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Responsible Office: Environmental Management Division

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CHAPTER 9. Energy Savings Performance Contracting (ESPC)

9.1 The ESPC Concept

9.1.1 General. The ESPC financing option allows Federal facilities to purchase energy efficiency, renewable energy, and water conservation technologies and services from private vendors through a shared savings approach. Under the ESPC method, the selected energy services company (ESCO) incurs the costs of implementing energy savings measures, including the cost of energy audits; project design; acquiring, installing, operating, and maintaining equipment; and training O&M personnel. The ESCO is given a share of the energy savings resulting directly from implementing such measures during the multiyear term of the contract. After paying the ESCO, the remaining savings are shared equally between the Center and the United States Department of the Treasury (USDT), as shown in Figure 9-1.

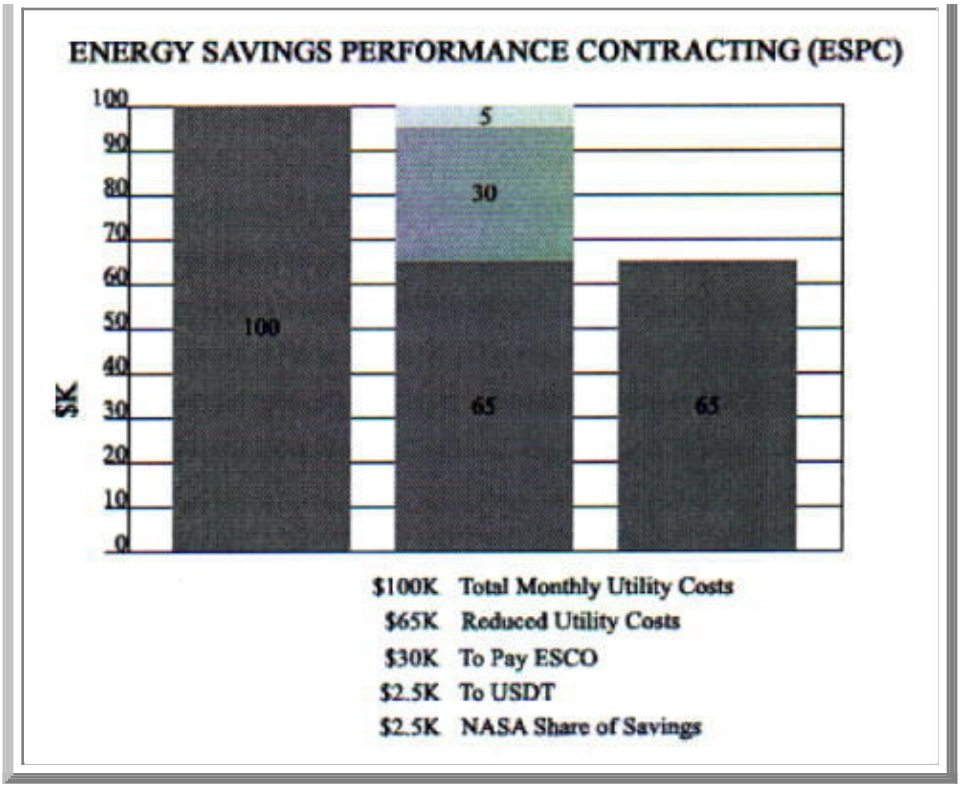

Figure 9-1. ESPC Example

9.1.2 Benefits. The key benefits of ESPC are that it:

a. Reduces energy consumption.

b. Improves Federal energy efficiency and helps meet the Federal energy savings requirements.

c. Reduces the maintenance and repair costs associated with aging or obsolete energy-consuming equipment.

d. Places O&M responsibilities on the contractor.

e. Stimulates the economy by allowing ESCO's to profit from their up-front investments in federally owned buildings by receiving a share of the utility bill savings.

9.1.3 Enabling Legislation for ESPC. EPACT directed the Department of Energy to develop methods and procedures to bring ESPC into the mainstream of Federal procurement. ESPC, formerly known as shared energy savings contracting, is an alternative to the traditional method of funding energy efficiency improvements in Federal buildings through direct appropriations. ESPC allows Federal agencies to update aging building systems, streamline operations, and train maintenance workers to reduce operating costs. Agencies can use future energy savings to fund projects, freeing up money currently wasted on energy inefficiency and making it available for facility improvements and sustained maintenance. ESPC can be used to:

a. Replace aging equipment with newer, more efficient products.

b. Help meet the energy reduction goals of Executive Order 13123 and EPACT.

c. Conserve nonrenewable fuels and achieve environmental benefits by reducing energy consumption.

d. Achieve utility cost avoidance without sacrificing service.

9.2 Statutory Requirements

9.2.1 Congressional Notification. A Federal agency may enter into a multiyear ESPC for a period not to exceed 25 years, without funding of cancellation charges before cancellation, provided such contract was awarded in a competitive manner pursuant to the above qualification procedures, and funds are available and adequate for payment of the costs of such contract for the first fiscal year. In addition, if the ESPC contains a clause setting forth a cancellation ceiling in excess of $10,000,000, the agency head must provide written notification to the appropriate authorizing and appropriating committees of Congress of the proposed cancellation ceiling, at least 30 days before the award of that contract.

9.2.2 Qualified ESCO's. Current statute states that a Federal agency may develop a list of ESCO's qualified to provide ESPC services, based on qualification statements provided by those ESCO's, which contain, as minimum, the ESCO's prior experience, capabilities to perform the proposed types of energy savings services and financial information. ESCO's may then be selected to conduct discussions concerning particular proposed energy savings projects, including requesting a technical and price proposal from such selected ESCO's, and select from those ESCO's, the most qualified to provide ESPC services based on technical and price proposals and any other relevant information. The list of qualified ESCO's must be updated at least annually.

9.2.3 Guarantee of Savings. The ESCO shall only be compensated for actual, measurable energy savings, hence, the ESPC must accurately define the energy baseline, or projected energy use, had the ESPC project not been implemented and the method with which savings will be measured. Additionally, an annual energy audit must be conducted to verify savings and ensure payments are accurate. The measurement technique will be based on project complexity: the savings from the replacement of lighting systems may not need to be metered, whereas heating modifications most likely would. In some cases, consideration must be given to other factors that affect energy demand, such as changes in mission, population, space utilization or weather.

9.2.4 Unsolicited Proposals. A Center may permit receipt of unsolicited proposals for ESPC services from an ESCO outside the scope of the Super ESPC process provided that the Center has determined that the ESCO is qualified to provide such services. ESCO qualification is usually determined by the ESCO meeting the requirements of the national ESCO qualification program administered by DOE. Prior to accepting an unsolicited ESCO proposal, the Center must place a notice in the Commerce Business Daily announcing that it has received such a proposal and invite other similarly qualified ESCO's to submit competing proposals. The Center may enter into an ESPC with such a qualified and competing ESCO, consistent with established procedures and methods.

9.3 DOE's Super ESPC Program

9.3.1 General. To make it easier for agencies to use ESPC, FEMP developed the Super ESPC, based on the Indefinite Delivery Indefinite Quantity (IDIQ) provision of the Federal Acquisition Regulation (FAR). Super ESPC's are regional IDIQ contracts that allow agencies to negotiate site-specific ESPC delivery orders with an ESCO without having to start the contracting process from scratch. In this way, agencies can issue delivery orders for their own ESPC projects through an established, Governmentwide IDIQ contract, saving time as well as energy and money. Before Super ESPCs, facility personnel had to do their own contracting for energy and cost-saving projects. This process took as long as 18 months. Super ESPCs can reduce the time required to as little as three to six months. In addition, DOE technical and contract specialists can provide assistance on a reimbursable basis to guide agency personnel through the process step by step. More information on the Super ESPC initiative can be found at http://www.eren.doe.gov/femp.

9.3.2 Developing Delivery Orders under Super ESPC. Federal agencies that desire to implement a renewable energy or energy efficiency project may choose to place a delivery order for facilities located in the region covered by the Super ESPC. Federal agencies interested in participating in the DOE Super ESPC program will sign a Memorandum of Understanding (MOU) with DOE. NASA and DOE have already established an MOU at the agency level. DOE may authorize NASA Centers to place delivery orders itself, or may place the order on behalf of the Center. Centers can tailor the delivery orders to meet their site specific conditions and needs. Delivery orders issued under the contract are limited to the ESCO's that were competitively selected for the Super ESPC program. The ESCO's submit proposals for projects in response to delivery order requests for proposals. The authority to sign delivery orders under these contracts must be delegated to the Center by the DOE procuring contracting officer. More detailed information and a copy of the most recent version of the publication entitled, *Delivery Order Guidelines,* may be obtained from the FEMP Web site.

9.3.3 Interagency Agreement. An Interagency Agreement (IA) between DOE and the Center is always required before the Center can issue a delivery order against the Super ESPC for a specific project or projects. The IA provides the agreement of the parties on the division of responsibilities relative to pursuing a delivery order award or awards at Center site(s). At a minimum, the IA should include the following:

a. A statement of work describing the services to be provided to the Center by DOE.

b. A letter verifying that the Center has the funds to reimburse DOE for services provided under the IA in support of the delivery order. A reimbursable services schedule is included in the Super-ESPC Delivery Order Guidelines available from DOE FEMP.

9.3.4 Delivery Order Process. Centers are responsible for being diligent in the selection and implementation of projects for delivery orders. Centers must first assess the needs and requirements of their facilities. Prior to initiating a delivery order, agencies must consider: 1) facility closure or expansion; 2) environmental constraints (CFCs, PCBs, asbestos); 3) mission changes; 4) conflicts with other contracts; 5) economic analysis and project feasibility; and 6) any other unique facility issues. Centers must decide whether an ESPC is the appropriate contractual vehicle for fulfilling their requirements. In addition, Centers must assure that the delivery orders and projects implemented are consistent with the ESPC legislation and regulations. To assist Centers in making these decisions, the DOE

Contract Specialist, Procuring Contracting Officer (PCO) and Contracting Officer's Representative (COR) are available to answer questions and arrange for technical assistance to agencies. In addition, the DOE offers training courses to help agencies in making decisions and in implementing projects.

9.3.5 Contents of a Delivery Order.

9.3.5.1 The following is a list of the documents needed to initiate, process and monitor a delivery order:

a. IA between DOE and the Center.

b. Site Technical Data Package (STDP).

c. Delivery Order Request for Proposal (DO RFP), or Delivery Order Project Description and Requirements (DO PDR).

d. Delivery Order Selection Document.

e. Funding Document.

f. Delivery Order Performance Evaluation.

9.3.5.2 Once it has been determined that there is a Center need and a Center can use the Super ESPC, there are two approaches to award a delivery order. Awards may be made for projects that have been identified by the Government or the ESCO, as described below:

a. Government-Identified Project. Once a Center has identified a project and determined whether or not the economics of the project allow for its viability, it begins the preparation of a DO RFP. The Center then determines whether to issue the RFP competitively or single source. Noncompetitive award determinations must be documented using the procedures described in paragraph 9.3.5.2.c. below. Once this determination has been made, and the DO RFP issued, the proposals are received, and evaluated. Then the Center selects the ESCO (if the DO RFP was issued competitively) and determines whether preaward requirements have been met. If requirements have been met, negotiations and award follow. If they have not been met, the Center goes to the next highest ranked ESCO giving consideration to price and technical factors (if DO RFP was issued competitively) or reissues the DO RFP to other Super ESPC ESCO's (if DO RFP was issued single source).

b. ESCO-Identified Project. The ESCO-identified project route is included in Super ESPCs to incorporate the intent of the ESPC legislation (42 U.S.C. 8287). The legislation encourages ESCO's to initiate projects with the Federal agencies. The procedure for ESCO-identified projects is similar to Government-identified projects. The difference is primarily in the beginning stages. With an ESCO-identified project, the ESCO must request COR approval to submit a proposal to the Center. If approval is given, the ESCO submits an initial proposal and the Center decides whether to pursue the requirement. If the decision is made to pursue the project, another decision on whether to issue the project description and requirements (PDR) single source to the originating ESCO or to compete is made based on the evaluation of the ESCO's proposal. If the Center decides to compete, a DO RFP is required to define site and Center specific and administrative requirements. At this point, the steps are the same, whether Government or ESCO-identified.

c. Noncompetitive Determination. If the agency decides to issue the DO RFP noncompetitively, the Contracting Officer must prepare a memorandum that provides the basis for supporting the single source determination. It is not necessary that a formal justification and approval document be prepared. The technical rationale for the Government's decision shall be emphasized. The requirements of 41 U.S.C. 253 and FAR 16.505 govern the decision to issue a DO RFP by either noncompetitive or competitive means. The following are the five exceptions to issuing a competitive DO RFP:

(1) Competition is precluded by the urgency of the requirement;

(2) The requirement is for installation, operation and maintenance of energy conservation measures (ECMs) that are highly specialized and only one contractor can provide the ECMs at the level of quality required;

(3) The requirement is a ESCO-identified project;

(4) It is necessary to place an order to satisfy a minimum guarantee under the Super ESPC contract; and

(5) The requirement is a logical follow-on to a delivery order previously issued to a contractor on a competitive basis.

9.3.6 The Contracting Process

9.3.6.1 The cognizant CO sends out the notice of intent to award to the selected ESCO and notifies the unsuccessful offerors if the selection was made on a competitive basis. The notice of intent to award letter specifies a time frame within which the selected offeror must conduct the detailed energy survey of facilities and energy systems at the project site.

9.3.6.2 Whether single source or competitive, the Center selects an awardee for the delivery order project as the

"conditional" winner. The selected ESCO must meet certain preaward requirements, primarily the ESCO verification that it can meet the proposed guaranteed annual cost savings. The ESCO performs the detailed energy survey of the facilities and energy systems at the project site and provides a report in accordance the contract.

9.3.6.3 The detailed energy survey will verify the accuracy, and ability to achieve the estimated annual cost savings as originally proposed. The guaranteed savings may be revised by the ESCO after the survey, but it must be within the percentage specified in the DO RFP when compared to the "proposed" guaranteed savings provided in the initial proposal.

9.3.6.4 The Center reviews and approves the report and confirms that the schedules are consistent with the report findings. The Government's review and approval of the detailed survey report establishes the basis of the mutual agreement on the energy and facility baseline conditions. Therefore, careful review and approval of the report prior to acceptance is critical as the report will be the basis of the data used in negotiating guaranteed savings and contractor payments for the term of the delivery order. The Center should verify that all schedules are consistent with the report results.

9.3.6.5 The cognizant Government CO and technical representatives conduct negotiations with the selected ESCO. These schedules will be incorporated into the award as will any new or revised technical requirements/specifications as a result of the detailed energy survey.

9.3.6.6 Once negotiations are completed successfully, the ESCO confirms financing and bonding for the project. The Center then issues congressional notification, if applicable. The statute only requires that Congress be notified if the cancellation ceiling of the delivery order exceeds $10,000,000.

9.3.6.7 Once the ESCO's proposal has been reviewed by the Center, cognizant Government technical representatives, and the cognizant CO, the CO awards the delivery order. If the DOE is signing the delivery order, the Center must provide DOE with a funding document evidencing that funds for the first year's payments are committed.

9.4 Establishing the Baseline

9.4.1 Purpose. The establishment of an agreed-upon baseline for energy savings is essential to the success of the ESPC. The baseline is used to estimate energy savings and thus to calculate payments to the ESCO. A baseline should be simple enough to serve as a basis for billing payments to ESCO's, yet sophisticated enough to differentiate between only those energy reductions that result from the ESCO's actions and reductions that occur from changes in building use and weather. Baselines should also be flexible enough to accommodate changes that occur after the ESPC has been signed (such as changes in building use or installation mission). The three basic methods for establishing a baseline are:

a. Energy calculations. Calculations are based on information about and energy consumption history of energy-using building systems and equipment.

b. Regression analysis. A statistical technique that uses historical data derived from meters to isolate one or more variables that affect energy use (resulting, for instance, in an equation that relates energy use to weather or building use variables). When historical, metered data are available, regression analysis defines energy use relative to the entire building and allows greater flexibility in making ECM recommendations.

c. Simulation. A sophisticated set of engineering calculations that attempts to forecast energy use on the basis of a building's size and shape, equipment, levels of insulation, and types of windows and doors.

9.4.2 Baseline Development. The baseline is developed from historical or estimated energy use data, drawn from a recent, 12-month period of preretrofit energy consumption (estimates are based on a detailed engineering analysis of the building and its systems/equipment). A refinement of this is a baseline averages three years worth of utility bills, normalized for weather. The baseline includes utility, occupancy, and other information that allows the baseline energy consumption to be accurately compared to the energy consumption after the retrofits. The baseline should contain the following occupancy information: the total area of conditioned space, and the number of hours the building is occupied. The energy bills are prorated to obtain calendar month consumption in order to match monthly energy consumption to monthly weather data, and the base load is calculated. The energy sources are calculated according to temperature sensitivity and ratio of consumption per degree day. For each month being evaluated, the baseline month is adjusted to reflect changes in weather, occupancy, equipment, and other variables.

9.4.3 Baseline Adjustment. If facility use changes, the baseline should be altered to reflect the change. Depending on the change, different methods are used to adjust the baseline. For example, if the hours of operation change, calculations involving hours are adjusted and all energy consumption calculations are recalculated. If the use of the building changes, such as warehouse to office, a mini-audit is performed to verify the changes and adjust the energy consumption of the systems and subsystems affected.

9.5 Performance Guarantee and Contractor Payments

9.5.1 Cost Savings.

9.5.1.1 Energy cost savings are defined as a reduction in the cost of energy used in Federally owned buildings from a base cost established by the contract. Energy cost savings may be achieved as a result of:

a. The lease or purchase of operating equipment or improvements, altered O&M, or technical services.

b. The more efficient use of existing energy sources by cogeneration or heat recovery.

9.5.1.2 The "split" of energy cost savings each year, and the method of determining the value of such savings, are specified in the contract and may vary from year to year. NASA Centers should structure ESPC contracts or delivery orders such that, to the greatest extent possible, all energy cost savings realized are used to pay annual contract costs. By using this approach, the Center will be able to eliminate the financial burden much faster and begin to retain all of the post contract energy cost savings much sooner. In the event that excess annual cost savings remain after contract payments are made, 50 percent of such savings are to be retained utilizing reimbursable funds procedures. The retained funds may be used for other energy efficiency and water conservation activities as authorized by section 152 (f) of the Energy Policy Act (P. L. 102-486). The remaining 50 percent of savings shall be deposited in account 803220 (General Fund Proprietary Receipts).

9.5.2 Performance Guarantee. The ESPC should specify the terms and conditions of any Government payments and performance guarantees. The contract shall provide for a guarantee of savings to the Center and shall establish payment schedules reflecting such guarantee, taking into account any capital costs under the contract. Any such performance guarantee shall provide that the ESCO is responsible for maintenance and repair services for any energy related equipment, including computer software systems. Centers may incur obligation pursuant to such contracts to finance energy conservation measures, provided guaranteed savings exceed the debt service requirements.

9.5.3 ESCO Payments. Government payments may be made from annual utility and related O&M funds. The aggregate annual payments by a Center to the utilities and ESCO's, under an ESPC, may not exceed the amount that the Center would have paid for utilities and related operations, maintenance and repair costs, without the ESPC as estimated by the baseline procedure specified in that contract.

9.6 Measurement and Verification (M&V) Procedures

9.6.1 General. Energy savings performance M&V of installed energy conservation projects typically has two components:

a. Confirming that the baseline conditions are accurately defined, and the proper equipment/systems are installed and they have the potential to generate the predicted savings. This confirmation verifies the ECM's potential to perform.

b. Determining the actual energy savings achieved by the installed ECM, which verifies the ECM's performance.

9.6.2 M&V Methods. Verification of conditions before installation (baseline) and after installation (post installation) of the ECM is achieved by inspections, spot measurement tests, and/or commissioning activities. The general approach to determining energy savings involves comparing baseline and post installation energy use associated with a facility, or certain systems within a facility. Therefore, energy savings = baseline energy use post installation energy use. As the ESPC program is based on pay for performance, each ECM or site covered by a delivery order has a site-specific verification plan to determine the achieved savings. For each site, the project baseline and post installation energy use are determined using one or more of the following M&V techniques described in paragraph 9.6.4.3.

9.6.3 M&V Protocols. M&V protocols have been defined by the U.S. Department of Energy for ESPC projects and task orders, as documented in *Measurement and Verification (M&V) Guidelines for Federal Energy Projects*. The ESCO should use the latest version of these guidelines for site-specific ECM M&V as applicable. In addition, simple monitoring utility bills can provide a general measure of the energy savings. However, utility bills must be monitored carefully as other factors affect overall energy usage, such as weather and occupancy levels.

9.6.4 General Approach to M&V.

9.6.4.1 The general approach to determining energy savings involves comparing energy use at the project site before the project is implemented and then assessing usage after the installation. The energy savings are calculated by subtracting post installation usage from the baseline energy usage. For each site, the project baseline and post installation savings are determined using various methods including bill analysis, metering, and/or engineering calculations. First year payments to the ESCO are based on projected savings estimated by the ESCO. After the first year, the ESCO must provide annual reports that contain the results of equipment performance assessment and analysis of actual usage data. Payments to the ESCO for the following year are then adjusted accordingly.

9.6.4.2 In a post installation M&V verification, the ESCO and Center agree that the proper equipment components or

systems were installed, are operating correctly and have the potential to generate the predicted savings or renewable generation. Verification methods may include surveys, inspections, spot metering, and/or continuous metering. The ESCO and Center, at defined intervals during the term of the contract, will verify that the installed equipment components or systems have been properly maintained, continue to operate correctly, and to generate savings. It should be noted that under the ESPC program the verification of savings is required on an annual basis.

9.6.4.3 Either after the project is installed, continuously, or at regular intervals, the ESCO and Center will determine energy savings or renewable energy production in accordance with an agreed-to M&V method with the verification techniques that are defined in a site-specific M&V plan. Baseline energy use, post installation energy use, and thus energy (and cost) savings can be determined using one or more of the following M&V techniques:

a. Engineering calculations.

b. Metering and monitoring.

c. Utility meter billing analysis.

d. Computer simulations (e.g., DOE-2 analysis).

e. Mathematical models (e.g., regression formulas).

f. Agreed-to stipulations by the Center and the ESCO.

9.6.4.4 There are numerous factors that can affect energy savings during the term of a contract, such as weather, operating hours, process loads and heat exchanger fouling. In general, an ESPC objective will be to adjust the baseline energy use up or down for factors beyond the control of the ESCO (e.g., building occupancy or weather) and adjust the post installation energy use for ESCO-controlled factors (e.g., maintenance of equipment efficiency).

9.6.5 M&V Options.

The FEMP *Measurement and Verification Guidelines* are grouped into three categories, Options A, B, and C. These options are consistent with those defined in the North American Energy Measurement and Verification Protocols (NEMVP). Three options are provided in order to provide flexibility in determining energy savings. Selection of the appropriate M&V approach requires an evaluation of many interrelated parameters, including other ECMs implemented, existing utility sub-metering, and dynamic changes to the facility. The options differ in their approach to the level and duration of the retrofit verification measurements. For instance, Options A and B both focus at the system level, while Option C uses measurements taken at the whole-building, or whole-facility level. Option A uses short-term measurements, while Options B and C use continuous or regular interval measurements during the term of the contract. None of the options are necessarily better than the others. Each has advantages and disadvantages based on site specific factors and the needs and expectations of the Center. The three options are described below and summarized in Table 9-1. The Center and the ESCO will select an M&V option and method for each project and then prepare a site-specific M&V plan that incorporates project specific details.

Table 9-1. M&V Options Summary

M&V Option	Verification of Potential To Perform (and generate savings)	Verification of Performance (savings)	Performance Verification Techniques
Option A Verifying that the measure has the potential to perform and to generate savings	Yes	Stipulated	Engineering calculations (possibly including spot measurements) with stipulated values

Option B Verifying that the measure has the potential to perform and verifying actual performance by end use	Yes	Yes	Engineering calculations with metering and monitoring throughout term of contract
Option C Verifying that the measure has the potential to perform and verifying actual performance (whole building analysis)	Yes	Yes	Utility meter billing analysis, possibly with computer simulation ract

9.6.5.1 Option A.

a. Option A is a verification approach that is designed for projects in which the potential to perform needs to be verified, but the actual can be stipulated based on the results of the "potential to perform and generate savings" verification and engineering calculations. Option A involves procedures for verifying that:

(1) Baseline conditions have been properly defined.

(2) The proper equipment and/or systems have been installed.

(3) The installed equipment components or systems meet the specifications of the contract in terms of quantity, quality, and rating.

(4) The installed equipment is operating and performing in accordance with the specifications in the contract and meeting all functional tests.

(5) The installed equipment components or systems continue, during the term of the contract, to meet the specifications of the contract in terms of quantity, quality and rating, and operation and functional performance.

b. Option A, therefore, enables the contracting parties to confirm that the proper equipment components or systems were installed and that they have the potential to generate the predicted savings. Achieving this level of verification is all that is contractually required for certain types of performance contracts. Verification of the potential to perform may be done with inspections and/or spot or short-term metering conducted right before and/or right after project installation. Annual (or some other shorter, regular interval) inspections may also be conducted to verify the continued potential of the project to perform and generate savings.

c. With Option A, actual achieved energy or cost savings are predicted using engineering or statistical methods that do not involve long term measurements. All end-use technologies can be verified using Option A. Within Option A, various methods and levels of accuracy in verifying performance are available. The level of accuracy ranges from an inventory method of ensuring nameplate data and quantity of installed equipment to short-term measurements for verifying equipment ratings, capacity and/or efficiency.

9.6.5.2 Option B.

a. Option B is for projects in which the potential to perform and generate savings needs to be verified; and actual performance during the term of the contract needs to be measured (verified).

b. Option B involves procedures for verifying the same items as Option A plus verifying actual achieved energy savings during the term of the contract. Performance verification techniques involve engineering calculations with metering and monitoring. Option B M&V involves: confirming that the proper equipment/systems were installed and that they have the potential to generate the predicted savings, and determining an energy (and cost) savings value using measured data taken throughout the term of the contract.

c. How accurate the energy savings value must be is defined by the Center or negotiated with the ESCO. The steps used in measuring or determining energy savings can be more difficult and costly than those used in Option A; however, the results will typically be more precise. Methods used in this option will involve long term measurement of one or more variables. Long term measurement accounts for operating variations and will more closely approximate actual energy savings than the use of stipulations as defined for Option A. Long term measurements do not necessarily increase the accuracy.

9.6.5.3 Option C.

a. Option C is also for projects in which (1) the potential to perform needs to be verified and (2) actual performance during the term of the contract needs to be verified. Option C involves procedures for verifying the same items as Option A plus verifying actual achieved energy savings during the term of the contract.

b. Performance verification techniques involve utility whole building meter analysis and/or computer simulation calibrated with utility billing data. As such Option C is the one M&V option that addresses aggregate, coincident demand and energy savings from multiple resources at a single site. Option C also provides procedures for determining and verifying the impact of projects that are not directly measurable, or affect loads indirectly, such as increasing building insulation, or installing low-emittance windows.

c. Option C M&V involves confirming that the proper equipment/systems were installed and that they have the potential to generate the predicted savings, and determining an energy savings value using measured utility meter data taken throughout the term of the performance contract.

d. All end-use technologies can be verified with Option C. This option would be used when there is a high degree of interaction between installed energy conservation systems and/or the measurement of individual component savings would be difficult. Accounting for changes other than those caused by the project is the major challenge associated with Option C - particularly for long term contracts.

e. As noted previously, the level of certainty, and thus effort, required for verifying the potential to perform and actual performance will vary from project to project. Drafting of an RFP to select an ESCO or the actual contract should be done with serious consideration of M&V requirements, reviews and costs.

9.6.6 Sub-metering. Sub-metering of the system or subsystem that is being retrofitted with ECMs is another preferred method to for measuring and verifying energy savings. The systems are monitored both before and after the ECM installations. However, other factors affecting the energy consumption of the system need to be accounted for during the submetering period. The ESCO should perform an energy audit each year to monitor the energy savings and condition of the upgrades that provides a measure of the energy savings and ensures that the equipment is performing at optimum efficiency.

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