of energy laws and directives. The Facility Management Division (NAF) is directly responsible for implementation of improving energy management.

Finally, The Energy Policy Act of 1992, section 160 directs the Agency's Inspector General to assess compliance with existing energy management requirements and encourages periodic reviews.

Objective, Scope, and Methodology

The primary objective of this audit was to: 1) determine whether NARA could take additional measures to reduce rising energy costs 2) assess NARA's energy management efforts and 3) evaluate whether NARA was in compliance with Federal energy management requirements. Specifically, we

1. Evaluated NARA's energy management practices and activities used to identify opportunity to reduce energy usage.
2. Reviewed NARA's compliance with required energy conservation measures as identified by Energy Policy Act of 2005, Energy Policy Act of 1992, Executive Order 13123, and the National Energy Conservation Policy Act.

This initial audit inquiry focused on energy management at Archives I and Archives II as these locations account for 65 percent of NARA's energy usage for the Fiscal Year 2005. The audit which began in August 2006 and was completed December 2006 was conducted in accordance with generally accepted government auditing standards.

FINDINGS AND RECOMMENDATIONS

NARA Lacks Updated Energy Plan

NARA does not have a current Energy Management Plan that addresses how best to manage energy resources at all NARA owned facilities. This condition exists because management defined that it has not had the opportunity to update or develop an energy plan since the 1996 Energy Management Plan. GAO Standards for Internal Control in the Federal Government states that federal managers are “responsible for developing the detailed policies, procedures, and practices to fit their agency’s operations” necessary to achieve the desired results that support effective stewardship of public resources. Without a current energy management plan NARA could miss timely opportunities to reduce future energy cost and lacks the ability to properly prepare accurate budgets.

NARA reportedly developed an Energy Management Plan in 1996 to address the inefficiencies of operating Archives II and according to management it was a useful tool in correcting inefficiencies. The 1996 Agency Energy Plan was not available for review and Energy Management team members did not have access to this ten year old plan. Additionally, it does not appear that the 1996 Energy Management Plan was an agency wide plan that included energy management of the Presidential Libraries, Regional Facilities or Archives I.

NARA continues to report the use of the 1996 Energy Management Plan in its Annual Energy Report to the Department of Energy. For fiscal years 2001 through 2005 NARA states that, “NARA initiated the development of an Agency Energy Plan in 1996 in concert with the agency’s Strategic Planning Process.” This statement implies that NARA is using and has an Agency Energy Management Plan.

With the current rise in energy cost, it would be in NARA’s best interest to develop a revised Energy Management Plan. An Energy Management Plan creates a management and operational program through which energy efficiency objectives and requirements can be developed, monitored and realized. The recently signed Executive Order 13423 signed by President Bush on January 24, 2007 will require energy management planning take place and that this planning process be documented. Federal agencies will be required to report compliance to E.O. 13423 on a biannual basis. E.O. 13423 states “It is the policy of the United States that Federal agencies conduct their environmental, transportation, and energy-related activities under the law in support of their respective missions in an environmentally, economically and fiscally sound, integrated, continuously improving, efficient, and sustainable manner.” Further, Executive Order 13423 requires federal agencies to establish an environmental management system (EMS) as the primary management approach for addressing environmental aspects of internal agency operations and activities, including environmental aspects of energy and transportation functions.

EMS is a set of management processes and procedures designed so that environmental issues are integrated into the everyday business operations and decision-making structure of an organization. The framework for EMS is based on a plan, do, check, act model that reinforces continual improvement in operations. Planning is the first step of the EMS model and results in

a written document that should highlight NARA's commitment to the environment and energy conservation, state NARA's energy goals, establish roles and responsibilities, provide an outline of resources needed to accomplish goals, and identify key monitoring and measurement activities that would establish proper documentation of conservation activities (see Finding #3 below).

Specific topics contained in a planning document on energy management would include: a Water Management Plan for all NARA facilities that includes at least four Best Management Practices as identified by the Department of Energy's Federal Energy Management Program (FEMP)⁴ an Employee Energy Awareness Program (EEAP); a defined plan to oversee the Presidential Libraries; continued training program for facility management and Energy Management Team members; and procedures for documenting energy accomplishments that is to be reported to DOE and the Chairman of the Council. Additionally, the plan should address the development and implementation of a metering program, an electric load reduction program and an emergency or contingency plan for energy shortages, price spikes, brown-outs or black-outs.

Finally, the revised Energy Management Plan should be distributed to NARA Energy Management team including support functions such as purchasing, legal council, the energy awareness marketing team; and all NARA Presidential facilities managers. And as part of the Employee Energy Awareness Program (see finding below) all NARA employees should be made aware of NARA's energy conservation goals and NARA's commitment to conservation.

Recommendation 1

The Assistant Archivist for Administration (NA) should ensure compliance with Federal energy management requirements by formulating and distributing a NARA Energy Management Plan that addresses short and long term energy reduction goals, as dictated by EPACT 2005 and Executive Order 13423, for all NARA owned facilities. This plan should outline efficient energy usage goals and identifiable metrics that can be used to track and report upon progress in this regard.

Management Comment(s):

Management concurred with the recommendation and agreed to initiate management action.

⁴ The Department of Energy's Federal Energy Management Program (FEMP) was established to aid Federal agencies, OMB and the Office of the Federal Environmental Executive to develop and disseminate policy related to Federal energy management. Additionally, FEMP facilitates the Federal Interagency Energy Management Task Force meetings that NARA energy management team members attend on a quarterly basis.

NARA Needs to Revitalize Their Employee Energy Awareness Program

Based upon statistics used by FEMP, it can be estimated that NARA could realize an estimated energy savings of at least \$675,000 per fiscal year from a more aggressively run EEAP. Facility management personnel assigned the duty of managing the EEAP stated that the current program had not been given the attention it had in prior years because they were distracted, in part, by the flood at Archives I and other higher priority assignments. Conservatively, FEMP states that energy savings from a well-run awareness campaign could result in a five or six percent savings whereas NARA facility management personnel have stated that an aggressive EEAP could save NARA as much as ten to thirteen percent⁵. Using FEMP generated estimates, potential savings to NARA associated with an aggressive EEAP in FY 2006 could have approached \$1.775 million dollars. Additional savings would likely accrue in future years as well.

The Facility Management Division of NA, assigned the task of promoting employee awareness, reported that there had been more effort to engage NARA employees in taking action to reduce energy usage in the past. NA personnel stated that in fiscal year 2005 they had an energy awareness committee that promoted energy conservation during October, Energy Awareness Month, by sending e-mail notices and putting up energy conservation posters; however, in fiscal year 2006 employee awareness efforts were not maintained.

During the course of this audit we interviewed senior management. There was a general consensus that NARA could do a better job of educating NARA employees of their role in meeting agency energy reduction goals and that senior management should be made aware of utility cost and how to instruct their personnel on ways to save energy. Senior management also stated that at Regional Offices and Presidential Libraries employees appear to be more aware of energy conservation than at Archives I and Archives II where over 70 percent of NARA's energy is used. Further, senior management we interviewed could not remember any recent distribution of energy awareness material.

FEMP states that advertising analyst calculate that people must see an ad seven to ten times before they remember it. FEMP also states that getting employees to recognize the campaign's message is the first critical step in getting employees to actually change their behavior and has published a handbook, Creating an Energy Awareness Program, to help campaign managers better understand what is needed to run an effective campaign.

Attributes of a Successful EEAP: FEMP states that the most challenging aspect of energy efficiency programs (after successfully communicating your message) aimed at changing behavior is sustaining new behaviors over time. Thus, FEMP reports an effective employee awareness campaign must be ongoing with activities and communication throughout the year, that the campaign be personal with interactive contact, and that steps such as planning the effort, designing and implementing the program and activities, evaluation and reporting of results and sustaining the effort take place. FEMP states that getting people to change their behavior is very

⁵ FEMP has published reports on two-pilot projects where energy savings were 10 percent on one project and 13 percent on the other.

difficult, but it can be done when the message is repeated and is communicated at a personal level. An effective employee awareness program requires personal and interactive marketing to influence people to change their behavior. The FEMP handbook, Creating an Energy Awareness Program states that when people are confronted with an opportunity to adopt more energy-efficient behavior with a personal and interactive contact, as opposed to having the opportunity presented through written media, their participation rises dramatically.

An ongoing aggressive employee campaign need not be costly and the potential benefits of an effective program can be expected to exceed the cost. FEMP has demonstrated, using two-pilot projects, that behavior-based programs can reduce energy use and expenditure. Both pilot projects exceeded expectations and yielded savings greater than 10 percent for their campaign efforts. In addition to utility cost savings, benefits of an aggressive employee awareness campaign would include: favorable recognition; agency compliance with federal energy reduction requirements; and, the promotion of environmental stewardship amongst NARA employees that would transfer from the workplace to the home. Most necessary campaign and other support material can be obtained from the FEMP website including their handbook that outlines all steps needed to develop an effective EEAP.

Recommendation 2

The Assistant Archivist for Administration (NA) should consider:

- (a) instituting an EEAP where program results are monitored and energy cost savings are identified and reported, and
- (b) reassigning the management of the campaign on a rotational basis such as the CFC campaign to realize benefits such as more employee involvement, innovative fresh creative ideas, and consistency in the program reducing the likelihood that the campaign would not be overlooked in any given year.

Management Comment(s):

Management concurred with the recommendations and agreed to implement corrective actions.

Annual Report Data Not Readily Available

Supporting documentation for data reported on NARA's Annual Energy Report submitted to the Department of Energy was not always readily available for review and there were two cases where the data was inaccurate. This condition existed because there were no procedures for accurately capturing or storing applicable data. The Energy Policy Act of 1992 requires each agency "maintain energy consumption and energy cost records for review by the Inspector General, the Congress, and the general public. Section 160 of the Act directs the Agency's Inspector General to assess compliance with existing energy management requirements as well as the accuracy of energy use and cost data. Lacking reliable or required information, the OIG could not verify the accuracy of some information submitted in the annual report.

Federal Agencies are required on an annual basis to report energy management activities mandated by the National Energy Conservation Policy Act (NECPA), Energy Policy Act of 2005 (EPACT), and Executive Order (E.O.) 13123 Efficient Energy.⁶ The purpose of energy management reporting is to provide the Department of Energy with data that will be used to develop DOE's Annual Report to Congress on Federal Government Energy Management and Conservation Programs. This report is required under Section 548 of NECPA and describes energy management activities. Additionally, DOE's report is distributed to the House Committees on Appropriations, Energy and Commerce, Government Reform, and Science, as well as the Senate Committees Appropriations, Energy and Natural Resources, and Homeland Security and Governmental Affairs. Additional distribution of supplied data to DOE is given to Bureau of Economic Analysis and Energy Information Administration; State and local governments; private companies and citizens, and non-government organizations. Agency energy data is also used to generate a rating system by OMB to grade each Federal Agency on their performance in reaching energy reduction goals.

Energy data supplied by Federal agencies needs to be accurate so that those using the data can make appropriate conclusions concerning government's use of energy and its ability to enforce conservation measures. A centralized location for documenting the data submitted is a prudent best management practice. Having a centralized documentation center will aid in the yearly preparation of required reports and eliminate the risk for duplicate and erroneous energy data reporting.

On an annual basis, FEMP distributes a reporting guide that identifies required energy data to be reported to each federal agency on their Annual Energy Reports that includes an annual energy management Implementation Plan, Energy Management Data Report and Federal Agency Energy Scorecard. We reviewed NARA's Annual Energy Reports for fiscal years 2001-2005 and found the following areas where data was not reliable or adequately documented:

- On the Federal Agency Energy Scorecard for fiscal years 2001-2005, facility management state that NARA has requested a total of \$516,500 in appropriations for energy saving projects. Facility management did not have a list of energy saving projects, thus, we were unable to verify energy projects to the amounts reported.
- On the Agency Energy Scorecard for fiscal year 2002 facility management states that 6 facilities had water plans with at least 4 FEMP listed best management practices (BMP's), however, fiscal year 2005 data indicates that only four facilities had water plans with at least 4 BMP's. Water conservation plans were not available for review and we could only verify that three of those four facilities had the required four BMP's.

⁶ Further, the new Executive Order 13423 signed by President Bush on January 24, 2007 states that the head of each agency must ensure "collection, analysis, and reporting of information to measure performance in the implementation of this order;" and must "establish within the agency programs for (ii) environmental compliance review and audit,..." Section 5 paragraph (a) instructs OMB to conduct periodic evaluations of agency implementation of EO 13423.

- On the Agency Energy Scorecard for fiscal year 2003 the Energy Savings Performance Contract (ESPC) amounts were incorrectly reported, it appears that an ESPC contract amount was duplicated from the prior reporting period.
- On the Agency Energy Scorecards for fiscal years 2001-2005 facility management reports that a total of 21 persons received energy management training. Training records documenting energy management training were not available for review.
- Individual Performance Plans for energy management personnel were not current.

Recommendation 3

The Assistant Archivist for Administration (NA) should ensure that procedures are established for accurately capturing and storing data used to prepare the Annual Energy Report that is submitted to the Department of Energy.

Management Comment(s):

Management concurred with the recommendation and will implement corrective action.

Full-Time Energy Management Position

NARA lacks a full-time energy manager or a contracted full-time Resource Efficiency Manager (REM). This condition exists because operational staff has not defined the need and benefits of employing a full-time energy manager to NARA senior management. FEMP states in the guidebook, Contracting for a Resource Efficiency Manager, that a full-time REM can conservatively save 10 percent on energy and utility cost and that it is not uncommon for savings to exceed 20 percent. Without a full-time energy manager or contracted REM, NARA cannot realize potential savings that would result from such a position.

During the course of this audit, facility management personnel stated that with rising energy costs, growth of NARA, and lack of technical support at the Presidential Libraries a full-time energy manager may be justified. FEMP has published data on the benefits of a contracted full-time Resource Efficiency Manager (REM) and states that there are over 40 Federal agencies with average utility budgets of 3-5 million that have hired full-time REMs. NARA has utility costs nearly four times that amount with fifteen facilities (and growing) scattered nation-wide. With NARA's utility costs in excess of 13.5 million, savings in the 10 to 20 percent range could support the cost of a full-time Energy Manager or contracted REM.

Benefits of a full-time, in-house Energy Manager or contracted REM include cost savings, agency recognition, and environmental stewardship. FEMP states that some utility companies

offer REM services on a short-term trial basis and if the Federal agency is not satisfied with the energy program proposed by the REM that no further cost will occur beyond the trial period.

In addition to the cost savings, a full-time Energy Manager or contract REM can consolidate energy management tasks that are currently performed by a variety of facility management personnel giving energy management the ongoing concentrated focus it needs to be successful such as: development of an Energy Plan; development of an agency-wide metering program; performance of energy billing audits; monitoring of all agency facility energy projects; coordination of an ongoing Employee Energy Awareness Program and identification of low-cost and no-cost energy efficiency opportunities, to name a few. A full-time Energy Manager or contracted REM could also complete the certification process to get some of NARA's buildings LEED certified.

Recommendation 4

The Assistant Archivist for Administration (NA) should evaluate the benefits of hiring of a Full-Time Energy Manager or contracted REM to determine if there are sufficient energy cost savings available to warrant the cost of this position.

Management Comment(s):

Management concurred with the finding and agreed to implement corrective action.



National Archives and Records Administration

8601 Adelphi Road
College Park, Maryland 20740-6001

Date: June 7, 2007
To: NPOL
From: NA
Subject: NA Response to Audit of NARA's Energy Usage (Report No. 07-08)

NA has reviewed this audit report and concurs. We will develop an action plan to address the recommendations.

A handwritten signature in cursive script, appearing to read "Adrienne C. Thomas for".

ADRIENNE C. THOMAS
Assistant Archivist for Administration



National Archives and Records Administration

8601 Adelphi Road
College Park, Maryland 20740-6001

Date: JUN 08 2007
To: OIG
From: NPOL
Subject: OIG Draft Report 07-08, Audit of NARA's Energy Usage

Thank you for the opportunity to comment on this draft audit report. NA has reviewed the report and concurs with the recommendations. A copy of the NA memo is attached for your reference. NPOL has no additional comments.

A handwritten signature in cursive script, reading "Susan M. Ashtianie".

Susan M. Ashtianie
Director
Policy and Planning Staff

Attachment