United States Government Accountability Office

Report to Congressional Requesters

June 2015

ENERGY SAVINGS PERFORMANCE CONTRACTS

Additional Actions Needed to Improve Federal Oversight

Accessible Version

GAO-15-432

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GAO Highlights

Highlights of GAO-15-432, a report to congressional requesters

Why GAO Did This Study

Constrained budgets and increasing energy efficiency goals have led federal agencies to explore innovative ways to fund energy improvements, including ESPCs. An expected increase in the use of ESPCs has raised questions about agencies' ability to ensure that the government's interests are protected. ESPCs can span up to 25 years and be valued at millions of dollars each.

GAO was asked to review federal use of ESPCs since 2005. This report examines the extent to which (1) agencies have used ESPCs and plan to use them; (2) projects have achieved their expected cost and energy savings; and (3) agencies have overseen and evaluated such projects. GAO compiled data on awarded ESPCs; reviewed agency guidance and files for a nongeneralizable sample of 20 ESPC projects that reflected a range of contract award dates, contract values, and other characteristics; and interviewed officials from the seven agencies with the highest energy usage and greatest facility square footage—the Air Force, Army, and Navy within the Department of Defense; the Departments of Energy, Justice, and Veterans Affairs; and the General Services Administration.

What GAO Recommends

GAO is making recommendations to improve oversight of ESPC projects through clearer reporting of savings, improved training, and systematic evaluations of portfolios, among other things. In general, the agencies partially concurred with GAO's recommendations. GAO has modified the report, as appropriate, to address the agencies' comments.

View GAO-15-432. For more information, contact Frank Rusco at (202) 512-3841 or ruscof@gao.gov.

What GAO Found

The seven selected agencies in GAO's review awarded approximately $12.1 billion in energy savings performance contracts (ESPC) in fiscal years 1995 through 2014 and plan to continue using them to help meet federal energy directives and initiatives. Under ESPCs, private contractors finance the up-front costs of energy improvements. Agencies then repay contractors from the savings, such as those resulting from lower utility bills. The seven agencies GAO reviewed have used more than 500 ESPCs for projects, such as installing energy-efficient lighting or power generation projects. Agencies' plans to use ESPCs vary, particularly for data center consolidation projects, which could reduce a significant amount of energy.

Cost and energy savings that contractors reported to agencies for most ESPCs met or exceeded expectations, but some of these savings may be overstated. GAO's review of a nongeneralizable sample of 20 projects found that contractors' reports overstated cost and energy savings for 14 projects. Contractors calculate and report savings annually in accordance with plans agreed to in their contracts with agencies. These plans include assumptions about agencies' use of equipment, which may change over the life of the contract. If changes reduce project savings, such as when an agency does not operate or maintain the equipment as agreed, contractors are not required to reduce the amount of savings they report or measure the changes' effects. GAO evaluated the extent to which changes in agency operations or other factors within agencies' control may have reduced energy savings for a nongeneralizable sample of projects. Estimates agencies provided to GAO of savings that were reported but not achieved ranged from negligible to nearly half of a project's reported annual savings. For example, one agency removed equipment for a sewer system upgrade, which resulted in over $104,000 in annual savings that were reported but not achieved, or about 40 percent of the project's reported savings. Federal guidance states that when reviewing contractor reports, agencies should understand changes in project performance and savings levels, and what actions should be taken to address deficiencies. However, agencies were not always aware of how much savings were not achieved due to agency actions because contractors were not required to report this information. Without clearer reporting of savings that are not achieved, agencies may be unable to determine what, if any, corrective actions should be taken.

The seven agencies in GAO's review have conducted limited oversight and evaluation of their ESPC projects. In GAO's sample of 20 projects, agency representatives did not perform some oversight activities included in guidance because they were unaware of these duties or how to perform them, among other reasons. Without ensuring that training provides officials with the information needed to understand how to perform their oversight responsibilities, agencies may continue to inconsistently perform oversight. Moreover, most of the agencies in GAO's review have not systematically evaluated their ESPC portfolios to determine the effects of changing circumstances—such as facility use—on project performance because they do not have processes to do so. Without such oversight and evaluation, agency officials cannot make fully informed decisions about how best to strategically manage their ESPCs.

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Abbreviations

Btu	British thermal unit
CBO	Congressional Budget Office
Corps	U.S. Army Corps of Engineers
DOD	Department of Defense
DOE	Department of Energy
ESPC	energy savings performance contract
FEMP	Federal Energy Management Program
GSA	General Services Administration
HVAC	heating, ventilation, and air conditioning
Justice	Department of Justice
OMB	Office of Management and Budget
VA	Department of Veterans Affairs

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June 17, 2015

The Honorable Barry Loudermilk
Chairman
The Honorable Don Beyer
Ranking Member
Subcommittee on Oversight
Committee on Science, Space, and Technology
House of Representatives

The Honorable Cynthia Lummis
House of Representatives

The Honorable Eric Swalwell
House of Representatives

The federal government is the nation's largest energy consumer. In fiscal year 2013, the government spent about $6.8 billion on energy for over 3.1 billion square feet of buildings and facilities—an area about the size of 50,000 football fields.[1] Several laws and executive orders have established federal energy requirements and sustainability goals, such as goals to reduce energy usage and conserve water. Implementing projects to meet these requirements and goals can be costly, and obtaining up-front appropriations for such projects has been particularly challenging for agencies in recent years because of constrained federal budgets. Consequently, agencies have explored alternative methods to fund energy conservation measures, such as more efficient lighting, heating, or other systems.[2] One of these alternative methods is using energy savings

[1]Data on the federal government's energy use are from the Department of Energy's (DOE) Comprehensive Annual Energy Data and Sustainability Performance data set. We used this information instead of DOE's annual report to Congress on federal government energy management and conservation programs because, at the time of our review, the most recent data available from DOE's annual report were for fiscal year 2011.

[2]An energy conservation measure is a measure applied to a federal building or facility that improves energy efficiency and involves energy conservation, water conservation, cogeneration facilities (i.e., facilities that produce both power and heat from a single source of energy, such as natural gas), renewable energy sources, or improvements in operation and maintenance. Throughout this report, we use the term "project" to refer to an energy conservation measure or group of conservation measures implemented through one contract.

performance contracts (ESPC), a type of share-in-savings contract under which agencies use private funds to finance energy conservation measures. Although usage of ESPCs has varied from year-to-year, about 23 percent of federal investments in energy efficiency and renewable energy for fiscal years 2003 through 2013 have been made using ESPCs, according to Department of Energy (DOE) data.

In 1986, Congress authorized federal agencies to use shared energy savings contracts, now known as ESPCs, to privately finance energy improvements.[3] DOE's Federal Energy Management Program (FEMP) is the lead agency program for providing implementing rules and policies regarding ESPCs. Under an ESPC, agencies enter into a long-term contract—up to 25 years—with a private contractor to install energy conservation measures and then make annual payments to the contractor until the measures have been paid off. As part of an ESPC, the agency and the contractor estimate the annual energy and cost savings expected from the energy conservation measures outlined in the contract and develop a plan to measure and verify that the savings are achieved over the life of the contract. Cost savings are to be calculated as the difference between the baseline costs for energy, water, and related expenses that the agency would have incurred without the ESPC, and the actual costs incurred with the energy conservation measures in place. ESPCs are intended to shift the performance risks of conservation measures from the agency to the contractor by making the annual payments to the contractor contingent upon verifying that estimated savings have been realized. By law, an agency's aggregate annual payments may not exceed the amount that the agency would have paid for utilities without the ESPC.[4] Once contractors have been fully repaid for the costs of the energy conservation measures, interest and other costs associated with financing the energy conservation measures, and related costs, such as for any operation and maintenance services the contractor provided, agencies

[3]Consolidated Omnibus Budget Reconciliation Act of 1985, Pub. L. No. 99-272, tit. VII, § 7201, 100 Stat. 82, 142 (Apr. 7, 1986) amending the National Energy Conservation Policy Act, Pub. L. No. 95-619, tit. VIII, § 804 (92 Stat. 3206).

[4]42 U.S.C. § 8287 (a)(2)(B).

retain any savings the energy conservation measures continue to generate.[5]

We have previously raised questions about federal agencies' use of ESPCs. Specifically, in our June 2005 report, we found that agency officials generally believed that ESPCs' savings cover the contract's costs, but we could not verify that conclusion using the agencies' ESPC data.[6] Our work and agency audits found ESPCs with unfavorable contract terms, missing documentation, and other problems that called into question how consistently savings cover contract costs. Additionally, we found that agency officials often did not have the expertise and related information needed to effectively develop and negotiate the terms of ESPCs and to monitor contract performance once energy conservation measures were installed. We recommended, among other things, that agency officials responsible for ESPC decision making make use of appropriate expertise when undertaking ESPCs and that agencies more effectively collect and use ESPC-related data to help ensure that ESPCs' savings cover their costs. The agencies generally concurred with these recommendations and have taken steps to address them, as noted throughout this report.

You asked us to update our June 2005 report and review federal use of ESPCs since 2005. This report examines the extent to which (1) selected agencies have used ESPCs and plan to use them in the future, (2) selected agencies' ESPC projects have achieved their expected cost and energy savings, and (3) selected agencies have overseen and evaluated their ESPC projects.

To determine which federal agencies to include in our review, we selected agencies with the highest energy usage and greatest facility square footage based on government-wide data collected by FEMP. We selected the following seven agencies based on the above criteria the Air Force,

[5]Savings generated after an ESPC's performance period would generally be in the form of lower utility costs. Postperformance period savings are not measured and verified, and agencies do not generally track such savings.

[6]GAO, *Energy Savings: Performance Contracts Offer Benefits, but Vigilance Is Needed to Protect Government Interests,* GAO-05-340 (Washington, D.C.: June 22, 2005). The federal agencies covered in the 2005 review included the Air Force, the Army, and the Navy (including the Marine Corps); the Departments of Energy, Justice, and Veterans Affairs; and the General Services Administration.

Army, and Navy within the Department of Defense (DOD); DOE; the Departments of Justice (Justice), and Veterans Affairs (VA); and the General Services Administration (GSA). We refer to these organizations as the "seven selected agencies." As of fiscal year 2013, DOD, DOE, Justice, VA, and GSA represented 78 percent of the federal government's total floor space and 80 percent of the government's energy use. Our findings from our reviews of these seven agencies cannot be generalized to agencies we did not include. To provide information for all of our objectives, we reviewed relevant agency and contractor reports and we interviewed knowledgeable officials at the seven selected agencies, as well as at FEMP and two industry associations representing contractors. We also conducted site visits at two ESPC projects, which we selected based on whether they were undertaken by federal agencies within our review, involved a range of technologies, and were readily accessible.

To determine the extent to which selected agencies have used ESPCs and plan to use them in the future, we collected and analyzed agency data on ESPCs awarded in fiscal years 1995 through 2014—the span of time available agency data cover. We assessed the reliability of selected agencies' ESPC data by (1) performing electronic testing of required data elements, (2) reviewing existing information about the data and the systems that produced them, and (3) interviewing agency officials knowledgeable about the data. We assessed available ESPC data from the Air Force, Army, Navy, DOE, and GSA and determined that the data were sufficiently reliable for the purposes of this report. Because data from Justice and VA on ESPCs were not sufficiently reliable for our purposes, we relied on DOE's data for these agencies. We also reviewed relevant federal laws, executive orders, the selected agencies' fiscal year 2014 Strategic Sustainability Performance Plans, and Office of Management and Budget (OMB) guidance. To determine the extent to which selected agencies' ESPCs achieved their expected cost and energy savings, we reviewed six studies by DOE's Oak Ridge National Laboratory analyzing ESPCs' reported cost and energy savings.[7] We

[7]Oak Ridge National Laboratory, *Reported Energy and Cost Savings from the DOE ESPC Program: FY 2013* (Oak Ridge, TN: December 2013); *Reported Energy and Cost Savings from the DOE ESPC Program: FY 2012* (Oak Ridge, TN: December 2012); *Reported Energy and Cost Savings from the DOE ESPC Program* (Oak Ridge, TN: December 2011); *Reported Energy and Cost Savings from the DOE ESPC Program* (Oak Ridge, TN: November 2010); *Reported Energy and Cost Savings from Super ESPCs* (Oak Ridge, TN: September 2009); *Evaluation of the Super ESPC Program - Reported Energy and Cost Savings - Interim Report* (Oak Ridge, TN: May 2007). For more information on these reports, see appendix I.

assessed the studies' methodology and interviewed their authors, and we determined the findings were sufficiently reliable for the purposes of our report. To provide illustrative examples of the extent to which expected energy and cost savings were achieved, we reviewed contractors' annual measurement and verification reports and other project documentation for a nongeneralizable sample of 20 ESPC projects with a total contract value of about $824 million. We selected these projects from among the 530 ESPC projects awarded by the seven selected agencies in fiscal years 1995 through 2014. We selected projects that reflected a range of contract award dates, contract values, and other characteristics. We also interviewed officials from the seven selected agencies regarding their processes for measuring and verifying ESPC savings. To determine the extent to which selected agencies and FEMP have overseen and evaluated ESPC projects, we reviewed contractors' annual measurement and verification reports and other documentation for the above nongeneralizable sample of 20 ESPC projects and also interviewed FEMP and other agency officials about oversight activities associated with the sample projects. Additionally, we reviewed audit agencies' reports issued from 2005 through 2014 and interviewed FEMP and knowledgeable officials about general oversight procedures for and evaluations of agency ESPC projects. See appendix I for more information on the objectives, scope, and methodology of our review.

We conducted this performance audit from March 2014 to June 2015 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 that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

Several key laws and an executive order directly relate to federal agencies' use of ESPCs (see table 1).

Table 1: Selected Federal Laws and Executive Order Relevant to Energy Savings Performance Contracts (ESPC)

Law or executive order	Related provisions and directives
42 U.S.C. § 8287 (Apr. 7, 1986)	Agencies are authorized to enter into performance contracts solely for the purpose of achieving energy savings and benefits ancillary to that purpose.
42 U.S.C. § 15852 (Aug. 8, 2005)	Agencies are to use renewable electric energy equivalent to reduce at least 7.5% of total electricity use by fiscal year 2013; at least half of the reduction must come from renewable electric energy sources developed after January 1, 1999.
Executive Order 13693 of March 19, 2015	Agencies are to ensure that the percentage of the total amount of building electric energy consumed by the agency that is renewable electric energy is not less than 30% by fiscal year 2025 and each year thereafter.
42 U.S.C. § 8253 (Dec. 19, 2007)	Agencies are to reduce energy intensity in federal facilities by 30% compared to 2003 levels by fiscal year 2015.
Executive Order 13693 of March 19, 2015	Agencies are to reduce agency building energy intensity by 2.5% annually through the end of fiscal year 2025, relative to the baseline of the agency's building energy use in fiscal year 2015 and taking into account agency progress to date, except where baselines are revised pursuant to agency Chief Sustainability Officer's request to amend or normalize a baseline.
Executive Order 13693 of March 19, 2015	Agencies are to improve agency water use efficiency and management, including storm water management, by reducing water by 36% by fiscal year 2025 through reductions of 2% annually through fiscal year 2025 relative to a baseline of the agency's water consumption in fiscal year 2007. Agencies are to improve building efficiency, performance, and management by identifying, beginning in June of 2016, a percentage of at least 15% of the agency's existing buildings above 5,000 gross square feet that will, by fiscal year 2025, comply with the revised Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings, and making annual progress toward 100% conformance with the Guiding Principles for its building inventory.[a] Agencies are to improve data center energy efficiency at agency facilities. Agencies are to, beginning in June 2015 and continuing through fiscal year 2025, develop, implement, and annually update an integrated Strategic Sustainability Performance Plan.

Sources: GAO analysis of laws and executive orders. | GAO-15-432

[a]In a memorandum of understanding, 19 agencies committed to following five guiding principles, which focus on designing, constructing, and operating high- performance and sustainable buildings. These principles include (1) employing integrated design principles, (2) optimizing energy performance, (3) protecting and conserving water, (4) enhancing indoor environmental quality, and (5) reducing environmental impact of materials. Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding, Jan. 23, 2006.

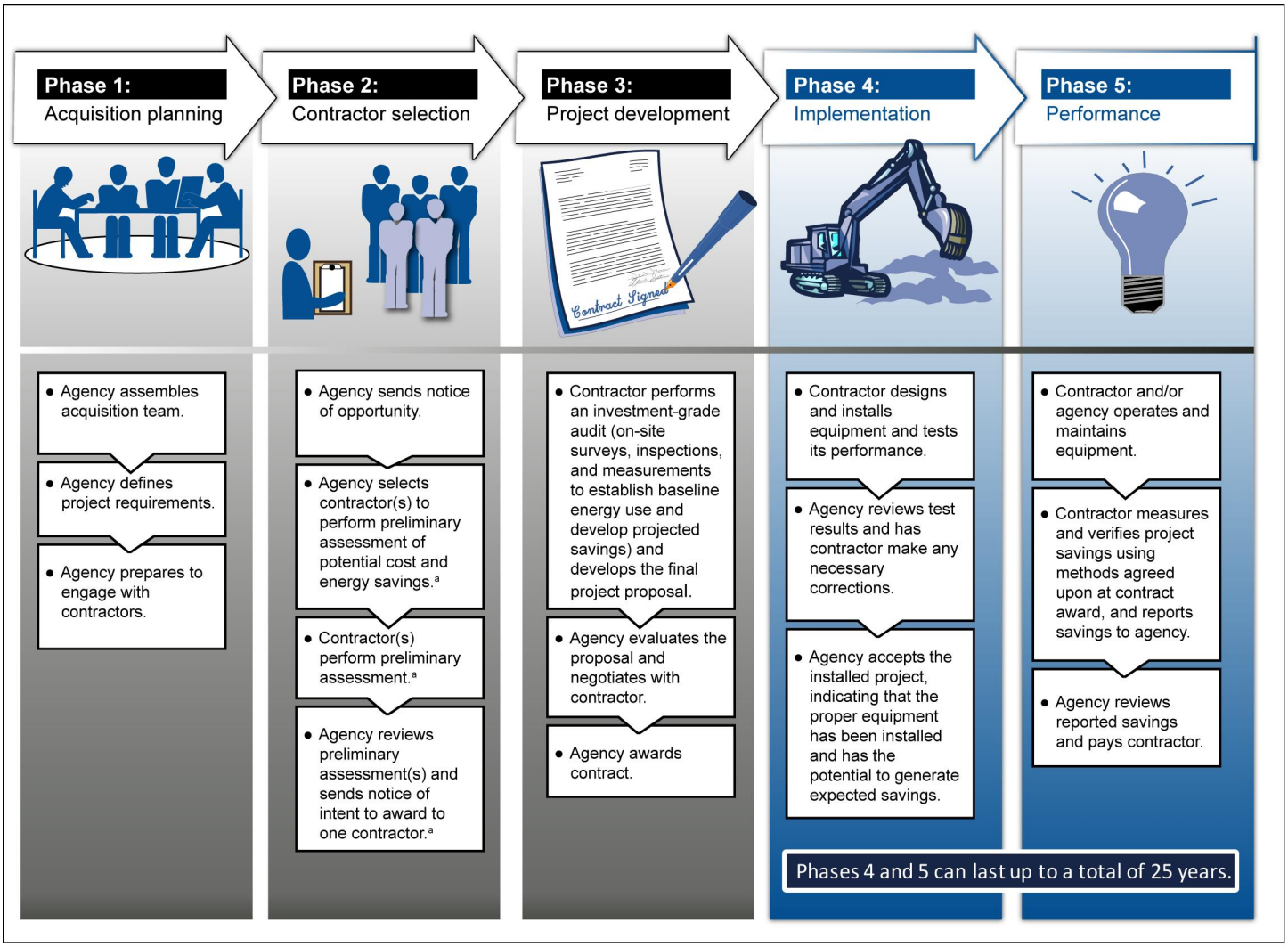
In addition, in December 2011, the President challenged federal agencies to enter into $2 billion in performance-based contracts, including ESPCs and utility energy service contracts through the President's Performance Contracting Challenge.[8] In May 2014, the President expanded this

[8]Agencies can use utility energy service contracts to implement energy-efficiency, renewable-energy, and water-efficiency projects, according to DOE's website. Under such contracts, the utility companies provide the projects' analysis, design, and installation and, when necessary, arrange financing. As with ESPCs, agencies may implement a utility energy service contract with no initial capital investment or may use appropriated funds to maximize the effect of their projects.

challenge to total $4 billion in performance-based contracts by the end of 2016.

The process that agencies and contractors generally follow for developing and implementing an ESPC project spans five phases, from acquisition planning—during which agencies identify project requirements and assemble their acquisition team—to project performance—during which energy conservation measures are in place and operating, and agencies pay contractors. Figure 1 illustrates the general process for developing and implementing an ESPC project.

Figure 1: Energy Savings Performance Contract (ESPC) Project Development and Implementation Process



Sources: GAO analysis of DOE data; Art Explosion (images). | GAO-15-432

[a]Agencies can select contractors in two ways. Under the "selection by qualifications" method, agencies choose one company to perform a preliminary assessment of a project's potential cost and energy savings based on the contractor's qualifications, such as their prior projects and references from previous customers. Alternatively, under the "selection by preliminary assessment" method, agencies choose two or more contractors to each perform preliminary assessments, and then award the contract to one contractor based on the proposed savings, quality of improvements, or other information from the preliminary assessment.

During the process of developing and implementing an ESPC project, agency officials often work with DOE's or the U.S. Army Corps of Engineers' (Corps) federal contracting centers.[9] Both DOE and the Corps have awarded indefinite-delivery, indefinite-quantity ESPC contract vehicles to a set of prequalified energy services contractors.[10] Agencies using these "umbrella" contract vehicles can award an ESPC for an individual project to any of the prequalified contractors. Using one of these contract vehicles allows agencies to develop and implement an ESPC project in less time because the process of competitively selecting qualified contractors has already been completed, and key aspects of contracts have been broadly negotiated.[11] In addition, both DOE and the Corps provide contracting and technical support to agencies that use their contract vehicles. For example, DOE's FEMP provides facilitation services, where a third party assists the agency and contractor in agreeing on the terms of a contract. FEMP also issues guidance and offers training for agencies on the various steps of developing and implementing an ESPC project. The Corps provides technical support, cost estimating services, and legal support to agencies using its contract vehicle. As part of revisions that DOE and the Corps made to their contract vehicles in 2008, both DOE and the Corps now require that agencies use a qualified project facilitator when developing and implementing an ESPC, which addresses the recommendation in our

[9]DOD's Defense Logistics Agency also provides support to military and civilian agencies implementing ESPCs, from acquisition planning through the end of the performance period.

[10]Under an indefinite-delivery, indefinite-quantity contract, agencies may award more than one contract to more than one contractor from a single solicitation. An indefinite-delivery, indefinite-quantity contract provides for an indefinite quantity of supplies or services within stated limits, during a fixed period. DOE's current contract vehicle was awarded in December 2008 to 16 contractors, and the Corps' current contract vehicle was awarded in December 2008 to 16 contractors. Twelve contractors were awarded both contract vehicles. DOE and the Corps have begun the process of recompeting the contract vehicles. DOE issued a solicitation for a new contract vehicle in March 2015, and officials said they plan to make awards in early 2016. Corps officials said they plan to award the Corps' new contract vehicle by June 2015.

[11]Alternatively, agencies can implement ESPCs under their own contracting authority—referred to as stand-alone contracts—but doing so can be complicated, and officials from most agencies we spoke with said they no longer utilize such contracts. In addition, FEMP developed the ESPC ENABLE program in 2012 to provide a standardized and streamlined process for small, federal facilities to install targeted energy conservation measures, including lighting, water, and solar photovoltaic equipment, in 6 months or less. We did not review the ENABLE program because none of the seven agencies we examined had implemented an ESPC under the program at the time of our review.

June 2005 report to ensure that agencies use appropriate expertise when undertaking an ESPC. Additionally, each of the seven agencies in our review has established a central office to support individual sites with developing and implementing ESPC projects, and several of these agencies have increased the role of their central offices since our last review to provide additional support, such as oversight of ESPCs.

An ESPC project's expected cost and energy savings are established during project development, finalized when the contract is awarded, and measured and verified over the course of a project's performance period. These savings can include reductions in costs for energy, water, operation and maintenance, and repair and replacement directly related to the energy conservation measures. Agencies must pay contractors from funds appropriated or otherwise made available to pay for such utilities and related operational expenses. Payments to contractors generally cover the costs associated with equipment and installation, contractor-provided operation and maintenance services, financing charges, and other costs. ESPC projects generally include two types of expected savings: (1) proposed cost and energy savings, which contractors estimate will result from the energy conservation measures installed, and (2) guaranteed cost savings, which must be achieved for the contractor to be fully paid.[12] Generally, contractors guarantee about 95 percent of a project's proposed cost savings, which gives them room for some amount of proposed savings to not be achieved without a reduction in their payments.

Energy and cost savings are the difference between a projected baseline of the energy use without the energy conservation measures and with the measures. The process used to determine ESPC savings is referred to as measurement and verification. Most ESPC projects include the following four key documents that outline how cost and energy savings are to be measured and verified:

- **Measurement and verification plan.** During the project development phase, the contractor and agency develop a plan that establishes how

[12]As noted previously, by law an agency's aggregate annual payments to both utilities and contractors under an ESPC may not exceed the amount that the agency would have paid for utilities without the ESPC. The statutory requirement applies to ESPC cost savings, but not energy savings. Therefore, contractors do not guarantee that a specific amount of energy savings will be achieved.

to measure and verify that savings are achieved. Measurement and verification methods can include surveys, inspections, direct measurements of energy use, and other activities to ensure that equipment is operating correctly and has the potential to generate expected savings.

- **Risk and responsibility matrix.** During the contractor selection phase, the contractor and agency develop a risk and responsibility matrix that identifies key project risks and their potential effects, and specifies whether the agency or the contractor will be responsible for managing financial risks, such as changing interest rates; operational risks, such as operating hours and weather; and performance risks, such as equipment performance and preventative maintenance.

- **Postinstallation measurement and verification report.** After the energy conservation measures are installed, the contractor conducts measurement and verification activities and presents the results in a postinstallation measurement and verification report.

- **Annual measurement and verification report.** Throughout an ESPC's performance period, the contractor conducts measurement and verification activities and submits an annual report to the agency to document the cost and energy savings achieved.

According to FEMP guidance, one of the primary purposes of measurement and verification is to reduce the risk that expected savings will not be achieved.[13] FEMP guidance describes risks related to (1) equipment use, which stem from uncertainty in operational factors, such as the number of hours equipment is used or changes in the planned operation of equipment, and (2) equipment performance, which stem from uncertainty in projecting a specified level of performance. Contractors are usually reluctant to assume risks related to equipment use because they often have no control over operational factors. In contrast, according to FEMP guidance, the contractor is ultimately responsible for the selection, design, and installation of equipment and typically assumes responsibility for performance risks.

[13]DOE, *M&V Guidelines: Measurement and Verification for Federal Energy Projects Version 3.0* (Washington, D.C.: April 2008). DOE issued a draft of version 4.0 of this guidance for public comment in September 2014, and agency officials said they expect to issue a final version of the updated guidance in 2015.

FEMP guidance outlines a range of options that contractors may select to measure and verify the cost and energy savings achieved by each energy conservation measure. If certain factors that affect savings, such as weather conditions, utility prices, and hours of agency operation, are either too complex or costly to measure, agency and contractors may choose to agree in advance on—or stipulate—the values for those factors regardless of the actual behavior of those factors. For example, because ESPCs can be long contracts, the contractor and agency typically stipulate escalation rates to estimate future utility prices during the performance period. If the savings that are achieved are less than the savings calculated using stipulated values, the agency pays the contractor for the savings calculated using stipulated values. If achieved savings are greater than the savings calculated using stipulated values, the agency retains the additional savings.

The measurement and verification options that FEMP guidance outlines vary in their rigor and costs. The option that is generally the least rigorous and costly involves measuring the key factors affecting energy use—such as the number of lighting fixtures or efficiency of a heating unit—before and after installation, but typically does not involve measuring such factors over the term of the contract. In contrast, other options outlined in FEMP guidance generally involve ongoing measurements of energy use, or proxies of energy use, over the contract term. FEMP guidance helps identify when each option should be used and states that the selection of a measurement and verification method is based on project costs and savings, complexity of the energy conservation measure, and the uncertainty or risk of savings being achieved, among others. According to FEMP guidance, costs for measurement and verification generally increase with the level of accuracy required in energy savings analyses and the number and complexity of variables that are analyzed, among other factors. Moreover, the incremental value of additional measurement and verification will at some point be less than its cost. For instance, the energy consumed by a light fixture does not change appreciably over time, and requiring contractors to measure fixtures annually would increase the cost of measurement and verification for little benefit, according to FEMP officials.

Selected Agencies Have Awarded About $12.1 Billion for ESPCs for a Variety of Projects, and Their Plans for Continued Use Vary

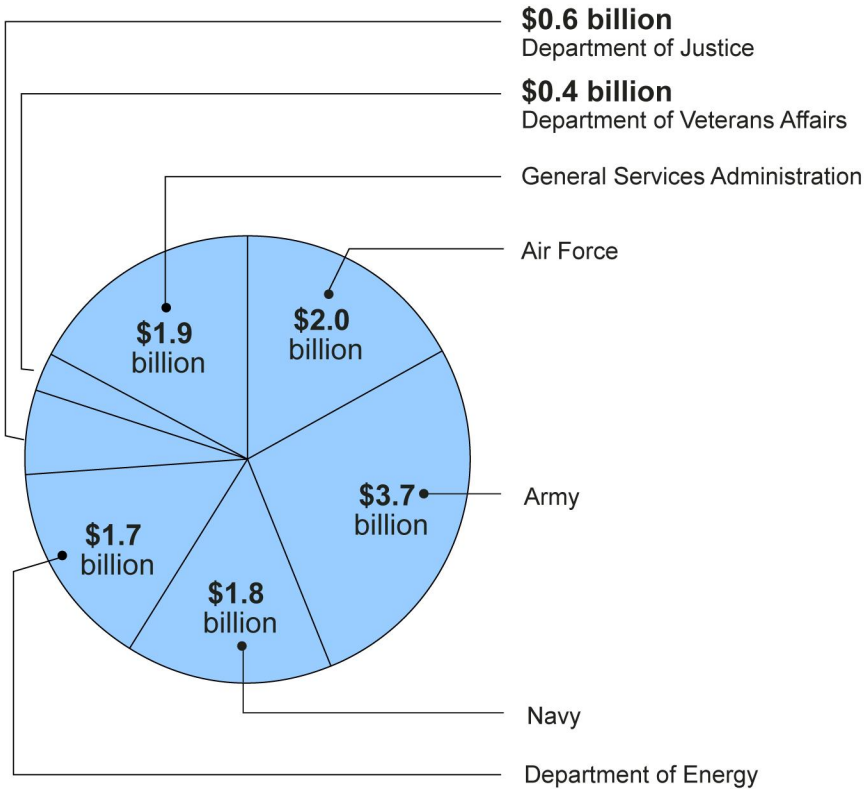
In fiscal years 1995 through 2014, the seven selected agencies in our review awarded approximately $12.1 billion in ESPCs for a variety of projects, such as constructing biomass facilities to heat federal buildings. According to agency officials and documents, agencies plan to continue using ESPCs to meet federal energy directives and initiatives, but some agency officials said they are hesitant to use ESPCs to consolidate data centers.

Selected Agencies Awarded About $12.1 Billion for ESPCs in Fiscal Years 1995 through 2014

In fiscal years 1995 through 2014, the seven selected agencies awarded approximately $12.1 billion for more than 500 ESPC projects to help fund energy conservation measures in federal facilities.[14] The total amount awarded in ESPCs varied by agency, with the Army awarding the most—approximately $3.7 billion. (See fig. 2.) Data on the ESPCs awarded by each agency are included in appendix II.

[14]This amount reflects total contract value, adjusted for inflation to fiscal year 2014 dollars using the gross domestic product deflator. Total contract value includes financing costs and costs paid to contractors for performance period services, such as operations and maintenance and measurement and verification. In contrast, the implementation price of contracts does not include financing costs and costs paid to contractors for performance period services.

Figure 2: Value of Energy Savings Performance Contracts (ESPC) Awarded by Selected Agencies in Fiscal Years 1995 through 2014



Sources: GAO analysis of agencies' data. | GAO-15-432

Notes: These data have been adjusted for inflation to fiscal year 2014 dollars using the gross domestic product deflator. This figure reflects the total contract value, which includes financing costs and costs paid to contractors for performance period services, such as operations and maintenance or measurement and verification.

The seven selected agencies awarded approximately 530 ESPCs in fiscal years 1995 through 2014. The length of the contracts for these projects ranged from approximately 2 to 25 years, with an average of about 16 years.[15] Additionally, the projects for ESPCs awarded during this period had a total guaranteed cost savings of roughly $12.4 billion and total proposed energy savings of approximately 563 trillion British thermal units

[15]In general, the seven selected agencies define the beginning of an ESPC as starting with the construction period, so we did not receive data that excludes the construction period, with the exception of FEMP's and some of GSA's data, which define a project's length as beginning with the postconstruction period.

(Btu).[16] Table 2 shows the total guaranteed cost savings and proposed energy savings by agency.

Table 2: Total Guaranteed Cost and Proposed Energy Savings over the Length of the Energy Savings Performance Contracts (ESPC) Awarded by Selected Agencies in Fiscal Years 1995 through 2014

Agency	Guaranteed cost savings (dollars in billions and inflation-adjusted)	Proposed energy savings (billion British thermal units)	Approximate number of ESPCs awarded
Air Force	$1.9	111,789	121
Army	3.5	134,683	205
Department of Energy (DOE)	1.9	115,984	23
Department of Justice	0.7	21,513	25
Department of Veterans Affairs (VA)	0.4	18,758	22
General Services Administration (GSA)	1.9	64,222	63
Navy	2.0	96,436	71
Total	**$12.4**	**563,386**	**530**

Sources: GAO analysis of agencies' data. | GAO-15-432

Note: Totals may not sum due to rounding. Guaranteed cost savings have been adjusted for inflation to fiscal year 2014 dollars using the gross domestic product deflator. Some agencies used slightly different definitions of guaranteed cost savings. Where there were differences, we used the most comparable data available from each agency. Numbers of ESPCs awarded include contract modifications that, for example, might have upgraded equipment in existing contracts. To calculate the proposed energy savings for the seven selected agencies, we multiplied ESPC projects' proposed annual energy savings by the contracts' lengths. The Air Force, Army, and Navy define the beginning of an ESPC as starting with the construction period. In some cases, GSA defined the beginning of its ESPCs as starting with the construction period. We did not receive data from these agencies that excludes the construction period, which commonly lasts about 2 years, according to Federal Energy Management Program documentation. Air Force, Army, GSA, and Navy proposed energy savings are approximate.

Agencies Have Used ESPCs for a Variety of Projects

The seven agencies have used ESPCs for a variety of projects ranging from smaller-scale projects to install more energy-efficient light bulbs or water flow restrictors in toilets, to larger-scale projects, such as power generation projects. For example, GSA officials used ESPCs for three projects at its White Oak, Maryland, facility to install infrastructure and equipment with cogeneration capabilities, which involves the simultaneous production of electricity and heat from a single fuel source, such as natural gas. Figure 3 shows some of the White Oak cogeneration project components. Additionally, DOE installed a biomass facility at the

[16]A British thermal unit is the amount of heat required to raise the temperature of 1 pound of water by 1 degree Fahrenheit.

National Renewable Energy Laboratory in Golden, Colorado. The biomass facility, the first of its kind for DOE, according to project officials, uses wood chips from forest thinnings and trees killed by either beetles or fire as fuel to generate heat that warms water for buildings at the campus. Figure 3 shows some of the components of DOE's biomass facility.

Figure 3: Examples of Energy Savings Performance Contract (ESPC) Projects

Components of the General Services Administration's cogeneration ESPC project in White Oak, Maryland.

Components of the Department of Energy National Renewable Energy Laboratory's biomass ESPC project in Golden, Colorado.

Source: GAO. | GAO-15-432

Note: Cogeneration involves the simultaneous production of electricity and heat from a single fuel source, such as natural gas.

Some agencies have started to use ESPCs to develop larger and more comprehensive projects to try to achieve greater cost and energy savings.

For example, in 2012, GSA began using ESPCs for its National Deep Energy Retrofit program which, according to an analysis by the Oak Ridge National Laboratory, achieved an average level of savings more than twice that of other federal ESPC projects.[17] Furthermore, to help achieve these cost and energy savings, agencies have increasingly turned to bundling energy conservation measures together under an ESPC, which is more efficient than using separate contracts, according to FEMP officials.

Agencies' Plans for Using ESPCs in the Future Vary, Particularly for Data Center Consolidation Projects

Selected agencies' plans to use ESPCs in the future vary. Officials from five of the agencies we spoke with said their plans for continuing to use ESPCs will help their agencies meet goals in federal executive orders and other energy goals, including the President's Performance Contracting Challenge. For example, in response to federal energy goals, Army officials said they plan to aggressively pursue using ESPCs, among other financing options, to improve energy efficiency. Justice officials said they plan to extensively use ESPCs at all of their Bureau of Prisons sites to upgrade and repair many buildings that have aging infrastructure. VA officials said ESPCs are one of many tools to meet energy goals and the agency prioritizes ESPCs at all facilities where feasible. With regard to the President's Performance Contracting Challenge, agencies government-wide had awarded approximately $1.9 billion in performance-based contracts out of the $4 billion goal as of January 2015, as shown in table 3, with the seven selected agencies in our review awarding most of these contracts. If agencies award the contracts they currently have planned, they will meet the Challenge's goal of awarding $4 billion in performance-based contracts by the end of 2016 (see app. III for federal agencies' status in achieving their goals under the President's Performance Contracting Challenge).[18]

[17]Oak Ridge National Laboratory, *Energy Savings from GSA's National Deep Energy Retrofit Program* (Oak Ridge, TN: September 2014).

[18]According to officials from FEMP and some other agencies, contracts that are reported as "planned" are in different stages of the planning process, and some of these contracts might change or might not be awarded.

Table 3: Awarded and Planned Contracts to Address Targets for the President's Performance Contracting Challenge, as of January 2015

Dollars in millions

Agency	Target	Amount of awarded contracts	Amount of planned contracts	Total amount of energy savings performance contracts	Total amount of utility energy service contracts	Total amount of performance-based contracts
Department of Defense (DOD)[a]	$2,183	$985	$1,203	$1,799	$389	$2,188
Department of Energy (DOE)	275	155	37	178	15	193
Department of Justice	367	153	205	324	34	358
Department of Veterans Affairs	320	130	241	345	26	371
General Services Administration	345	203	376	549	30	579
Remaining reporting agencies	483	357	251	514	94	608
Total	**$3,973**	**$1,984**	**$2,313**	**$3,708**	**$588**	**$4,296**

Source: Federal Energy Management Program. | GAO-15-432

Note: Totals may not sum due to rounding. Data above include contracts that have been awarded and contracts agencies plan to award to achieve their targets for the President's Performance Contracting Challenge, which sets a goal for agencies to award $4 billion in performance-based contracts by the end of 2016. According to DOE's Federal Energy Management Program and some agency officials, planned contracts are subject to change and might not be awarded. Awarded contracts may include projects that have been modified or terminated. The values in this table reflect the implementation price of contracts, which does not include financing costs and costs paid to contractors for performance period services, such as operations and maintenance or measurement and verification.

[a]DOE and the Office of Management and Budget did not break out DOD data separately by services.

Some agency officials we interviewed said they are interested in using ESPCs to consolidate data centers, which consume significant amounts of energy and can be costly to operate, but the agency officials are hesitant to move forward with such projects because of concerns OMB

Budgetary Treatment of ESPCs

In recent years, members of Congress and industry officials have raised questions about how energy savings performance contracts' (ESPC) costs and savings should be reflected in the federal budget. The Office of Management and Budget (OMB) does not reflect—or "score"—the full amount of the government's financial commitment under an ESPC up front in the budget when the contract is signed. Rather, under OMB's scoring treatment, an agency must obligate sufficient budgetary resources to cover the agency's contract payments on an annual basis, starting in the fiscal year in which the contract is signed. The Congressional Budget Office (CBO), on the other hand, scores the full cost of ESPCs up front in its cost estimates of legislation authorizing agencies to enter into ESPCs.

Source: GAO. | GAO-15-432

staff have raised about using ESPCs for such projects.[19] By law, ESPCs must be used "solely for the purpose of achieving energy savings and benefits ancillary to that purpose."[20] However, the law does not specify what qualifies as ancillary benefits—also referred to as energy-related savings—or the proportion of an ESPC's overall savings that can be energy-related. OMB guidance on federal use of performance contracts outlines some general criteria that projects must meet to be scored under OMB's annual budget scoring process but does not provide specific guidance on energy-related savings.[21] If an ESPC project does not meet OMB's criteria, then to pursue the project the agency would need to obligate funding for the entire contract "up front" in its first year, rather than annually. This can be an issue because agencies might not have the funding for the entire contract during its first year, which would leave agencies with the option of either canceling the contract or moving funding from other agency efforts.

According to DOE officials, they nearly completed the project development phase of the ESPC development and implementation process in May 2011 for a project to use an ESPC to consolidate data centers. However, they delayed awarding the contract in March 2013 because OMB staff raised concerns about the project. DOE officials said

[19]We have issued several reports on the federal government's efforts to consolidate data centers. See GAO, *Data Center Consolidation: Reporting Can Be Improved to Reflect Substantial Planned Savings*, GAO-14-713 (Washington, D.C.: Sept. 25, 2014); *Data Center Consolidation: Strengthened Oversight Needed to Achieve Cost Savings Goal,* GA0-13-378 (Washington, D.C.: Apr. 23, 2013); *Data Center Consolidation: Agencies Making Progress on Effort, but Inventories and Plans Need to Be Completed,* GAO-12-742 (Washington, D.C.: July 19, 2012); and *Data Center Consolidation: Agencies Need to Complete Inventories and Plans to Achieve Expected Savings,* GAO-11-565 (Washington, D.C.: July 19, 2011).

[20]42 U.S.C. § 8287(a).

[21]Office of Management and Budget, *Federal Use of Energy Savings Performance Contracting*, OMB Memorandum M-98-13 (Washington, D.C.: July 25, 1998) and Office of Management and Budget, *Addendum to OMB Memorandum M-98-13 on Federal Use of Energy Savings Performance Contracts (ESPCs) and Utility Energy Service Contracts (UESCs)*, OMB Memorandum M-12-21 (Washington, D.C.: Oct. 2, 2012) cover conditions for annual budget scoring, coordination, and reporting, among other things. OMB guidance, under the ESPC budget scoring section, provides that for an onsite energy source to qualify as an energy conservation measure, it must meet four criteria: (1) apply to a federal building; (2) improve energy efficiency; (3) be life-cycle cost effective; and (4) involve energy conservation, cogeneration facilities, renewable energy sources, improvements in operations and maintenance efficiencies, or retrofit activities. See appendix IV for further details on the budgetary treatment of ESPCs.

the project, as originally proposed, would consolidate two data centers and replace 5,000 desktop computers with computers that are more energy efficient. The project was expected to save DOE approximately $76 million, and 97 percent of the overall cost savings would come from operations and maintenance such as maintaining computer hardware and software, or energy-related savings, and the remaining 3 percent from energy savings. According to DOE officials, the concerns that OMB staff raised included (1) whether savings resulting from more efficient information technology equipment qualify as energy-related savings and (2) the project's high proportion of cost savings resulting from the reduction in operations and maintenance costs, rather than energy cost savings. At the time of our review, DOE had resumed consideration of the project and had not awarded a contract, but said that OMB staff had not clarified their position regarding their concerns.

According to Army officials, the Army is also interested in using ESPCs to consolidate data centers, but they are hesitant to move forward with any projects because they have heard about OMB's concerns and are waiting to learn OMB's position regarding DOE's data center consolidation. Army officials said they have not seen any information on OMB's position officially released, which they said they need before pursuing the use of ESPCs for data center consolidation projects. Furthermore, DOD officials who oversee Army and other DOD agencies said the agencies need clarification on whether moving data to a more energy efficient off-site storage facility (rather than storing it on servers in DOD facilities) or eliminating help desk support and software licenses would qualify as energy-related savings under OMB guidance.

According to federal standards for internal control, information should be communicated to those who need it in a form and within a time frame that enables them to carry out their responsibilities.[22] Because OMB staff have expressed concerns about but have not clarified their position on what qualifies as energy-related savings and the allowable proportion of energy and energy-related cost savings, DOE delayed its data center consolidation project and some agencies, such as the Army, have been hesitant to pursue using ESPCs for such projects. As a result, agencies might be needlessly missing opportunities for potential energy and

[22]GAO, *Standards for Internal Control in the Federal Government*, GAO/AIMD-00-21.3.1 (Washington, D.C.: November 1999).

energy-related cost savings. We solicited OMB staff's comments during our review regarding their position on DOE's data center consolidation ESPC project, as well as the use of ESPCs for data center consolidation projects generally, regarding what qualifies as energy-related savings and the proportion of cost savings resulting from operations and maintenance and energy use reduction. In response, OMB staff said, in part, that it is generally not appropriate for them to comment on the merits of specific contracts.

Reported Savings Generally Exceeded Expectations, but Some Savings for Selected ESPC Projects Were Overstated

The cost and energy savings that contractors reported for most ESPCs met or exceeded expected savings, according to studies by DOE's Oak Ridge National Laboratory, but some of these savings may be overstated. Our review of a nongeneralizable sample of 20 projects found that contractors overstated cost and energy savings for 14 projects by reporting some savings that, due to agency actions, were not achieved.[23] Contractors must calculate and report savings in accordance with plans agreed to in their contracts with agencies. If factors beyond contractors' control reduce the savings achieved, contractors generally are not required to reduce the amount of savings they report or measure the effects of such factors on savings. Agencies were not always aware of the amount of expected savings that were not achieved among their projects, in part, because contractors generally do not provide this information in measurement and verification reports.

[23]We selected a nongeneralizable sample of 20 projects with a total contract value of about $824 million. We selected these projects from the 530 projects awarded by the seven agencies in our review in fiscal years 1995 through 2014. We selected at least one project at each agency, and more projects at agencies that had awarded more ESPCs. We selected projects that reflected a range of award dates, contract values, and other characteristics. Our findings are not generalizable. For further information, see appendix I.

Reported Cost and Energy Savings for Most ESPCs Met or Exceeded Expected Savings

DOE's Oak Ridge National Laboratory found in its six studies of contractor-reported savings for agencies that awarded ESPCs through DOE's contract vehicle,[24] that the total cost and energy savings reported for these ESPCs exceeded their expected savings.[25] The total cost savings reported in the 6 years of annual measurement and verification reports that Oak Ridge analyzed was about 106 percent of the total guaranteed cost savings for these ESPCs.[26] Moreover, in each of the 6 years, total reported cost savings across all projects were at least 105 percent of total guaranteed savings. Similarly, the Oak Ridge studies found that the total energy savings reported for ESPCs awarded through DOE's contract vehicle exceeded proposed energy savings. Specifically, the total energy savings reported in all of the annual measurement and verification reports analyzed over the 6 years was about 102 percent of the total proposed energy savings for these ESPCs. Moreover, in each of the 6 years, total reported energy savings across all projects were at least equal to total proposed savings.

[24]Oak Ridge National Laboratory's analysis includes ESPCs awarded by all federal agencies using DOE's contract vehicle, including the seven selected agencies we reviewed. These ESPCs represent about 70 percent of federal ESPCs awarded since 1995, by dollar value. We did not analyze data for ESPCs awarded through the Corps' contract vehicle—which represent almost 20 percent of federal ESPCs awarded since 1995, by dollar value—because the Corps had not centrally tracked or analyzed reported savings for these ESPCs at the time of our review.

[25]Oak Ridge National Laboratory's first annual study was issued in 2007, and analyzed savings reported by contractors in approximately calendar year 2005. Its most recent annual study was issued in 2013, reflecting savings reported by contractors in approximately calendar year 2012. Oak Ridge National Laboratory did not issue studies for savings reported in contractors' annual measurement and verification reports for 2006 or 2007. See Oak Ridge National Laboratory, *Reported Energy and Cost Savings from the DOE ESPC Program: FY 2013* (Oak Ridge, TN: December 2013); *Reported Energy and Cost Savings from the DOE ESPC Program: FY 2012* (Oak Ridge, TN: December 2012); *Reported Energy and Cost Savings from the DOE ESPC Program* (Oak Ridge, TN: December 2011); *Reported Energy and Cost Savings from the DOE ESPC Program* (Oak Ridge, TN: November 2010); *Reported Energy and Cost Savings from Super ESPCs* (Oak Ridge, TN: September 2009); *Evaluation of the Super ESPC Program - Reported Energy And Cost Savings - Interim Report* (Oak Ridge, TN: May 2007).

[26]The Oak Ridge studies covered measurement and verification reports for 2005, 2008, 2009, 2010, 2011, and 2012. Oak Ridge approximated the year of each study based on the average start and end dates of the reporting periods covered by the annual measurement and verification reports included in the analysis for each study. For instance, the annual reports included in the 2012 study had an average start date of January 4, 2012, and an average end date of January 5, 2013, for an approximate reporting period of calendar year 2012.

Types of ESPC Savings

Expected savings. Energy savings performance contracts (ESPC) projects generally include the following

1. **Proposed cost and energy savings** are the savings contractors estimate will result from the energy conservation measures that were installed.

2. **Guaranteed cost savings** are the savings that must be achieved for the contractor to be fully paid. Generally, contractors guarantee about 95 percent of a project's proposed cost savings, which allows for some proposed savings to not be achieved without causing a reduction in their payments.

Reported savings are the savings contractors measure and verify—and report to agencies—in accordance with the plan the agency agreed to when developing and awarding the contract.

Achieved savings are the savings that result from the energy conservation measures that were installed, which may differ from reported savings. In general, determining achieved savings can be difficult and costly.

Source: GAO. | GAO-15-432

Most contractors reported cost savings that exceeded guaranteed savings, but the Oak Ridge studies found that some contractors reported cost savings below guaranteed amounts, also referred to as cost savings shortfalls, in about 6 percent of the reports that Oak Ridge reviewed. The average shortfall in cost savings for the small number of ESPCs with a reported shortfall was 17 percent, meaning reported cost savings were 83 percent of guaranteed amounts for these ESPCs. However, these shortfalls ranged widely, from 0.5 percent to 75 percent of guaranteed cost savings. Appendix V provides additional information from the Oak Ridge studies.

Similarly, we found that reported savings for 19 of the 20 projects in the nongeneralizable sample we reviewed met or exceeded their guaranteed cost savings for the year reviewed. The remaining project, DOE's National Renewable Energy Laboratory, had a reported cost savings shortfall of about $76,000—about 18 percent of its guaranteed cost savings—in its most recent measurement and verification report. According to the project's measurement and verification report, the shortfall was primarily due to warmer weather, which reduced the number of days the equipment was used, and there was an outage due to a failed motor. In the measurement and verification report, the contractor identified planned changes to the equipment that are expected to address the performance deficiencies and savings shortfalls.

FEMP tracks cost savings shortfalls monthly for ESPCs that agencies have awarded through DOE's contract vehicle with its "dashboard report" and has found that contractors are reporting that most ESPC projects are meeting or exceeding their guaranteed savings. For instance, a sample dashboard report from 2014 showed nine projects had reported cost savings shortfalls, ranging from less than 1 percent of guaranteed savings to more than 30 percent of guaranteed savings. The dashboard report includes details on the reasons for shortfalls and actions for FEMP to take to help agencies address shortfalls. According to FEMP officials, the dashboard report, which FEMP developed in 2007, provides FEMP management with a snapshot of key aspects of the ESPC projects and has enabled them to more effectively monitor ESPC projects, which GAO recommended in 2005.

Most Selected Measurement and Verification Reports We Reviewed Overstated Some Cost and Energy Savings

Measurement and verification reports for 14 of the 20 projects in the nongeneralizable sample we reviewed—including projects from each of the seven selected agencies—overstated some cost and energy savings in that they reported savings that were not achieved. Contractors must calculate and report annual savings in accordance with the measurement and verification plans agreed to in their contracts with agencies. These plans include measuring equipment performance. They also include assumptions about factors that are beyond contractors' control, such as agencies' use of energy-saving equipment and utility prices, which may change over the life of the contract. If changes in such factors reduce savings, contractors generally are not required to reduce the amount of savings they report or measure the effects of such changes. For example, contractors do not generally reduce the savings they report when an agency alters the agreed upon hours of operation, thus reducing the number of hours that energy-saving equipment is used. Conversely, if savings increase because of changes in factors beyond contractors' control, contractors generally do not increase the amount of savings they report, and agencies generally retain any surplus savings and do not increase payments to the contractor.

Measurement and verification reports for 14 projects in our sample overstated some cost and energy savings in that they reported savings that were not achieved because of agencies' actions, including (1) agencies not operating or maintaining equipment as agreed when the ESPC was awarded and (2) agencies' removal of equipment from or closure of facilities where energy conservation measures had been installed. For projects in our sample, contractors' reports generally did not quantify or estimate the effects of these factors on savings, although some reports noted that savings were affected in some way. Because of the large number of factors that can result in overstated or understated savings, we did not determine the net effect of all factors on projects' achieved savings. For example, some energy conservation measures in the projects we reviewed outperformed expectations, which may have offset the lower-than-expected savings of other energy conservation measures in those projects. Table 4 shows the projects we reviewed and the agencies' actions that affected savings that were reported in the most recent measurement and verification report, as of September 2014. (For further detail on the effects of these factors on savings for these projects, see app. VI.)

Table 4: Agency Actions That Affected Savings for Selected Energy Savings Performance Contract (ESPC) Projects

Agency	Project site	Reported savings included savings that were not achieved due to agency actions	Factor affecting savings	
			Agency did not operate or maintain equipment as agreed	Agency removed or abandoned equipment
Air Force	Cape Canaveral Air Force Station	✓		✓
	Columbus Air Force Base	✓	✓	✓
	McGuire Air Force Base	✓	✓	
	Tinker Air Force Base	✓	✓	
Army	Aberdeen Proving Ground	✓	✓	✓
	Fort Bliss	✓	✓	✓
	Fort Hood	✓	✓	
Department of Energy	DOE Headquarters	✓	✓	
	National Renewable Energy Laboratory[a]			
Department of Justice	Allenwood Federal Correctional Complex	✓	✓	
	Petersburg Federal Correctional Complex	✓	✓	✓
Department of Veterans Affairs	Veterans Integrated Service Network 22, Greater Los Angeles[b]	✓	✓	
General Services Administration	Federal Research Center at White Oak[a]			
	The J. Caleb Boggs Federal Courthouse[a]			
	Prince Jonah Kuhio Kalanianaole Federal Building	✓	✓	
Navy	Naval Air Station Oceana[a]			
	Space and Naval Warfare Systems Command Center Pacific Task Order 1[a]			
	Space and Naval Warfare Systems Command Center Pacific Task Order 2[a]			
	Walter Reed National Military Medical Center, Central Plant Improvements	✓	✓	✓
	Washington Navy Yard	✓	✓	
Total		**14**	**13**	**6**

Sources: GAO analysis of agencies' data. | GAO-15-432.

Note: Reported cost savings can overstate or understate ESPC projects' achieved savings in some cases. Because of the large number of factors that can result in overstated or understated achieved savings, we did not determine the net effect of all factors on projects' achieved savings. For instance, some conservation measures in the projects we reviewed outperformed expectations, which may have offset the reduced savings of other conservation measures in those projects. Reported savings for 19 of the 20 projects met or exceeded their guaranteed savings for the year reviewed.

[a]We did not find information suggesting there were reported savings that were not achieved for these projects.

[b]This project was in the first year of its performance period, and the contractor had not yet submitted an annual measurement and verification report at the time of our review. Therefore, we reviewed the postinstallation measurement and verification report for the project, which included information on projected savings for the first year of the performance period based on measurement and verification activities conducted after project installation.

The following are examples from the ESPC projects we reviewed of agency actions that resulted in reported savings that were not achieved:

- **Agency did not operate or maintain equipment as agreed** The most common factor resulting in overstated savings for the ESPC projects we reviewed was an agency making changes to operating hours and temperature set points on programmable heating, ventilation, and air conditioning (HVAC) equipment, which occurred in 8 of the 20 projects. According to available agency estimates, these changes generally resulted in lower energy and associated cost savings than expected, but contractors did not reflect these effects in reported savings amounts because they were due to agency actions.[27] In other cases, agencies did not fulfill their responsibilities for operating or maintaining equipment. For instance, the contractor for a project at a Justice facility found that steam distribution equipment the contractor installed had been damaged, reducing the savings the equipment achieved. However, the contractor did not reduce reported savings because it stated that the damage resulted from improper operation by Justice staff. In some cases, agencies took actions that reduced savings, such as changing operating hours or temperature set points, to meet changing agency mission needs.

[27]Changes in operating schedules can affect savings in different ways. Agencies that increase operating hours beyond what was expected, but that are using more efficient equipment, may see higher overall energy costs, but will potentially realize more savings due to increased utilization of the efficient equipment. Agencies that decrease operating hours beyond what was expected may see lower overall costs, but they may not realize as much savings from the more efficient equipment because it is not being fully utilized. The more that savings for a particular energy conservation measure are based on reducing operating hours rather than using more efficient equipment, the more savings will be lost if agencies increase operating hours beyond what was expected.

- **Agency removed or abandoned equipment** In six projects, components of energy conservation measures or entire measures were removed by the agency during the performance period, but contractors did not reduce reported savings because these changes were due to agency decisions. For instance, the Army closed a section of an installation that had numerous buildings with energy conservation measure equipment installed. As a result, savings were not being generated by this equipment, but the contractor reported the savings that would have been achieved for the year had the equipment continued to operate.[28] In some cases, agencies removed or abandoned equipment to meet changing agency mission needs.

The amount of savings reported but not achieved ranged from negligible to nearly half of an ESPC project's reported savings for the year, based on information provided by agencies and our analysis of available information from the most recent measurement and verification reports for selected projects. For example, where estimates were available, agency changes to operating hours and temperature set points on programmable HVAC equipment generally resulted in savings that were reported but not achieved that were negligible as a percentage of the total savings reported, according to agency officials. In contrast, the Air Force's removal of equipment associated with a sewer system upgrade resulted in over $104,000 in annual savings that were reported but not achieved—about 40 percent of the annual savings reported for the project. (For a full list of the projects we reviewed and information on the effects of factors beyond contractors' control on savings, see app. VI.) Officials from several agencies noted that there are benefits to funding energy conservation projects through ESPCs, as opposed to using up-front appropriations. The officials noted that like ESPC projects, the expected savings for projects funded with up-front appropriations may not be achieved. However, savings that are not achieved are more likely to be identified for ESPC projects because savings must be measured and verified.

Unlike changes in agencies' use of equipment, agencies cannot control changes in utility prices, but changes in utility prices compared with the amounts stipulated in the contracts could affect the savings for ESPC projects. Agencies commonly stipulate annual escalation rates for energy

[28]The contractor's report stated that these savings will be excluded from reported savings in future years.

costs based on projected utility prices published by the National Institute of Standards and Technology and developed by DOE's Energy Information Administration. DOE has reported that the projected utility prices for ESPCs awarded through its contract vehicle have generally underestimated the actual increase in utility prices, and therefore ESPC projects are generally saving more than expected. Specifically, in 2007, DOE's Oak Ridge National Laboratory analyzed 22 ESPC projects to calculate savings using actual, rather than projected, utility prices.[29] After adjusting for actual utility prices, savings for 16 of the 22 ESPC projects Oak Ridge examined were greater than the savings contractors reported, while savings for the remaining 6 ESPC projects were lower than reported.

Energy markets have changed significantly since 2007, and are likely to change in the future. For example, improvements in horizontal drilling and hydraulic fracturing led to large increases in the production of natural gas from shale formations, which contributed to significant decreases in the price of natural gas. Such changes likely affected the savings that certain ESPC projects achieved, such as those whose savings were based predominantly on reductions in natural gas use. However, it is not clear whether the assumptions that agencies are using for utility prices are reasonable because DOE has not conducted an analysis of ESPC projects awarded under its contract vehicle since its 2007 report. As a result, agencies may not have the information they need to know whether their projects are achieving expected savings and achieved savings may be significantly different—either higher or lower—than reported savings. There are drawbacks of assumptions about utility prices being consistently higher or lower than actual rates. DOE guidance states that stipulating higher utility rates, which generally results in higher expected savings, will provide better cash-flow for projects. However, the guidance also states that overvaluing savings is a serious concern that can cause budgetary problems for the agency. This is because contractor payments must come from agency funds used to pay for energy, water, and related expenses. Therefore, contractor payments that exceed achieved energy, water, and related savings will limit the funds agencies can use to cover these expenses.

[29]See Oak Ridge National Laboratory, *Evaluation of the Super ESPC Program: Level 2 — Recalculated Cost Savings* (Oak Ridge, TN: August 2007).

We identified three projects in our nongeneralizable sample for which achieved savings were lower than reported savings because utility prices differed from those stipulated in the contract. Specifically, for one DOE project and one Justice project, natural gas prices were significantly lower than the amounts stipulated in the contracts, which led to achieved savings that were about $147,000 and $477,000 less than the reported cost savings for the year, respectively. These amounts represented about 44 percent of the reported cost savings for the DOE project and about 30 percent of the reported cost savings for the Justice project. Additionally, an Air Force project that involved switching inefficient oil heating units to natural gas units projected rates for natural gas that did not reflect seasonal price increases in winter months. Because actual natural gas prices were substantially higher than projected in the winter, the costs of running the new natural gas units were higher than projected. This resulted in achieved savings that were about $160,000 less than the reported savings for the year, which was about 5 percent of the project's total reported savings for the year. Utility prices vary from year to year, so it is to be expected that prices will differ from the stipulated values in some years. Without a periodic analysis of utility prices over several years and across projects, agencies may not have the information they need to know whether examples like the three in our sample are typical and indicative of problems with the assumptions or anomalies.

Agencies Were Not Always Aware of How Much Expected Savings Were Not Achieved

Agencies were not always aware of the amount of expected savings that were not achieved, in part because contractors generally did not—and were not required to—report this information when savings were not achieved due to agency actions. FEMP guidance states that when reviewing measurement and verification reports, agencies should understand changes in project performance and savings levels from year to year, and what corrective actions should be taken to address deficiencies resulting in savings that are not achieved. In addition, the DOE and Corps contract vehicles provide an outline for contractors to use in writing annual reports, which includes sections detailing performance, operating, and maintenance deficiencies that need to be addressed by the contractor or the agency, and the effect of deficiencies on savings. However, the DOE and Corps contract vehicles do not explicitly require

contractors to provide estimates of expected cost and energy savings that have not been achieved due to factors beyond contractors' control.[30]

Most reports we reviewed did not contain information that would allow us to estimate the amount of savings that were not achieved because of agency actions. According to FEMP documentation, most contractors' measurement and verification reports describe performance issues related to agency actions, without providing information on the magnitude of the effect on cost savings. During the course of our review, FEMP drafted guidance for reporting on cost savings that are affected by factors beyond contractors' control. Specifically, the guidance includes tables to be added to measurement and verification reports to provide specific information on cost savings that are not achieved due to agency actions and on the net cost savings to agencies from the projects after accounting for the effects of these actions. However, FEMP had not provided this guidance to agencies or incorporated it into DOE's contract vehicle as of December 2014. Without revising the reporting requirements in the DOE and Corps contract vehicles to incorporate the updated guidance for future contracts or providing the guidance to agencies, agencies may continue to be unaware of the scale of savings that are not achieved, and may therefore be unable to determine what corrective actions should be taken.[31] Moreover, because agencies might not have these estimates for projects that have already been implemented under existing contracts, their oversight of ongoing projects could be limited unless they work with contractors to determine the best way to obtain such information.

[30]The Corps' contract vehicle includes language that requires contractors to note changes that have occurred from the baseline conditions such as building demolitions and mission changes. Furthermore, the language states that contractors should determine savings using the most economically feasible method that does not adversely impact the project, including applying changes from baseline conditions to savings calculations in order to obtain the most accurate indication of the ESPC's savings. However, for the projects we reviewed that were awarded under the Corps' contract vehicle, savings reported in measurement and verification reports did not reflect the effects of such changes from baseline conditions.

[31]DOE and the Corps could make such revisions during the planned process of recompeting the contract vehicles. DOE issued a solicitation for a new contract vehicle in March 2015, and officials said they plan to award the contract vehicle in early 2016. Corps officials said they plan to award the Corps' new contract vehicle by June 2015.

Agencies' Oversight and Evaluation of ESPC Projects Is Limited

The seven agencies in our review have conducted limited oversight and evaluation of their ESPC projects. Specifically, none of the agencies fully implemented FEMP guidance regarding observing contractors' measurement and verification activities or reviewing and certifying contractors' measurement and verification reports for individual ESPC projects. Moreover, most of the agencies in our review have not systematically evaluated their ESPC portfolios to determine the effects of changing circumstances—such as facility use, utility prices, or interest rates—on project performance because they do not have processes in place to do so.

Selected Agencies Did Not Fully Implement FEMP Guidance on Project Oversight

Our review of a nongeneralizable sample of 20 ESPC projects across the seven selected agencies found that agencies did not fully implement FEMP's guidance for observing contractors' measurement and verification activities or document that the agency had reviewed and certified contractor's most recent measurement and verification reports.[32] In 2007, FEMP issued guidance that identified practices to assist agencies with overseeing contractors' measurement and verification activities.[33] The guidance states, among other things, that an agency representative should observe the contractor's measurement and verification activities, review the contractor's measurement and verification report, and certify in writing that the report is acceptable to the agency. According to FEMP's guidance, these activities are designed, in part, to provide the agency assurance that the project is performing as expected and to provide increased confidence that the expected savings are achieved. FEMP has also issued guidance that provides a framework for reviewing postinstallation and annual measurement and verification reports and includes a template that agencies can use to document their review of these reports.[34] These oversight activities are also recommended, and, in some cases, required in agencies' own guidance.

[32]FEMP guidance recommends observing the contractor's measurement and verification activities at multiple points. We generally focused our analysis on agencies' observation, review, and certification activities for the projects' most recent annual measurement and verification reports.

[33]FEMP, *Guide to Government Witnessing and Review of Post-Installation and Annual M&V Activities,* February 2007.

[34]FEMP, *Reviewing Post-Installation and Annual Reports For Federal ESPC Projects*, February 2007.

More specifically, five of the seven selected agencies recommend or require that agency representatives observe contractors' measurement and verification activities, and two agencies require that agency representatives review the measurement and verification report and certify acceptance of the report.

Agency representatives observed the contractors' measurement and verification activities for all energy conservation measures for 9 of the 20 projects in our nongeneralizable sample; observed measurement and verification activities for some, but not all, energy conservation measures for 4 projects; and did not observe these activities for any energy conservation measures for 7 projects. Additionally, agency officials had not reviewed the most recent measurement and verification report for 4 of the 20 projects in our sample and did not certify acceptance of the report for 11 projects. According to project officials, review was in process for 3 of the 4 reports that had not been reviewed, and officials were in the process of approving reports for 5 of the 11 projects for which acceptance was not certified at the time of our review.

Other audit agencies have also identified problems associated with agency representatives' observing of contractors' measurement and verification activities, reviewing reports, or certifying acceptance of the reports. For example, a 2011 Naval Audit Service report found that oversight practices were not sufficiently formalized to ensure that contractors' measurement and verification reports were reviewed by Navy personnel and made 11 recommendations based on its findings.[35] In 2013, the Naval Audit Service conducted a follow-up audit and found that, among other things, Navy management did not provide sufficient oversight to ensure that Navy personnel fully completed and clearly stated on the standard measurement and verification review template whether Navy personnel observed contractors' measurement and verification activities.[36] Similar findings regarding insufficient oversight

[35]Naval Audit Service, *Internal Controls Over Department of the Navy Energy Funding and Financing Tools*, N2011-0023 (Washington, D.C.: March 2011).

[36]Naval Audit Service, *Follow up on Internal Controls Over Department of the Navy Energy Funding and Financing Tools*, N2013-0031 (Washington, D.C.: June 2013).

were also included in audit reports from the DOE Inspector General and the Air Force Audit Agency.[37]

Some project and agency officials told us that agency representatives did not observe some measurement and verification activities or review and approve the contractors' reports because they were unaware of these duties—or the steps they are supposed to take to perform them—or believed them unnecessary. According to FEMP officials we interviewed in December 2014, FEMP has expanded training related to ESPCs, some of which discusses oversight activities. The officials also stated that there was no specific training course dedicated to performing agency oversight and that there would be benefits to having such a course. In commenting on our report, DOE officials stated that FEMP hosted a webinar in September 2014 that discussed agencies' responsibilities during the performance period. Additionally, DOE stated in its comments that the webinar included a review of FEMP's guidance on observing contractors' measurement and verification activities and reviewing and certifying the measurement and verification reports, among other issues. DOD officials we interviewed in December 2014 suggested having additional training on oversight; however, it is unclear whether they were aware of the webinar. Because DOE provided information on the webinar late in our review, we did not assess the webinar, but we believe, based on the analysis conducted for this review, that issues related to training may have been a factor in agencies' inconsistent oversight of contractors' measurement and verification activities that we found in our sample of ESPC projects. According to federal standards for internal control, all personnel need to possess and maintain a level of competence that allows them to accomplish their assigned duties, and management needs to identify appropriate knowledge and skills needed for various jobs and provide needed training.[38] Without ensuring that training provides officials with the information needed to understand how to perform their oversight responsibilities, agencies may continue to inconsistently perform these oversight responsibilities. As a result, agencies may not be aware of whether ESPC projects are achieving the expected savings.

[37]DOE Office of Inspector General, *Management of Energy Savings Performance Contract Delivery Orders at the Department of Energy*, DOE/IG-0822 (Washington, D.C.: September 2009) and Air Force Audit Agency, *Follow-up Audit, Energy Management Program*, F2008-0002-FD1000 (Washington, D.C.: December 2007).

[38]GAO/AIMD-00-21.3.1.

FEMP officials said they were aware that agency officials are not always observing the contractor's measurement and verification activities or reviewing and certifying the reports for all projects, but they do not know the extent to which such oversight activities are occurring. The officials said FEMP's Life of Contract program, established in 2009, was an attempt to ensure that agencies carry out their oversight responsibilities. Under the program, FEMP calls agencies twice a year—once before measurement and verification is supposed to be performed by the contractor and once after measurement and verification has occurred—to ensure that agencies have the assistance they need to perform their oversight responsibilities.[39] However, FEMP officials said they do not know the extent to which agencies have witnessed the contractor's measurement and verification activities or reviewed and certified the contractors' measurement and verification reports because they do not monitor whether agencies have carried out these oversight responsibilities. According to the federal standards for internal control, internal controls should generally be designed to assure ongoing monitoring of their performance over time, and any identified deficiencies should be communicated and corrected.[40] The officials said they were relying on calls made through the Life of Contract program to ensure that the oversight takes place, but that monitoring whether agencies performed the oversight would be useful in light of ongoing concerns about oversight. Because FEMP does not monitor whether agencies are observing contractors' measurement and verification activities and reviewing and certifying contractors' measurement and verification reports, FEMP does not know whether its Life of Contract program or its guidance is effective and cannot identify deficiencies, if any, in the program or its guidance that need to be corrected.

[39]Other services provided through the Life of Contract program include assisting agencies with contract modifications, providing technical assistance when projects are not performing as expected, and making agency staff aware of FEMP training and guidance.

[40]GAO/AIMD-00-21.3.1.

Most Agencies Have Not Systematically Evaluated the Effects of Changing Circumstances on the Performance of Their ESPC Projects

Estimating future savings is inherently uncertain, and given the length of ESPCs—those awarded under DOE's contract vehicle last 17 years on average and can last as long as 25 years—changes are likely to occur in utility prices, agency mission needs, and other factors that affect cost and energy savings. However, most of the seven selected agencies in our review have not systematically evaluated their ESPC portfolios to determine the effects of changing circumstances—such as facility use, utility prices, or interest rates—on project performance, because they do not have processes in place to do so.

One agency in our review, the Air Force, evaluated its ESPC portfolio from 2009 through 2011, but has not established a process for agency-wide portfolio evaluations going forward. During this evaluation, the Air Force identified over 50 projects that it determined were not economical due to facility closures, high interest rates, or minimal measurement and verification requirements, among other issues.[41] In addition, during the course of our review, FEMP established a process that would allow it to identify changes in agencies' use of energy conservation measures and associated facilities and other agency actions that could negatively affect savings for ESPCs awarded under the DOE contract vehicle. This process is intended to help FEMP better advise and oversee agencies implementing ESPCs. However, the process does not include comparing expected energy prices to actual prices, or comparing interest rates for ESPC projects to current market rates.

Federal standards for internal control—which help ensure effective stewardship of public resources—state that because governmental, economic, industry, regulatory, and operating conditions continually change, mechanisms should be provided to identify and deal with any special risks prompted by such changes.[42] Moreover, FEMP officials told us that agency evaluation of ESPC portfolios at a regional or national level is a good practice. If an agency determines that certain ESPC projects are achieving savings greater than expected as part of regular evaluations, this can allow the agency to identify conservation measures

[41]We previously reported on the financial liabilities to the government from ESPCs and other alternatively financed projects in the event of base closures under DOD's base realignment and closure process. See GAO, *Defense Infrastructure: Improved Guidance Needed for Estimating Alternatively Financed Project Liabilities,* GAO-13-337 (Washington, D.C.: Apr. 18, 2013).

[42]GAO/AIMD-00-21.3.1.

or other project characteristics that have high potential for savings in future projects. Conversely, if an agency determines that an ESPC project's achieved savings are less than expected, the agency can use the information to inform decisions about future projects. Officials from some agencies said such reviews could be tied to specific triggers. For example, agencies could conduct reviews after a certain number of years, or in response to specific events, such as changes in utility prices or market interest rates, or appropriations becoming available that could be used for terminations.

Officials at some agencies said that staff at project sites are generally aware of performance deficiencies and savings shortfalls of their individual projects. However, most agencies in our review did not have processes in place for agency-wide reviews of ESPCs' performance. Without systematically reviewing agency-wide ESPC performance, such as by reevaluating baseline assumptions in light of changing energy prices or use of facilities, agency officials cannot make fully-informed decisions about their portfolios of projects. For instance, limited information on ESPC performance could hinder agencies' ESPC program managers in planning future ESPCs, and it could hinder facility managers in determining how best to utilize facilities and operate and maintain conservation measures. In addition, to the extent that changes beyond contractors' control cause projects not to achieve their guaranteed savings, agencies' payments to contractors may be greater than the reductions in agencies' utility costs, even though FEMP guidance states that agencies must achieve savings that exceed payments to the contractor.[43] Furthermore, because contractor payments must come from agency funds used to pay for energy, water, and related expenses, contractor payments that exceed achieved energy, water, and related savings will limit the funds agencies can use to cover these expenses.

Conclusions

Agencies have used ESPCs in a variety of ways and plan to continue to do so to help meet various energy-related goals. However, some agency officials are hesitant to develop projects to consolidate federal data centers—which consume large amounts of energy—because the law does not specify and OMB has not clarified its position on what qualifies

[43]Moreover, the law requires that payments to contractors not exceed the amount of savings resulting from the ESPC, as estimated through agreed upon measurement and verification procedures. 42 U.S.C. § 8287(a)(2)(B).

as energy-related savings and the allowable proportion of energy and energy-related cost savings with regard to scoring ESPCs. OMB's position on these issues is important because it determines whether an agency would need to obligate funding for the entire contract up front in the first year of the contract or annually throughout the life of the contract. Unless OMB clarifies its position on these issues, consistent with federal standards for internal control, agencies may needlessly forego opportunities to reduce energy consumption by developing ESPCs to consolidate data centers.

Having access to the information needed to fully understand the cost and energy savings that projects are—or are not—achieving is a key aspect in overseeing ESPCs. Contractors reported some cost and energy savings that were not achieved due to agency actions for 14 of the 20 projects in our sample. Contracts typically do not require contractors to reduce the amount of savings they report in such cases, but FEMP guidance, as well as the DOE and Corps contract vehicles, encourages contractors to identify deficiencies that may lead to savings that are not achieved. However, unless DOE and the Corps revise their contract vehicles or provide agencies with updated guidance that requires contractors to provide estimates of cost and energy savings that are not achieved because of agencies' actions, agencies may not be able to identify the extent to which expected savings are not achieved. In addition, even if DOE and the Corps change the language in the contract vehicles to require contractors to provide estimates of cost and energy savings that are not achieved, the changes would likely not affect the contract requirements for ongoing projects. To obtain this information for ongoing projects, agencies could, for example, work with the contractors for individual projects to determine the best way to obtain this information. Without this information, agencies may not be able to determine what, if any, corrective actions they should take. Further, changes in energy markets in recent years have affected utility prices, but DOE has not updated its analysis of utility prices for projects under its contract vehicle since 2007. Without information on the accuracy of the assumptions about utility rates, agencies may not have the information they need to know whether their projects are achieving expected savings.

Agencies have implemented some changes to increase the oversight of ESPC projects, such as establishing or strengthening central offices to help manage ESPC projects. However, for the projects we reviewed, agencies did not always implement practices identified in FEMP guidance for overseeing the contractors' measurement and verification activities. Specifically, agencies did not consistently observe the contractors'

measurement and verification activities, review the most recent measurement and verification reports, or certify that the reports were acceptable to the agency. In some cases, officials did not know they were responsible for this oversight or thought that it was not necessary, in part because they may not have received specific training on this oversight. Without ensuring that training provides officials with the information needed to understand how to perform their oversight responsibilities, agencies may continue to inconsistently perform their oversight responsibilities. As a result, agencies may not be aware of whether ESPC projects are achieving the expected savings. FEMP designed its Life of Contract program to help agency officials carry out oversight called for in ESPC guidance, but FEMP does not monitor whether agency officials are witnessing contractors' measurement and verification activities or reviewing and certifying the contractors' measurement and verification report, as called for in guidance. Without such monitoring, FEMP does not have information necessary to identify any deficiencies that need to be corrected in its Life of Contract program or its guidance.

Furthermore, most agencies we reviewed have not systematically evaluated the effects of changes to certain circumstances, like facility use, utility prices, or interest rates, on their portfolios of ESPC projects because they do not have processes in place to do so. Estimating future savings is inherently uncertain and, if assumptions about facility use or utility prices are not accurate, then agencies could be paying more for projects than they are saving. There are challenges to and drawbacks of frequent reviews. However, such evaluations could be tied to specific triggers, such as passage of a certain number of years or certain events such as changes in utility prices, market interest rates, or appropriations becoming available that could be used for modifications or terminations. If agencies do not systematically review the performance of ESPC projects agency-wide compared with the assumptions developed when the contract was signed, agency officials may be unaware of how changing circumstances have affected the performance of their ESPCs and cannot make fully-informed decisions about how to best strategically manage their ESPC portfolios.

Recommendations for Executive Action

We are making six recommendations to help improve the oversight of agencies' ESPC projects.

To help agencies decide whether to use ESPCs to consolidate federal data centers, we recommend that the Director of OMB document, for the purposes of scoring ESPCs, (1) what qualifies as energy-related savings

and (2) the allowable proportion of energy and energy-related cost savings.

To help ensure that agencies have sufficient information on ESPC performance to oversee whether future and current contracts are achieving their expected savings, we recommend that

- the Secretaries of Defense and Energy specify in the scheduled revisions to their ESPC contract vehicles or in guidance to agencies that measurement and verification reports for future projects are to include estimates of cost and energy savings that were not achieved because of agency actions. Additionally, DOE may wish to consider periodically analyzing data on other factors that may affect savings, such as utility prices, to provide information on how savings achieved by ESPCs awarded through its contract vehicle have been affected by changing utility prices since its prior study in 2007.

- the Secretaries of Defense, Energy, and Veterans Affairs; the Attorney General; and the Administrator of the General Services Administration work with contractors to determine the best way to obtain estimates of cost and energy savings that are not achieved because of agency actions in order to include these estimates in future measurement and verification reports for existing contracts, in accordance with DOE guidance, and where economically feasible.

To help agencies more consistently perform their oversight responsibilities and oversee contractors' measurement and verification activities, we recommend that the Secretary of Energy direct FEMP to

- evaluate existing training and determine whether additional training is needed on observing contractors' measurement and verification activities and reviewing and certifying measurement and verification reports, and

- monitor agencies' oversight of ESPC projects that agencies have awarded using the DOE contract vehicle, including whether agencies witnessed the contractors' measurement and verification activities and reviewed and certified acceptance of the measurement and verification report.

To help ensure that agencies have sufficient information on the effects of changing circumstances on the performance of their ESPC portfolios, we recommend that the Secretaries of Defense, Energy, and Veterans Affairs; the Attorney General; and the Administrator of the General

Services Administration establish a process to systematically evaluate their ESPC projects—including baseline assumptions about facilities' energy use, utility prices, and interest rates—to determine how their ESPC portfolios are performing and the extent to which they are achieving expected savings. Agencies could consider conducting such evaluations either after a certain number of years, or in response to events, such as changes in utility prices or market interest rates, or appropriations becoming available that could be used for modifications or terminations.

Agency Comments and Our Evaluation

We provided a draft of this report to the agencies in our review—DOD, DOE, Justice, VA, and GSA. We also provided a draft to OMB. DOD, DOE, VA, and GSA provided written comments, which are reproduced in appendixes VII through X, respectively. DOD, DOE, Justice, GSA, and OMB provided technical comments, which we incorporated, as appropriate. Justice and GSA concurred with our findings and recommendations, and the other agencies provided specific comments on our findings and recommendations, which we discuss in more detail below.

OMB did not comment on our first recommendation, which originally called on OMB to clarify certain information about using ESPCs to consolidate federal data centers. However, DOE commented that it has the authority to administer the ESPC program and issue guidance accordingly and that OMB issues guidance on the budget scoring treatment of ESPCs. We agree with these statements and have clarified our recommendation to specify that it pertains to OMB's scoring of ESPCs.

DOD concurred with our second recommendation, related to requiring that measurement and verification reports for future contracts contain estimates of savings that are not achieved due to various factors beyond contractors' control. DOE partially concurred with the recommendation. DOE agreed that factors such as physical changes to buildings, which were not contemplated prior to the contract, should be verified by annual measurement and verification activities. DOE stated that FEMP is addressing these issues through a revision of its measurement and verification reporting template. Further, DOE said that FEMP will investigate using the revised reporting template in future contracts. We modified the recommendation to allow for use of an alternative mechanism, such as the template, to implement the requirement. DOE also stated that methodologies for dealing with risks, such as changes in

utility prices, are incorporated in the measurement and verification plan that is part of the contract for each project. DOE stated that further action is not warranted for factors, such as changes in utility prices, that are beyond contractor and agency control because their variability is accounted for at the time of contract formation. According to DOE, attempting to evaluate the impact of such factors on savings would be potentially costly and burdensome to agencies and contractors and would have little benefit. Furthermore, DOE stated that there is evidence, based on a 2007 Oak Ridge National Laboratory study, that ESPC projects have underestimated utility prices and have achieved greater overall savings than contractors reported. We recognize DOE's concerns and have modified our report and recommendation to focus on estimating savings that were not achieved due to agency actions. Additionally, we have modified the recommendation to include that DOE consider periodically analyzing the impacts of utility prices on ESPC savings, given significant changes in energy markets since Oak Ridge's 2007 study.

DOD and DOE partially concurred, and VA did not concur, with our third recommendation about working with contractors to determine the best way to obtain estimates of savings that are not achieved for existing contracts. DOD and VA suggested changes to the wording of the recommendation, which we have incorporated. In its comments, DOE reiterated that agencies would benefit from verifying factors, such as physical changes to buildings that were not contemplated prior to contract implementation, through annual measurement and verification activities. DOE also stated that FEMP is addressing these issues through revision of its measurement and verification reporting template and will investigate the use of the revised reporting template for existing contracts. DOE reiterated its concerns about reporting savings that were not achieved due to factors, such as changes in utility prices, that are beyond contractor and agency control. We recognize this concern, as discussed in our response to the second recommendation above. We have modified our report and revised the wording of the recommendation to (1) focus on estimating savings that were not achieved due to agency actions, (2) more clearly indicate that the estimates are to be obtained for inclusion in future measurement and verification reports for existing contracts, and (3) limit its implementation to instances where it is economically feasible.

DOE partially concurred with our fourth recommendation about providing training on certain oversight activities. In December 2014, we interviewed DOE officials, including FEMP program managers, about available training pertaining to agencies' oversight responsibilities. These officials told us that there was no specific course dedicated to performing agency

oversight and that such a course would be beneficial. The need for additional training on oversight activities was also suggested by DOD officials during our review. In commenting on our report, however, DOE stated that, in September 2014, FEMP added to its training courses a webinar that addressed agency responsibilities for oversight during the contract performance period. DOE also stated that FEMP would examine available training and resources; make updates, as appropriate; and investigate how to encourage their use among agencies. We have noted this new information in the body of the report. However, because DOE provided the information on the webinar late in our review, we did not assess the webinar cited by DOE. We continue to believe, based on the analysis conducted for this review, that issues related to training may have been a factor in agencies' inconsistent oversight of contractors' measurement and verification activities that we found in our sample of ESPC projects. We are encouraged by DOE's plans and have modified our recommendation to include evaluating its existing training and determining whether additional training on oversight is needed.

DOE concurred with our fifth recommendation related to FEMP monitoring of agencies' oversight of ESPC projects awarded using the DOE contract vehicle. DOE stated that FEMP will examine its Life of the Contract program for an improved means of quantifying agencies' compliance in observing measurement and verification activities and reviewing and certifying the resulting reports.

DOD concurred with our sixth recommendation about establishing a process to systematically evaluate its ESPC portfolio. DOE and VA partially concurred with this recommendation. In its comments, DOE stated that FEMP would review its process that addresses performance issues and its process for engaging with agencies to determine whether to modify or terminate a contract. DOE stated that its review process includes evaluating cost savings that are not achieved as a result of agency actions and evaluating interest rates to assist agencies in determining the potential cost savings available through refinancing. In its comments, VA concurred in principle with the recommendation but stated that the agency would be limited in how it could use information obtained from such evaluations and that the evaluations would not provide significant value relative to the time and money required to conduct them. We have modified our recommendation to be less prescriptive about how the information is to be used. We continue to believe, as VA stated in its comments, that such evaluations could make agency officials aware of how changing circumstances have affected ESPC performance. Moreover, our recommendation allows for agencies to consider

conducting such evaluations after a certain number of years or in response to events, which should decrease the burden of such evaluations.

In its technical comments, DOE stated that it disagreed with our use of the term "actual savings," and that actual savings would be better characterized as "the cost and energy savings that contractors measure and verify in accordance with the plan the agency agreed to when developing and awarding the contract." DOE stated doing so is consistent with the ESPC authority, which authorizes a methodology to determine energy savings using models and assumptions that the federal agency and contractor agree on prior to contract formation. DOE also stated that there are factors that could affect savings that cannot be known and that analyzing only known factors will produce a skewed analysis of "actual" savings. We acknowledge these limitations. However, we found that savings that contractors reported, in accordance with the plan the agency agreed to, sometimes included savings that were not achieved because of agency actions, such as physical changes to buildings. DOE agrees that such factors, which were not contemplated prior to contract formation, should be verified by annual measurement and verification activities. We continue to believe that it is important for agencies to obtain information from contractors on savings that are not achieved because of agency actions and have modified our report to discuss “achieved savings” instead of “actual savings.”

In DOD’s technical comments, it provided some missing data for the amount the Army awarded in ESPCs for fiscal years 2011, 2012, and 2014. DOD also provided updated guaranteed costs savings data for some Army projects after it submitted comments on the draft report. We updated the report with these data. DOD also requested that we list DOD as the agency in tables 2 and 4 and list the Air Force, Army, and Navy as components, but we did not do so because we did not include other DOD components in the scope of our audit, and we wanted to highlight the details specific to the Air Force, Army, and Navy. We recognize that the Air Force, Army, and Navy are components of DOD, and we acknowledge this in the beginning of the report.

We are sending copies of this report to the appropriate congressional committees and the Secretaries of Defense, Energy, and Veterans Affairs; the Attorney General; the Administrator of the General Services Administration; and the Director of the Office of Management and Budget.

In addition, the report is available at no charge on the GAO website at http://www.gao.gov.

If you or your staff members have any questions about this report, please contact me at (202) 512-3841 or ruscof@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report are listed in appendix XI.

Frank Rusco
Director, Natural Resources and Environment

Appendix I: Objectives, Scope, and Methodology

We were asked to review federal use of energy savings performance contracts (ESPC) and process changes since 2005. This report examines the extent to which (1) selected agencies have used ESPCs and plan to use them in the future, (2) selected agencies' ESPC projects have achieved their expected cost and energy savings, and (3) selected agencies have overseen and evaluated their ESPC projects.

To determine which federal agencies to include in our review, we selected agencies with the highest energy usage and greatest facility square footage, based on government-wide data collected by the Federal Energy Management Program (FEMP). We chose the following seven agencies based on the above criteria the Departments of Energy (DOE), Justice, and Veterans Affairs (VA); the General Services Administration (GSA); and the Army, Navy, and Air Force within the Department of Defense (DOD). We refer to these agencies as the seven selected agencies. As of fiscal year 2013, DOD, DOE, Justice, VA, and GSA represented 78 percent of the federal government's total floor space and 80 percent of the government's energy use. Findings based on these agencies cannot be generalized to other agencies. To provide information on all of our objectives, we interviewed knowledgeable agency officials, reviewed relevant agency and contractor reports, and conducted site visits to ESPC projects in Golden, Colorado, and White Oak, Maryland. We selected these sites based on whether they were undertaken by federal agencies within our review; innovativeness, such as use of newer technology; and proximity to locations of GAO staff. Findings from these site visits cannot be generalized to other projects.

To determine the extent to which selected agencies used ESPCs, we collected and analyzed available data on ESPCs awarded in fiscal years 1995 through 2014. We found that there is no source of comprehensive data on federal agencies' use of ESPCs, either in DOE, the contracting centers, or the agencies. The seven selected agencies started collecting data comprehensively and electronically at different points in time, and they keep some contract data only in project files at the facilities where the contracts are being implemented. We combined agencies' available data into the most consistent format available, deleted duplicate records, performed basic tests to determine the reliability of the data, reviewed existing information about the data and the systems that produced them, and interviewed agency officials knowledgeable about the data. We found that selected agencies were missing some data, but we found the data used in this report to be sufficiently reliable for our purposes. We compiled data into the following fields: project title, contractor, contract vehicle, award date, agency, implementation price, total contract price,

guaranteed savings, contract term length, and annual energy savings. If agencies did not provide data that were defined in the same way as other agency data, we used the most comparable data available. We used FEMP's data as our primary ESPC data source for all seven selected agencies, and we supplemented it with Air Force, Army, GSA, and Navy data. Because data from Justice and VA on ESPCs were not sufficiently reliable for the purposes of this report, we relied on FEMP's data on these agencies. To determine the extent to which agencies plan to use ESPCs and challenges faced when using ESPCs to consolidate data centers, we reviewed relevant federal laws, executive orders, the President's Performance Contracting Challenge, the seven selected agencies' fiscal year 2014 Strategic Sustainability Performance Plans, and Office of Management and Budget guidance.

To determine the extent to which selected agencies' ESPCs projects have achieved their expected cost and energy savings, we reviewed six annual studies by DOE's Oak Ridge National Laboratory that analyzed cost and energy savings reported by contractors in annual measurement and verification reports for ESPCs awarded under DOE's contract vehicle.[1] These ESPCs represent about 70 percent of federal ESPCs awarded since 1995 by total contract value. Oak Ridge National Laboratory's first annual study was issued in 2007 and reflected savings reported by contractors in calendar year 2005, and its most recent annual study was issued in 2013 and it reflected savings reported by contractors in calendar year 2012. Oak Ridge National Laboratory did not issue an annual study for savings reported in 2006 or 2007. In addition, the years for which savings were reported were approximated based on the average start and end dates of the reporting periods covered by the annual measurement and verification reports included in Oak Ridge National Laboratory's analysis. For instance, the reports included in the 2012 analysis had an average start date of January 4, 2012, and an average end date of January 5, 2013, for an approximate reporting period of calendar year 2012. Oak Ridge National Laboratory's studies included

[1]Oak Ridge National Laboratory, *Reported Energy and Cost Savings from the DOE ESPC Program: FY 2013* (Oak Ridge, TN: December 2013); *Reported Energy and Cost Savings from the DOE ESPC Program: FY 2012* (Oak Ridge, TN: December 2012); *Reported Energy and Cost Savings from the DOE ESPC Program* (Oak Ridge, TN: December 2011); *Reported Energy and Cost Savings from the DOE ESPC Program* (Oak Ridge, TN: November 2010); *Reported Energy and Cost Savings from Super ESPCs* (Oak Ridge, TN: September 2009); *Evaluation of the Super ESPC Program - Reported Energy And Cost Savings - Interim Report* (Oak Ridge, TN: May 2007).

ESPCs for projects that were in their performance period and for which the contractor had produced at least one measurement and verification report in the year before the study. Projects in the planning or construction phases, first year of the performance period, or postperformance period were not reflected in a given year's study. We reviewed Oak Ridge National Laboratory's methodology for these studies, interviewed the authors of the studies, and determined the findings of the studies were sufficiently reliable for purposes of our report. We did not analyze trends in reported savings for ESPCs awarded through the Corps' contract vehicle because the Corps had not centrally tracked or analyzed reported savings for these ESPCs.

In addition, to provide illustrative examples of the extent to which selected agencies' ESPC projects have achieved their expected savings, we reviewed annual measurement and verification reports submitted by contractors and other project documentation for a nongeneralizable sample of 20 ESPC projects, with a total contract value of about $824 million. (See app. VI for a list of projects that we selected.) We selected projects from among the 530 projects listed in DOE, Corps, and agency data on ESPCs awarded by the seven selected agencies in fiscal years 1995 through 2014. We selected projects that reflected a range of award dates, contract values, and other characteristics. We selected at least one project at each of the seven selected agencies, and more projects at agencies that had awarded more ESPCs. Our review was generally limited to projects that had completed at least 1 year of the performance period for which an annual measurement and verification report was submitted. The one exception was VA's Veterans Integrated Service Network 22, Greater Los Angeles project, which was in the first year of its performance period at the time of our review, and it did not yet have an annual measurement and verification report. However, because VA did not award any ESPCs in 2004 through 2011, this was the only VA project available for our sample that was in its performance period. Therefore, in order to include VA in our sample, we reviewed the postinstallation measurement and verification report for the project, which included information on projected savings for the first year of the performance period based on measurement and verification activities conducted after project installation. For all 20 projects in our sample, we reviewed measurement and verification reports and other documentation to identify instances where contractors noted changes in the performance or operation of equipment that could have affected the savings they generated. We also reviewed information in the documents on projected utility rates. We contacted agency officials directly involved with the projects to obtain additional information, such as estimates of the savings

that are not achieved due to changes in equipment performance or operation, the reasons for those changes, and actual utility rates for the most recent year. The findings from our review of these projects are not generalizable to other projects. To inform our review of the projects, we reviewed FEMP's measurement and verification guidance,[2] which includes information on procedures and guidelines for quantifying the savings resulting from ESPCs, and is intended for agency staff and contractors. We also reviewed supplemental measurement and verification guidance from the seven selected agencies in our review and interviewed officials from these agencies regarding their processes for measuring and verifying ESPC savings.

To determine the extent to which selected agencies have overseen and evaluated ESPC projects, we reviewed and analyzed annual measurement and verification reports submitted by contractors and other project documentation for a nongeneralizable sample of 20 ESPCs at the seven selected agencies to determine the extent that agencies observed the contractor's measurement and verification activities and reviewed and approved the latest measurement and verification report. We conducted follow-up inquiries with agency officials to obtain any missing data in the project files. We also interviewed FEMP and other agency officials about the results associated with the sample projects. We also reviewed audit agency reports conducted on ESPCs since 2005. Furthermore, we interviewed agency officials about internal procedures for evaluating agency ESPC projects and analyzed agency documents related to these evaluations.

We conducted this performance audit from March 2014 to June 2015 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 that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

[2]DOE, "*M&V Guidelines: Measurement and Verification for Federal Energy Projects Version 3.0*" (Washington, D.C.: April 2008)

Appendix II: Value of Annually Awarded ESPCs by Selected Agencies, in Fiscal Years 1995 through 2014

Dollars in millions

Year	Air Force	Army	Department of Energy (DOE)	Department of Justice	General Services Administration (GSA)	Navy	Department of Veterans Affairs (VA)	Total
1995	$12	$0	$0	$0	$0	$0	$0	**$12**
1996	23	11	0	0	0	0	0	**35**
1997	11	7	0	0	16	0	0	**34**
1998	53	52	0	0	1	33	15	**155**
1999	31	423	1	0	28	42	3	**528**
2000	341	252	13	0	32	22	19	**679**
2001	144	226	11	0	38	247	63	**729**
2002	175	141	2	0	151	318	0	**787**
2003	271	205	0	16	101	262	105	**959**
2004	60	0	6	0	43	0	0	**109**
2005	127	65	0	0	91	0	0	**283**
2006	203	62	79	44	124	147	0	**658**
2007	113	60	14	0	9	126	0	**321**
2008	59	137	398	62	13	79	0	**749**
2009	0	73	964	122	32	181	0	**1,371**
2010	144	311	97	137	78	256	0	**1,024**
2011	0	155	0	21	812	24	0	**1,012**
2012	179	340	0	57	0	0	25	**602**
2013	3	439	89	100	146	0	21	**799**
2014	0	747	55	89	210	28	141	**1,270**
Total	**$1,952**	**$3,705**	**$1,730**	**$648**	**$1,924**	**$1,765**	**$392**	**$12,117**

Sources: GAO analysis of agencies' ESPC data. | GAO-15-432

Note: Totals may not sum due to rounding to the nearest million dollars. These data have been adjusted for inflation to fiscal year 2014 dollars using the gross domestic product deflator. Amounts shown are based on total contract value, which includes financing costs and costs paid to contractors for performance period services such as operations and maintenance or measurement and verification. From October 2003 to October 2004, the federal government's statutory authority to use performance contracting lapsed. Retroactive authorization was provided in October 2004 for the lapsed period.

Appendix III: Federal Agencies' Awarded and Planned Contracts for the President's Performance Contracting Challenge

Table 5 shows the amount agencies have awarded in performance-based contracts, including energy savings performance contracts (ESPC) and utility energy service contracts, and the amounts that agencies plan to award by December 2016. Planned awards have not yet been awarded, which means these data are subject to change and contracts might not be awarded.

Table 5: Federal Agencies' Awarded and Planned Contracts for the President's Performance Contracting Challenge as of January 2015

Dollars in millions

Agency	Target	Amount of awarded contracts	Amount of planned contracts	Total amount of energy savings performance contracts	Total amount of utility energy service contracts	Total amount of performance-based contracts
Department of Agriculture	$38	$28	$17	$39	$6	$45
Department of Commerce	12	0	59	58	1	59
Department of Defense (DOD)[a]	2,183	985	1,203	1,799	389	2,188
Department of Energy (DOE)	275	155	37	178	15	193
Department of Homeland Security	73	53	24	68	9	77
Department of Interior	20	45	28	73	0	73
Department of Justice	367	153	205	324	34	358
Department of Labor	3	0	3	3	0	3
Department of State	11	16	0	4	12	16
Department of the Treasury	28	19	9	19	9	28
Department of Transportation	41	28	26	35	20	54
Environmental Protection Agency	5	0	10	9	1	10
General Services Administration	345	203	376	549	30	579
Health and Human Services	93	41	32	39	33	73
National Aeronautics and Space Administration	74	50	29	74	4	78
National Archives and Records Administration	16	18	0	18	0	18
Office of Personnel Management	2	6	0	6	0	6
Smithsonian Institution	15	11	5	16	0	16
Social Security Administration	20	16	0	16	0	16
Tennessee Valley Authority	23	23	0	23	0	23
U.S. Army Corps of Engineers	13	3	11	14	0	14

Agency	Target	Amount of awarded contracts	Amount of planned contracts	Total amount of energy savings performance contracts	Total amount of utility energy service contracts	Total amount of performance-based contracts
Veterans Affairs	320	130	241	345	26	371
Total	**$3,973**	**$1,984**	**$2,313**	**$3,708**	**$588**	**$4,296**

Source: Federal Energy Management Program. | GAO-15-432

Note: Totals may not sum due to rounding to the nearest million dollars. Data above includes projects that have been awarded and projects agencies plan to award to achieve their President's Performance Contracting Challenge targets. However, planned projects are subject to change and might not be awarded. Awarded contracts may include projects that have been modified and terminated. The values in this table reflect the implementation price of contracts, and do not include financing costs and costs paid to contractors for performance period services such as operations and maintenance or measurement and verification.

[a]DOE and the Office of Management and Budget did not break out DOD data separately by services.

Appendix IV: Budgetary Treatment of ESPCs

In recent years, members of Congress and industry officials have raised questions about how energy savings performance contracts' (ESPC) costs and savings should be reflected in the federal budget. The full amount of the government's financial commitment under an ESPC is not reflected—"scored"—up front in the budget when the contract is signed. Moreover, federal budget agencies disagree about whether this should be the case.[1] The Office of Management and Budget's (OMB) scoring treatment is based on the contingent nature of the contract—payments are contingent on achieving expected cost savings and, therefore, the government is not fully committed to the entire long-term cost of the ESPC at the time it is signed. Under OMB's scoring treatment, an agency must obligate, at the time the contract is executed, sufficient budgetary resources to cover the agency's contract payments for the fiscal year in which the contract is signed. For each subsequent fiscal year during the contract period, the agency must obligate funds to cover the contract payments the agency is required to make for that year. OMB has not changed its approach to scoring ESPCs since it first issued formal guidance in 1998, and OMB staff said they have no plans to do so. The Congressional Budget Office (CBO), on the other hand, scores the full cost of ESPCs up front in its cost estimates of legislation authorizing agencies to enter into ESPCs. It views this treatment as consistent with government-wide principles that the budget should reflect the government's full commitment at the time decisions are made. In the case of an ESPC, this means a new obligation would be made at the time the ESPC is signed. CBO's cost estimates of legislation authorizing agencies to enter into ESPCs reflect the annual net effects of such obligations in the current fiscal year and 10 subsequent years.

CBO has developed several cost estimates for legislation affecting ESPCs and, in a recent estimate, changed how it reflects the cost savings that may result from ESPCs.[2] Specifically, in its September 2014 cost estimate for legislation that, among other things, expanded the definition of allowable energy conservation measures under an ESPC, CBO showed an increase in spending resulting from increased ESPC use.

[1]GAO, *Capital Financing: Partnerships and Energy Savings Performance Contracts Raise Budgeting and Monitoring Concerns*, GAO-05-55 (Washington, D.C.: Dec. 16, 2004).

[2]CBO, *S. 1321 Energy Savings Act of 2007* (Washington, D.C.: June 11, 2007); CBO, *S. 761 Energy Savings and Industrial Competitiveness Act of 2013* (Washington, D.C.: May 21, 2013); CBO, *H.R. 2689 Energy Savings Through Public-Private Partnerships Act of 2014* (Washington, D.C.: Sept. 24, 2014).

CBO estimated that contractual commitments to pay vendors for energy conservation measures implemented pursuant to the legislation would amount to $450 million over 10 years. This treatment is consistent with CBO's previous estimates of ESPC-related legislation. However, unlike previous estimates for such legislation, the 2014 cost estimate also factored in reductions in spending due to anticipated reductions in energy costs. CBO estimated that reductions in federal costs attributable to contracts implemented pursuant to the legislation would total $210 million over 10 years, with additional reductions in subsequent years. In addition, CBO issued a report in February 2015 with further information on its new scoring treatment of ESPCs, including how it accounts for reductions in agencies' energy costs.[3]

[3]CBO, *Using ESPCs to Finance Federal Investments in Energy-Efficient Equipment* (Washington, D.C.: February, 2015).

Appendix V: Oak Ridge National Laboratory Analysis of Reported Savings for ESPCs Awarded through DOE's Contract Vehicle

The following tables provide information on the reported energy and cost savings for energy savings performance contracts (ESPC) awarded through the Department of Energy's (DOE) contract vehicle, based on analysis by DOE's Oak Ridge National Laboratory. Oak Ridge National Laboratory has issued six studies of contractor-reported savings for ESPCs awarded through DOE's contract vehicle.[1] Table 6 shows the reported and guaranteed cost savings for these ESPCs in the 6 years analyzed by Oak Ridge.

Table 6: Reported and Guaranteed Cost Savings for Energy Savings Performance Contracts (ESPC) Awarded through DOE's Contract Vehicle, 2005 through 2012[a]

Dollars in millions

Year of annual measurement and verification reports[b]	Number of measurement and verification reports included in cost savings analysis	Total annual reported cost savings[c]	Total annual guaranteed cost savings[c]	Ratio of reported to guaranteed savings (percentage)
2012	151	$164.4	$153.0	107
2011	139	122.5	116.3	105
2010	133	103.8	98.8	105
2009	127	93.6	89.1	105
2008	118	80.8	75.7	107
2006-2007[a]	-	-	-	-
2005	100	54.9	50.8	108
Total	**768**	**$619.9**	**$583.7**	**106**

Source: GAO analysis of DOE's Oak Ridge National Laboratory studies. | GAO-15-432

[a]Oak Ridge National Laboratory's first annual study was issued in 2007, reflecting savings reported by contractors in calendar year 2005. Its most recent annual study was issued in 2013, reflecting savings reported by contractors in calendar year 2012. Oak Ridge did not issue studies for savings reported in 2006 or 2007.

[b]Oak Ridge National Laboratory approximated the year based on the average start and end dates of the reporting periods covered by the annual measurement and verification reports included in its

[1]Oak Ridge National Laboratory's first annual study was issued in 2007, and analyzed savings reported by contractors in approximately calendar year 2005. Its most recent annual study was issued in 2013, reflecting savings reported by contractors in approximately calendar year 2012. Oak Ridge did not issue studies for savings reported in 2006 or 2007. See Oak Ridge National Laboratory, *Reported Energy and Cost Savings from the DOE ESPC Program: FY 2013* (Oak Ridge, TN: December 2013); *Reported Energy and Cost Savings from the DOE ESPC Program: FY 2012* (Oak Ridge, TN: December 2012); *Reported Energy and Cost Savings from the DOE ESPC Program* (Oak Ridge, TN: December 2011); *Reported Energy and Cost Savings from the DOE ESPC Program* (Oak Ridge, TN: November 2010); *Reported Energy and Cost Savings from Super ESPCs* (Oak Ridge, TN: September 2009); *Evaluation of the Super ESPC Program - Reported Energy and Cost Savings - Interim Report* (Oak Ridge, TN: May 2007).

analysis. For instance, the annual reports included in the 2012 analysis had an average start date of January 4, 2012, and an average end date of January 5, 2013, for an approximate reporting period of calendar year 2012.

[c]Reported and guaranteed cost savings have been adjusted for inflation to fiscal year 2014 dollars using the gross domestic product deflator.

Table 7 shows the reported and proposed energy savings for ESPCs awarded through DOE's contract vehicle in the 6 years analyzed by Oak Ridge National Laboratory.

Table 7: Reported and Proposed Energy Savings for Energy Savings Performance Contracts (ESPC) Awarded through DOE's Contract Vehicle, 2005 through 2012[a]

Year of annual measurement and verification reports[b]	Number of measurement and verification reports included in energy savings analysis	Total reported energy savings (trillion British thermal units)[c]	Total proposed energy savings (trillion British thermal units)[c]	Ratio of reported to proposed savings (percent)
2012	149	14.1	13.5	105
2011	137	11.1	10.9	102
2010	129	10.4	10.4	100
2009	124	10.2	10.0	102
2008	109	6.0	5.9	101
2006-2007[a]	-	-	-	-
2005	95	5.5	5.5	100
Total	**743**	**57.3**	**56.2**	**102**

Source: GAO analysis of DOE's Oak Ridge National Laboratory studies. | GAO-15-432

[a]Oak Ridge National Laboratory's first annual study was issued in 2007, reflecting savings reported by contractors in calendar year 2005. Its most recent annual study was issued in 2013, reflecting savings reported by contractors in calendar year 2012. Oak Ridge did not issue studies for savings reported in 2006 or 2007.

[b]Oak Ridge National Laboratory approximated the year based on the average start and end dates of the reporting periods covered by the annual measurement and verification reports included in its analysis. For instance, the annual reports included in the 2012 analysis had an average start date of January 4, 2012, and an average end date of January 5, 2013, for an approximate reporting period of calendar year 2012.

[c]Oak Ridge National Laboratory analyzed energy savings both in terms of the energy used at the project site and the energy produced at the power source. The numbers presented here represent Oak Ridge's analysis of "source" energy savings rather than "site" energy savings. According to Office of Management and Budget guidance, source energy is a more detailed measure of energy savings than site energy because it accounts for embedded inefficiencies of transmission, distribution, and conversion.

Table 8 provides information on the extent to which contractors reported cost and energy savings below expected amounts—also referred to as savings shortfalls—for ESPCs awarded through DOE's contract vehicle in the 6 years analyzed by Oak Ridge National Laboratory.

Table 8: Reported Cost and Energy Savings Shortfalls for Energy Savings Performance Contracts (ESPC) Awarded through DOE's Contract Vehicle, 2005 through 2012[a]

Reported cost savings shortfalls	
Measurement and verification reports included in Oak Ridge National Laboratory's cost analysis[b]	768
Number of reports showing cost savings below guaranteed savings	48
Percentage of reports showing cost savings below guaranteed savings	6
Average reported cost savings as a percentage of guaranteed cost savings for projects with shortfalls	83
Reported energy savings shortfalls[c]	
Measurement and verification reports included in Oak Ridge National Laboratory's energy analysis[b]	743
Number of reports showing energy savings below proposed savings	239
Percentage of reports showing energy savings below proposed savings	32
Average reported energy savings as a percentage of proposed savings for projects with shortfalls	89

Source: GAO analysis of DOE's Oak Ridge National Laboratory studies. | GAO-15-432

[a]Numbers in this table reflect the total reported savings in annual measurement and verification reports submitted by contractors for ESPCs awarded under DOE's contract vehicle for 6 years: 2005, 2008, 2009, 2010, 2011, and 2012. These years represent the approximate reporting periods for the set of annual measurement and verification reports included in Oak Ridge National Laboratory's analysis. For instance, the reports included in the 2012 analysis had an average start date of January 4, 2012, and an average end date of January 5, 2013, for an approximate reporting period of calendar year 2012.

[b]The number of reports included in Oak Ridge National Laboratory's cost savings analysis differs from the number of reports included in the energy savings analysis because reports included different amounts of information on cost and energy savings. In some cases, the information they contained was not sufficient for analysis of either cost or energy savings.

[c]Oak Ridge National Laboratory's cost savings analysis compared reported cost savings to guaranteed cost savings, while its energy savings analysis compared reported energy savings to proposed energy savings. Because proposed savings are generally higher than guaranteed savings, energy savings shortfalls are likely to be more common than cost savings shortfalls under Oak Ridge's methodology.

Appendix VI: Effects of Agency Actions on Savings for Selected ESPC Projects

Table 9 shows the energy savings performance contract (ESPC) projects we reviewed, and the agency actions that affected savings and resulted in overstatements of reported savings in the most recent measurement and verification report.[1]

Table 9: Effects of Agency Actions on Savings for Selected Energy Savings Performance Contract (ESPC) Projects

Agency	Project site	Reported savings that were not achieved due to agency actions	Description of factors affecting savings	Available estimates of effects on savings
Air Force	Cape Canaveral Air Force Station	✓	The Air Force replaced energy system controls installed under this project with energy system controls funded by other sources. The contractor did not reduce reported savings to reflect the removed equipment because their removal was outside of the contractor's control.	The Air Force did not provide an estimate of the effect on savings of removing the energy system controls.
	Columbus Air Force Base	✓	The Air Force removed a sewer system upgrade, including piping, manhole covers, and other associated equipment. The contractor did not reduce reported savings to reflect the equipment's removal because it was outside of the contractor's control. Reported savings reflected the full amount of expected savings for this conservation measure. The Air Force made numerous changes to operating hours and temperature set points on control systems for heating, ventilation, and air conditioning (HVAC) equipment. In addition, the Air Force replaced programmable thermostats with nonprogrammable versions. The contractor did not reduce reported savings to reflect these changes because the changes were outside of the contractor's control.	The sewer system equipment removed by the Air Force was expected to generate $104,310 in annual cost savings—savings that were reported but not achieved. This represents 41% of the reported cost savings for the project for the year. The Air Force did not provide an estimate of the effect on savings due to operational changes to HVAC systems, but officials said the effect would be negligible.

[1]We selected a nongeneralizable sample of 20 projects across the seven agencies in our review, with a total contract value of about $824 million. We selected projects from among the 530 projects listed in the Department of Energy (DOE), the U.S. Army Corps of Engineers (Corps), and agency data on ESPCs awarded by the seven agencies in fiscal years 1995 through 2014. We selected at least one project at each agency, and more projects at agencies that had awarded more ESPCs. We selected projects that were awarded under the DOE and Corps ESPC contract vehicles, and that reflected a range of award dates, contract values, and other characteristics. Our findings are not generalizable. For further information, see appendix I.

Agency	Project site	Reported savings that were not achieved due to agency actions	Description of factors affecting savings	Available estimates of effects on savings
	McGuire Air Force Base	✓	The Air Force changed temperature set points and operating hours on HVAC systems. The contractor did not reduce reported savings to reflect these changes because the changes were outside of the contractor's control.	The Air Force did not provide an estimate of the effect of these issues on savings, but officials said the effect would be negligible.
	Tinker Air Force Base	✓	Equipment associated with the distribution of steam from a boiler plant failed, affecting savings. The contractor did not reduce reported savings to reflect these equipment failures because the contractor stated that the failures were outside of its control. The Air Force did not operate certain equipment as intended. Specifically, compressed air equipment used for hand tools and devices associated with a temperature control system was switched to manual rather than automatic operation, pressure set points on the air compressor were overridden, and other associated equipment was not working correctly. The Air Force is responsible for much of the operation and maintenance of the system, and the contractor did not reduce reported savings to reflect these issues because the contractor stated that the issues were outside of its control.	The Air Force did not provide an estimate of the effect of these issues on savings. For several of the problems identified with the steam distribution equipment, the Air Force was not able to determine whether they resulted in either more or less energy being used, and so it could not estimate the net effects on savings for the energy conservation measure.
Army	Aberdeen Proving Ground	✓	The Army removed equipment associated with an HVAC system upgrade from the scope of the project after the contract was awarded, and before the equipment was installed. Savings from this equipment were still included in reported savings amounts because its removal from the project was outside of the contractor's control. The Army changed occupancy hours on control units associated with the HVAC system, and overrode numerous temperature set points. The contractor stated that the increase of occupied scheduling will negate the savings for the HVAC measure. However, the contractor did not reduce reported savings to reflect these changes because they were outside of the contractor's control.	The Army did not provide estimates of the effects of these issues on savings.

Agency	Project site	Reported savings that were not achieved due to agency actions	Description of factors affecting savings	Available estimates of effects on savings
	Fort Bliss	✓	The Army closed a section of Fort Bliss that included over 500 buildings with equipment associated with HVAC upgrades. The contractor did not reduce reported savings for year 3 of the contract to reflect the building closures because it was outside of the contractor's control. However, the measurement and verification report stated that these savings will be excluded from reported savings in future years. The Army adjusted operating hours and temperature set points on a utility control system installed to control HVAC equipment. The contractor did not reduce reported savings to reflect these changes because they were outside of the contractor's control.	Closing the section of Fort Bliss resulted in $213,943 in reported savings that were not achieved in year 3 of the contract. This represents 15.8% of the reported cost savings for the project for the year. The contractor estimated annual savings of about $29,000 that were not achieved due to changes to hours and set points. This represents 2.1% of the reported cost savings for the project for the year.
	Fort Hood	✓	The Army changed operating hours and temperature set points on a control system for HVAC equipment. The contractor did not reduce reported savings to reflect these changes because they were outside of the contractor's control.	The Army estimated the net reduction in annual savings due to schedule and set point changes was approximately $5,800. This represents about 0.5% of the reported cost savings for the project for the year.
Department of Energy (DOE)	DOE Headquarters—Forrestal and Germantown Buildings	✓	DOE overrode controls, primarily related to scheduling, for an HVAC system upgrade. In addition, the HVAC system did not operate as efficiently as expected because the existing ductwork and air distribution systems, which the project was designed to utilize, may have been undersized. The contractor did not adjust reported savings to reflect these issues because the contractor stated the issues were outside of its control.	DOE officials did not provide estimates of the savings effects due to these issues. Officials noted that running HVAC equipment longer than planned increases total energy consumption but, without the ESPC, it would still have to operate for extended hours and do so with less efficient equipment.
	National Renewable Energy Laboratory[a]	—		
Department of Justice	Allenwood Federal Correctional Complex	✓	Prison inmates tampered with water conservation equipment installed in sinks and showers, reducing the water savings of these measures. The contractor did not reduce reported savings to reflect this issue because the issues were outside of the contractor's control.	There were about $177,000 in savings that were reported but not achieved as a result of these actions, or about 16% of the reported cost savings for the project for year 2 of the performance period.

Agency	Project site	Reported savings that were not achieved due to agency actions	Description of factors affecting savings	Available estimates of effects on savings
	Petersburg Federal Correctional Complex	✓	There was damage to the steam distribution system associated with a biomass boiler energy conservation measure, negatively affecting savings. The contractor did not reduce reported savings to reflect this issue because the contractor stated that the damage resulted from improper operation by Justice staff.	Damage to the steam distribution system resulted in about $124,000 in savings that were reported but not achieved for the biomass boiler energy conservation measure. This represents 7.6% of the reported cost savings for the project for year 3 of the performance period
			Several heat recovery devices installed on prison clothes dryers were broken and out of service. Justice is responsible for preventative maintenance. The contractor did not reduce reported savings to reflect these issues because the contractor stated that the issues were outside of its control.	About $1,550 of the reported savings from the clothes dryer heat recovery devices were not achieved due to the devices being out of service. This represents less than 0.1% of the reported cost savings for the project for the year.
			Due to increased inmate occupancy, agency staff circumvented water conservation equipment installed in prison cells. The contractor did not reduce reported savings to reflect these actions because they were outside of the contractor's control.	Justice did not provide an estimate of the effect on savings due to circumvented water conservation equipment, but officials said the effect would be negligible due to the small number of prison cells affected.
Department of Veterans Affairs (VA)	Veterans Integrated Service Network 22, Greater Los Angeles[b]	✓	VA overrode temperature set points and operating hours on several HVAC measures installed at one of its hospitals. Some changes were made to accommodate patient and staff needs, and other changes were due to equipment failure or other reasons. The contractor did not reduce reported savings to reflect these changes because they were outside of the contractor's control.	VA did not provide estimates of the effect of these changes on savings.
General Services Administration (GSA)	Federal Research Center at White Oak[a]	—		
	The J. Caleb Boggs Federal Courthouse[a]	—		

Agency	Project site	Reported savings that were not achieved due to agency actions	Description of factors affecting savings	Available estimates of effects on savings
	Prince Jonah Kuhio Kalanianaole Federal Building	✓	There was a substantial increase in water consumption associated with a water conservation measure in the first two years of the performance period. GSA officials stated they are aware of performance problems with certain flush valves the contractor installed, and they are determining what contractual actions to take. The contractor did not reduce reported savings to reflect these issues, and the measurement and verification report stated that the water savings verified postinstallation were assumed to reoccur during the performance period, usage patterns were assumed to be constant, and the measure was deemed to work. The measurement and verification report noted that some "flood safe" devices associated with the water conservation measure had failed or were missing. These devices had been expected to reduce the risk of building-damaging flooding, and generate associated savings through avoided costs for repairs. The report stated that the increased risk of floods associated with missing or failed devices could compromise the planned savings for this measure. However, the contractor did not reduce reported savings to reflect these issues because the contractor stated the issues were outside of its control. GSA overrode occupancy hours for equipment associated with a programmable HVAC system. The contractor did not reduce reported savings to reflect these changes because they were outside of the contractor's control.	GSA did not provide estimates of the effect of these issues on savings.[c]
Navy	Naval Air Station Oceana[a]	—		
	Space and Naval Warfare Systems Command Center Pacific, Task Order 1[a]	—		

Agency	Project site	Reported savings that were not achieved due to agency actions	Description of factors affecting savings	Available estimates of effects on savings
	Space and Naval Warfare Systems Command Center Pacific, Task Order 2[a]	—		
	Walter Reed National Military Medical Center, Central Plant Improvements	✓	Some equipment associated with a steam distribution system upgrade either was not being operated correctly, had failed, or had been removed, negatively affecting savings. The contractor did not reduce reported savings to reflect these issues because the contractor stated the issues were outside of its control.	The Navy estimated around $16,000 in lost savings for the year due to the issues with these steam traps. This represents about 2.7% of the reported cost savings for the project for the year.
	Washington Navy Yard	✓	Navy renovations to a building with occupancy sensors and other lighting equipment installed left some of the equipment inoperable, negatively affecting savings. The contractor did not reduce reported savings to reflect this issue because the renovations were beyond the contractor's control.	The Navy estimated around $2,500 in lost savings for year 5 of the performance period due to the inoperable lighting equipment. This represents about 0.6% of the reported cost savings for the project for the year.
			Certain components of an HVAC system upgrade failed, negatively affecting savings. The contractor did not reduce reported savings to reflect these issues because the failures were beyond the contractor's control.	The Navy estimated around $10,000 in lost savings for year 5 of the performance period due to the failed HVAC equipment. This represents about 2.3% of the reported cost savings for the project for the year.

Sources: GAO analysis of agencies' data. | GAO-15-432

Note: Reported cost savings can understate ESPC projects' achieved savings in some cases due to factors, such as changes in weather, larger than expected increases in utility prices, or other factors. Because of the large number of factors that can result in overstated or understated savings, we did not determine the net effect of all factors on projects' savings. For instance, some conservation measures in the projects we reviewed outperformed expectations, which may have offset the lost savings of other conservation measures in those projects. Whether or not the projects achieved their guaranteed savings depends on the magnitude of the overstatements we identified and the magnitude of any other understatements or overstatements of savings that we did not examine. Reported savings for 19 of the 20 projects met or exceeded their guaranteed savings for the year reviewed. The remaining project, DOE's National Renewable Energy Laboratory, had a reported cost savings shortfall of about $76,000 in its most recent measurement and verification report, or 18 percent of its guaranteed cost savings for the year.

[a]We did not find any information suggesting there were reported savings that were not achieved for these projects.

[b]This project was in the first year of its performance period, and the contractor had not yet submitted an annual measurement and verification report at the time of our review. Therefore, we reviewed the postinstallation measurement and verification report for the project, which included information on projected savings for the first year of the performance period—including savings that were projected to be negatively affected by agency actions—based on measurement and verification activities conducted after project installation. According to VA officials, the contractor has prepared quarterly

trend reports during the first year to identify and proactively resolve issues in advance of receiving the first annual measurement and verification report, to minimize any effect on savings.

[c]According to GSA officials, the failed or missing flood-safe devices did not affect savings since there have not been any floods. However, savings have been claimed and reported for these devices under the assumption that they reduce the risk of flooding, so these savings are overstated to the extent the devices affected the risk of flooding. In addition, the increase in water consumption was for the building as a whole. According to GSA officials, water consumption is not submetered for different sections of the building because it would not be cost-effective to do so. Therefore, other factors aside from the water conservation measures could have affected water consumption.

Appendix VII: Comments from the Department of Defense

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
3400 DEFENSE PENTAGON
WASHINGTON, DC 20301-3400

ENERGY,
INSTALLATIONS
AND ENVIRONMENT

APR 29 2015

Mr. Frank Rusco
Director
Natural Resources and Environment Team
U.S. Government Accountability Office
441 G Street, N.W.
Washington, DC 20548

Dear Mr. Rusco:

This is the Department of Defense response to the GAO Draft Report GAO-15-432, "ENERGY SAVINGS PERFORMANCE CONTRACTS: Additional Actions Needed to Improve Federal Oversight," dated March 27, 2015 (GAO Code 361556).

Detailed comments on the report recommendations are enclosed.

Sincerely,

John Conger
Performing the Duties of the Assistant Secretary of Defense
(Energy, Installations and Environment)

Enclosure:
As stated

GAO Draft Report Dated March 27, 2015
GAO-15-432 (GAO CODE 361556)

"ENERGY SAVINGS PERFORMANCE CONTRACTS: ADDITIONAL ACTIONS NEEDED TO IMPROVE FEDERAL OVERSIGHT,"

DEPARTMENT OF DEFENSE COMMENTS TO THE GAO RECOMMENDATION

RECOMMENDATION # 2: To help ensure that agencies have sufficient information on ESPC performance to oversee whether current and future contracts are achieving their expected savings, it is recommended that the Secretary of Defense […] include in the scheduled revisions to their ESPC contract vehicles a requirement that measurement and verifications reports explicitly contain estimates of cost and energy savings that are not achieved, including savings lost due to agency actions, changes in utility prices, and other factors beyond contractors' control.

DoD RESPONSE: The DoD concurs with this recommendation.

RECOMMENDATION # 3: To help ensure that agencies have sufficient information on ESPC performance to oversee whether current and future contracts are achieving their expected savings, it is recommended that the Secretary of Defense […] work with contractors to determine the best way to obtain estimates of cost and energy savings that are not achieved, including savings lost due to agency actions, changes in utility prices, and other factors beyond contractors' control, in accordance with DOE guidance, for projects that have already been implemented.

DoD RESPONSE: The DoD partially concurs with this recommendation.

The DoD suggests changing the wording of the phrase "...work with contractors to determine the best way to obtain estimates of cost and energy savings that are not achieved..." to "...work with contractors to determine the best way to include estimates of cost and energy saving that are not achieved in annual M&V reports...". This more clearly conveys the concept of making savings shortfalls explicit in the annual reports for existing contracts. The original wording of the recommendation could be interpreted to mean Federal Agencies need to obtain estimates for all past savings that have not been achieved on existing contracts. That requirement would be overly burdensome and would have limited benefit. Instead, we believe the recommendation is intended to help Federal Agencies improve the process of identifying contracts that are not achieving their expected savings.

Even with the clarified recommendation wording described above, there is a cost burden to modify existing contracts and place additional responsibility on the ESCO. Efforts in implementation of this recommendation should focus on those projects where the overall guaranteed savings are not being met and the implementation methodology will need to include

procedures to determine where it makes economic sense to take corrective action, i.e. will the effort, cost and resources required to modify the contract result in additional savings being captured or corrective actions being taken to prevent future loss of savings.

RECOMMENDATION # 4: To help ensure that agencies have sufficient information to identify and address risks in their ESPC portfolios, it is recommended that the Secretary of Defense […] establish a process to systematically evaluate their ESPC projects – including baseline assumptions about facilities', energy use, utility prices, and interest rates – to identify ESPCs that are not achieving expected savings, and determine if they should be modified or terminated.

DoD RESPONSE: The DoD concurs with this recommendation. Since contract actions of this kind may have significant costs and resources associated with them, a key aspect of the DoD's process will be to determine when it is in the Government's best interests to modify or terminate a contract that is not achieving its overall guaranteed savings, i.e. do the benefits outweigh the costs. The Army has conducted a review of finance rates on its portfolio using criteria such as interest rate on task order vs current available rates, number of years left on the task order and whether or not the contract and task order language allowed for refinancing. Several contracts were refinanced as a result of this review.

ADDITIONAL DoD COMMENTS ON DRAFT REPORT:

1. The recommendations on pages 35-36 should be numbered for clarity.

2. Tables 2 and 4 in the body of the report list the separate DoD Components (AF, Navy, Army) as "Agencies". Instead, DoD should be listed as the Agency with Component information shown rolled up under DoD.

3. Army data for some fiscal years in Appendix III on page 42 is incorrect. In the data Army provided to GAO, some of the total contract value information was missing and only showed the third party investment value. This may have led to this error. Since the numbers from this appendix also feed into the Government-wide total as discussed in the narrative, the Government-wide number should also be recalculated.
    a. In FY11 the Army awarded $148M in ESPC task orders rather than $0.
    b. In FY12 the Army awarded $329M in ESPC task orders rather than $0.
    c. In FY14 the Army awarded $769M in ESPC task orders rather than $594M.

Appendix VIII: Comments from the Department of Energy

Department of Energy
Washington, DC 20585

APR 30 2015

Mr. Franklin Rusco
Director
Natural Resources and Environment
U.S. Government Accountability Office
441 G Street, N.W.
Washington, D.C. 20548

Dear Mr. Rusco:

The Department of Energy (DOE) welcomes the opportunity to respond to the action recommended by the U.S. Government Accountability Office (GAO) in its draft report entitled "Energy Savings Performance Contracts: Additional Actions Needed to Improve Federal Oversight (GAO-15-432)." DOE's Office of Energy Efficiency and Renewable Energy, Federal Energy Management Program, has reviewed the report, and its response to the GAO recommendations are detailed below, with Attachments A and B, that provide additional comments related to our responses and requested edits to the draft report.

FEMP notes the following responses to the six recommendations included in the draft report:

1. **GAO Recommendation:** To help agencies decide whether to use ESPCs to consolidate federal data centers, we recommended that the Director of OMB clarify (1) what qualifies as energy-related savings; and (2) the allowable proportion of energy and energy-related cost savings.

   FEMP Response: The ESPC statute designates DOE as the agency responsible for administering the ESPC program on behalf of the federal government, with sole authority to issue guidance on statutory provisions that are ambiguous. Recognizing that OMB is the agency that measures the budgetary effects of enacted legislation and issues guidance on the budget scoring treatment of ESPCs, DOE believes the ESPC authority is clear on GAO's statutory questions.

2. **GAO Recommendation:** To help ensure that agencies have sufficient information on ESPC performance to oversee whether current and future contracts are achieving their expected savings, we recommend that the Secretary of Energy include in the scheduled revisions to their ESPC contract vehicle is a requirement that measurement and verification reports explicitly contain estimates of cost and energy savings that are not achieved, including savings lost due to agency actions, changes in utility prices, and other factors beyond contractors' control.

   FEMP Response: There are many different methods and assumptions that can be used to calculate the expected energy savings achieved with an ESPC. The approach that is developed for each project is incorporated into an M&V plan that is a part of the contract. Risks, such as utility rate prices and weather, are addressed in the risk and responsibility matrix and methodologies for dealing with them are incorporated into the M&V plan. FEMP has

guidance to address items such as changes in utility rates and weather that are used to determine expected savings.

GAO's report acknowledges that the overall savings impact of the DOE IDIQ ESPC contract has been positive since inception. Oak Ridge National Laboratory's (ORNL) statistical analysis reports that year over year, ESCOs report achieving between 106% and 108% of guaranteed savings. An additional report also showed that FEMP's guidance to use NIST's utility escalation factors in ESPC contracts has resulted in an additional 8% cost savings above the guarantee.

FEMP has and will continue to evaluate the ESPC program to assess the measurement and verification methodology used to predict factors, such as utility rates, that are beyond contractor and agency control. FEMP believes further action is not warranted regarding items such as changes in utility prices and weather, and future changes would be complex, costly, burdensome, and potentially unattractive to federal agencies, the energy services company industry, and third-party financiers.

FEMP agrees that factors such as physical changes to buildings, which were not contemplated prior to contract formation, should be verified by annual measurement and verification activities, and FEMP is addressing these issues through revision of the M&V v4.0 reporting template, currently in draft. This new M&V template should be used to inform agencies of the changes and their impact on cost savings. This information could be used to improve government operations, or utilized to inform the need to modify or terminate the contract. FEMP will investigate the use of the revised M&V reporting template in the context of future ESPC contracts. FEMP continually works to improve its M&V protocols, guidance, and technical assistance, including better tracking of agency change of facility use (see comment (2) of Attachment A for more information).

3. **GAO Recommendation:** To help ensure that agencies have sufficient information on ESPC performance to oversee whether current and future contracts are achieving their expected savings, we recommend that the Secretary of Energy work with contractors to determine the best way to obtain estimates of cost and energy savings that are not achieved, including savings lost due to agency actions, changes in utility prices, and other factors beyond contractors' control, in accordance with DOE guidance, for projects that have already been implemented.

   FEMP Response: As noted in our response to item 2, above, agencies would benefit from verifying factors such as physical changes to buildings, which were not contemplated prior to contract formation, through annual measurement and verification activities. FEMP is addressing these issues through revision of FEMP's M&V v4.0 reporting template, currently in draft, and will investigate the use of the revised M&V report in the context of existing and future ESPC contracts. FEMP believes further action is not warranted regarding items such as changes in utility prices and weather, since their variability is accounted for at the time of contract formation and future changes would be complex, costly, burdensome, and potentially unattractive to federal agencies, the energy services company industry, and third-party financiers.

4. **GAO Recommendation:** To help agencies more consistently perform their oversight responsibilities and oversee contractors' measurement and verification activities, we

recommend that the Secretary of Energy direct FEMP to provide training on observing contractors' measurement and verification activities and reviewing and certifying measurement and verification reports.

FEMP Response: FEMP currently has training in place to address agency responsibilities during the performance period, including review of FEMP's guidance on M&V witnessing, guidance on annual M&V report review and certification, agency responsibility for O&M of energy conservation measures, and an overview of FEMP's annual Life of Contract services. In addition, FEMP has other resources available related to measurement and verification activities, including the "Guide to Government Witnessing and Review of Measurement and Verification Activities." FEMP will examine available training and resources, will make updates where appropriate, and will investigate how to encourage their use among agencies (see comment (4) of Attachment A for more information).

5. **GAO Recommendation:** To help agencies more consistently perform their oversight responsibilities and oversee contractors' measurement and verification activities, we recommend that the Secretary of Energy direct FEMP to monitor agencies' oversight of ESPC projects agencies have awarded using the DOE contract vehicle, including whether agencies witnessed the contractors' measurement and verification activities and reviewed and certified acceptance of the measurement and verification report.

   FEMP Response: FEMP will examine the Life of Contract program for an improved means of quantifying agencies compliance with M&V witnessing and report review and certification requirements.

6. **GAO Recommendation:** To help ensure that agencies have sufficient information to identify and address risks in their ESPC portfolios, we recommend that the Secretary of Energy establish a process to systematically evaluate their ESPC projects—including baseline assumptions about facilities' energy use, utility prices, and interest rates—to identify ESPCs that are not achieving expected savings, and determine if they should be modified or terminated.

   FEMP Response: FEMP will review its existing standard operating procedure (SOP) that addresses cost savings performance issues in DOE IDIQ ESPCs and its engagement process with agencies in determining whether to modify or terminate a contract. FEMP's SOP includes evaluation of energy cost savings that are not achieved as a result of agency actions that were not contemplated prior to contract formation, such as removing ECMs and changing operational schedules in buildings. FEMP also has a review process for ESPC interest rates to assist agencies in determining the potential energy cost savings available through refinancing (even though the agency is not a party to the agreement between the ESCO and the financier and thus cannot require the ESCO to explore options for refinance).

DOE appreciates the contribution GAO has made to provide a balanced and thoughtful review of federal use of ESPCs since 2005 and recommendations that will strengthen the government's oversight activities. The benefits to the federal government have been significant. Considering only the DOE IDIQ ESPC contract, investment in energy efficiency projects has exceeded $3.4 billion with cumulative savings of more than $8.5 billion. We look forward to continuing to work with GAO on helping the federal government meet its energy goals. If you have any questions concerning the report or our response, please contact me or Timothy Unruh, Program Manager, Federal Energy Management Program Office, at (202) 586-5772.

Sincerely,

Kathleen B. Hogan
Deputy Assistant Secretary for Energy Efficiency
Energy Efficiency and Renewable Energy

Attachments:
A - A: ADDITIONAL COMMENTS
B - REQUESTED EDITS TO GAO-15-432

ATTACHMENT A: ADDITIONAL COMMENTS

Energy Savings Performance Contracts:
Additional Actions Needed to Improve Federal Oversight
(GAO-15-432)
April 2015

Attachment A

The Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy, Federal Energy Management Program (FEMP), has reviewed the April 2015 draft report on Energy Savings Performance Contracts (ESPCs) (GAO-15-432) and is appreciative of the Government Accountability Office (GAO) for its comprehensive review of the federal use of ESPC since 2005. FEMP responses to the recommendations of the draft report were provided in letter to Mr. Franklin Rusco, Director of the U.S. GAO Natural Resources and Environment Division. The following comments are an attachment to that letter, supporting DOE's responses:

GAO Recommendation

(1) To help agencies decide whether to use ESPCs to consolidate federal data centers, we recommended that the Director of OMB clarify (1) what qualifies as energy-related savings; and (2) the allowable proportion of energy and energy-related cost savings.

DOE Comments

No additional comments are provided.

GAO Recommendation

(2) To help ensure that agencies have sufficient information on ESPC performance to oversee whether current and future contracts are achieving their expected savings, we recommend that the Secretary of Energy include in the scheduled revisions to their ESPC contract vehicles a requirement that measurement and verification reports explicitly contain estimates of cost and energy savings that are not achieved, including savings lost due to agency actions, changes in utility prices, and other factors beyond contractors' control.

DOE Comments

While FEMP is committed to the principle of verifying energy savings through measurement and verification, actual energy savings should not be determined apart from the expected energy savings calculated in accordance with the measurement and verification plan because doing so would be complex, costly, burdensome, and potentially unattractive to federal agencies, the energy services company industry, and third-party financiers. Expected energy savings cannot be measured and must be calculated. Savings can be calculated in many different ways using various methodologies, baseline assumptions, data sampling techniques, calculation parameters, and measurement precision and confidence. The ESPC authorities anticipate that the measurement and verification plan agreed to at contract award appropriately balances the costs of determining whether energy savings are being delivered according to the contractor's guarantee with the confidence that expected energy savings can be measured and verified. FEMP has guidance to address items such as changes in utility rates and weather that are used to determine expected savings. FEMP's guidance has been shown to produce

ATTACHMENT A: ADDITIONAL COMMENTS

positive savings for the ESPC program. Annual reports by Oak Ridge National Laboratory's (ORNL) find positive overall savings, year over year, with verified savings between 106% and 108% of guaranteed savings. An additional report also showed that FEMP's guidance to use NIST's utility escalation factors in ESPC contracts has resulted in an additional 8% cost savings above the guarantee.[1] Also, the baseline determination yields a conservative estimate, because it typically does not account for existing equipment degradation in future years, in the absence of an ESPC contract. This is a significant source of savings to the government which is currently not captured in the contract. After contract execution, it would be potentially costly and burdensome to agencies and contractors to evaluate the impact of changes, such as utility rates, and with little benefit. The below paragraphs provide additional detail and an example of how and why utility price escalations are negotiated prior to contract award.

An ESPC is a firm fixed-price contract under which a contractor guarantees energy cost savings at the outset of the contract for each year of the contract term. Prior to contract execution, the agency and contractor agree to conduct periodic reviews of the equipment or systems installed under the ESPC to verify that it is operational and that energy cost savings are being delivered according to the contractor's guarantee. These measurement and verification activities are carried out in accordance with a measurement and verification plan that is developed prior to contract award. The contract also incorporates a risk-responsibility matrix that summarizes key contract elements related to the potential risks of the contract (e.g., equipment performance, operation, utility rates, weather, maintenance, repair, and replacement), assesses their potential impact, and clarifies the party responsible for managing the risk.

The specific measurement and verification activities (e.g., contractor inspections, measurements, engineering calculations, and witnessing of these activities by agency personnel) may vary across ESPCs, and the energy cost savings associated with an ESPC can be calculated in different ways. The purpose of the measurement and verification plan and the risk-responsibility matrix is to designate a method by which energy cost savings will be calculated for the duration of the ESPC and to assign responsibilities between the agency and the contractor for ensuring that equipment performs according to the agreement. The ESPC authorities recognize the reality of determining savings based on an agreed-to method and contemplate contractor payments in the context of both guaranteed energy cost savings and verified energy cost savings, not actual energy cost savings. That is, the contractor typically is repaid from energy cost savings that have been measured and verified to meet or exceed the contractor's guarantee, as determined through procedures outlined in the measurement and verification plan incorporated in the ESPC contract.

The energy cost savings as determined through the procedures set forth in the measurement and verification plan include reductions in the cost of energy, water, and wastewater treatment, including a reduction in the cost of related operation and maintenance, achieved under an ESPC as compared to a federal agency's energy baseline. The ESPC regulations enumerate seven factors, largely out of the contractor's control, that influence changes to the energy baseline are as follows: (1) physical changes to the building; (2) hours of use or occupancy; (3) area of conditioned space; (4) addition or removal of energy consuming equipment or systems; (5) energy consuming equipment operating conditions; (6) weather (i.e., cooling or heating degree days); and (7) utility rates. *See* 10 C.F.R. § 436.37(b) (2015).

Factors one through five encompass changes in facility operation that typically arise from agency actions after award of an ESPC. These changes are often permanent and can impact the original assumptions used to calculate the energy baseline used for determining energy cost savings under an ESPC. FEMP believes that factors such as physical changes to buildings that will affect the delivery of the installed

ATTACHMENT A: ADDITIONAL COMMENTS

ESPC savings, which were not contemplated prior to contract award, should be verified by annual measurement and verification activities, and FEMP is addressing these issues through revision of the measurement and verification reporting template. FEMP also welcomes additional suggestions to improve the ESPC process with regard to the ability of an ESPC to achieve the contractor's guaranteed energy cost savings through enhanced measurement, verification, and reporting.

Factors six and seven encompass variables that largely are outside both the ESCO's and the agency's control and are accounted for by the agency and contractor during contract development. As part of the contractor's guarantee of energy cost savings, the contract sets forth assumptions regarding the expected escalation of utility rate increases and typical-year weather over the term of the contract. *See* 42 U.S.C. §§ 8287(a)(2)(B), 8287c(2)(A); 10 C.F.R. § 436.31 (authorizing a methodology using utility escalation rates to determine energy savings). The contractor's guarantee of savings during contract years, as influenced by utility escalation rates agreed upon at the time of contract award, may differ from actual future energy costs. FEMP believes such factors already contemplated in the contract should not be re-visited based on short-term information, as doing so would be costly and counterproductive.

Agencies typically calculate utility rate increases over the term of an ESPC using contract escalation rates established by the National Institute of Standards and Technology (NIST). NIST publishes tables of projected annual fuel price indices (essentially the ratio between the current price and the future price for each year) for 20+ years into the future, for various fuel types and in the various Census Regions of the United States. FEMP provides a tool (Energy Rate Escalation Calculator, http://energy.gov/eere/femp/eerc-download) to assist agencies in translating these projections into a constant escalation rate.

Figure 1 illustrates the operation of FEMP's Energy Rate Escalation Calculator under a sample ESPC. The filled symbols represent the average annual electricity price paid by commercial customers to full service electric utilities in Illinois in the period from 1997 through 2013 (source: US Energy Information Administration, http://www.eia.gov/electricity/data/state/avgprice_annual.xls). The open symbols represent the prices that result from escalating the 1995 price by 0.76% per year. In an ESPC with a performance period beginning in 1997, this is the rate that causes the electricity cost savings through 2013 as valued according to the actual utility prices to be equal to the value of the energy savings as valued according to the contract prices.

ATTACHMENT A: ADDITIONAL COMMENTS

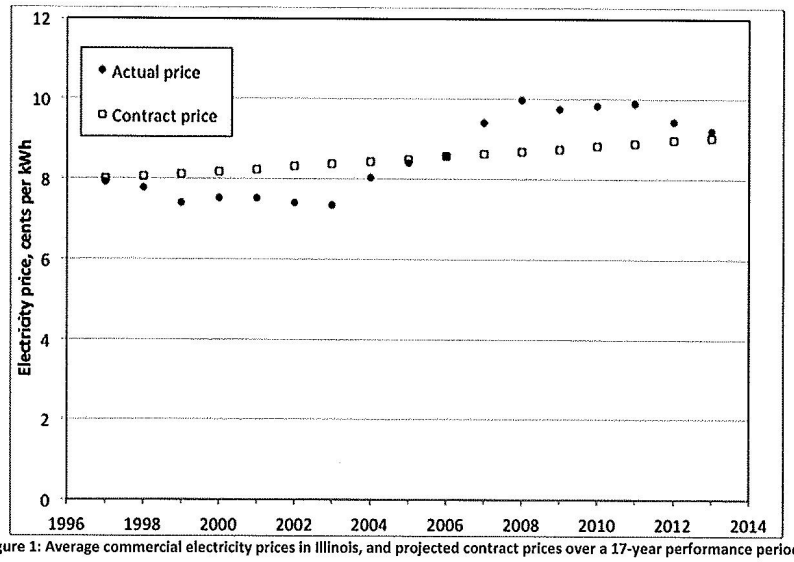


Figure 1: Average commercial electricity prices in Illinois, and projected contract prices over a 17-year performance period.[1]

The open symbols would correspond to the contract electricity price and the filled symbols represent the actual blended electricity price for an ESPC at a particular site. Note that the contract price is higher than the actual price for the first nine years of the contract. Based on the data from 1997-2005, a contracting officer might conclude that the wrong escalation rate had been chosen. But the discrepancy is made up for in the later years of the contract, when the contract electricity price is consistently lower than the actual electricity price. For this reason, focusing on utility rates for one year or even several previous years does not necessarily provide information that will be useful to the contracting officer. In fact, such a focus may be misleading as shown in the example. This is an illustrative example since it is improbable to consistently estimate the escalation of utility prices to match the actual prices over time. However, a study by ORNL has shown that ESPC projects have underestimated utility rates by 8%, achieving greater overall savings than the contracts report.[1]

Additionally, numerous market factors influence actual energy costs. For example, an ESPC may achieve energy cost savings through utility cost reductions at the marginal rate or real-time rate. Determining actual future energy costs would require the contractor and the federal agency to agree on a utility rate

[1] Figure 1 represents perfect information, since actual, historical utility rates were used to generate the figure. In the case of an ESPC, the government and ESCOs rely on predictions from DOE's Energy Information Agency, which represent the best information available at the time of contract award. There is evidence to believe that these projections have underpredicted the rate of increase of energy prices. An earlier ORNL report ("Evaluation of the Super ESPC Program: Level 2 — Recalculated Cost Savings", ORNL/TM-2007/065, August 2007) recalculated savings for a sample of 22 ESPC projects using actual marginal utility prices at the sites. The conclusion was that while a few projects had overestimated the rate of increase for some utility prices, overall the utility cost savings for the sample were 8% higher using actual marginal utility rates than they were using contract utility prices.

ATTACHMENT A: ADDITIONAL COMMENTS

calculation methodology, which would be subject to continuous modification as rate structures and other factors changed over the term of the contract. Doing so would impose an analytical burden on both the federal agency and the contractor and ultimately would increase the cost of ESPCs with little benefit to each party.

There are other unanticipated factors not included in the ESPC contract that could affect savings such as degradation or failure of existing equipment replaced by ECMs under the ESPC project. Evaluating only known factors, such as actual utility rates, and not including such probable, but unknowable, factors will produce a skewed analysis of "actual" savings. In addition, some agencies already choose an artificially low escalation rate to avoid even the possibility of a future actual rate that is lower than the contracted-for rate. Consequences of using artificially low utility escalation rates include reduced funds available for ECMs , reduced project scope, increased interest costs, and increased agency exposure to utility price increase risk. FEMP believes GAO's recommendation to analyze utility rates would exacerbate this problem without adding value. A preliminary DOE national laboratory study shows that ESPC projects that use low escalation rates are disadvantaged, and certain ECMs do not cash-flow and would not be replaced with energy efficient models, leading to increased interest costs and increased exposure to higher costs when utility rates spiked.

In summary, FEMP is committed to the principle of verifying energy savings through measurement and verification. Periodic reviews of the ESPC program, such as the ORNL report, give confidence to FEMP's approach to accounting for factors beyond the control of the contractor and agency. FEMP has and will continue to evaluate the ESPC program to assess the measurement and verification methodology used to predict factors, such as utility rates, that are beyond contractor and agency control. FEMP believes further action is not warranted regarding items such as changes in utility prices and weather, since their variability is accounted for at the time of contract award and future changes would be complex, costly, burdensome, and potentially unattractive to federal agencies, the energy services company industry, and third-party financiers. FEMP agrees that factors such as physical changes to buildings, which were not contemplated prior to contract award, should be verified by annual measurement and verification activities, and FEMP is addressing these issues through revision of its measurement and verification reporting template.

GAO Recommendation

(3) To help ensure that agencies have sufficient information on ESPC performance to oversee whether current and future contracts are achieving their expected savings, we recommend that the Secretary of Energy work with contractors to determine the best way to obtain estimates of cost and energy savings that are not achieved, including savings lost due to agency actions, changes in utility prices, and other factors beyond contractors' control, in accordance with DOE guidance, for projects that have already been implemented.

DOE Comments

No additional comments are provided.

GAO Recommendation

ATTACHMENT A: ADDITIONAL COMMENTS

(4) To help agencies more consistently perform their oversight responsibilities and oversee contractors' measurement and verification activities, we recommend that the Secretary of Energy direct FEMP to provide training on observing contractors' measurement and verification activities and reviewing and certifying measurement and verification reports.

DOE Comments

In September 2014, FEMP hosted a webinar entitled "Quality Assurance Over the Life of the Contract." This training course covered agency responsibilities during the performance period, including review of FEMP's guidance on measurement and verification witnessing, guidance on annual measurement and verification report review and certification, agency responsibility for O&M of energy conservation measures, and an overview of FEMPs annual Life of Contract services. A recorded version of the live webinar is available as part of FEMPs on-line web training modules (https://www4.eere.energy.gov/femp/training/training/energy-savings-performance-contracts-quality-assurance-over-life-contract).

FEMP's "Guide to Government Witnessing and Review of Measurement and Verification Activities" also provides guidance pertaining to government witnessing of measurement and verification activities in federal ESPCs. Witnessing of measurement and verification activities is a part of the process of reviewing and approving contractor deliverables and the on-site inspections, spot measurements, short-term monitoring, and performance tests described in the measurement and verification plan. This document can be found at FEMPs ESPC resource page at: http://energy.gov/eere/femp/downloads/guide-government-witnessing-and-review-measurement-and-verification-activities.

GAO Recommendation

(5) To help agencies more consistently perform their oversight responsibilities and oversee contractors' measurement and verification activities, we recommend that the Secretary of Energy direct FEMP to monitor agencies' oversight of ESPC projects agencies have awarded using the DOE contract vehicle, including whether agencies witnessed the contractors' measurement and verification activities and reviewed and certified acceptance of the measurement and verification report.

DOE Comments

No additional comments are provided.

GAO Recommendation

(6) To help ensure that agencies have sufficient information to identify and address risks in their ESPC portfolios, we recommend that the Secretary of Energy establish a process to systematically evaluate their ESPC projects—including baseline assumptions about facilities' energy use, utility prices, and interest rates—to identify ESPCs that are not achieving expected savings, and determine if they should be modified or terminated.

DOE Comments

No additional comments are provided.

ATTACHMENT B: REQUESTED EDITS TO GAO-15-432

Energy Savings Performance Contracts:
Additional Actions Needed to Improve Federal Oversight
(GAO-15-432)
April 2015

Attachment B

Page 19 (Sidebar):
FEMP does not agree with the definition of "actual savings" contained in the sidebar. Energy savings represent the absence of cost, energy use, water use, etc., achieved during the term of an ESPC (see comment (2) of Attachment A for more information). Savings must be defined in accordance with models and certain assumptions that are agreed to by the agency and the contractor. Determining energy savings in the absence of the measurement and verification plan would be complex, costly, burdensome, and potentially unattractive to federal agencies, the energy services company industry, and third-party financiers.

Actual savings would be better characterized as "the cost and energy savings that contractors measure and verify in accordance with the plan the agency agreed to when developing and awarding the contract." This is consistent with the ESPC authority, which authorizes a methodology to determine energy savings using models and assumptions that the federal agency and contractor agree on prior to contract formation. *See* 42 U.S.C. §§ 8287(a)(2)(B), 8287c(2)(A); 10 C.F.R. § 436.31 (2015).

Page 20 (Second paragraph):
The draft reads "Most contractors reported cost savings that exceeded guaranteed savings, but the Oak Ridge studies found that some contractors reported cost savings below guaranteed amounts, also referred to as cost savings shortfalls, in about 6 percent of the reports that Oak Ridge reviewed." FEMP believes it is important to note that when ESCOs report cost savings below the level of the guaranteed savings, the agency adjusts the ESCO payment by the amount of the shortfall. Such cases do not represent lost savings to the government.

Page 23: (Note on Table 4):
The note states "Reported cost savings can understate ESPC projects' actual savings in some cases due to factors such as changes in weather, larger than expected increases in utility prices, or other factors." FEMP disagrees with the use of the term "actual savings" in this sentence. As stated above, the ESPC authority contemplates energy savings using models and assumptions that the federal agency and ESCO agree to prior to contract formation. Accordingly, "actual savings" under an ESPC are the same as "reported savings" so long as the ESCO reports energy savings in accordance with the procedures agreed to by the agency and the contractor in the project M&V plan.

Page 29: (Final paragraph, second sentence):
The draft states, "According to FEMP officials we interviewed, FEMP has expanded training related to ESPCs and some of the current training courses discuss agencies' oversight activities, but there is no specific training course dedicated to performing agency oversight." In

ATTACHMENT B: REQUESTED EDITS TO GAO-15-432

September 2014, FEMP hosted a webinar entitled "Quality Assurance Over the Life of the Contract." This training course covered agency responsibilities during the performance period, including review of FEMP's guidance on M&V witnessing, guidance on annual M&V report review and certification, agency responsibility for O&M of energy conservation measures, and an overview of FEMPs annual Life of Contract services. A recorded version of the live webinar is available as part of FEMPs on-line web training modules. (https://www4.eere.energy.gov/femp/training/training/energy-savings-performance-contracts-quality-assurance-over-life-contract).

Page 31 (Third paragraph, last sentence):
The draft reads: "If an agency determines that an ESPC project's actual savings are less than the agency's contractor payments, or that the project is otherwise not economical due to high interest rates or other factors, the agency may choose to terminate the ESPC or specific energy conservation measures within the ESPC".

FEMP disagrees that high interest rates affect the economic viability of the project. The ESPC authority provides that ESPC payments—which include interest payments—may not exceed energy savings in each year of the contract. Thus if the term of the project does not exceed the statutory limit of 25 years and guaranteed energy savings exceeds the contractor payments in each year, the project is economical regardless of the interest rate. That said, if interest rates fall, an agency may wish to consider discussing restructuring the project with the ESCO to explore options such as rate, scope, or term adjustment.

Appendix VI:
In Appendix VI, GAO identifies numerous projects in which factors beyond contractors' control apparently resulted in reduced savings. In cases where agencies removed contractor-installed ECMs or closed buildings containing contractor-installed ECMs, FEMP agrees that in order to determine the best course of action, the agency must know the cost impact of such actions on the savings. The new IDIQ contract, as well as FEMP's M&V Guideline 4.0, includes a new Table that requires the ESCO to provide these costs.

It should be noted, however, that the contractor's guarantee applies to the savings delivered by all ECMs in a Task Order, and not to the savings delivered by individual ECMs. *See* 42 U.S.C. § 8287(a)(1), (a)(2)(B). Thus it is permissible for one ECM to be producing no energy savings so long as the total energy savings achieved under the ESPC exceeds the guaranteed energy savings. The analysis in Appendix VI does not consider the savings produced by other ECMs in the projects analyzed, nor does it consider the percentage of the cost savings in each project that is guaranteed by the contractor. Both factors must be considered to determine whether the savings are below the level of the guarantee.

Appendix VI also identifies three projects in which billed gas prices were different from contract gas prices, apparently resulting in reduced savings. In addition to the explanations made elsewhere in this audit response, delineating the case for adhering to the contractually agreed-to rates as opposed to actual rates at points of time in the future, FEMP would also reiterate that the contractor's guarantee applies to the savings delivered by all ECMs in a Task Order, and not to the savings delivered by individual ECMs. Furthermore, savings in ESPC projects typically

ATTACHMENT B: REQUESTED EDITS TO GAO-15-432

result from reduced consumption of several utilities: gas, electricity, water, fuel oil and others. A more comprehensive comparison would recalculate savings using actual prices for all utilities affected by the project. While natural gas pricing is relatively straightforward in most locations, calculating the actual value of a saved kWh of electricity can be very difficult depending on the electric utility's rate structure. A recent ASHRAE Journal article reviews some of the many structures currently in use, and shows that the value of a marginal kWh of electricity depends on the time of day, the season, and also on the demand of other equipment on the meter at the particular time the ECM was operating. Requiring agencies or contractors to make this calculation would impose a costly analytical burden on the project for little benefit.

Appendix IX: Comments from the Department of Veterans Affairs

DEPARTMENT OF VETERANS AFFAIRS
WASHINGTON DC 20420

APR 27 2015

Mr. Frank Rusco
Director, Natural Resources
And Environment
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

Dear Mr. Rusco:

The Department of Veterans Affairs (VA) has reviewed the Government Accountability Office's (GAO) draft report, ***"ENERGY SAVINGS PERFORMANCE CONTRACTS: Additional Actions Needed to Improve Federal Oversight"*** (GAO-15-432). VA generally agrees with GAO's conclusions and does not fully concur with GAO's recommendations to the Department.

The enclosure provides general comments and addresses GAO's recommendations in the draft report. VA appreciates the opportunity to comment on your draft report, and we welcome the opportunity to explain our inputs should you have any questions.

Sincerely,

Jose D. Riojas
Chief of Staff

Enclosure

Enclosure

Department of Veterans Affairs (VA) Response to
Government Accountability Office (GAO) Draft Report
"ENERGY SAVINGS PERFORMANCE CONTRACTS: Additional Actions Needed to Improve Federal Oversight"
(GAO-15-432)

GAO Recommendations:

Recommendation 1: To help ensure that agencies have sufficient information on ESPC performance to oversee whether current and future contracts are achieving their expected savings, GAO recommends that the Secretary of Veterans Affairs work with contractors to determine the best way to obtain estimates of cost and energy savings that are not achieved, including savings lost due to agency actions, changes in utility prices and other factors beyond contractors' control, in accordance with DOE guidance, for projects that have already been implemented.

VA Comment: Non-Concur. The Department of Veterans Affairs (VA) considers modifying contracts a standard practice when facility expansions, facility closures or facility equipment needs have changed. However, the ability to obtain estimates of costs and energy savings that are not achieved due to agency actions, changes in utility prices, and other factors beyond contractors' control is likely to require a change in measurement and verification strategies for existing contracts. Additionally, the ability to obtain such estimates is often time intensive, which will translate into higher costs for the Energy Services Company (ESCO). Thus, VA would expect ESCOs to require a change of contract terms to incorporate obtaining those estimates and potential measurement and verification modifications. This will, in turn, translate into higher costs and a reduced savings guarantee for VA. For some projects, such an approach may be economically unsound.

For these reasons, VA recommends the following adjustment to GAO's recommendation.

…work with contractors to determine the best way to include estimates of costs and energy savings not achieved, including savings lost due to agency actions, changes in utility prices, and other factors beyond contractors' control, in future measurement and verification reports for projects that have already been implemented, where economically feasible.

Recommendation 2: To help ensure that agencies have sufficient information to identify and address risks in their ESPC portfolios, GAO recommends that the Secretary of Veterans Affairs establish a process to systematically evaluate ESPC projects-including baseline assumptions about facilities' energy use, utility prices, and interest rates-to identify ESPCs that are not achieving expected savings, and determine if they should be modified or terminated. Agencies could consider conducting such evaluations either after a certain number of years, or in response to events, such as changes in utility prices or market interest rates, or appropriations becoming available that could be used for modifications or terminations.

1

Enclosure

Department of Veterans Affairs (VA) Response to
Government Accountability Office (GAO) Draft Report
"ENERGY SAVINGS PERFORMANCE CONTRACTS: Additional Actions Needed to Improve Federal Oversight"
(GAO-15-432)

VA Comment: Concur in principle. While feasible to implement, there are limitations to implementation of this recommendation. Systematic review of the performance of ESPC projects agency-wide compared with assumptions developed when the contract was signed could help make agency officials aware of how changing circumstances have affected the performance of its ESPCs. However, VA's ability to use this information to modify or terminate contracts is more limited. Aside from terminating for convenience, agency options are limited with respect to reacting to the impact of actual energy prices, changes in facility use, and current market interest rates on project economics. For instance, in the event of lower interest rates, the government may request its ESCO partner to refinance the contract; however, the decision to refinance is ultimately that of the ESCO as the note holder. If funds are available, VA would then need to evaluate whether terminating the contract—including the relevant termination fee—provides a higher overall value to the government than the remaining contract guarantees of equipment performance, energy savings, and other related contract support.

Similarly, the potential for applying the results of an ESPC analysis to future projects also appears limited because: a) interest rates are always based on market conditions at the time of award, b) agencies and ESCOs must lock into reasonable assumptions regarding future changes in energy prices, typically using forecasts by the Department of Energy or the National Institute of Standards and Technology, in order to generate the estimated and guaranteed savings schedule, and c) agencies and ESCOs must agree to reasonable assumptions regarding future facility use for each energy conservation measure in order to create baselines from which to measure future energy and water savings. In an appropriated funds project, the government assumes 100 percent of the risk of changing circumstances and system performance. In an ESPC, the government and ESCO share the burden of risk, although much of the risk is taken by the ESCO that is subject to a performance and savings guarantee. Changes in facility use, utility prices, and interest rates are risks assumed by the government when it enters into an ESPC. Additionally, the ESPC financial lender has agreed to terms and conditions that include a level of risk for the agreed upon assumptions regarding facility use and utility prices. If the government begins to systematically evaluate ESPCs on a recurring basis with the intent to modify or terminate the contract, the ESPC financial lending community may perceive themselves to be in a higher risk scenario, and spreads could be impacted accordingly.

For these reasons, VA does not anticipate that the recommended systematic review will provide significant value in terms of the time and money that will be required to collect and analyze this data, nor result in directly actionable information.

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Enclosure

Department of Veterans Affairs (VA) Response to
Government Accountability Office (GAO) Draft Report
"ENERGY SAVINGS PERFORMANCE CONTRACTS: Additional Actions Needed to Improve Federal Oversight"
(GAO-15-432)

General Comments: GAO conducted an analysis of Federal use of energy savings performance contracts (ESPCs) and process changes since 2005. GAO selected seven agencies for its review based on those agencies with the highest energy usage and greatest facility square footage. The Department of Veteran Affairs (VA) qualified for review based on those criteria.

VA established a centralized program and policy office for all energy conservation activities in 2003 in order to create a center of expertise. A new ESPC program was later established within this office to leverage specialized technical, third-party financing and procurement knowledge.

GAO's draft report indicates VA data were not sufficiently reliable for GAO's purposes. VA believes this is because ESPCs awarded prior to 2012 were managed in their entirety, including data collection, in a decentralized and individual manner. VA's ESPC program has since improved and is now centrally managed. Prior to GAO's review, VA began working to assemble legacy project data and centralize the information in an improved database with greater reliability and easier access.

As recognized by GAO in their report, the VA project in Greater Los Angeles included within GAO's sample was in the first year of its performance period at the time of GAO's review. Thus, an annual measurement and verification report was not yet available. However, GAO included this project in its report because it was the only VA project in GAO's sample that was in its performance period. Consequently, GAO reviewed the post-installation report which included only projected savings based on as-built conditions and post-installation measurement and verification activities. Verified savings for the first year of the post-acceptance performance period will be documented in the annual verification report.

Appendix X: Comments from the General Services Administration

The Administrator

April 30, 2015

The Honorable Gene L. Dodaro
Comptroller General of the United States
U.S. Government Accountability Office
Washington, DC 20548

Dear Mr. Dodaro:

The U.S. General Services Administration (GSA) appreciates the opportunity to review and comment on the U.S. Government Accountability Office (GAO) Draft Report entitled, *Energy Savings Performance Contracts: Additional Actions Needed to Improve Federal Oversight* (GAO-15-432). To help ensure that agencies have sufficient information on Energy Savings Performance Contract (ESPC) performance to oversee whether current and future contracts are achieving their expected savings, the GAO recommends:

1. The Secretaries of Defense, Energy, and Veterans Affairs; the Attorney General; and the Administrator of General Services work with contractors to determine the best way to obtain estimates of cost and energy savings that are not achieved, including savings lost due to agency actions, changes in utility prices, and other factors beyond contractors' control, in accordance with Department of Energy (DoE) guidance, for projects that have already been implemented.

To help ensure that agencies have sufficient information to identify and address risks in their ESPC portfolios, GAO recommends:

2. The Secretaries of Defense, Energy, and Veterans Affairs; the Attorney General; and the Administrator of General Services establish a process to systematically evaluate ESPC projects—including baseline assumptions about facilities' energy use, utility prices and interest rates—to identify ESPCs that are not achieving expected savings, and determine if they should be modified or terminated. Agencies could consider conducting such evaluations either after a certain number of years, or in response to events, such as changes in utility prices or market interest rates, or appropriations becoming available that could be used for modifications or terminations.

U.S. General Services Administration
1800 F Street, NW
Washington, DC 20405
Telephone: (202) 501-0800
Fax: (202) 219-1243

GSA agrees with the first recommendation. GSA will work with other Federal agencies and contractors to determine the best way to obtain estimates of cost and energy savings that have not been achieved. To the extent cost-effective methods are identified, GSA will determine whether such methods can be incorporated into current contract requirements. Additionally, on future ESPC task orders, GSA will work with DoE to implement guidance for energy savings companies that will help measure costs and unachieved energy savings for each energy conservation measure adopted.

GSA agrees with the second recommendation. GSA will examine its processes to review ESPC data to identify ESPCs that are not achieving expected savings in order to determine if the contract should be modified or terminated. GSA will coordinate with DoE and other Federal agencies to determine best practices for these reviews.

In addition to these comments, technical comments are enclosed. If you have any additional questions or concerns, please do not hesitate to contact me, or Ms. Lisa A. Austin, Associate Administrator, Office of Congressional and Intergovernmental Affairs at (202) 501-0563.

Sincerely,

Denise Turner Roth
Acting Administrator

Enclosure

cc: Mr. Frank Rusco, Physical Infrastructure Issues, GAO

Appendix XI: GAO Contact and Staff Acknowledgments

GAO Contact

Frank Rusco, (202) 512-3841 or ruscof@gao.gov

Staff Acknowledgments

In addition to the individual named above, Hilary Benedict (Assistant Director), Joshua Becker, John Delicath, Keesha Egebrecht, Cindy Gilbert, Carol Henn, Miles Ingram, John Johnson, Brian Lepore, Armetha Liles, Cynthia Norris, Barbara Timmerman, and Bill Woods made significant contributions to this report.

Appendix XII: Accessible Data

Data Table for Figure 1: Energy Savings Performance Contract (ESPC) Project Development and Implementation Process

Phase 1: Acquisition planning	Phase 2: Contractor selection	Phase 3: Project development	Phase 4: Implementation	Phase 5: Performance
Agency assembles acquisition team.	Agency sends notice of opportunity.	Contractor performs an investment-grade audit (on-site surveys, inspections, and measurements to establish baseline energy use and develop projected savings) and develops the final project proposal.	● Contractor designs and installs equipment and tests its performance.	● Contractor and/or agency operates and maintains equipment.
● Agency defines project requirements. ● Agency prepares to engage with contractors.	● Agency selects contractor(s) to perform preliminary assessment of potential cost and energy savings.a ● Contractor(s) perform preliminary assessment.a ● Agency reviews preliminary assessment(s) and sends notice of intent to award to one contractor.[Note A]	● Agency evaluates the proposal and negotiates with contractor. ● Agency awards contract.	● Agency reviews test results and has contractor make any necessary corrections. ● Agency accepts the installed project, indicating that the proper equipment has been installed and has the potential to generate expected savings.	● Contractor measures and verifies project savings using methods agreed upon at contract award, and reports savings to agency. ● Agency reviews reported savings and pays contractor.

Sources: GAO analysis of DOE data; Art Explosion (images). | GAO-15-432

[a]Agencies can select contractors in two ways. Under the “selection by qualifications” method, agencies choose one company to perform a preliminary assessment of a project’s potential cost and energy savings based on the contractor’s qualifications, such as their prior projects and references from previous customers. Alternatively, under the “selection by preliminary assessment” method, agencies choose two or more contractors to each perform preliminary assessments, and then award the contract to one contractor based on the proposed savings, quality of improvements, or other information from the preliminary assessment.

Data Table for Figure 2: Value of Energy Savings Performance Contracts (ESPC) Awarded by Selected Agencies in Fiscal Years 1995 through 2014

	Air Force	Army	Navy	Department of Energy	Department of Justice	Department of Veterans Affairs	General Services Administration
Dollar in billions	2.0	3.7	1.8	1.7	0.6	0.4	1.9
Percentage	17	27	15	15	6	3	17

Sources: GAO analysis of agencies’ data. | GAO-15-432

Notes: These data have been adjusted for inflation to fiscal year 2014 dollars using the gross domestic product deflator. This figure reflects the total contract value, which includes financing costs and costs paid to contractors for performance period services, such as operations and maintenance or measurement and verification.

Text in Appendix VII: Comments from the Department of Defense

Page 1

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
ENERGY, INSTALLATIONS AND ENVIRONMENT
3400 DEFENSE PENTAGON
WASHINGTON, DC 20301-3400

April 29, 2015

Mr. Frank Rusco
Director
Natural Resources and Environment Team
U.S. Government Accountability Office
441 G Street, N.W.
Washington, DC 20548

Dear Mr. Rusco:

This is the Department of Defense response to the GAO Draft Report GAO-15-432, "ENERGY SAVINGS PERFORMANCE CONTRACTS: Additional Actions Needed to Improve Federal Oversight," dated March 27, 2015 (GAO Code 361556).

Detailed comments on the report recommendations are enclosed.

Sincerely,
Signed by
John Conger
Performing the Duties of the Assistant Secretary of Defense
(Energy, Installations and Environment)

Enclosure: As stated

Page 2

GAO Draft Report Dated March 27, 2015
GAO-15-432 (GAO CODE 361556)
"ENERGY SAVINGS PERFORMANCE CONTRACTS: ADDITIONAL ACTIONS NEEDED TO IMPROVE FEDERAL OVERSIGHT,"
DEPARTMENT OF DEFENSE COMMENTS TO THE GAO RECOMMENDATION

RECOMMENDATION #2: To help ensure that agencies have sufficient information on ESPC performance to oversee whether current and future contracts are achieving their expected savings, it is recommended that the Secretary of Defense [...] include in the scheduled revisions to their ESPC contract vehicles a requirement that measurement and verifications reports explicitly contain estimates of cost and energy savings that are not achieved, including savings lost due to agency actions, changes in utility prices , and other factors beyond contractors' control.

DoD RESPONSE: The DoD concurs with this recommendation.

RECOMMENDATION #3: To help ensure that agencies have sufficient information on ESPC performance to oversee whether current and future contracts are achieving their expected savings, it is recommended that the Secretary of Defense [...] work with contractors to determine the best way to obtain estimates of cost and energy savings that are not achieved, including savings lost due to agency actions, changes in utility prices, and other factors beyond contractors' control, in accordance with DOE guidance, for projects that have already been implemented.

DoD RESPONSE: The DoD partially concurs with this recommendation.

The DoD suggests changing the wording of the phrase "...work with contractors to determine the best way to obtain estimates of cost and energy savings that are not achieved ..." to "...work with contractors to determine the best way to include estimates of cost and energy saving that are not achieved in annual M&V reports ...". This more clearly conveys the concept of making savings shortfalls explicit in the annual reports for existing contracts. The original wording of the recommendation could be interpreted to mean Federal Agencies need to obtain estimates for all past savings that have not been achieved on existing contracts. That requirement would be overly burdensome and would have limited benefit. Instead, we believe the recommendation is intended to help Federal Agencies improve the process of identifying contracts that are not achieving their expected savings.

Even with the clarified recommendation wording described above, there is a cost burden to modify existing contracts and place additional responsibility on the ESCO. Efforts in implementation of this recommendation should focus on those projects where the overall guaranteed savings are not being met and the implementation methodology will need to include

Page 3

procedures to determine where it makes economic sense to take corrective action, i.e. will the effort, cost and resources required to modify the contract result in additional savings being captured or corrective actions being taken to prevent future loss of savings.

RECOMMENDATION #4: To help ensure that agencies have sufficient information to identify and address risks in their ESPC portfolios, it is recommended that the Secretary of Defense [...] establish a process to systematically evaluate their ESPC projects - including baseline assumptions about facilities', energy use, utility prices, and interest rates -to identify ESPCs that are not achieving expected savings, and determine if they should be modified or terminated.

DoD RESPONSE: The DoD concurs with this recommendation. Since contract actions of this kind may have significant costs and resources associated with them, a key aspect of the DoD's process will be to determine when it is in the Government's best interests to modify or terminate a contract that is not achieving its overall guaranteed savings, i.e. do the benefits outweigh the costs. The Army has conducted a review of finance rates on its portfolio using criteria such as interest rate on task order vs current available rates, number of years left on the task order and whether or not the contract and task order language allowed for refinancing. Several contracts were refinanced as a result of this review.

ADDITIONAL DoD COMMENTS ON DRAFT REPORT:

1. The recommendations on pages 35-36 should be numbered for clarity.
2. Tables 2 and 4 in the body of the report list the separate DoD Components (AF, Navy, Army) as "Agencies". Instead, DoD should be listed as the Agency with Component information shown rolled up under DoD.
3. Army data for some fiscal years in Appendix III on page 42 is incorrect. In the data Army provided to GAO, some of the total contract value information was missing and only showed the third party investment value. This may have led to this error. Since the numbers from this appendix also feed into the Government-wide total as discussed in the narrative, the Government-wide number should also be recalculated.
    a. In FY11 the Army awarded $148M in ESPC task orders rather than $0.

b. In FY12 the Army awarded $329M in ESPC task orders rather than $0.

c. In FY14 the Army awarded $769M in ESPC task orders rather than $594M.

Text in Appendix VIII: Comments from the Department of Energy

Page 1

Department of Energy
Washington, DC 20585

April 30, 2015

Mr. Franklin Rusco
Director
Natural Resources and Environment
U.S. Government Accountability Office
441 G Street, N.W.
Washington, D.C. 20548

Dear Mr. Rusco:

The Department of Energy (DOE) welcomes the opportunity to respond to the action recommended by the U.S. Government Accountability Office (GAO) in its draft report entitled "Energy Savings Performance Contracts: Additional Actions Needed to Improve Federal Oversight (GAO-15-432)." DOE's Office of Energy Efficiency and Renewable Energy, Federal Energy Management Program, has reviewed the report, and its response to the GAO recommendations are detailed below, with Attachments A and B, that provide additional comments related to our responses and requested edits to the draft report.

FEMP notes the following responses to the six recommendations included in the draft report:

1. GAO Recommendation: To help agencies decide whether to use ESPCs to consolidate federal data centers, we recommended that the Director of OMB clarify (1) what qualifies as energy-related savings; and (2) the allowable proportion of energy and energy-related cost savings.

FEMP Response: The ESPC statute designates DOE as the agency responsible for administering the ESPC program on behalf of the federal government, with sole authority to issue guidance on statutory provisions that are ambiguous. Recognizing that OMB is the agency that measures the budgetary effects of enacted legislation and issues guidance on the budget scoring treatment of ESPCs, DOE believes the ESPC authority is clear on GAO's statutory questions.

2. GAO Recommendation: To help ensure that agencies have sufficient information on ESPC performance to oversee whether current and future contracts are achieving their expected savings, we recommend that the Secretary of Energy include in the scheduled revisions to their ESPC contract vehicle is a requirement that measurement and verification reports explicitly contain estimates of cost and energy savings that are not achieved, including savings lost due to agency actions, changes in utility prices, and other factors beyond contractors' control.

FEMP Response: There are many different methods and assumptions that can be used to calculate the expected energy savings achieved with an ESPC. The approach that is developed for each project is incorporated into an M&V plan that is a part of the contract. Risks, such as utility rate prices and weather, are addressed in the risk and responsibility

matrix and methodologies for dealing with them are incorporated Into the M&V plan. FEMP has

Page 2

guidance to address items such as changes in utility rates and weather that are used to determine expected savings.

GAO's report acknowledges that the overall savings impact of the DOE IDIQ ESPC contract has been positive since Inception. Oak Ridge National Laboratory's (ORNL) statistical analysis reports that year over year, ESCOs report achieving between 106% and 108% of guaranteed savings. An additional report also showed that FEMP's guidance to use NIST's utility escalation factors in ESPC contracts has resulted in an additional 8% cost savings above the guarantee.

FEMP has and will continue to evaluate the ESPC program to assess the measurement and verification methodology used to predict factors, such as utility rates, that are beyond contractor and agency control. FEMP believes further action is not warranted regarding items such as changes in utility prices and weather, and future changes would be complex, costly, burdensome, and potentially unattractive to federal agencies, the energy services company industry, and third-party financiers.

FEMP agrees that factors such as physical changes to buildings, which were not contemplated prior to contract formation, should be verified by annual measurement and verification activities, and FEMP Is addressing these issues through revision of the M&V v4.0 reporting template, currently in draft. This new M&V template should be used to inform agencies of the changes and their impact on cost savings. This information could be used to improve government operations, or utilized to inform the need to modify or terminate the contract. FEMP will investigate the use of the revised M&V reporting template in the context of future ESPC contracts. FEMP continually works to improve its M&V protocols, guidance, and technical assistance, including better tracking of agency change of facility use (see comment (2) of Attachment A for more information).

3. GAO Recommendation: To help ensure that agencies have sufficient information on ESPC performance to oversee whether current and future contracts are achieving their expected savings, we recommend that the Secretary of Energy work with contractors to determine the best way to obtain estimates of cost and energy savings that are not achieved, including savings lost due to agency actions, changes in utility prices, and other factors beyond contractors' control, in accordance with DOE guidance, for projects that have already been implemented.

FEMP Response: As noted in our response to item 2, above, agencies would benefit from verifying factors such as physical changes to buildings, which were not contemplated prior to contract formation, through annual measurement and verification activities. FEMP is addressing these issues through revision of FEMP's M&V v4.0 reporting template, currently in draft, and will investigate the use of the revised M&V report in the context of existing and future ESPC contracts. FEMP believes further action is not warranted regarding items such as changes in utility prices and weather, since their variability is accounted for at the time of contract formation and future changes would be complex, costly, burdensome, and potentially unattractive to federal agencies, the energy services company industry, and third-party financiers.

4. GAO Recommendation: To help agencies more consistently perform their oversight responsibilities and oversee contractors' measurement and verification activities, we

Page 3

recommend that the Secretary of Energy direct FEMP to provide training on observing contractors' measurement and verification activities and reviewing and certifying measurement and verification reports.

FEMP Response: FEMP currently has training in place to address agency responsibilities during the performance period, Including review of FEMP's guidance on M&V witnessing, guidance on annual M&V report review and certification, agency responsibility for O&M of energy conservation measures, and an overview of FEMP's annual Life of Contract services. In addition, FEMP has other resources available related to measurement and verification activities, including the "Guide to Government Witnessing and Review of Measurement and Verification Activities." FEMP will examine available training and resources, will make updates where appropriate, and will investigate how to encourage their use among agencies (see comment (4) of Attachment A for more information).

5. GAO Recommendation: To help agencies more consistently perform their oversight responsibilities and oversee contractors' measurement and verification activities, we recommend that the Secretary of Energy direct FEMP to monitor agencies' oversight of ESPC projects agencies have awarded using the DOE contract vehicle, including whether agencies witnessed the contractors' measurement and verification activities and reviewed and certified acceptance of the measurement and verification report.

FEMP Response: FEMP will examine the Life of Contract program for an improved means of quantifying agencies compliance with M&V witnessing and report review and certification requirements.

6. GAO Recommendation: To help ensure that agencies have sufficient information to identify and address risks in their ESPC portfolios, we recommend that the Secretary of Energy establish a process to systematically evaluate their ESPC projects-including baseline assumptions about facilities' energy use, utility prices, and interest rates-to identify ESPCs that are not achieving expected savings, and determine if they should be modified or terminated.

FEMP Response: FEMP will review its existing standard operating procedure (SOP) that addresses cost savings performance issues In DOE IDIQ ESPCs and its engagement process with agencies in determining whether to modify or terminate a contract. FEMP's SOP includes evaluation of energy cost savings that are not achieved as a result of agency actions that were not contemplated prior to contract formation, such as removing ECMs and changing operational schedules in buildings. FEMP also has a review process for ESPC interest rates to assist agencies In determining the potential energy cost savings available through refinancing (even though the agency is not a party to the agreement between the ESCO and the financier and thus cannot require the ESCO to explore options for refinance).

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DOE appreciates the contribution GAO has made to provide a balanced and thoughtful review of federal use of ESPCs since 2005 and recommendations that will strengthen the government's oversight activities. The benefits to the federal government have been significant. Considering only the DOE IDIQ ESPC contract, investment in energy efficiency projects has exceeded $3.4 billion with cumulative savings of more than $8.5 billion. We look forward to continuing to work with GAO on helping the federal government meet its energy goals. If you have any questions concerning the report or our response, please contact me or Timothy Unruh, Program Manager, Federal Energy Management Program Office, at (202) 586-5772.

Sincerely,
Signed by
Kathleen B. Hogan

Deputy Assistant Secretary for Energy Efficiency
Energy Efficiency and Renewable Energy

Attachments:
A - A: ADDITIONAL COMMENTS
B: REQUESTED EDITS TO GAO-15-432

Page 5

ATTACHMENT A: ADDITIONAL COMMENTS

Energy Savings Performance Contracts:
Additional Actions Needed to Improve Federal Oversight
(GAO-15-432)
April 2015

Attachment A

The Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy, Federal Energy Management Program (FEMP), has reviewed the April 2015 draft report on Energy Savings Performance Contracts (ES PCs) (GA0-15-432) and is appreciative of the Government Accountability Office (GAO) for its comprehensive review of the federal use of ESPC since 2005. FEMP responses to the recommendations of the draft report were provided in letter to Mr. Franklin Rusco, Director of the U.S. GAO Natural Resources and Environment Division. The following comments are an attachment to that letter, supporting DOE's responses:

GAO Recommendation 1: To help agencies decide whether to use ESPCs to consolidate federal data centers, we recommended that the Director of OMB **clarify (1) what qualifies as energy-related savings; and (2) the allowable proportion of energy and energy-related cost savings.**

DOE Comments: No additional comments are provided.

GAO Recommendation 2: To help ensure that agencies have sufficient information on ESPC performance to oversee whether current and future contracts are achieving their expected savings, we recommend that the Secretary of Energy **include in the scheduled revisions to their ESPC contract vehicles a requirement that measurement and verification reports explicitly contain estimates of cost and energy savings that are not achieved**, including savings lost due to agency actions, changes in utility prices, and other factors beyond contractors' control.

DOE Comments: While FEMP is committed to the principle of verifying energy savings through measurement and verification, actual energy savings should not be determined apart from the expected energy savings calculated in accordance with the measurement and verification plan because doing so would be complex, costly, burdensome, and potentially unattractive to federal agencies, the energy services company industry, and third-party financiers. Expected energy savings cannot be measured and must be calculated. Savings can be calculated in many different ways using various methodologies, baseline assumptions, data sampling techniques, calculation parameters, and measurement precision and confidence. The ESPC authorities anticipate that the measurement and verification plan agreed to at contract award appropriately balances the costs of determining whether energy savings are being delivered according to the contractor's guarantee with the confidence that expected energy savings can be measured and verified. FEMP has guidance to address items such as changes in utility rates and weather that are used to determine expected savings. FEMP's guidance has been shown to produce

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positive savings for the ESPC program. Annual reports by Oak Ridge National Laboratory's (ORNL) find positive overall savings, year over year, with verified savings between 106% and 108% of guaranteed savings. An additional report also showed that FEMP's guidance to use NIST's utility escalation factors in ESPC contracts has resulted in an additional 8% cost savings above the guarantee.' Also, the baseline determination yields a conservative estimate, because it typically does not account for existing equipment degradation in future years, in the absence of an ESPC contract. This is a significant source of savings to the government which is currently not captured in the contract. After contract execution, it would be potentially costly and burdensome to agencies and contractors to evaluate the impact of changes, such as utility rates, and with little benefit. The below paragraphs provide additional detail and an example of how and why utility price escalations are negotiated prior to contract award.

An ESPC is a firm fixed-price contract under which a contractor guarantees energy cost savings at the outset of the contract for each year of the contract term. Prior to contract execution, the agency and contractor agree to conduct periodic reviews of the equipment or systems installed under the ESPC to verify that it is operational and that energy cost savings are being delivered according to the contractor's guarantee. These measurement and verification activities are carried out in accordance with a measurement and verification plan that is developed prior to contract award. The contract also incorporates a risk-responsibility matrix that summarizes key contract elements related to the potential risks of the contract (e.g., equipment performance, operation, utility rates, weather, maintenance, repair, and replacement), assesses their potential impact, and clarifies the party responsible for managing the risk.

The specific measurement and verification activities (e.g., contractor inspections, measurements, engineering calculations, and witnessing of these activities by agency personnel) may vary across ESPCs, and the energy cost savings associated with an ESPC can be calculated in different ways. The purpose of the measurement and verification plan and the risk-responsibility matrix is to designate a method by which energy cost savings will be calculated for the duration of the ESPC and to assign responsibilities between the agency and the contractor for ensuring that equipment performs according to the agreement. The ESPC authorities recognize the reality of determining savings based on an agreed-to method and contemplate contractor payments in the context of both guaranteed energy cost savings and verified energy cost savings, not actual energy cost savings. That is, the contractor typically is repaid from energy cost savings that have been measured and verified to meet or exceed the contractor's guarantee, as determined through procedures outlined in the measurement and verification plan incorporated in the ESPC contract.

The energy cost savings as determined through the procedures set forth in the measurement and verification plan include reductions in the cost of energy, water, and wastewater treatment, including a reduction in the cost of related operation and maintenance, achieved under an ESPC as compared to a federal agency's energy baseline. The ESPC regulations enumerate seven factors, largely out of the contractor's control, that influence changes to the energy baseline are as follows: (1) physical changes to the building; (2) hours of use or occupancy; (3) area of conditioned space; (4) addition or removal of energy consuming equipment or systems; (5) energy consuming equipment operating conditions; (6) weather (i.e., cooling or heating degree days); and (7) utility rates. *See* 10 C.F.R. § 436.37(b) (2015).

Factors one through five encompass changes in facility operation that typically arise from agency actions after award of an ESPC. These changes are often permanent and can impact the original assumptions used to calculate the energy baseline used for determining energy cost savings under an ESPC. FEMP believes that factors such as physical changes to buildings that will affect the delivery of the installed

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ESPC savings, which were not contemplated prior to contract award, should be verified by annual measurement and verification activities, and FEMP is addressing these issues through revision of the measurement and verification reporting template. FEMP also welcomes additional suggestions to improve the ESPC process with regard to the ability of an ESPC to achieve the contractor's guaranteed energy cost savings through enhanced measurement, verification, and reporting.

Factors six and seven encompass variables that largely are outside both the ESCO's and the agency's control and are accounted for by the agency and contractor during contract development. As part of the contractor's guarantee of energy cost savings, the contract sets forth assumptions regarding the expected escalation of utility rate increases and typical-year weather over the term of the contract. *See* 42 U.S.C. §§ 8287(a)(2)(B), 8287c(2)(A); 10 C.F.R. § 436.31 (authorizing a methodology using utility escalation rates to determine energy savings). The contractor's guarantee of savings during contract years, as influenced by utility escalation rates agreed upon at the time of contract award, may differ from actual future energy costs. FEMP believes such factors already contemplated in the contract should not be re-visited based on short-term information, as doing so would be costly and counterproductive.

Agencies typically calculate utility rate increases over the term of an ESPC using contract escalation rates established by the National Institute of Standards and Technology (NIST). NIST publishes tables of projected annual fuel price indices (essentially the ratio between the current price and the future price for each year) for 20+ years into the future, for various fuel types and in the various Census Regions of the United States. FEMP provides a tool (Energy Rate Escalation Calculator, http://energy.gov/eere/femp/eerc-download) to assist agencies in translating these projections into a constant escalation rate.

Figure 1 illustrates the operation of FEMP's Energy Rate Escalation Calculator under a sample ESPC. The filled symbols represent the average annual electricity price paid by commercial customers to full service electric utilities in Illinois in the period from 1997 through 2013 (source: US Energy Information Administration, http://www.eia.gov/electricity/data/state/avgprice_annual.xls). The open symbols represent the prices that result from escalating the 1995 price by 0.76% per year. In an ESPC with a performance period beginning in 1997, this is the rate that causes the electricity cost savings through 2013 as valued according to the actual utility prices to be equal to the value of the energy savings as valued according to the contract prices.

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[Graphic: Scatter chart. Data not included]
Figure 1: Average commercial electricity prices in Illinois, and projected contract prices over a 17-year performance period. [Note 1]

The open symbols would correspond to the contract electricity price and the filled symbols represent the actual blended electricity price for an ESPC at a particular site. Note that the contract price is higher than the actual price for the first nine years of the contract. Based on the data from 1997-2005, a contracting officer might conclude that the wrong escalation rate had been chosen. But the discrepancy is made up for in the later years of the contract, when the contract electricity price is consistently lower than the actual electricity price. For this reason, focusing on utility rates for one year or even several previous years does not necessarily provide information that will be useful to the contracting officer. In fact, such a focus may be misleading as shown in the example. This is an illustrative example since it is improbable to consistently estimate the escalation of utility prices to match the actual prices over time. However, a study by ORNL has shown that ESPC projects have underestimated utility rates by 8%, achieving greater overall savings than the contracts report. [Note 1]

Additionally, numerous market factors influence actual energy costs. For example, an ESPC may achieve energy cost savings through utility cost reductions at the marginal rate or real-time rate. Determining actual future energy costs would require the contractor and the federal agency to agree on a utility rate

Note 1: Figure 1 represents perfect Information, since actual, historical utility rates were used to generate the figure. In the case of an ESPC, the government and ESCOs rely on predictions from DOE's Energy Information Agency, which represent the best information available at the time of contract award. There is evidence to believe that these projections have underpredicted the rate of increase of energy prices. An earlier ORNL report (“Evaluation of the Super ESPC Program: Level 2 - Recalculated Cost Savings", ORNL/TM-2007/065, August 2007) recalculated savings for a sample of 22 ESPC projects using actual marginal utility prices at the sites. The conclusion was that while a few projects had overestimated the rate of increase for some utility prices, overall the utility cost savings for the sample were 8% higher using actual marginal utility rates than they were using contract utility prices.

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calculation methodology, which would be subject to continuous modification as rate structures and other factors changed over the term of the contract. Doing so would impose an analytical burden on both the federal agency and the contractor and ultimately would increase the cost of ESPCs with little benefit to each party.

There are other unanticipated factors not included in the ESPC contract that could affect savings such as degradation or failure of existing equipment replaced by ECMs under the ESPC project. Evaluating only known factors, such as actual utility rates, and not including such probable, but unknowable, factors will produce a skewed analysis of "actual" savings. In addition, some agencies already choose an artificially low escalation rate to avoid even the possibility of a future actual rate that is lower than the contracted- for rate. Consequences of using artificially low utility escalation rates include reduced funds available for ECMs, reduced project scope, increased interest costs, and increased agency exposure to utility price increase risk. FEMP believes GAO's recommendation to analyze utility rates would exacerbate this problem without adding value. A preliminary DOE national laboratory study shows that ESPC projects that use low escalation rates are disadvantaged, and certain ECMs do not cash-flow and would not be replaced with energy efficient models, leading to increased interest costs and increased exposure to higher costs when utility rates spiked.

In summary, FEMP is committed to the principle of verifying energy savings through measurement and verification. Periodic reviews of the ESPC program, such as the ORNL report, give confidence to FEMP's approach to accounting for factors beyond the control of the contractor and agency. FEMP has and will continue to evaluate the ESPC program to assess the measurement and verification methodology used to predict factors, such as utility rates, that are beyond contractor and agency control. FEMP believes further action is not warranted regarding items such as changes in utility prices and weather, since their variability is accounted for at the time of contract award and future changes would be complex, costly, burdensome, and potentially unattractive to federal agencies, the energy services company industry, and third-party financiers. FEMP agrees that factors such as physical changes to buildings, which were not contemplated prior to contract award, should be verified by annual measurement and verification activities, and FEMP is addressing these issues through revision of its measurement and verification reporting template.

GAO Recommendation 3: To help ensure that agencies have sufficient information on ESPC performance to oversee whether current and future contracts are achieving their expected savings, we recommend that the Secretary of Energy work with contractors to determine the best way to obtain estimates of cost and energy savings that are not achieved, including savings lost due to agency actions, changes in utility prices, and other factors beyond contractors' control, in accordance with DOE guidance, for projects that have already been implemented.

DOE Comments: No additional comments are provided.

GAO Recommendation 4:

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To help agencies more consistently perform their oversight responsibilities and oversee contractors' measurement and verification activities, we recommend that the Secretary of Energy **direct FEMP to provide training on observing contractors'** measurement and verification activities and reviewing and certifying measurement and verification reports.

DOE Comments: In September 2014, FEMP hosted a webinar entitled "Quality Assurance Over the Life of the Contract." This training course covered agency responsibilities during the performance period, including review of FEMP's guidance on measurement and verification witnessing, guidance on annual measurement and verification report review and certification, agency responsibility for O&M of energy conservation measures, and an overview of FEMPs annual Life of Contract services. A recorded version of the live webinar is available as part of FEMPs on-line web training modules (https://www4.eere.energy.gov/femp/training/training/energy-savings-performance-contracts-quality-assurance-over-life-contract).

FEMP's "Guide to Government Witnessing and Review of Measurement and Verification Activities" also provides guidance pertaining to government witnessing of measurement and verification activities in federal ESPCs. Witnessing of measurement and verification activities is a part of the process of reviewing and approving contractor deliverables and the on-site inspections, spot measurements, short- term monitoring, and performance tests described in the measurement and verification plan. This document can be found at FEMPs ESPC resource page at: http://energy.gov/eere/femp/downloads/guide-government-witnessing-and-review-measurement-and-verification-activities.

GAO Recommendation 5: To help agencies more consistently perform their oversight responsibilities and oversee contractors' measurement and verification activities, we recommend that the Secretary of Energy direct FEMP to monitor agencies' oversight of ESPC projects agencies have awarded using the DOE contract vehicle, including whether agencies witnessed the contractors' measurement and verification activities and reviewed and certified acceptance of the measurement and verification report.

DOE Comments: No additional comments are provided.

GAO Recommendation 6: To help ensure that agencies have sufficient information to identify and address risks in their ESPC portfolios, we recommend that the Secretary of Energy establish a process to systematically evaluate their ESPC projects-including baseline assumptions about facilities' energy use, utility prices, and interest rates-to identify ESPCs that are not achieving expected savings, and determine if they should be modified or terminated.

DOE Comments: No additional comments are provided.

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ATTACHMENT B: REQUESTED EDITS TO GAO-15-432

Energy Savings Performance Contracts:
Additional Actions Needed to Improve Federal Oversight
(GAO-15-432)
April 2015

Attachment B

Page 19 (Sidebar): FEMP does not agree with the definition of "actual savings" contained in the sidebar. Energy savings represent the absence of cost, energy use, water use, etc., achieved during the term of an ESPC (see comment (2) of Attachment A for more information). Savings must be defined in accordance with models and certain assumptions that are agreed to by the agency and the contractor. Determining energy savings in the absence of the measurement and verification plan would be complex, costly, burdensome, and potentially unattractive to federal agencies, the energy services company industry, and third-party financiers.

Actual savings would be better characterized as "the cost and energy savings that contractors measure and verify in accordance with the plan the agency agreed to when developing and awarding the contract." This is consistent with the ESPC authority, which authorizes a methodology to determine energy savings using models and assumptions that the federal agency and contractor agree on prior to contract formation. *See* 42 U.S.C. §§ 8287(a)(2)(B), 8287c(2)(A); 10 C.F.R. § 436.31 (2015).

Page 20 (Second paragraph): The draft reads "Most contractors reported cost savings that exceeded guaranteed savings, but the Oak Ridge studies found that some contractors reported cost savings below guaranteed amounts, also referred to as cost savings shortfalls, in about 6 percent of the reports that Oak Ridge reviewed." FEMP believes it is important to note that when ESCOs report cost savings below the level of the guaranteed savings, the agency adjusts the ESCO payment by the amount of the shortfall. Such cases do not represent lost savings to the government.

Page 23: (Note on Table 4): The note states "Reported cost savings can understate ESPC projects' actual savings in some cases due to factors such as changes in weather, larger than expected increases in utility prices, or other factors." FEMP disagrees with the use of the term "actual savings" in this sentence. As stated above, the ESPC authority contemplates energy savings using models and assumptions that the federal agency and ESCO agree to prior to contract formation. Accordingly, "actual savings" under an ESPC are the same as "reported savings" so long as the ESCO reports energy savings in accordance with the procedures agreed to by the agency and the contractor in the project M&V plan.

Page 29: (Final paragraph, second sentence): The draft states, "According to FEMP officials we interviewed, FEMP has expanded training related to ES PCs and some of the current training courses discuss agencies' oversight activities, but there is no specific training course dedicated to performing agency oversight." In

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September 2014, FEMP hosted a webinar entitled "Quality Assurance Over the Life of the Contract." This training course covered agency responsibilities during the performance period, including review of FEMP's guidance on M&V witnessing, guidance on annual M&V report review and certification, agency responsibility for O&M of energy conservation measures, and an overview of FE MPs annual Life of Contract services. A recorded version of the live webinar is available as part of FE MPs on-line web training modules. (https://www4.eere.energy.gov/femp/training/training/energy-savings-performance-contracts- quality-assurance-over-life-contract).

Page 31 (Third paragraph, last sentence): The draft reads: "If an agency determines that an ESPC project's actual savings are less than the agency's contractor payments, or that the project is otherwise not economical due to high interest rates or other factors, the agency may choose to terminate the ESPC or specific energy conservation measures within the ESPC".

FEMP disagrees that high interest rates affect the economic viability of the project. The ESPC authority provides that ESPC payments-which include interest payments-may not exceed energy savings in each year of the contract. Thus if the term of the project does not exceed the statutory limit of 25 years and guaranteed energy savings exceeds the contractor payments in each year, the project is economical regardless of the interest rate. That said, if interest rates fall, an agency may wish to consider discussing restructuring the project with the ESCO to explore options such as rate, scope, or term adjustment.

Appendix VI: In Appendix VI, GAO identifies numerous projects in which factors beyond contractors' control apparently resulted in reduced savings. In cases where agencies removed contractor-installed ECMs or closed buildings containing contractor-installed ECMs, FEMP agrees that in order to determine the best course of action, the agency must know the cost impact of such actions on the savings. The new IDIQ contract, as well as FEM P's M&V Guideline 4.0, includes a new Table that requires the ESCO to provide these costs.

It should be noted, however, that the contractor's guarantee applies to the savings delivered by all ECMs in a Task Order, and not to the savings delivered by individual ECMs. *See* 42 U.S.C. § 8287(a)(I), (a)(2)(B). Thus it is permissible for one ECM to be producing no energy savings so long as the total energy savings achieved under the ESPC exceeds the guaranteed energy savings. The analysis in Appendix VI does not consider the savings produced by other ECMs in the projects analyzed, nor does it consider the percentage of the cost savings in each project that is guaranteed by the contractor. Both factors must be considered to determine whether the savings are below the level of the guarantee.

Appendix VI also identifies three projects in which billed gas prices were different from contract gas prices, apparently resulting in reduced savings. In addition to the explanations made elsewhere in this audit response, delineating the case for adhering to the contractually agreed- to rates as opposed to actual rates at points of time in the future, FEMP would also reiterate that the contractor's guarantee applies to the savings delivered by all ECMs in a Task Order, and not to the savings delivered by individual ECMs. Furthermore, savings in ESPC projects typically

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result from reduced consumption of several utilities: gas, electricity, water, fuel oil and others. A more comprehensive comparison would recalculate savings using actual prices for all utilities affected by the project. While natural gas pricing is relatively straightforward in most locations, calculating the actual value of a saved kWh of electricity can be very difficult depending on the electric utility's rate structure. A recent ASH RAE Journal article reviews some of the many structures currently in use, and shows that the value of a marginal kWh of electricity depends on the time of day, the season, and also on the demand of other equipment on the meter at the particular time the ECM was operating. Requiring agencies or contractors to make this calculation would impose a costly analytical burden on the project for little benefit.

Text in Appendix IX: Comments from the Department of Veterans Affairs

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DEPARTMENT OF VETERANS AFFAIRS|
WASHINGTON DC 20420

April 27, 2015

Mr. Frank Rusco
Director, Natural Resources and Environment
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

Dear Mr. Rusco:

The Department of Veterans Affairs (VA) has reviewed the Government Accountability Office's (GAO) draft report, *"ENERGY SAVINGS PERFORMANCE CONTRACTS: Additional Actions Needed to Improve Federal Oversight"* (GAO-15-432). VA generally agrees with GAO's conclusions and does not fully concur with GAO's recommendations to the Department.

The enclosure provides general comments and addresses GAO's recommendations in the draft report. VA appreciates the opportunity to comment on your draft report, and we welcome the opportunity to explain our inputs should you have any questions.

Sincerely,
Signed by
Jose D. Riojas
Chief of Staff

Enclosure

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GAO Recommendations:

Recommendation 1: To help ensure that agencies have sufficient information on ESPC performance to oversee whether current and future contracts are achieving their expected savings, GAO recommends that the Secretary of Veterans Affairs work with contractors to determine the best way to obtain estimates of cost and energy savings that are not achieved, including savings lost due to agency actions, changes in utility prices and other factors beyond contractors' control, in accordance with DOE guidance, for projects that have already been implemented.

VA Comment: Non-Concur. The Department of Veterans Affairs (VA) considers modifying contracts a standard practice when facility expansions, facility closures or facility equipment needs have changed. However, the ability to obtain estimates of costs and energy savings that are not achieved due to agency actions, changes in utility prices, and other factors beyond contractors' control is likely to require a change in measurement and verification strategies for existing contracts. Additionally, the ability to obtain such estimates is often time intensive, which will translate into higher costs for the Energy Services Company (ESCO). Thus, VA would expect ESCOs to require a change of contract terms to incorporate obtaining those estimates and potential measurement and verification modifications. This will, in turn, translate into higher costs and a reduced savings guarantee for VA For some projects, such an approach may be economically unsound.

For these reasons, VA recommends the following adjustment to GAO's recommendation.

...work with contractors to determine the best way to include estimates of costs and energy savings not achieved, including savings lost due to agency actions, changes in utility prices, and other factors beyond contractors' control, in future measurement and verification reports for projects that have already been implemented, where economically feasible.

Recommendation 2: To help ensure that agencies have sufficient information to identify and address risks in their ESPC portfolios, GAO recommends that the Secretary of Veterans Affairs establish a process to systematically evaluate ESPC projects including baseline assumptions about facilities' energy use, utility prices, and interest rates to identify ESPCs that are not achieving expected savings, and determine if they should be modified or terminated. Agencies could consider conducting such evaluations either after a certain number of years, or in response to events, such as changes in utility prices or market interest rates, or appropriations becoming available that could be used for modifications or terminations.

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VA Comment: Concur in principle. While feasible to implement, there are limitations to implementation of this recommendation. Systematic review of the performance of ESPC projects agency-wide compared with assumptions developed when the contract was signed could help make agency officials aware of how changing circumstances have affected the performance of its ESPCs. However, VA's ability to use this information to modify or terminate contracts is more limited. Aside from terminating for convenience, agency options are limited with respect to reacting to the impact of actual energy prices, changes in facility use, and current market interest rates on project economics. For instance, in the event of lower interest rates, the government may request its ESCO partner to refinance the contract; however, the decision to refinance is ultimately that of the ESCO as the note holder. If funds are available , VA would then need to evaluate whether terminating the contract-including the relevant termination fee-provides a higher overall value to the government than the remaining contract guarantees of equipment performance, energy savings , and other related contract support.

Similarly , the potential for applying the results of an ESPC analysis to future projects also appears limited because: a) interest rates are always based on market conditions at the time of award, b) agencies and ESCOs must lock into reasonable assumptions regarding future changes in energy prices, typically using forecasts by the Department of Energy or the National Institute of Standards and Technology, in order to generate the estimated and guaranteed savings schedule, and c) agencies and ESCOs must agree to reasonable assumptions regarding future facility use for each energy conservation measure in order to create baselines from which to measure future energy and water savings. In an appropriated funds project, the government assumes 100 percent of the risk of changing circumstances and system performance. In an ESPC, the government and ESCO share the burden of risk, although much of the risk is taken by the ESCO that is subject to a performance and savings guarantee. Changes in facility use, utility prices, and interest rates are risks assumed by the government when it enters into an ESPC. Additionally, the ESPC financial lender has agreed to terms and conditions that include a level of risk for the agreed upon assumptions regarding facility use and utility prices. If the government begins to systematically evaluate ESPCs on a recurring basis with the intent to modify or terminate the contract, the ESPC financial lending community may perceive themselves to be in a higher risk scenario, and spreads could be impacted accordingly.

For these reasons, VA does not anticipate that the recommended systematic review will provide significant value in terms of the time and money that will be required to collect and analyze this data, nor result in directly actionable information.

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General Comments: GAO conducted an analysis of Federal use of energy savings performance contracts (ESPCs) and process changes since 2005. GAO selected seven agencies for its review based on those agencies with the highest energy usage and greatest facility square footage. The Department of Veteran Affairs (VA) qualified for review based on those criteria.

VA established a centralized program and policy office for all energy conservation activities in 2003 in order to create a center of expertise. A new ESPC program was later established within this office to leverage specialized technical, third-party financing and procurement knowledge.

GAO's draft report indicates VA data were not sufficiently reliable for GAO's purposes. VA believes this is because ESPCs awarded prior to 2012 were managed in their entirety, including data collection, in a decentralized and individual manner. VA's ESPC program has since improved and is now centrally managed. Prior to GAO's review, VA began working to assemble legacy project data and centralize the information in an improved database with greater reliability and easier access.

As recognized by GAO in their report, the VA project in Greater Los Angeles included within GAO's sample was in the first year of its performance period at the time of GAO's review. Thus, an annual measurement and verification report was not yet available. However, GAO included this project in its report because it was the only VA project in GAO's sample that was in its performance period. Consequently, GAO reviewed the post-installation report which included only projected savings based on as-built conditions and post-installation measurement and verification activities. Verified savings for the first year of the post-acceptance performance period will be documented in the annual verification report.

Text in Appendix X: Comments from the General Services Administration

Page 1

GSA
U.S. General Services Administration
1800 F Street, NW
Washington, DC 20405
Telephone: (202) 501-0800
Fax: (202) 219-1243

The Administrator

April 30, 2015

The Honorable Gene L. Dodaro
Comptroller General of the United States
U.S. Government Accountability Office
Washington, DC 20548

Dear Mr. Dodaro:

The U.S. General Services Administration (GSA) appreciates the opportunity to review and comment on the U.S. Government Accountability Office (GAO) Draft Report entitled, *Energy Savings Performance Contracts: Additional Actions Needed to Improve Federal Oversight* (GA0-15-432). To help ensure that agencies have sufficient information on Energy Savings Performance Contract (ESPC) performance to oversee whether current and future contracts are achieving their expected savings, the GAO recommends:

1. The Secretaries of Defense, Energy, and Veterans Affairs; the Attorney General; and the Administrator of General Services work with contractors to determine the best way to obtain estimates of cost and energy savings that are not achieved, including savings lost due to agency actions, changes in utility prices, and other factors beyond contractors' control, in accordance with Department of Energy (DoE) guidance, for projects that have already been implemented.

To help ensure that agencies have sufficient information to identify and address risks in their ESPC portfolios, GAO recommends:

2. The Secretaries of Defense, Energy, and Veterans Affairs; the Attorney General; and the Administrator of General Services establish a process to systematically evaluate ESPC projects-including baseline assumptions about facilities' energy use, utility prices and interest rates-to identify ESPCs that are not achieving expected savings, and determine if they should be modified or terminated. Agencies could consider conducting such evaluations either after a certain number of years, or in response to events, such as changes in utility prices or market interest rates, or appropriations becoming available that could be used for modifications or terminations.

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GSA agrees with the first recommendation. GSA will work with other Federal agencies and contractors to determine the best way to obtain estimates of cost and energy savings that have not been achieved. To the extent cost-effective methods are identified, GSA will determine whether such methods can be incorporated into current contract requirements. Additionally, on future ESPC task orders, GSA will work with DoE to implement guidance for energy savings companies that will help measure costs and unachieved energy savings for each energy conservation measure adopted.

GSA agrees with the second recommendation. GSA will examine its processes to review ESPC data to identify ESPCs that are not achieving expected savings in order to determine if the contract should be modified or terminated. GSA will coordinate with DoE and other Federal agencies to determine best practices for these reviews.

In addition to these comments, technical comments are enclosed. If you have any additional questions or concerns, please do not hesitate to contact me, or Ms. Lisa A. Austin, Associate Administrator, Office of Congressional and Intergovernmental Affairs at (202) 501-0563.

Sincerely,
Signed by
Denise Turner Roth
Acting Administrator

Enclosure

cc: Mr. Frank Rusco, Physical Infrastructure Issues, GAO

GAO's Mission	The Government Accountability Office, the audit, evaluation, and investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.
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Public Affairs	Chuck Young, Managing Director, youngc1@gao.gov, (202) 512-4800 U.S. Government Accountability Office, 441 G Street NW, Room 7149 Washington, DC 20548