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

Audit Report

Opportunities for Energy Savings at Department of Energy Facilities

DOE/IG-0869

August 2012

Department of Energy

Washington, DC 20585

August 31, 2012

MEMORANDUM FOR THE SECRETARY

FROM: Gregory H. Friedman
Inspector General

SUBJECT: INFORMATION: Audit Report on "Opportunities for Energy Savings at Department of Energy Facilities"

INTRODUCTION AND OBJECTIVE

Promoting energy efficiency is one of the Department of Energy's top priorities. In the Federal sector, the Department's Federal Energy Management Program and Sustainability Performance Office provide leadership for the implementation of key energy initiatives, including the Energy Independence and Security Act of 2007 (EISA 2007) and the Energy Policy Act of 2005 (EPAct 2005). These broad policy initiatives contain significant provisions on reducing energy consumption across the Federal enterprise.

EISA 2007, for example, requires evaluations of "covered facilities," those designated by each agency that, in aggregate, account for at least 75 percent of total facility energy use at the site or location, every 4 years. Facility evaluations include assessments of existing buildings to determine whether systems are operating as intended. Such assessments often identify low- and no-cost opportunities for energy savings by ensuring that mechanical, heating and lighting systems perform optimally, thereby, reducing energy consumption.

Under EPAct 2005 all Federal buildings are required to have electricity metering in place, where cost-effective, by October 2012. Metering provides information that can be analyzed and used through a variety of means to optimize equipment performance and allocate utility costs on an "actual use" basis to incentivize energy conservation.

At its 47 major sites, the Department's energy costs for buildings subject to goal reporting totaled about $277 million in Fiscal Year 2010. Because of the importance of reducing energy consumption, we initiated this audit to determine whether the Department had effectively identified and implemented energy-saving opportunities through facility evaluations and electricity metering.

RESULTS OF AUDIT

The Department had not always pursued readily available, low-cost energy-saving opportunities. If more aggressive energy conservation measures had been taken, the Department could have saved about $6.6 million annually, of the $42 million in available energy-saving opportunities as defined by EISA 2007 requirements. Specifically:

- Three of the five sites we reviewed (Brookhaven National Laboratory, Oak Ridge National Laboratory and Los Alamos National Laboratory) had not always identified or

implemented low- and no-cost, quick payback energy conservation measures discovered during facility evaluations. For example, the Oak Ridge National Laboratory's 2009 facility evaluation identified conservation measures that could result in a payback within 2 months and an estimated annual savings of about $77,000 for projects including utilizing variable speed drives on supply and exhaust air fans, installing temperature redistribution fans and repairing a steam trap. These measures, however, had not been implemented; and,

- Two of the five sites (Oak Ridge National Laboratory and the Y-12 National Security Complex) had not fully evaluated existing buildings to determine, among other things, whether building systems such as heating and lighting were operating as intended, despite specifically identified savings and recommendations to do so. For example, Oak Ridge National Laboratory had not fully implemented recommendations to optimize systems in 10 of 19 buildings (about 53 percent) assessed by a third-party evaluator during 2009.

Further, we identified opportunities to improve energy conservation through the use of electricity metering data at two sites visited (Y-12 and Los Alamos). While Y-12 energy managers identified a number of meters that were not working properly, they overlooked other meters that were not functional. Additionally, Los Alamos had a significant number of electricity meters installed and used the metering data to generate mock electricity bills to illustrate quarterly energy consumption. However, it had not incentivized conservation by actually charging users based on their energy consumption.

Site officials told us that a number of factors contributed to instances of ineffective evaluations and electricity metering practices. These included a lack of prioritization in implementing low- and no-cost, quick payback measures; insufficient resources to complete numerous required evaluations; billing practices that did not promote and encourage efficient energy use; and difficulties in revising accounting systems to support billing users based on energy consumption.

While our review identified opportunities for energy savings, we noted that sites had, in a number of instances, evaluated existing buildings and used metering data to reduce energy consumption and costs. For example, Oak Ridge National Laboratory had evaluated its Spallation Neutron Source campus and estimated that it could save approximately $350,000 annually by investing about $250,000 for projects it had completed. Similarly, certain sites used electricity metering data to identify energy conservation opportunities.

The Department has publicly advocated for energy conservation in U.S. businesses and private residences, as well as within its own facilities. Effectively evaluating systems in existing buildings and using electricity metering data could significantly advance energy conservation and decrease energy costs. We conservatively estimated that the Department could save approximately $6.6 million annually by applying these principles (See Appendix 1). We made several recommendations designed to assist the Department in this effort.

This report is part of a series of energy conservation-related reports issued by the Office of Inspector General. In our report on *The Department of Energy's Energy Conservation Efforts* (OAS-L-11-02, February 2011), we noted that the Department's approach was not sufficient to

meet the EISA 2007 energy conservation requirement to reduce consumption by 30 percent by Fiscal Year 2015. In our reports on the *Department of Energy's Opportunity for Energy Savings Through Improved Management of Facility Lighting* (DOE/IG-0835, June 2010) and the *Department of Energy's Opportunity for Energy Savings Through the Use of Setbacks in its Facilities* (DOE/IG-0817, July 2009), we found the Department could have significantly reduced energy consumption by updating lighting and utilizing temperature setbacks. Another report on *Department of Energy Efforts to Manage Information Technology Resources in an Energy-Efficient and Environmentally Responsible Manner* (OAS-RA-09-03, May 2009) found the Department had not always taken advantage of energy efficiency opportunities related to its information technology resources.

MANAGEMENT REACTION

Management concurred with our recommendations and provided actions that will be taken to address issues identified in our report. The National Nuclear Security Administration acknowledged the energy and cost-saving opportunities that remain at its sites. In separate comments, the Office of the Under Secretary of Energy and the Office of Science indicated that sites would continue evaluating buildings on a 4-year cycle and implementing best practices pertaining to electricity billing, where economically viable.

Management's comments are included in Appendix 3.

Attachment

cc: Deputy Secretary
Associate Deputy Secretary
Acting Under Secretary of Energy
Under Secretary for Nuclear Security
Director, Office of Science
Chief of Staff

REPORT ON OPPORTUNITIES FOR ENERGY SAVINGS AT DEPARTMENT OF ENERGY FACILITIES

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OPPORTUNITIES FOR ENERGY SAVINGS AT DEPARTMENT OF ENERGY FACILITIES

Opportunities to Reduce Energy Consumption

Our review of facility evaluations and electricity metering at five of the Department of Energy's (Department) sites revealed opportunities to conserve energy and reduce costs. Facility evaluations are one of many opportunities to identify low- and no-cost, quick payback energy conservation projects that can generate continuous savings that may be applied to other facility improvements. Facility evaluations, among other things, assess whether building systems are operating as intended or needed. This process can identify deficiencies that, if not addressed, could cause costly equipment failure and unnecessary energy usage. These evaluations provide an opportunity to conserve resources by identifying low- or no-cost changes or improvements that can be made without capital upgrades. We also noted that sites were not always using electricity metering effectively. While metering alone does not save energy or reduce costs, metering data can be compiled and analyzed to develop conservation strategies to better manage scarce energy resources.

Facility Evaluations

Sites had not always taken advantage of opportunities to decrease energy consumption and reduce costs through facility evaluations. Specifically:

- Three of the five sites reviewed had not always identified or implemented low- and no-cost, quick payback energy conservation measures through facility evaluations. In particular, Brookhaven National Laboratory's (Brookhaven) facility evaluations, for the most part, did not identify low- and no-cost, quick payback energy conservation measures. Instead, Brookhaven's facility evaluations mostly identified capital-intensive energy conservation measures. The site was working to improve facility evaluation processes and acknowledged that significant, cost-effective energy-saving opportunities existed from repairing and adjusting building control systems at the site. Further, while Oak Ridge National Laboratory (ORNL) and Los Alamos National Laboratory (Los Alamos) had taken action to identify low-cost and no-cost opportunities to conserve energy, the sites had not always implemented such measures.

Examples of measures with low- or no-cost and a payback period of 6 months or less that were not implemented are detailed in the following chart:

Quick Payback Energy Conservation Measures

Evaluation	Energy Conservation Measures Not Implemented	Estimated Annual Savings	Estimated Cost to Implement
2009 Oak Ridge National Laboratory	Variable Speed Drives on Supply and Exhaust Air Fans	$52,868	$7,000
	Temperature Redistribution Fans	$14,670	$1,400
	Steam Trap Repair	$9,252	$1,060
2011 Los Alamos National Laboratory	Building System Controls	$53,728	$10,000
	Maintenance and Electronics Usage	$4,155	$2,000

- Two of the five sites had not fully evaluated and/or implemented actions to ensure existing building systems were operating as intended. For example, ORNL had not fully implemented 10 site evaluation recommendations made in 2009 to optimize building systems. Five of the 10 recommendations were made because third-party evaluators determined that facility managers had not implemented temperature setbacks for heating, ventilation and air-conditioning during periods when buildings were not occupied. Setbacks were still not in place in the buildings as of January 2012. According to the 2009 evaluation, implementing setbacks in these five facilities could have saved the site around $227,000 annually with no upfront investment. Further, despite Federal requirements, site officials at Y-12 National Security Complex (Y-12) informed us that its facility evaluations had not included an assessment of whether existing building systems were operating as intended. We noted that a Federal Energy Management Program study highlighted the cost-saving opportunities for Y-12 from incorporating this practice into facility assessment efforts.

Similarly, in our report *The Department of Energy's Opportunity for Energy Savings Through the Use of Setbacks in its Facilities* (DOE/IG-0817, July 2009), we noted that facilities had not always used or failed to maintain heating, ventilation and air conditioning setback systems and equipment. We estimated that the Department could save an estimated $11.5 million in annual utility costs by using setbacks.

In contrast, we noted positive examples of sites' efforts to evaluate existing building systems. For example:

- ORNL completed a project to assess building systems at its Spallation Neutron Source campus. A site engineer estimated that the actions taken could save the site around $350,000 annually with an upfront cost of about $250,000. Implementation was completed in September 2011.

- Los Alamos developed plans to evaluate existing building systems and opportunities for improvement in five facilities. One building was evaluated during Fiscal Year 2011.

- Sandia National Laboratory (Sandia) identified and implemented energy-saving opportunities by making improvements discovered during its facility evaluations required under EISA 2007. Site personnel used standardized checklists to analyze building systems and controls and, when possible, addressed weaknesses during the evaluation process. According to site personnel, deficiencies that had not yet been addressed have been incorporated into site-wide funding requests.

Use of Electricity Metering Data

We identified opportunities for sites to improve the use of electricity metering data. Specifically:

- Although Y-12 had compiled electricity metering data, the site had not used the data to implement energy conservation projects. In fact, because the data had not been used, Y-12 officials had not ensured its accuracy and completeness. Of the 47 buildings for which Y-12 had compiled data, at least 7 buildings were based on estimated usage, rather than actual usage, because meters were nonoperational, inaccessible or not installed. In

particular, Y-12 had compiled the same reading for a meter for nearly 5 years because it was behind a locked door and reportedly inaccessible. Further, for almost 5 years, staff reportedly recorded estimated readings for a meter that had not been re-installed after being removed during a construction project. In addition, Y-12 had not installed the two meters that were initially identified as cost-effective in a 2007 Metering Plan. In July 2011, Y-12 initiated a more intensive effort to document where meters were installed and whether they were operational. While this project was ongoing as of January 2012, site officials told us that much of Y-12's electric metering infrastructure is either nonoperational or improperly installed. In November 2011, Y-12 also released an updated Metering Plan identifying 54 facilities that could benefit from advanced electric meter installations.

- Los Alamos had a significant number of electricity meters installed and used the metering data to generate mock electricity bills to illustrate quarterly energy consumption. According to site officials, "mock electricity bills" created in April 2011, was one of the energy conservation initiatives stemming from metering that was implemented at the site. Mock electricity bills illustrate quarterly energy consumption, as well as changes in annual energy consumption for each of the five internal divisions. The site, however, had not incentivized conservation by actually charging users based on their energy consumption. Accordingly, officials informed us that, as of our review, mock electricity bills had not resulted in any known energy savings for the site.

Certain sites we reviewed used electricity metering data to reduce energy consumption. For example:

- ORNL used system-specific metering in 2 of its 15 similarly constructed office buildings to determine how specific systems used electricity. Through this effort, ORNL reduced its energy consumption by identifying and replacing outdated and inefficient equipment. Monitoring electrical consumption associated with lighting, plug loads and other specific end-uses also allowed the site to compare the effectiveness of energy-conservation measures and implement targeted projects in other facilities.

- Brookhaven used metering data to strategically schedule projects requiring significant energy use in an effort to avoid the high costs incurred during peak load periods. This technique reportedly allowed the site to avoid about $2 million per year in electricity costs associated with demand charges. Brookhaven officials reported, however, that their most successful outcomes were achieved through billing internal customers for their actual electricity use. Although the site could not quantify the total energy and cost savings attributable to direct-billing, electric consumption of one tenant dropped about 40 percent when billed for actual consumption.

- Sandia used similar metering applications and approaches. Sandia incorporated metering data into its space-chargeback system to bill internal users for electricity and tracked changes in energy consumption to determine the effects of energy-efficiency projects. For example, for one project, Sandia reported that savings ranged from approximately 22 percent to 36 percent over a 4-month period.

Prioritization, Resources and Billing Practices

Department officials told us that a number of factors contributed to instances of ineffective facility evaluations and electricity metering. These included a lack of prioritization in implementing low- and no-cost, quick payback measures; insufficient resources to complete numerous required evaluations; billing practices that did not promote and encourage efficient energy use; and difficulties in revising accounting systems to support billing users based on energy consumption. Specifically:

- Site officials told us that given the constrained budget environment, it was often difficult to balance mission critical needs with implementing energy conservation measures. We recognize there are costs associated with evaluating facilities and implementing metering projects; however, we believe it is important for sites to prioritize projects with rapid payback periods and little or no required upfront investment. In support of our premise, we noted that a study by the Federal Energy Management Program on the Department's Pacific Northwest National Laboratory highlighted how the site used a facility evaluation checklist to identify and prioritize low- and no-cost ($500 or less to complete) energy conservation opportunities. According to the study, this process resulted in approximately $173,700 (35 percent) in

energy cost savings for one building at the site. Some sites had been proactive in certain areas; for example, Department officials reported that the National Nuclear Security Administration (NNSA) had allocated over $6 million of Energy Modernization and Investment Program (EMIP) funding to metering facilities in Fiscal Year 2011, including $2 million to Y-12 and $1 million to Los Alamos.

- The level of resources needed to complete multiple facility assessments required by the Department for different purposes, including facility evaluations and Condition Assessment Surveys designed to calculate deferred maintenance, drained available resources and thereby affected implementation of identified measures. To reduce costs, certain sites had taken steps to streamline the performance of separate requirements. Specifically, in December 2011, Brookhaven officials informed us they were combining facility evaluations and Condition Assessment Surveys to decrease costs by approximately $45,000 (17 percent) annually.

- Rather than billing for actual electricity usage, a number of sites billed users on an allocation basis such as square footage. Because users are not billed for actual usage, there is little financial incentive to conserve energy. While officials at Y-12 and Los Alamos acknowledged the value of billing for electricity usage, they noted that changing billing practices can be costly. As previously mentioned, Y-12 was evaluating and updating its metering infrastructure, and Los Alamos noted there would be difficulties revising its accounting systems to support direct billing. While we recognize the underlying challenges associated with updating internal billing systems, we believe the Department could significantly benefit from such investments over time.

Potential Savings

Effective facility evaluations and electricity metering are critical for maximizing the Department's conservation efforts and decreasing energy costs. We conservatively estimate the Department could save approximately $6.6 million annually, using the 4-year timeframe in EISA 2007, if it more proactively assesses and repairs building systems through facility evaluations. In addition to criteria set forth in EISA 2007, our estimate was based on a 2009 Department study conducted by Lawrence Berkeley National Laboratory that found 16 percent energy savings from

ensuring existing whole-building systems are working properly. A detailed description of our estimation methodology is included in Appendix 1. Regarding metering, while we were not able to calculate a point estimate, we noted the Department's guidance provides a wide range of cost savings accruing from a site-wide metering program — between 1 percent and 20 percent — specific to each site.

RECOMMENDATIONS

To better harness the benefits of facility evaluations and electricity metering, we recommend that the Acting Under Secretary of Energy, the Under Secretary for Nuclear Security, and the Director of the Office of Science require Federal Site Managers to:

1. Evaluate opportunities to more effectively utilize facility evaluations and electricity metering to decrease energy costs and improve operations of facilities;

2. Prioritize the most cost-effective projects identified by facility evaluations and electricity metering, and implement these projects in a timely manner;

3. Consider opportunities to streamline the performance and reporting of required facility evaluations in order to conserve scarce resources; and,

4. Implement best practices related to billing for electricity usage to the maximum extent practicable.

MANAGEMENT REACTION

Management concurred with the report's recommendations. NNSA highlighted the progress it had made on meter installations at six sites, but acknowledged that additional energy and cost-saving opportunities remain. NNSA officials also informed us that Y-12 used its $2 million of EMIP funds to install or replace about 115 meters, and Los Alamos used metering data for energy auditing and validating savings from various energy conservation projects. NNSA stated that its sites would address our recommendations in their annual Site Sustainability Plans. The Office of the Under Secretary of Energy and the Office of Science emphasized that their sites will continue to evaluate buildings on a 4-year, recurring cycle and implement electricity billing best practices, where cost-effective, on a site specific basis. Management's comments, included in Appendix 3, are generally responsive to our findings and recommendations.

AUDITOR COMMENTS

We are encouraged by the Department's acknowledgement of additional opportunities for energy savings through facility evaluations and electricity metering as well as planned actions to evaluate, prioritize and implement the most cost-effective projects. Effective, cost-saving projects and practices being implemented across the Department may serve as an example for other sites' sustainability efforts.

OBJECTIVE

The objective of this audit was to determine whether the Department of Energy (Department) had effectively identified and implemented energy-saving opportunities through facility evaluations and electricity metering.

SCOPE

The audit was performed between February 2011 and July 2012, at Department Headquarters in Washington, DC; Oak Ridge National Laboratory and Y-12 National Security Complex in Oak Ridge, TN; Brookhaven National Laboratory in Upton, NY; Los Alamos National Laboratory in Los Alamos, NM; and Sandia National Laboratory in Albuquerque, NM.

METHODOLOGY

To accomplish the audit objective, we:

- Reviewed laws, regulations, Department Orders and guidance applicable to facility evaluations and electricity metering;
- Reviewed sustainability plans and metering plans for each site;
- Interviewed key personnel at Department Headquarters and each of the sites;
- Analyzed energy conservation measures identified in facility evaluations and determined whether certain low- and no-cost, quick payback measures were implemented;
- Discussed and reviewed energy and cost saving projects that were identified using electric metering data;
- Observed a sample of installed meters at each site and reviewed electric metering data compiled by site energy managers; and,
- Assessed how sites distributed electricity costs to internal users and whether metering data was incorporated into this process.

We conservatively estimated that the Department could annually save approximately $6.6 million, by applying a 16 percent energy savings estimate from ensuring building systems operate properly that was developed by Lawrence Berkeley National Laboratory, to about $42 million in annual building energy costs. We derived the $42 million annual building energy costs based on the Department's Fiscal Year 2010 building energy costs of about $277 million reduced by: (a) 25 percent to recognize that Energy

Independence and Security Act of 2007 (EISA 2007) requirements apply to only 75 percent of total energy use; (b) 75 percent to recognize that EISA 2007 requires evaluations on a 4-year cycle; and, (c) 20 percent to recognize that 1 of the 5 sites included in our review identified and implemented energy-saving opportunities by making improvements discovered during its facility evaluations required under EISA 2007.

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 objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective. Accordingly, we assessed significant internal controls and compliance with laws and regulations to the extent necessary to satisfy the audit objective. In particular, we assessed the Department's implementation of the *GPRA Modernization Act of 2010* and determined that it had not established performance measures for facility evaluations and electricity metering at the sites reviewed. 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. Finally, we conducted an assessment of computer-processed data relevant to our audit objective and found it to be reliable.

Management waived the exit conference.

PRIOR REPORTS

- Audit Report on *The Department of Energy's Energy Conservation Efforts* (OAS-L-11-02, February 2011). The audit revealed that the Department of Energy's (Department) approach was not sufficient to achieve the Energy Independence and Security Act of 2007 (EISA 2007) imposed energy conservation requirement to reduce energy consumption by 30 percent by Fiscal Year 2015. Although funding for energy conservation projects must compete with mission needs and increasingly scarce Federal resources, we noted in the past that the Department lacked a systematic approach to funding energy conservation measures. The Department's Strategic Sustainability Performance Plan, if fully implemented, should advance the resolution of issues identified in the report and help the Department meet energy mandates from EISA 2007.

- Audit Report on *The Department of Energy's Opportunity for Energy Savings Through Improved Management of Facility Lighting* (DOE/IG-0835, June 2010). The audit revealed that the Department had not always used efficient lighting and control systems to conserve energy and save taxpayer dollars. More specifically, the Department had not utilized, to the maximum extent practical, lighting technologies whose research and development it funded. Had the Department capitalized on efficient lighting and lighting system technologies, over $2.2 million in electric utility operating costs could have been saved annually.

- Audit Report on *The Department of Energy's Opportunity for Energy Savings Through the Use of Setbacks in its Facilities* (DOE/IG-0817, July 2009). The audit revealed that the Department had not always used or properly maintained heating, ventilation and air-conditioning temperature setback controls in its facilities. For the four sites reviewed, setbacks were not utilized in 64 percent of evaluated buildings. By more actively employing setbacks in its facilities, we estimated that the Department could save over $11.5 million in annual utility costs.

- Audit Report on *Department of Energy Efforts to Manage Information Technology Resources in an Energy-Efficient and Environmentally Responsible Manner* (OAS-RA-09-03, May 2009). The audit revealed that the Department had not taken steps to ensure its information technology resources were managed in an energy-efficient manner. For the seven sites reviewed, power management settings, "thin-client" computing, and data center energy reduction opportunities were not always implemented. Nearly all of the computers reviewed did not have the hibernation, energy-saving mode enabled, and five of the data centers reviewed did not monitor energy consumption and could, therefore, not justify implementing more energy-efficient technologies.

MANAGEMENT COMMENTS

Department of Energy
Washington, DC 20585

July 24, 2012

MEMORANDUM FOR RICKEY R. HASS
DEPUTY INSPECTOR GENERAL
FOR AUDITS AND INSPECTIONS
OFFICE OF INSPECTOR GENERAL

FROM: GEORGE MALOSH
CHIEF OPERATING OFFICER
OFFICE OF THE UNDER SECRETARY OF ENERGY

SUBJECT: Response to Inspector General's Draft Report, "Opportunities for Energy Savings at Department of Energy Facilities"

Thank you for the opportunity to review and comment on the subject draft report. The Office of the Under Secretary of Energy responses to the recommendations and comments on the report are as follows:

Recommendation 1: Require Federal Site Managers to evaluate opportunities to more effectively utilize facility evaluations and electricity metering to decrease energy costs and improve operations in their facilities.

Management Response: Concur

Action Plan: The Energy Programs sites will continue to evaluate their building assets over a four year recurring basis. Energy Programs sites will report results annually in their Consolidated Energy Data Reports (CEDR) and their Site Sustainability Plans (SSP).

Estimated Completion Date: March 31, 2013

Recommendation 2: Require Federal Site Managers to prioritize the most cost-effective projects identified by facility evaluations and electricity metering, and implement these projects in a timely manner.

Management Response: Concur

Action Plan: The prioritization of the most cost-effective projects identified in the building evaluations will be included in each site's SSP and summarized in the CEDR, and will be implemented at the Energy Programs sites as resources allow.

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Estimated Completion Date: March 31, 2013

Recommendation 3: Require Federal Site Managers to consider opportunities to streamline the performance and reporting of required facility evaluations in order to conserve scarce resources.

Management Response: Concur

Action Plan: Energy Programs sites will continue to prioritize the most cost-effective projects identified in their building evaluations and the accompanying decisions will be based on economic viability and life cycle cost analysis. The results will be included in each site's SSP and summarized in their CEDR.

Estimated Completion Date: March 31, 2013

Recommendation 4: Require Federal Site Managers to implement best practices related to billing for electricity usage to the maximum extent practicable.

Management Response: Concur

Action Plan: Energy Programs sites will continue to, on a site specific basis, implement best practices at their sites for those practices that are economically viable and life cycle cost effective for each site. Noteworthy results will be reported in their SSPs.

Estimated Completion Date: March 31, 2013

Monetary Impact: The draft report states the Department could save approximately $6.6 million annually, over a 4-year timeline. With the provided information Office of the Under Secretary of Energy is not able to ascertain the accuracy of this statement.

If you have any questions on these comments, please contact Gordon Fox at 301-903-1457.

Department of Energy
National Nuclear Security Administration
Washington, DC 20585

July 13, 2012

MEMORANDUM FOR GREGORY H. FRIEDMAN
INSPECTOR GENERAL

FROM: CYNTHIA A. LERSTEN
ASSOCIATE ADMINISTRATOR
FOR MANAGEMENT AND BUDGET

SUBJECT: NNSA's Comments on Inspector General Draft Report titled, *Opportunities for Energy Savings at Department of Energy Facilities*; Project No. A11HQ003/IDRMS No. 2011-00356

The National Nuclear Security Administration (NNSA) appreciates the opportunity to review the Inspector General's (IG) draft report, "*Opportunities for Energy Savings at Department of Energy Facilities.*"

NNSA generally agrees with the draft report. We recognize that there remain additional opportunities at NNSA sites to save energy and reduce costs through implementation of energy savings opportunities identified through facility evaluations and electricity metering.

The NNSA has made significant progress in metering at its sites. The allocation of over $6 million in Energy Modernization and Investment Program funding in FY 2011 for meters at six NNSA sites has resulted in substantial and cost saving improvements to the sites' metering programs. The NNSA continues to use facility evaluations and metering data to improve facility operations and energy efficiency. The NNSA sites will address the specific draft audit report recommendations in their annual Site Sustainability Plans. Our responses to the four recommendations in the draft report and general comments are attached.

If you have any questions concerning this response, please contact Dean Childs, Director, Management Control and Assurance, at 301-903-1341.

Attachment

cc: Geoffrey Beausoleil, Sandia Site Office, Manager
Richard Sena, Sandia Site Office, Deputy Manager

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Initial Response to the Report Recommendations

Recommendation 1: Evaluate opportunities to more effectively utilize facility evaluations and electricity metering to decrease energy costs and improve operations in their facilities.

Concur

The National Nuclear Security Administration (NNSA) sites will continue to evaluate opportunities to more effectively utilize facility evaluations and electricity metering to decrease energy costs and improve facility operations. The sites' annual Site Sustainability Plans will address this recommendation. The estimated completion date is March 29, 2013.

Recommendation 2: Prioritize the most cost-effective projects identified by facility evaluations and electricity metering and implement these projects in a timely manner.

Concur in Principle

The NNSA sites routinely identify and prioritize projects for implementation as part of facility/energy planning and budgeting. Implementation is based upon overall site prioritization consistent with mission requirements and other high priorities, return-on-investment, available funding/budget, resources, and other factors. The sites' annual Site Sustainability Plans will address this recommendation. The estimated completion date is March 29, 2013.

Recommendation 3: Consider opportunities to streamline the performance and reporting of required facility evaluations in order to conserve scarce resources.

Concur

The NNSA sites will consider opportunities to streamline the performance and reporting of required facility evaluations to improve efficiency. The sites' annual Site Sustainability Plans will address this recommendation. The estimated completion date is March 29, 2013.

Recommendation 4: Implement best practices related to billing for electricity usage to the maximum extent practicable.

Concur in Principle

Recommend rewording recommendation 4 to state: Evaluate the feasibility of implementing best practices related to billing for electricity usage and implement, where practicable. The NNSA desires to first understand the "best practice" recommended and then evaluate the feasibility of implementing the best practice (particularly since the draft report appears to recommend as a best practice "direct billing" which could potentially

result in changes to site billing practices which can be challenging and costly). The sites' annual Site Sustainability Plans will address this recommendation. The estimated completion date is March 29, 2013.

Please also define the specific "best practices" related to billing for electricity usage to ensure that recommendation 4 is clearly understood. While it may be inferred from the draft report (page 5, 2nd paragraph) that "direct billing" for actual electricity usage is a "best practice"; this is not explicitly stated in the recommendation.

Department of Energy
Washington, DC 20585

July 17, 2012

MEMORANDUM FOR RICKEY R. HASS
DEPUTY INSPECTOR GENERAL
FOR AUDITS AND INSPECTIONS
OFFICE OF INSPECTOR GENERAL

FROM: JOSEPH MCBREARTY 7/17/12
DEPUTY DIRECTOR FOR FIELD OPERATIONS
OFFICE OF SCIENCE

SUBJECT: Response to Inspector General's Draft Report, "Opportunities for Energy Savings at Department of Energy Facilities"

Thank you for the opportunity to review and comment on the subject draft report. The Office of Science (SC) responses to the recommendations and comments on the report are as follows:

Recommendation 1: Require Federal Site Managers to evaluate opportunities to more effectively utilize facility evaluations and electricity metering to decrease energy costs and improve operations in their facilities.

Management Response: Concur

Action Plan: The SC sites will continue to evaluate their building assets over a four year recurring basis. SC sites will report results annually in their Combined Energy Data Reports (CEDR) and their Site Sustainability Plans (SSP).

Estimated Completion Date: March 31, 2013

Recommendation 2: Require Federal Site Managers to prioritize the most cost-effective projects identified by facility evaluations and electricity metering, and implement these projects in a timely manner.

Management Response: Concur

Action Plan: The prioritization of the most cost-effective projects identified in the building evaluations will be included in each site's SSP and summarized in the CEDR, and will be implemented at the site as resources allow.

Estimated Completion Date: March 31, 2013

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Recommendation 3: Require Federal Site Managers to consider opportunities to streamline the performance and reporting of required facility evaluations in order to conserve scarce resources.

Management Response: Concur

Action Plan: Sites will continue to prioritize the most cost-effective projects identified in their building evaluations and the accompanying decisions will be based on economic viability and life cycle cost analysis. The results will be included in each site's SSP and summarized in their CEDR.

Estimated Completion Date: March 31, 2013

Recommendation 4: Require Federal Site Managers to implement best practices related to billing for electricity usage to the maximum extent practicable.

Management Response: Concur

Action Plan: Sites will continue to, on a site specific basis, implement best practices at their sites for those practices that are economically viable and life cycle cost effective for each site. Noteworthy results will be reported in their SSPs.

Estimated Completion Date: March 31, 2013

Monetary Impact: The draft report states the Department could save approximately $6.6 million annually, over a 4-year timeline. With the provided information SC is not able to ascertain the accuracy of this statement.

If you have any questions on these comments, please contact Gordon Fox at 301-903-1457.

IG Report No. DOE/IG-0869

CUSTOMER RESPONSE FORM

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1. What additional background information about the selection, scheduling, scope, or procedures of the audit or inspection would have been helpful to the reader in understanding this report?

2. What additional information related to findings and recommendations could have been included in the report to assist management in implementing corrective actions?

3. What format, stylistic, or organizational changes might have made this report's overall message more clear to the reader?

4. What additional actions could the Office of Inspector General have taken on the issues discussed in this report that would have been helpful?

5. Please include your name and telephone number so that we may contact you should we have any questions about your comments.

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