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

Audit Report

Management of Energy Savings Performance Contract Delivery Orders at the Department of Energy

DOE/IG-0822 September 2009

Department of Energy
Washington, DC 20585

September 10, 2009

MEMORANDUM FOR THE SECRETARY

FROM: Gregory H. Friedman
Inspector General

SUBJECT: INFORMATION: Audit Report on the "Management of Energy Savings Performance Contract Delivery Orders at the Department of Energy"

BACKGROUND

The American Recovery and Reinvestment Act established a series of energy-related goals, one of which was to make Federal facilities more energy efficient. The use of the Energy Savings Performance Contract (ESPC) concept, a mechanism for financing large scale energy improvements in Federal facilities, is likely to be an integral part of this effort. Under this arrangement, a private-sector energy services company (ESCO) develops and installs energy improvements in exchange for a share of future savings. Typical improvements include: energy efficient lighting; building management control systems; and, heating, ventilating, and air-conditioning system improvements. The Federal agency repays the ESCO for its capital investment over a period of years from the savings generated. Payments over the life of the ESPC, some extending for as long as 25 years, are based on projected energy use and estimated energy savings agreed to by the Government.

The Department of Energy's Golden Field Office is responsible for awarding and administering umbrella contracts called "Super ESPCs" that can be used by all Federal agencies for facilities worldwide. In December 2008, the Department issued 16 new Super ESPCs, with a combined ceiling of $80 billion. The Department also oversees its own ESPC delivery orders (orders) which are site-level contracts that incorporate the terms of the Government-wide Super ESPCs. As of April 2009, the Department had 16 active ESPC orders with a combined value of $473 million.

In a 2001 report on the *Audit of the Department of Energy's Super Energy Savings Performance Contracts* (DOE/IG-0499), we found that the Department had not maximized the use of its cost-recovery authority to enhance the Super ESPC program. Because of the results of our prior work and the national goal of making Federal facilities more energy efficient under the Recovery Act, we initiated this audit to evaluate the Department's use of ESPCs.

RESULTS OF AUDIT

Our detailed review of four of the Department's largest ESPC orders, valued at $256 million, determined that the Department (i) had not always effectively used ESPC orders to achieve energy savings; and, (ii) had not ensured that the Government's interests were

adequately protected in this process. As such, the Department may risk spending up to $17.3 million more than it will realize in energy savings. For the four contracts tested in detail, we noted that the Department had not:

- Ceased payments to the ESCO after projects had stopped generating savings. In one case, the Department continued to pay for energy savings even after the four buildings containing ESPC improvements had been demolished. The Department also continued to pay for an ESPC project that had not functioned for six years. Prompt action by Federal officials to modify the contracts when circumstances changed would have permitted the Department to save $1.4 million;

- Verified that ESPC orders had generated the contractually required energy savings. At one site, the Department paid the ESCO $3.4 million despite having never verified that the savings were actually being achieved;

- Ensured that equipment installed as part of the ESPC order was appropriately operated and maintained to achieve anticipated energy savings. For example, at one site, the ESCO indicated in two consecutive annual reports that the nighttime setback temperature in one building was incorrectly set at least 15 degrees higher than recommended. The temperature variance in this case may have caused the heating, ventilation and air conditioning units to operate unnecessarily during the evenings; and,

- Taken actions to include all costs necessary to implement the energy savings initiative when evaluating whether the project was likely to be cost-effective. Specifically, the Department may have understated costs by $12.5 million by not including all costs related to the implementation of the ESPC orders that were incurred by facility contractors.

Our review established that weaknesses in the Department's contract management strategy for ESPCs, combined with a lack of guidance for evaluating contract proposals and subsequent performance, directly contributed to each of the above deficiencies. In particular, we noted that the Department had not adequately managed, monitored, and controlled the individual orders. In two noteworthy examples, we observed that the Department had not taken the basic step of ensuring that Contracting Officers were assigned to the ESPC orders. Our testing also revealed that the majority of those Federal and facility contractor officials charged with management of ESPC orders had either received no training or received training that was not sufficiently detailed to permit them to fully understand or perform all required duties. Additionally, we noted that problems with guidance may have contributed to issues with the failure to include all implementation costs in the ESPC order savings calculations and utility rate projections.

As a result of the issues cited in this report, the Department risks spending up to $17.3 million more than it will realize in energy savings from the four ESPC orders that we reviewed. The Department may also not achieve one of the purposes of the National Energy Conservation Policy Act, the legislation which is the basis for the ESPC program, since it risks not having sufficient funds available from energy cost savings in any given

year to pay the ESCOs. The Department is in the process of awarding 16 new orders at its facilities, with contract prices totaling $1.4 billion, making these findings highly relevant and timely.

Department officials informed us that our audit has brought a tremendous amount of attention to ESPCs and that, at the macro-level, will undoubtedly improve the ESPC process within the Department. After being advised of the preliminary results, the Department initiated certain corrective actions in response to our audit. For example, the Office of Energy Efficiency and Renewable Energy requested that the Office of the Chief Financial Officer initiate a review of all Department ESPC orders to identify and address ESPC management deficiencies. As of July 2009, management officials told us that their review had identified problems similar to those cited in this report. As a result, the Department initiated corrective actions to address contract management, measurement and verification, and risks associated with energy cost fluctuations. In addition, the National Nuclear Security Administration had taken action to address many of the issues identified in this report. Specifically, a central Contracting Officer assumed administration of both orders identified as not having a Contracting Officer and discussions have commenced with the ESCO regarding the facility that was no longer operational.

While we consider these actions to be productive and useful, more remains to be done if the Department is to ensure that ESPCs realize their promise of improving efficiency and reducing energy consumption and costs across the complex. Prompt and effective corrective actions are necessary, as well, to strengthen the Department's energy conservation leadership role and to provide an example for other Federal organizations to emulate when awarding and managing ESPC orders. As such, we made several recommendations designed to improve the Department's management of ESPCs.

MANAGEMENT REACTION

While there were several notable disagreements, we consider management's comments to be generally responsive to the intent of our recommendations.

Management generally concurred and pledged to take or continue previously prescribed corrective actions to address the weaknesses identified in our report. Management, however, disagreed with our estimate of savings at risk and the need to include all directly-associated costs when evaluating the cost-effectiveness of ESPC delivery orders. While management acknowledged that a policy review is needed to determine the implementation costs that should be considered in determining the cost-effectiveness of ESPC delivery orders, it believed that those costs would be significantly less than the $12.5 million incurred by facility contractors and as detailed in this report. In separate comments, the National Nuclear Security Administration (NNSA) concurred with four of seven of our specific recommendations. The NNSA expressed its belief that in spite of our findings, current Federal training, experience, and certification requirements for Contracting Officers and technical personnel provide the necessary credentials to successfully administer ESPC delivery orders.

Management asserted that it had taken action to improve the ESPC program prior to our audit. However, we found that whatever actions had been taken prior to our audit were not always effective in preventing or resolving problems identified in this report. Further, we do not concur with its assertions regarding savings estimates, associated costs, and the qualification and training of staff assigned to administer ESPC delivery orders. While we believe that corrective actions instituted by management are laudable, we note that actions to review the delivery orders were not initiated until we brought weaknesses outlined in our report to management's attention.

Management's comments and our responses are discussed in more detail in the body of the report.

Attachment

cc: Deputy Secretary
Under Secretary of Energy
Under Secretary for Science
Administrator, National Nuclear Security Administration
Assistant Secretary for Energy Efficiency and Renewable Energy
Chief Financial Officer
Chief of Staff
Director, Office of Science
Program Manager, Federal Energy Management Program

REPORT ON THE MANAGEMENT OF ENERGY SAVINGS PERFORMANCE CONTRACT DELIVERY ORDERS AT THE DEPARTMENT OF ENERGY

TABLE OF CONTENTS

Management of ESPC Delivery Orders

Details of Finding 1

Recommendations 8

Management and Auditor Comments 9

Appendices

1. Objective, Scope, and Methodology 13
2. Summary Table of Delivery Orders Reviewed 15
3. Related Audit Reports 16
4. Management Comments 17

Development and Administration of ESPC Delivery Orders

The Department of Energy (Department) had not always effectively used Energy Savings Performance Contracts (ESPCs) to achieve energy savings. Specifically, in the four ESPC delivery orders (orders) with energy services companies (ESCOs) that we reviewed, the Department had not:

- Minimized costs by exercising its option under the orders to buy-out projects that failed to generate savings;
- Verified the accuracy of claimed savings;
- Ensured equipment installed as part of the ESPC order was appropriately operated and maintained to achieve anticipated energy savings;
- Included all cost necessary to implement the ESPC order when evaluating whether the project was likely to be cost-effective; and,
- Taken action to ensure that savings would exceed the cost of implementing the ESPC order in any given year.

Payments for Projects that Were Not Operational

The Department had allowed ESCOs to claim energy savings from upgrades in facilities that were no longer operational. Specifically, we identified two examples where the Department continued to pay the ESCO for energy efficiency improvements that were not generating any energy savings. Exercising options to buy-out projects when the saving features cease to operate should save the Government money. The Department had the authority to modify the contracts in response to material changes. Specifically, in situations where projects fail to perform, or are no longer necessary, the Department can pay the ESCO for costs incurred thereby avoiding future interest payments and operational costs.

In one instance, the Department continued to pay for energy improvements in four buildings at the Y-12 National Security Complex (Y-12) that had been demolished. At the time the order was awarded, the Department planned to continue using the buildings throughout the term of the ESPC order. However, due to unexpected mission changes after contract award, the buildings were demolished over a three-year period beginning in 2005. At that time, site technical personnel believed that Y-12 did not have the funds to buy out the contract. However, funding was not requested for this purpose. Had the Department modified the order to remove the buildings from the

contract scope, it could have saved approximately $850,000. After we informed the current Contracting Officer of the demolished buildings, discussions with the ESCO were initiated to buy out this portion of the order.

At the Pantex Plant (Pantex), the Department continued to pay for a laundry facility that stopped working in May 2003, after only one year in operation. Although the unit had not been in service for approximately six years, the Department continued to pay the ESCO for the facility's energy improvements. The Department could have saved at least $565,000 had it modified the delivery order when the laundry facility stopped working. In 2006, the Internal Audit Department at Pantex reported that the laundry facility was not operational and recommended that the equipment should either be returned to operation or removed from the order. At that time, no action was taken to rectify the issue. However, as a result of our audit, the current Contracting Officer had initiated a process to determine the ESCO's liability for this facility and modify the order.

Verification of Actual Energy Savings

The Department had not always verified that actual energy savings claims were accurate and sufficient to cover payments to the ESCO. According to the contract and applicable procedures, the ESCO was responsible for calculating the annual savings generated by the ESPC orders, and the Department was responsible for verifying the savings and paying the ESCO accordingly. We evaluated savings calculations for two orders and determined that the Department had not verified that the ESCOs' reported savings were accurate and greater than the associated payments. In both of the following examples, the Department was unaware of the inconsistencies until we presented the results of our review. In response, the Department has entered into discussions with the ESCOs to enhance future verification activities.

At Pantex, the Department had not ensured that savings claims were calculated in accordance with order requirements. For six years, the ESCO used estimates to calculate savings even though the order required actual measurements for seven of the nine energy improvements. The order required use of actual operating hours, utility meter data, and actual readings from the energy management control system. The ESCO based the use of estimates on a proposed order change that was never approved by the Department. Instead of requiring the ESCO to comply with the terms of the order, the Department continued to pay the ESCO's

invoices, including costs to perform the measurements, without questioning the change. The Department paid the ESCO $3.4 million for energy improvements without proper verification, including $160,000 for measurement activities that were not performed in accordance with the order. In addition, since the required measurements were not performed, it is uncertain whether enough savings were generated to cover the payments to the ESCO.

At Y-12, we found that the Department had not required the ESCO to calculate annual savings in accordance with the order and had not verified that savings were sufficient to cover the associated payments. While the ESCO had measured the annual operating hours as required by the order, the measurements had not been used in the energy savings calculations. Site personnel, however, stated that the order required that actual measurements be used in the calculations of annual reported savings and that such measurements had been used. We noted, however, that the ESCO reported the exact same amount of savings for five consecutive years of the order. Further, the reported annual energy savings were less than the annual payments. Yet, the Department had not reduced the amount paid to the ESCO or questioned the savings reported. ESCO officials acknowledged that they were required by the order to take measurements of actual energy usage, but inexplicably claimed that they were not required to use the actual usage to calculate energy savings.

Operation and Maintenance of Energy Improvements

The Department had not operated and maintained the equipment installed by the ESCO as required to achieve the projected energy savings. At Y-12, the ESCO indicated in two consecutive annual reports that the nighttime setback temperature in one building was incorrectly set at least 15 degrees higher than recommended. The temperature variance in this case may have caused the heating, ventilation and air conditioning units to operate unnecessarily during the evenings. After we notified site officials of the problem, they took action to properly adjust the thermostat settings. However, as noted in our report entitled *The Department of Energy's Opportunity for Energy Savings Through the Use of Setbacks in its Facilities* (DOE/IG-0817, July 2009), this problem had occurred at a number of other Department sites.

In addition, some of the equipment had not been maintained by the Department to ensure proper performance. One chiller plant pump, for example, had been reported "out of service" by the

ESCO, but the problem was not addressed for three years. Management noted that only three of the six primary pumps were necessary for optimum performance and therefore, energy savings were not impacted by not repairing the pump. In 2008, the ESCO reported maintenance problems with three of the six pumps. We concluded that optimum performance of the project and future savings were at risk in the event of further equipment deterioration. According to management, the inoperable pump was repaired in January 2009.

Implementation Costs

The Department had not included all implementation costs in determining the amount of savings to be realized from ESPC orders. Specifically, the Department used other contractors to support the ESCO's implementation of the ESPC order during the construction period, but did not consider these additional costs when evaluating whether the ESPC order would be cost-effective. For example, the Department's contractor responsible for managing and operating Pantex spent $5.7 million for items such as security escorts and project management to support the implementation of the ESPC order. According to site personnel, these costs would not have been incurred except for the need to support the installation of energy efficiency improvements. Other Department officials stated that these costs would be incurred as part of any energy efficiency improvement project. These officials also expressed the view that requiring all implementation costs to be recovered through energy savings could put the ESPC at a disadvantage as a source of alternative financing for mandated energy conservation measures.

At the Oak Ridge National Laboratory (ORNL), the Department's management and operating contractor expended $767,000 to support the implementation of the ESPC order during the first six months of construction, including $115,000 for an engineering support subcontract. In response to our inquiries, ORNL estimated that it will incur $6.5 million of costs to support the construction of ESPC projects. Since these costs were not included in the ESPC economic analysis, they could put the Department in a position where the total implementation costs exceed the savings generated by the ESPC order.

Annual Payments

The National Energy Conservation Policy Act (NECPA) requires that in any given year, annual payments cannot exceed the annual

utility savings under the ESPC, according to an Office of the General Counsel interpretation and our review of the NECPA. Specifically, the NECPA requires that all payments for an ESPC be made only from funds appropriated or otherwise made available for utilities or related energy costs. To help ensure that projected or planned savings are realizable and that funds will be available to pay ESCOs, the Department's implementing guidance published in the Code of Federal Regulations provides a benchmark for utility rate escalation that Federal organizations may use when establishing the cost-effectiveness of a project. These rates are developed based on laws, policies, energy prices, production, and consumption by the Energy Information Administration (EIA) and published by the National Institute of Standards and Technology.

Our audit revealed, however, that actions taken by the Department put it at increased risk of not having sufficient annual utility savings from the ESPC orders to make annual payments to the ESCOs, as required by the NECPA. Specifically, the Department allowed the ESCOs to calculate estimated annual energy cost savings by using utility rates higher than the EIA rate projections in two of the four orders we reviewed. As a result, the estimated annual energy cost savings to the Government increased, as well as the annual payments to be made to the ESCOs. If the EIA benchmark rates prove to be a more accurate projection of energy costs than the ESCOs' estimated rates, then the annual cost savings will not be sufficient to pay the ESCOs in any given year and the Government will have to pay the ESCOs from programmatic funds; a practice contrary to the intent of the NECPA.

At ORNL, for example, instead of using benchmark utility rates escalated in accordance with EIA benchmark rates, the ESCO averaged the utility rate increases and applied this average increase to each year of the order. Further, the ESCO included 30 years of utility rate increases in the averaged rate even though the order was only for 18 years. Our analysis indicates that beginning in 2012, annual savings using the EIA rates are projected to be less than the contractually required payments to the ESCO. The projected difference in the second year could amount to $195,000, increasing to $355,000 in the third year of the order, culminating in $1.8 million difference between actual savings and payment in the final year of the order, 2028. Thus, the Department is at increased risk of making payments that exceed projected savings which could, over the life of the order, amount to $21.5 million.

The Office of the General Counsel told us that while EIA rates must be used in determining whether a project meets the regulatory

definition of an ESPC, it is unclear whether implementing regulations require agencies to use EIA rates when negotiating ESPC orders. We acknowledge that in the case of ORNL, the use of the locally-developed rates accelerated the payback period to the ESCO, thereby reducing interest payments and the total cost of the order. However, use of locally-developed rates also increased the risk that savings may not be sufficient in any given year to make the contractually required payment to the ESCO, as required by the NECPA.

Contract Management

Our review established that weaknesses in the Department's contract management strategy for ESPCs, combined with a lack of guidance for evaluating ESPC order proposals and subsequent performance, directly contributed to each of the deficiencies outlined in this report. Because of the technical complexities and unique features of ESPCs, the Department has established a tiered structure to manage ESPCs. Under this structure, the Federal Energy Management Program (FEMP) is responsible for establishing guidance for ESPCs; Contracting Officers from the Golden Field Office manage the Super ESPC contracts used across the Government; and, Department site offices are responsible for managing individual ESPC orders at the site-level. We found that:

- Site offices had not ensured that adequate management existed for the individual orders;
- The Department had not implemented an effective training program for contract and technical support personnel; and,
- FEMP had not developed specific guidance regarding estimates of the costs of energy improvements.

Site offices had not ensured that the ESPC orders were adequately managed, monitored, and controlled by Contracting Officers. Two of the ESPC orders we reviewed did not have active Contracting Officers at the beginning of our audit. In both situations, the Contracting Officers had left the organization and no replacement had been assigned. As a result, when we initially requested to review the contracts, the site offices could not locate the official contract file. Although the Y-12 contract file was located within a week, the Pantex contract file was not found for almost two months. After the Department was notified about our concerns, it took action to appoint a new Contracting Officer to each of these orders.

We also found that the Department had not adequately trained the personnel responsible for contract and technical oversight of the ESPC orders. We provided a questionnaire to contracting personnel, Contracting Officer Representatives, and technical representatives for each of the four orders we reviewed. Of the 15 responses received, 10 individuals indicated that they had received no training or that the training they received was not sufficiently detailed to permit them to properly administer an ESPC order. Department officials stated that training opportunities are available for staff managing ESPCs. After our field work was completed, Department officials informed us that they were initiating actions to improve the awareness of training opportunities and to enhance the content of the training courses. According to management, both Pantex and Y-12 have recently received specific training on measurement and verification responsibilities.

Further, the contract oversight teams had not been kept abreast of changes to the ESPC control structure as new guidance was developed. For example, in February 2007, FEMP developed a framework for implementing uniform and consistent reviews of annual measurement and verification reports. However, while this guidance was published on the FEMP website, it was only distributed to sites implementing new ESPC orders; sites with existing ESPC orders did not receive the updated guidance. Because the guidance directed reviewers to determine whether the report followed contractual requirements, use of this guidance could have alerted site personnel when all of the savings were based on estimates and when the contractual measurement method was not being followed.

Finally, while the NECPA required that all costs be accounted for, FEMP had not developed specific procedures to identify, control, and ensure the recovery of the additional implementation costs incurred by the Department's management and operating contractors. Also, as previously noted, although the Code of Federal Regulations established utility rate benchmarks, it is not clear whether the use of these benchmarks was required when determining the energy cost savings in the order. FEMP, however, had not provided sufficiently-detailed procedures to assist site personnel in determining when to use the utility rate benchmarks. By addressing these two issues, the Department can gain greater assurance that savings will be consistently estimated and sufficient to cover the costs of ESPC orders.

Risk and Costs of ESPCs

As a result of the deficiencies related to pre-award evaluations and contract management cited in this report, the Department is at risk

of spending up to $17.3 million more than it will realize in energy savings from the four ESPC orders that we reviewed. Specifically, the Department: risked paying the ESCOs $12.5 million more than it will realize from savings because it did not consider all implementation costs in estimating future savings; paid the ESCOs $3.4 million without verifying that the savings were actually achieved; and, did not take advantage of an estimated $1.4 million in savings by promptly modifying orders when ESPC projects ceased to operate. As a result of not using utility rate benchmarks, the Department is at risk of not satisfying the objectives of the NECPA since it may not have sufficient funds from energy cost savings to make annual payments to the ESCOs.

RECOMMENDATIONS

To help prevent the deficiencies outlined in our report and improve the overall usefulness of ESPCs, we recommend that the Administrator, National Nuclear Security Administration (NNSA), and the Director, Office of Science, in conjunction with the Program Manager, Federal Energy Management Program, where appropriate:

1. Develop procedures to identify, control, and ensure the inclusion of implementation costs;

2. Develop a certification program to ensure that Contracting Officers and technical support staff are adequately trained prior to being assigned to an ESPC;

3. Require continuing education to ensure that new or updated procedures are put into effect for existing delivery orders under Super ESPCs;

4. Develop a process to ensure that all active delivery orders under Super ESPCs are continuously staffed with trained Contracting Officers and technical support staff; and,

5. Clarify guidance for projecting the utility rates to be used when negotiating future ESPC orders.

We recommend that the Administrator, NNSA, through the Senior Procurement Executive, direct the Contracting Officer to:

6. Promptly make a determination on the need for an equitable adjustment on the Y-12 and Pantex ESPC orders for projects that no longer generate savings; and,

7. Determine the allowability of costs incurred for the laundry facility and measurement and verification services at Pantex.

MANAGEMENT AND AUDITOR COMMENTS

Management concurred with the report's recommendations but disagreed with several fundamental concepts regarding our estimation of savings at risk and the estimated costs of ESPC delivery orders. Management indicated that it planned to implement all of our recommendations. In separate comments, the NNSA concurred with four of seven of our specific recommendations. Additionally, the Department and NNSA indicated that improved controls over ESPCs were implemented before and during the audit.

We noted that the Department took immediate action to review ESPC orders after we presented preliminary results of our audit and, after completion of that review, initiated corrective actions. However, the controls in place at the time of the audit failed to prevent or detect the problems that we identified in this report. We have addressed management's comments below and included additional information in the report, as appropriate. Management's comments are included in Appendix 4.

Management Comment

Management disagreed that all of the $12.5 million in project oversight and management costs associated with efficiency upgrades should have been included in determining the amount of savings to be realized from the ESPC delivery orders. Specifically, management stated that such costs would have been incurred regardless of whether an ESPC was used to achieve energy efficiency goals. Management, however, agreed that a thorough understanding of all direct and indirect costs is an essential part of analyzing any energy efficiency project.

During the exit conference to discuss management's comments, officials stated that a policy review is needed to determine what implementation costs should be included in determining the amount of savings to be realized from an ESPC delivery order. While management acknowledged that some portion of implementation costs should have been considered in determining the amount of savings, officials believed that the amount of such costs would have been significantly less than the $12.5 million cited in this report. Management also opined that no other Federal agency interprets the ESPC legislation as requiring that all costs should be considered in determining savings.

Auditor Response

The Department's argument that these costs would have been incurred to implement additional energy-improvement measures regardless of funding source is not consistent, in our view, with the intent of the NECPA, which is to ensure that all costs paid to implement the ESPC order are paid out of savings accrued during the contract. In addition, the Department had not provided us with any analysis to support its assertion that costs would be comparable for an alternative project. Further, the $12.5 million of implementation costs cited in the report only includes direct costs that were specifically identified by Departmental sites as being performed for the ESPC orders.

We agree with management that a policy review is needed to determine which implementation costs should be included in determining the amount of savings to be realized from ESPC orders. Such a review is an important step towards implementing our first recommendation. Management asserted that because other Federal agencies do not utilize management and operating contractors to support ESPCs, they do not account for all implementation costs in ESPC delivery orders. However, management could not elaborate on how other Federal agencies accounted for costs such as security escort costs in high-security areas that were experienced by the Department during the implementation of ESPCs discussed in this report.

Management Comment

Management disagreed that the entire $3.4 million in payments without verification of savings should be considered at risk and noted that the entire amount would only be at risk if the energy improvements were not operational.

Auditor Response

Although we agree that payments for actual savings are warranted, the Department was not able to provide the specific amount of savings actually generated. The exact amount of savings will be determined by the Contracting Officer when our recommendations are addressed.

Management Comment

Management also expressed concern about the use of rates developed by the EIA as a benchmark for utility rate escalation.

Specifically, officials noted that the use of EIA rates is not expressly required by the Code of Federal Regulations and that the EIA rates significantly under-predict utility rate escalation. Management further commented that comparing ESPC utility rates with actual local utility rates would be a better measure of how accurately the Department balanced its risks.

Auditor Response

Although the Code of Federal Regulations does not specifically require the use of EIA rates in the delivery order, it does require that EIA rates be used to determine whether a specific project meets the definition of an ESPC. Further, the rates established by EIA are the Government's estimation of how rates will escalate in the future. Additionally, we noted that the rates in all four of the delivery orders we reviewed used different methodologies for escalating utility rates, even though two of the delivery orders were at the same site. Given that the Department repudiated EIA projections as not being a reasonable source for utility rate escalation, we recommended that the Department establish guidance for projecting the utility rates to be used when negotiating future delivery orders.

Management Comment

In separate comments, the NNSA disagreed with our recommendations to develop an ESPC certification program, require additional continuing education, and to develop a process to ensure orders are continuously staffed with trained personnel. NNSA stated that current Federal training, experience, and certification requirements for Contracting Officers and technical personnel provide the necessary credentials to very successfully administer ESPCs.

Auditor Response

During the audit, various contracting personnel expressed frustration and concern that the administration of ESPC orders includes a steep learning curve because ESPC orders are very different from other contracts. Technical personnel also explained that the training they received was insufficient to perform their required duties. Additionally, current Contracting Officer and technical staff training does not ensure that delivery orders are continuously staffed or that new or updated procedures are put into effect.

Management Comment

The NNSA disagreed that maintenance problems associated with three chiller pumps increased the risk to optimum performance and energy savings. Specifically, the NNSA noted that while maintenance problems were reported on three of the primary pumps, two of them were not completely out of service and were available for operation.

Auditor Response

In our opinion, optimum performance and energy savings were at risk if the pumps were not properly maintained and further deterioration occurred in the pumps. Additionally, the ESPC order requires the Department to maintain this equipment.

OBJECTIVE

Our objective of this audit was to determine whether the Department of Energy (Department) had effectively used Energy Savings Performance Contracts (ESPCs) to increase energy efficiency.

SCOPE

This audit was performed between December 2008 and July 2009. Audit work was conducted at the Department of Energy Headquarters in Washington, D.C.; the Golden Field Office in Golden, Colorado; the Y-12 National Security Complex, Oak Ridge National Laboratory, and Oak Ridge Office in Oak Ridge, Tennessee; and the Pantex Plant in Amarillo, Texas.

METHODOLOGY

To accomplish the audit objective, we:

- Selected a judgmental sample of four ESPC delivery orders (orders) at the Department of Energy (See Appendix 2);
- Reviewed essential documentation for the ESPCs, including contracts, proposals, and payment records;
- Analyzed the implementation costs of ESPC orders;
- Compared contractual projected utility savings to savings calculated using rates published by the National Institute of Standards and Technology;
- Toured facilities housing energy efficiency improvements;
- Reviewed methods for modifying ESPC orders to reflect energy efficiency equipment that is no longer operational;
- Reviewed annual measurement and verification reports for accuracy and compared savings calculations to order requirements;
- Obtained and reviewed laws, regulations, policies, and procedures related to ESPCs; and,
- Held discussions with personnel from the Federal Energy Management Program, Golden Field Office, Oak Ridge Office, Oak Ridge National Laboratory, Y-12 National Security Complex, Pantex Plant, National Nuclear Security Administration Albuquerque Service Center, and energy service companies.

We conducted this performance audit in accordance with generally accepted Government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective. The audit included tests of controls and compliance with laws and regulations related to the ESPC program. Because our review was limited, it would not necessarily have disclosed all internal control deficiencies that may have existed at the time of our audit. Also, we examined the establishment of performance measures in accordance with the *Government Performance and Results Act of 1993*, as it related to the audit objective. Although we did not identify performance measures specific to ESPCs, we were able to document measures for cost effective energy efficiency and renewable energy projects to enhance energy security, environmental stewardship, and cost reduction within the Federal Government. Finally, we relied on a limited amount of computer processed data to accomplish our audit objective and found the data reliable. Specifically, we relied on computer processed data used to calculate the additional implementation costs incurred by the management and operating contractor at the Pantex Plant. To determine the data's reliability, we relied on an independent auditor's assessment of information technology application controls which included tests of the specific systems used to create the computer processed data we used.

We held an exit conference with Department officials on September 8, 2009.

SUMMARY TABLE OF DELIVERY ORDERS REVIEWED

The table below summarizes the Department of Energy (Department) Energy Savings Performance Contract (ESPC) delivery orders (orders) reviewed during our audit. We selected a judgmental sample of 4 orders from the 13 ESPC delivery orders, which were active as of September 2008. These orders represented $256 million of the total $429 million in ESPCs. When determining our sample, we considered each order's stage of development, contract price, and location. The sample included two ESPCs in the construction phase and two ESPCs in the performance period. During the construction phase, the energy services company (ESCO) installs the energy improvements at a Department facility. The performance period begins after the ESCO has installed all the energy improvements and the Department has approved the installation. At this point, the Department begins repaying the ESCO from the savings generated by the energy improvements.

Location	Award Date	Contract Period (Years)	Contract Phase	Contract Period Payments	Energy Improvements
Pantex Plant	06/01/2000	19	Performance Period	$10,806,198	Building Automation, Lighting, Ozone Laundry, Water and Steam Distribution, Solar Water Heater
Y-12 National Security Complex	03/26/2001	18	Performance Period	$6,269,735	Chiller Plant, Lighting, Building Automation, Water and Steam Distribution
Pantex Plant	12/23/2005	19	Construction Phase	$33,063,817	Lighting, Water and Steam Distribution
Oak Ridge National Laboratory	07/30/2008	18	Construction Phase	$206,038,773	Building Automation, Advanced Metering, Lighting, Biomass Steam Plant, Water Conservation
			Totals	**$256,178,523**	

RELATED AUDIT REPORTS

- *Audit of the Department of Energy's Super Energy Savings Performance Contracts (DOE/IG-0499, April 2001).* The audit reported that the Department of Energy (Department) had not maximized the use of its cost-recovery authority to enhance the Super Energy Savings Performance Contract (ESPC) program. In fact, the Department did not: (1) fully recover the cost of providing services to other Federal agencies; and, (2) use recovered funds to achieve greater energy efficiency. This occurred because the Department did not develop an appropriate pricing strategy for recovering costs and did not formulate a plan for spending the funds it recovered. As a result, the Department, as well as other Federal agencies, may not meet their long-term energy-savings goals because they will miss opportunities to use private financing mechanisms, such as Super ESPCs, to fund energy-savings projects. To address these conditions, actions were recommended to ensure that the Department's costs for providing services to other agencies are fully recovered and that the costs are used to enhance the Super ESPCs program.

- *Energy Savings: Performance Contracts Offer Benefits, but Vigilance is Needed to Protect Government Interests (GAO-05-340, June 2005).* The Government Accountability Office (GAO) could not verify that financial savings cover costs. GAO work and agency audits disclosed ESPCs in which unfavorable contract terms, missing documentation, and other problems caused GAO to question how consistently savings cover costs. Furthermore, differing interpretations of the law establishing ESPCs about what components of costs must be paid for from the savings generated by the project or may be paid for using other funding sources have contributed to uncertainties about whether savings are appropriately covering costs. GAO recommended that the Congress consider clarifying the costs of ESPCs that must be covered by savings. GAO also recommended steps for agencies to better ensure that savings cover the costs of ESPCs, including using expertise, information, and competition more effectively. GAO further recommended that the Department do more to facilitate oversight of ESPCs.

- *Capital Financing: Partnerships and Energy Savings Performance Contracts Raise Budgeting and Monitoring Concerns (GAO-05-55, December 2004).* GAO found that a number of factors may cause third-party financing, including ESPCs, to be more expensive than timely, full, and up-front appropriations. However, spreading costs over time enabled agencies to acquire capital that might not have been obtainable if full, up-front appropriations were required. GAO recommended that the Office of Management and Budget require, and suggests Congress consider requiring, agencies that use ESPCs to present an annual analysis comparing the total contract cycle costs of ESPCs entered into during the fiscal year with estimated up-front funding costs for the same energy improvements.

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Department of Energy
Washington, DC 20585

August 27, 2009

MEMORANDUM FOR: RICKEY R. HASS
DEPUTY INSPECTOR GENERAL
FOR AUDIT SERVICES
OFFICE OF INSPECTOR GENERAL

FROM: JOHN M. LUSHETSKY
ACTING DEPUTY ASSISTANT SECRETARY
FOR ENERGY EFFICIENCY
OFFICE OF TECHNOLOGY DEVELOPMENT
ENERGY EFFICIENCY AND RENEWABLE ENERGY

SUBJECT: Comments to the IG Draft Report on the "Management of Energy Savings Performance Contract Delivery Orders at the Department of Energy"

The Office of Energy Efficiency and Renewable Energy (EERE) appreciates the opportunity to review and comment on the subject report on Energy Savings Performance Contract (ESPC) projects. ESPCs are an important tool in meeting mandated energy efficiency goals for the Federal Government and constitute almost half of total Federal investment in energy efficiency. Given this and EERE's role as custodian for a new, larger and more versatile ESPC contract vehicle, we are particularly interested in all recommendations that can improve agency and taxpayer value. We have given this report very careful consideration. The details of our response and how we intend to meet these recommendations are provided in the attachment.

We note that the IG report covers four sites, two of which are in their performance period (awarded 2000 and 2001), and two which are in the construction phase (awarded 2005 and 2008). Separately, EERE in concert with the CFO's Office of Internal Review recently completed a comprehensive assessment of all nine DOE ESPC projects in the performance period. From this we agree with and are implementing all five of the IG's recommendations. In regards to the IG's calculations pertaining to implementation costs and potential spending risks, we feel that the actual amount is much lower than the $17 million figure included in the report. Our complete position on this topic is detailed in Attachment 1, "OIG Findings."

On July 18, 2009 the Assistant Secretary for EERE issued a directive (Attachment 2, "EE-1 Memo") to strengthen the Department's management of ESPCs. The key features of this directive go beyond the recommendations of the IG audit and include: increased competition during selection process, accelerated timeline to award, establishment of a life of contract audit function, enhanced training for all personnel involved with contract oversight, regular on-site reviews, and increased technical support.

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Since 2005 the Department has also undertaken a number of program reforms that capture the essence of many of the IG's findings in regards to the earlier projects. These reforms include improved approaches for contract development and management relating to monitoring and verification, baseline development, commissioning, and operations and maintenance; as well as increased technical support.

As part of reforms introduced by EERE, no ESPC can currently be awarded without a review to ensure compatibility with existing 10-year site management plans. However, the IG audit finding related to costs associated with decommissioned facilities highlights the past challenges associated with energy management across the DOE complex, much of which was constructed at the height of the Cold War and is slated for eventual decommissioning and demolition. The reforms being implemented by EERE will ensure that when these buildings are ultimately demolished, any contractual obligations associated with the impacted efficiency measures will be resolved and that both facilities and contract managers are aware of this shared requirement.

Thank you again for the opportunity to provide comments on this report. If you have any questions concerning this response, please contact Richard Kidd, Program Manager, Federal Energy Management Program, 202 586 5772.

Department of Energy
National Nuclear Security Administration
Washington, DC 20585

August 26, 2009

MEMORANDUM FOR: Rickey R. Hass
Deputy Inspector General
for Audit Services

FROM: Michael C. Kane
Associate Administrator
for Management and Administration

SUBJECT: Comments to IG Draft Report on DOE's ESPC;
Project No. A09OR019; IDRMS No. 2009-01995

The National Nuclear Security Administration (NNSA) appreciates the opportunity to review the Inspector General's (IG) draft report, *Management of Energy Savings Performance Contract Delivery Orders at the Department of Energy*. I understand that this audit was conducted to determine whether the Department had effectively used energy savings performance contracts (ESPC) to increase energy efficiency, and to follow-up on a previous IG report on Super ESPCs.

NNSA generally agrees with the report, however, it does not provide a balanced representation of the numerous actions that have been taken prior to and during the audit. NNSA submitted factual comments to the pre-draft, which were not incorporated into this draft. For example, upon recognition of some of the performance shortfalls, many immediate and aggressive actions were taken to correct issues, including the assignment of a new Contracting Officer Representative, the transfer of contract responsibility to the Service Center and establishment of a comprehensive action plan. Additionally, the report contains an error relative to chiller pumps at the Y-12 site that concerns the maintenance of primary pumps in the 9767-8 Chiller Facility. Attached are comments that, if incorporated into the report, would better balance the report and correct some factual errors.

Below is NNSA's response to the recommendations:

1. Develop procedures to identify, control and ensure the inclusion of implementation costs. Concur. NNSA will develop a procedure for implementation by NNSA and application by the M&O contractors to require a process for identifying and controlling total life cycle costs associated with each individual ESPC delivery order project to ensure implementation and administration costs are included prior to award of the ESPC delivery order and during administration of the ESPC. Action will be completed by December 2009.

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2. Develop a certification program to ensure that Contracting Officers and Technical support staff are adequately trained prior to being assigned to an ESPC. NNSA agrees with the recommendation, however, we believe that the current Federal training, experience and certification requirements for Contracting Officers provide the necessary credentials to very successfully administer ESPCs. With regard to technical training, the Contracting Officer Representative (COR) assigned for each ESPC by the Contracting Officer, with concurrence of the NNSA Site Managers already have the technical capability, training and COR certification to very successfully administer an ESPC. The key to all of this is that continuous and proactive administration of all ESPCs be conducted by both the Contracting Officer and the COR. NNSA does not believe any further action is required.

3. Require continuing education to ensure that new or updated procedures are put into effect for delivery orders under Super ESPC. Our response to Recommendation 2 addresses this issue. Although the NNSA does not concur with the need to add ESPC specific training to the continuing education curriculum, the Agency will provide guidance and training, sensitizing all internal organizations managing such projects to the issues identified in the audit. Action will be completed by December 2009.

4. Develop a process to ensure that all active delivery orders under Super ESPCs are continuously staffed with trained Contracting Officers and technical support staff. Again, our response to Recommendation 2 addresses this issue.

5. Clarify guidance for projecting the utility rates to be used when negotiating future ESPC orders. NNSA concurs and will work with the Office of Federal Energy Management Program (FEMP) as they are taking the lead in addressing this recommendation.

6. Promptly make a determination on the need for an equitable adjustment on the Y-12 and Pantex ESPC orders for projects that no longer generate savings. Concur. The Contacting Officer at the Service Center will evaluate and recommend adjustments to the Y-12 and Pantex ESPCs. Action will be completed November 2009.

7. Determine the allowability of costs incurred for the laundry facility and measurement and verification services at Pantex. Concur. The Contracting Officer at the NNSA Service Center is working with Pantex and have initiated steps towards determining the allowability of costs for the laundry facility and measurement and verification services at Pantex. Action will be completed November 2009.

Should you have any questions related to this response, please contact JoAnne Parker, Acting Director, Policy and Internal Controls Management, 202-586-1913.

IG Report No. DOE/IG-0822

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