Alabama Energy Performance Contracting Guide

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Governor

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DISCLAIMER

This manual has been prepared by the Energy Division of the Alabama Department of Economic and Community Affairs (ADECA) to serve as a "how-to" guide to the procurement of performance contracting agreements, the purpose of which is to reduce energy consumption and costs in Alabama's public agencies, including school districts, universities, community colleges, state agencies and local governments.

The Energy Division prepared this manual with the support of the U.S. Department of Energy and the shared opinions of the State Energy Offices of Hawaii, Florida and Mississippi. None of the above stated entities, or any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness or usefulness of any information, apparatus, product or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, services by trade name, mark, manufacturer or otherwise, does not necessarily constitute or imply its endorsement, recommendation or favoring by the U.S. Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the U.S. Government or any agency thereof.

In 1998, the Alabama legislature passed authorizing legislation which enables the state's school districts, community colleges, universities and state and local government agencies to use methods of energy performance contracting (EPC) to implement large capital energy projects and reap the benefits of substantial long-term energy cost savings. It is the intent of the Energy Division to assist public agencies investigating the use of energy saving performance contracting arrangements to accomplish the goals of the statutes.

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

PART I

INTRODUCTION

What Is Energy Performance Contracting?

Energy performance contracting (EPC) is offered by Energy Service Companies (ESCOs) as a practical and economical way for public sector entities to obtain and finance needed capital energy projects for their facilities. Numerous states, including Alabama as well as the federal government, have enacted legislation authorizing the use of EPC to implement capital intensive energy projects in public facilities.

Essentially, EPC is the acquisition of comprehensive energy improvements (e.g., lighting, HVAC equipment, controls, etc.) and services provided by qualified ESCOs where the energy and cost savings achieved by the installed energy project cover all project costs, including financing, over a specified contract term.

One of the most attractive and distinguishing features of EPC for Alabama's public agencies is that the energy and cost savings produced by the projects are **guaranteed** to pay for all the associated project costs for the life of the contract. Alabama Law specifies contract term limits for EPCs to be the lesser of a 20-year period or the average useful life of the energy cost savings measures from the date of acceptance of the installation. This applies to state and local agencies and Alabama's schools (school districts, community colleges and state universities).

For the purposes of this report and to assist the reader, all public entities (e.g., state agencies, local governments [counties and cities], schools, community colleges, universities) are referred to as ***"agency" or "agencies."***

The primary reasons to implement performance contracting for agencies are the solutions it can offer to those agencies faced with the all too familiar problems of constrained capital budgets, aging and inefficient buildings and equipment, and limited staff resources available to manage and maintain outdated systems and equipment. The use of EPC can provide the resources necessary to finance and acquire needed capital equipment and improve energy efficiency and comfort of public buildings -- **with a guarantee that savings will be sufficient to cover all project costs on an annual basis.**

Alabama Law

The passage of Act 98-663 by the Alabama Legislature in 1998 enabled the state's school districts, community colleges, universities, and state and local government agencies to use methods of EPC to implement large capital energy projects and reap the benefits of substantial, long-term energy cost savings.

An amendment to Section 41-16-143 of the Code of Alabama 1975 revised the maximum allowable term of energy cost savings contracts. The amendment specifies that the maximum allowable term of an energy cost savings contract be the lesser of a 20-year period, or the average useful life of the energy cost savings measures from the date of acceptance of the installation. Formerly, the maximum allowable contract term limit was 10 years. As written, the maximum term limit can provide for two extremely different periods. While the 20-year term is clear, the average useful life of the energy cost savings measures will vary for each and every project. The calculation of this term can be extremely complicated as well. Typically, the average useful life of a project will be less than 20 years, especially those projects with higher investments in equipment with short life spans (i.e. lighting replacements).

However, one must not lose sight of the type of contract being pursued: a guaranteed energy cost savings performance contract. Inherent to this contract is the guarantee of performance. Without proper operation, preventive maintenance, as well as repair and replacement, energy savings will not be realized. Thus, within the framework of an energy cost savings contract is the fact that all equipment installed as part of the contract must be operational for the life of the contract itself. For those pieces of equipment with "shorter" life spans (i.e. lamps, ballasts, variable frequency drives), appropriate replacement costs are built into the financial schedules of the contract and will be paid out of energy cost savings.

While the amended legislation specifies the lesser of a 20-year period or the average useful life of the energy cost savings measures, equipment installed under an energy cost savings contract, by design, will have an average useful life equal to the contract term itself. This would allow an ordering installation to effectively negotiate a term not to exceed a 20-year period.

The Alabama Law for schools, school districts, community colleges, state universities, and state and local agencies, may be found in Appendix A.

FIGURE I

KEY PROVISIONS OF ALABAMA'S
ENERGY PERFORMANCE CONTRACTING LAWS

Section 11-50B, Alabama Statute	Comments
Name: • Guaranteed Energy Cost Savings Act	Developed to provide assistance to state and local government agencies, school districts, colleges and universities
Applicability: • School districts, community colleges, universities, state & local government	
ECMs (energy cost-saving measures): • Insulation • Storm windows and doors • Energy control systems • Heating, Ventilating and A/C • Lighting • Energy recovery systems • Indoor air quality improvements • Measures reducing operating costs & BTU's • Water and other natural resources • Conservation	Developed as a tool and a measure for saving energy
Procurement Process: • Competitive negotiation through public notice	Included for fairness of the process
Advertising Requirements: • Notice of meeting at which contract will be awarded • Names of parties to proposed contract • Purpose of contract	Included to provide notice of the process
Energy Cost Savings: • Derived from reductions in fuel, energy and operation and maintenance costs	A pertinent element of the Act
Contract Provisions: • Design and installation of project • Repair and replacement • Professional fees • Finance charges • Written guarantee that savings will meet or exceed the amortized cost of energy conservation measures • All ECMs comply with current local, state	The terms and issues involved in the process

and federal construction and environmental codes and regulations	
Contract Term: • The lesser of 20 years or the average useful life of the energy cost savings measures from the date of acceptance of the installation	Maximum length of the contracts
Bonding Requirements: • 100 percent public construction bond	Maximum security of the contracts
Payback Calculation: • Simple Payback and Life Cycle Cost analysis	Benefits of the contract
Savings Calculation: • Written guarantee by the ESCO that the savings will meet or exceed cost of project	The guarantee of the contract
Audit Report Review: • Subject to funding source	The review of the process
Contract Review: • Suggested but not required by this law • The institution legal counsel should review the contract • ADECA will offer review assistance and guidance • Contracts used by other state agencies will be made available	The finalization of the process

Alabama Building Commission

The Alabama Building Commission (ABC) has full power and authority to provide for and supervise the planning, design, construction, renovation and/or improvement of state buildings, including entering into contracts as necessary to implement this power and authority and to acquire land for the location of such state buildings (see Title 41-9-141 for specific authority). The Alabama Building Commission Law is provided in Appendix B.

The ABC is responsible for reviewing plans and specifications for compliance with handicapped accessibility standards prescribed by the State Fire Marshall for public buildings and facilities. The ABC is authorized to construe and interpret such standards and to adopt and enforce rules and regulations prescribing additional standards. (See Title 21-4-5 & 6 for authority and responsibility shared with the State Fire Marshall.)

The ABC supervises and administers public construction and improvement projects assigned to it by legislative act authorizing and funding specific construction projects or programs. In general, the technical staff supervises, administers and inspects construction and improvement projects for state agencies and departments, Postsecondary Education, PSCA and similar authorities. The ABC provides periodic inspections of locally funded K-12 public school projects and is authorized to inspect any project under the jurisdiction of the State Building Code.

Standard Services Provided by ESCOs

Energy Service Companies (ESCOs) provide comprehensive technical services as a part of an Energy Performance Contract (EPC) project. ESCOs provide analysis of facility energy consumption, designing comprehensive projects that will pay for themselves out of long-term savings, and provide ongoing equipment maintenance and project monitoring. ESCOs also provide savings measurement and verification services to ensure consistent and reliable project performance.

In essence, the ESCO becomes a partner with the agency to effectively improve, manage and maintain the efficient use of facility energy consumption. ESCOs design projects to: use state-of-the-art technologies; provide extensive training for facility operating personnel; and, provide or arrange project financing which will be repaid over the contract term out of achieved energy and cost savings. In the event actual savings fall short of the guarantee, the ESCO is contractually liable to reimburse the agency for dollar value of the difference.

Standard services offered by most ESCOs under an energy performance contract include:

- **An investment grade technical energy audit (IGTEA) to analyze current building conditions, establish base-year energy consumption, and determine energy conservation measures (ECMs) and associated energy and cost savings**
- **A sound technical project, including capital equipment and ongoing energy services, which is structured to be fully paid from achieved savings**
- **Project engineering and design**
- **Tax-exempt project financing options**
- **Construction bonding to comply with statutory and agency requirements**
- **Equipment acquisition**
- **Complete project installation and construction management**
- **Guaranteed savings for the life of the contract**
- **Project commissioning**
- **Savings measurement and verification and project monitoring services**
- **On-going equipment service and maintenance (if needed)**
- **Extensive training for building operators and facility personnel**

Features of Energy Savings Guarantees

Since expected energy and cost savings must pay for all project costs over the term of the contract, ESCOs have a strong financial incentive to design optimally performing projects. The payment of any fees to ESCOs for ongoing services (e.g., maintenance services, project monitoring, savings measurement and verification, etc.) must also be paid from the savings. Therefore, **if savings are not achieved, the ESCO does not get paid.**

At a minimum, the savings guarantee should be structured to correspond to the annual debt service payments required to repay the funding source selected to finance the project (e.g., tax-exempt lease, bonds, bank loan, etc.). In general, EPC projects are typically structured based on 80%-90%+ of the predicted savings available.

Savings guarantees are generally expressed in both dollar and fuel units. The dollar value attributed to fuel units should always be the prevailing utility rate for the type of fuel being used at the time of contract execution. It is standard practice for ESCOs to establish the prevailing unit utility rate as a "floor rate" below which the dollar value of savings will not fall. This "floor rate" protects the ESCO from any future devaluing of projected savings should utility rates decrease at any point during the contract term. The rationale for this lies in the fact that if utility rates fall, the facility will benefit from an overall reduction in utility costs. The ESCO, however, should not be financially penalized for a circumstance not reflective of actual project performance.

In turn, utility rates could significantly increase, giving the ESCO an unexpected financial windfall and creating a substantial increase in overall facility energy costs and value of the energy savings achieved by the project. This situation can be mitigated by negotiating a "cap" or “ceiling” on future rate increases and the dollar value of the fees to be paid for ESCO services above and beyond any agreed-to annual escalation rate for future service fees.

Another alternative to settle increasing and/or decreasing utility rates is to contact the utility provider and ask about their payment options or programs. Some utilities will take the previous year’s utility costs and determine an average monthly rate, which will be your monthly bill for the next year. This figure is re-calculated annually.

However the savings guarantee is structured, ***it is critical that both parties agree to the terms of the guarantee and have a thorough understanding of how it will be applied for the duration of the contract.***

Benefits of Energy Performance Contracts

In addition to savings guarantees, there are a number of other benefits for public agencies to use EPC to implement capital energy projects:

- **Preserves limited budget dollars to be used for other needed services and activities**
- **Finances needed capital energy improvements, which are paid for from savings achieved through avoided energy and operational cost**
- **Reduces frequent repairs and high-maintenance costs due to inadequate, aging or obsolete equipment; re-establishes equipment and systems service baseline to avoid future degradation**
- **Provides needed technical training and knowledge to agency operating personnel**
- **Decreases indoor air quality (IAQ) problems**
- **Increases productivity of employees working in a more comfortable environment**
- **Enhances local economies through ESCO's use of local subcontractors**
- **Creates incentives for ESCOs to develop highly efficient projects by linking their compensation to project savings**
- **Improves the environment and conserves scarce energy resources**

FIGURE II

COMPARISON OF CONVENTIONAL BID AND SPECIFICATION
vs.
EPC PROCUREMENT

CONVENTIONAL BID & SPEC PROCUREMENT	ENERGY PERFORMANCE CONTRACTS: COMPETITIVE NEGOTIATIONS FOR PROFESSIONAL SERVICES
➢ Takes several years to secure sufficient funds to implement comprehensive energy projects.	➢ All funds needed for a comprehensive energy project are readily available.
➢ High staff costs due to a piecemeal approach to bidding and managing each separate component of the project.	➢ Lower staff costs and quicker completion of a comprehensive project.
➢ Multiple contracts with multiple vendors can result in conflicting project requirements.	➢ Single contract with single point accountability for project performance.
➢ Energy savings are not guaranteed.	➢ Long-term energy savings are guaranteed by the ESCO.
➢ Comfort and operating standards are not usually offered by equipment vendors.	➢ Energy performance contracts will contain explicit comfort and operating standards.
➢ Incremental project implementation misses savings design opportunities.	➢ Comprehensive project implementation maximizes the capture of savings design opportunities.
➢ Energy projects must compete for limited budget resources with other improvement projects.	➢ Energy projects are funded with utility bill savings.
➢ No direct incentive for building staff to reduce energy costs.	➢ ESCO payments are tied to achieving energy and cost savings over the term of the contract.
➢ Limited staff expertise and resources may put project performance at risk.	➢ ESCO provides ongoing technical expertise to insure project performance.
➢ Operations and maintenance budgets are usually under-funded, resulting in wasted energy.	➢ EPC projects generate energy and cost savings to finance operations and maintenance required to sustain long-term project performance.

PART II

GETTING STARTED

Project Site Selection

There are many technical factors that must be considered when selecting a suitable project site to implement an energy project using EPC. In general, the facility should have high annual energy consumption and costs, coupled with enough savings opportunities to generate the necessary cash flow to amortize all project costs over the contract term. The size of the project's annual energy use and potential for savings will determine the ESCOs' interest in implementing an energy performance contracting arrangement. ESCOs typically evaluate projects on a case-by-case basis; some ESCOs are willing to implement EPC projects for smaller facilities, while others prefer large-scale projects.

At a minimum, facilities that make good candidates for EPC possess a majority of the following characteristics:

- Annual utility consumption costs in excess of $100,000
- Potential annual energy savings of 15%-25% of the energy cost
- Stable use and occupancy of the facility for the foreseeable future
- Relatively consistent energy use patterns over the past several years
- Ability to access energy consumption (utility) records for past several years
- Structurally sound facility conditions with no major building renovations recently completed or planned for the near future

It is often economically feasible to combine several facilities into a single project. Multi-building projects with even higher annual energy costs are usually very attractive to ESCOs and allow the agency to finance and obtain a greater number of energy improvements through a single procurement.

A simple rule of thumb to consider when selecting potential EPC project sites:

The higher the annual energy costs, the greater the potential for energy savings opportunities to exist and the greater the benefit for both parties.

Project Financing

In most cases, it is more economical for public agencies to secure their own project financing. The tax-exempt status granted public agencies enables them to access much lower cost financing than is generally available to the ESCO; however, most ESCOs provide financing options and information. ESCO's can be required to provide a financial guarantee that the annual debt service will be paid from achieved energy and cost savings. More favorable financing terms will enhance the potential scope of work and terms of the performance contract.

Project Financing Considerations

When assessing financing options for EPC projects, there are a number of factors to consider, including:

- Size of project investment
- Length of financing term
- Source of funds (e.g., bonds, tax-exempt lease, commercial lease, ESCO corporate fund or line of credit, etc.)
- Interest rate/required rate of return (for ESCO financing)
- Flexibility of financing instrument to fund project "soft costs" (e.g., design, engineering, construction management, etc.)
- Creditworthiness of agency and ESCO
- Length of construction period
- Construction financing options/interest rate
- Equipment ownership at the end of the contract period
- Buy-out schedule
- Required security interest/project collateral
- Project bonding requirements
- Risk premium charges for ESCO financing
- Preferred project pay-out schedule (e.g., monthly, quarterly, annually)
- Ability of time debt repayment schedule to coincide with guarantee period
- Simple payback period, equipment replacement schedules, time variable O&M costs

The Department of Finance, Division of Purchasing is established by statute (*Code of Alabama 1975*, §41-4-110-111, as amended) and is under the direction of the State Purchasing Agent (Purchasing Director). The Division purchases all personal property, except alcoholic beverages, for all State departments, boards, bureaus, commissions, agencies, offices and institutions. The Division is also responsible for making and supervising the execution of all contracts and leases for the use and acquisition of any personal property. Education and eleemosynary institutions, State Docks and the purchase of alcoholic beverages are exempt from the authority of the Division of Purchasing (*Code of Alabama 1975*, §41-16-21(b)) as amended. **Sections referenced by a paragraph number are in accordance with the *Code of Alabama 1975*, as amended.**

More favorable financing terms will enhance the potential scope of work and terms of the performance contract.

Available Sources of Project Financing

There are a variety of sources available to agencies for the purpose of financing EPC projects. One of the primary benefits of EPC is the ability to obtain a savings guarantee from the ESCO. **This guarantee makes the ESCO financially liable for any shortfall that could occur in the project's energy savings performance.** If the guaranteed levels of savings do not materialize, the ESCO is contractually bound to reimburse the agency for the difference in dollars between the actual and guaranteed units of energy saved on an annual basis. **This feature reduces the agency's financial risk should the project not perform as anticipated.**

Since public agencies are tax-exempt, it makes economic sense to use some method of tax-exempt financing. Most ESCOs will offer to assist in the arrangement of tax-exempt project financing and many have established relationships with financial institutions willing to provide financing for these projects. While the debt obligation resides with the agency, no matter which debt-financing instrument is used, the ESCO should provide a guarantee that the annual debt obligation will be met for the entire contract term.

The primary sources of project financing available to public agencies include the following:

- **General Obligation (G.O.) Bonds**

  For agencies having the authority to issue general obligation bonds, these can be the least expensive source of funds available. The feature that makes these bonds so attractive to the financial market is that the full faith and credit of the issuer backs them. This means that the issuer pledges its authority to tax, raise and collect sufficient funds to satisfy its bond obligations. There have been a number of instances where energy projects have been financed as a part of a larger G.O. bond issue that includes other capital projects. In those cases, the project costs have been paid for outright and the energy performance contract has been structured to provide a guarantee that corresponds to the bond retirement schedule as agreed to by both parties.

  While general obligation bonds offer the lowest interest rates, there are statutory debt restrictions that often limit their availability. Approval to issue the bonds must be obtained by the state legislature or public referendum, which can impose delays in plans for project implementation. Also, the financing of capital energy projects must compete with the financing of other essential government services and capital project needs.

- **Revenue Bonds**

  Another option for energy project financing is the use of revenue bonds. Revenue bonds carry attractive interest rates, although these rates are slightly higher than G.O. bonds. Also, revenue bonds are not backed by the full faith and credit of the institution and are considered to be a method of "off-budget" financing. The distinguishing feature of

revenue bonds is that a dedicated source of revenue must be identified and available to retire the bond debt. While guaranteed savings would appear to fulfill that requirement, energy savings are not viewed by the financial markets as actual revenue. Appropriated payments dedicated specifically to revenue bond retirement would have to be secured in order to fulfill the revenue requirement. Approval by public referendum or the legislative process is often required prior to issuing revenue bonds; however, there is rarely any statutory limitation on the use of such bonds for public use. As in the case of using G.O. bonds, the performance contract would guarantee the retirement of the revenue bonds on a schedule agreed to by both parties.

- **Tax-exempt Lease Purchase**

The use of tax-exempt lease financing is one of the most common methods used by public agencies to finance EPC projects. The interest rates are significantly lower than interest rates for commercial lease-purchase arrangements because the interest payments are tax-exempt income to the investor. A tax-exempt lease typically does not require public approval or constitute a long-term debt obligation of the agency. In addition, this type of financing provides for title to the equipment to be retained by the agency with a security interest in the equipment held by the investors. Lease payments are subject to annual appropriations with a non-appropriations provision standard to the lease agreement and accepted by the ESCO industry. The ready access by public agencies to sources of tax-exempt lease financing makes this method an attractive and most common way to finance projects in public buildings.

- **Bank Financing**

A conventional installment payment loan obtained from a local bank or financial institution could also be used to finance an EPC project, subject to the public agency's credit rating.

Depending upon the relationship the agency has with the bank, interest rates and contract terms can be negotiated to make this an attractive and economical means of project financing. Under an installment payment loan the bank retains title to the equipment for the loan term. At the conclusion of the loan the title is turned over to the agency subject to the agreed-upon terms. This type of financing is considered to be a long-term debt obligation and is credited against any outstanding debt limitation the agency may have.

- **ESCO Financing (Commercial Leases, Internal Corporate Funds or Lines of Credit)**

The use of ESCO financing is generally the most expensive financing available for these projects, particularly for tax-exempt public agencies. Since ESCOs do not have direct access to tax-exempt sources of financing, they must use commercial sources, their own internal funds or lines of credit. Commercial lines of credit carry higher interest rates and the use of an ESCO's internal corporate funds is subject to required rates of return for corporate shareholders. Additional financial risk premiums may also be charged to the project in exchange for the ESCO bearing all the financial risks associated with project repayment. The high costs of ESCO financing can impose limitations on the technical scope of the project and may also place very restrictive conditions on the terms of the energy performance contract.

PART III

THE REQUEST FOR PROPOSALS

Preparing the Request for Proposals (RFP)

The RFP defines the scope of the project, project schedule, the procurement process, evaluation criteria, special contractual terms, conditions, and specific corporate and technical information to be submitted by the ESCO in writing. In addition, the RFP clearly requires that achieved energy and cost savings must pay for all project costs for the duration of the contract. This requirement establishes the economic bottom line of the project and the financial performance requirements of the installed project.

Key Information to Request

The key information requested in the RFP should include:

- ✓ **The ESCO's experience with implementing performance contracting arrangements**
- ✓ **The ESCO's understanding of and experience with the energy measures that are likely to be installed**
- ✓ **The ESCO's financial stability and experience with project financing**
- ✓ **The background and EPC experience of all key project personnel specifically assigned to the project**
- ✓ **The performance record of past EPC projects directly managed by the ESCO**
- ✓ **The calculation methodologies used to compute base-year utility use and project savings**
- ✓ **The ESCO's methods of savings measurement and verification and project monitoring**
- ✓ **A description of the recommended maintenance program to be implemented and a detailed listing of other services provided by the ESCO**
- ✓ **The proposed structure of the savings guarantee and ESCO fee payments**
- ✓ **Cost of the energy audit should no contract be negotiated**
- ✓ **Training services to be provided to facility staff**
- ✓ **A sample investment grade technical energy audit, project commissioning plan, maintenance plan and customer savings report**
- ✓ **A sample legal agreement**

The RFP should have sufficient information about the project to attract ESCO's interest in submitting their proposals for review. One of the purposes of the RFP is to give form and substance to the project and to create the ground rules by which competing ESCOs will have to abide.

The Sample RFP located in Appendix C addresses the essential components common to the majority of EPC arrangements. It has been designed to be flexible and can easily be customized to accommodate specific project needs and agency requirements. It will be necessary for agencies to prepare the following project-specific procedures and information for incorporation into the final document.

Site Visits

Most ESCOs will want to make a site visit to tour the facility and interview facility staff prior to submitting their written proposals. **Site visits should be scheduled to occur after the RFP is issued and prior to the deadline for written proposals.** The facility should be open for tours throughout that entire period or site visits can be scheduled during a limited time period (e.g., over a period of 1-2 weeks). It is recommended that **only one ESCO at a time** be allowed to tour the facility and appointments should be made in advance of the visit.

Project Schedule

A project schedule should be developed that identifies specific procurement dates and activities. Figure III is a representative Sample Project Schedule that is also contained in the Sample RFP (Appendix C). The project schedule will give ESCOs an idea of how the project is planned to progress and will serve as a guideline for keeping the project on track.

FIGURE III

SAMPLE PROJECT SCHEDULE

Activity	Timeframe
Issue RFP	Week 1
Site Visit (to be arranged)	Weeks 2-4
Proposals Due	Week 5
Written Proposals and Client References Reviewed and Evaluated (ESCOs shortlisted)	Weeks 6-8
Oral Interviews of Shortlisted ESCOs	Week 9
Highest Ranked ESCO Selected (with 10 days public notice)	Week 10
Approval of Selected ESCO	Week 12
Technical Audit, Project Analysis, Contract Negotiations	Weeks 13-16
Contract Presented and Signed	Weeks 17-18

Evaluation Criteria

It is important to specify the evaluation criteria, which will be used to rank the ESCOs competing for the EPC project. The Sample RFP specifies a detailed list of the evaluation criteria that have been grouped into the following four major categories: Past Experience, Approach to Project Management, Technical Capabilities & Expertise and Financial Strength. These categories are useful in aggregating evaluation data and in the presentation of rankings.

Project Terms and Conditions

The Project Terms and Conditions contained in Part III of the Sample RFP describe the minimum conditions that will be required of the ESCO selected to implement the project. The provisions described in Part III cover the most basic technical and legal elements that should be provided for in a performance contract. This attachment can easily be expanded and customized to incorporate all the project-specific technical and legal requirements, as well as any agency policies with which the selected ESCO will have to comply.

Technical Facility Profile

A technical description of the project facility(s) needs to be prepared and included in the RFP as an attachment. ESCOs will need enough technical details about the facility to be able to assess the opportunity for implementing a successful project. At a minimum, a brief description of the premises and all major energy using equipment should be provided. Several years of past utility consumption data, preferably in fuel units and costs, should also be included. Instructions for preparing a technical facility profile are located in Appendix D.

Identification of the Evaluation Team

It is important to identify members of the evaluation team early in the procurement process in order to receive their input during the development of the scope of the RFP and to keep them informed as the project progresses. The members will need to be made aware of the evaluation timetable so they may schedule sufficient time to conduct the requisite reviews of written proposals, check client references and participate in oral interviews.

The evaluation team may be comprised of any number of agency personnel including, but not limited to:

- The Procurement Officer for the agency
- Facility Operations/Building Manager
- Maintenance Supervisor
- Agency Administrator/Energy Officer
- Accounting/Finance Representative
- Legal Representative
- Performance Contracting Specialist

However the team is assembled, it is very important that those individuals involved with daily facility operations be included throughout the entire procurement and evaluation processes.

The role of the evaluation team is to review and evaluate the proposals of competing ESCOs in order to select the most qualified company to implement the EPC project. It is likely that team members will have varying degrees of expertise and areas of interest with regard to the project.

Working together as a team will allow some of the evaluation tasks to be shared (e.g., client reference checking, the review of sample energy audits and financial statements, etc.) and offer the opportunity for different concerns and issues to be addressed. Selecting team members with diverse backgrounds and perspectives can be valuable in reviewing the technical, financial and legal components of the potential project.

Overview of the Request for Proposals Process

It is suggested that Alabama public agencies use a *Request for Proposals (RFP)* for the procurement of energy performance contracts. The RFP is used to solicit and invite the submission of proposals by ESCOs capable of implementing an EPC project in the facility(s). A Sample RFP is located in Appendix C.

The procurement process is described in the Sample RFP as follows:

ESCOs Written Proposals: The first step is the submission of ESCOs written proposals. ESCOs written proposals should include a list of past projects and client references to be investigated, evaluated, scored and ranked. The combined scores from the evaluation of ESCOs written proposals and client references are used to shortlist the three highest ranked firms to participate in detailed oral interviews.

Oral Interviews of Shortlisted ESCOs: Oral interviews are conducted to further discuss the competing ESCOs approaches to the project and to give them the opportunity to respond to specific questions posed by the evaluation team. The short listed ESCOs are then evaluated, scored and ranked based upon their performance at the oral interviews.

ESCO Selection: The final stage of the procurement process is the selection of the best qualified ESCO to implement the EPC project. This selection is based upon the cumulative scores of the written proposals, client references, and oral interviews and consensus of the evaluation team. The highest ranked ESCO is then recommended for selection to proceed with the project.

After receiving the necessary administrative approvals for the selected ESCO to go forward with the project, the next step is for the ESCO to conduct the energy audit (technical grade investment audit) of the project site(s). An energy audit agreement is executed which authorizes the ESCO to conduct a complete technical and economic analysis of the facility(s). This results in a final list of energy improvements to be installed, a description of services to be provided, complete contract terms and conditions, project timetables, and all costs and savings projections associated with the project. It is important for the agency to independently review and verify the results of the energy audit conducted by the ESCO. Whether outside technical consultants or in-house technical personnel are used to verify this information, all components of the proposed and final technical scopes of the project should be thoroughly reviewed prior to the execution of the final contract. This information provides the basis for the negotiations of the final scope of work and services, as well as final contractual terms and conditions.

If the agency decides to enter into the final EPC contract, the cost of the audit services will be rolled into the project financing and amortized over the project term. ESCOs costs for conducting the audit should be disclosed in their written responses to the RFP by line item.

It is important to bear in mind that if the agency is unable or chooses not to enter into the final EPC contract, the agency is obligated to pay the ESCO for the energy audit services performed.

PART IV

THE EVALUATION PROCESS

Overview of the Evaluation Process

The goal of the evaluation process is to identify, among the responsive proposals, the one that offers the greatest benefit to the facility. The process discussed in this section is based on lessons learned from performance contracting projects implemented across the country.

The evaluation process is conducted over a period of time, which can vary in length from six weeks to three months, depending on one or all of the following:

- The technical complexity of the project
- The number of responses received from ESCOs
- The agency's required approval processes

The average length of time needed to complete the evaluation process is generally on the order of 6-8 weeks, including oral interviews. The time required compiling the evaluation data and generating ESCO rankings needs to be considered when establishing the evaluation schedule (see Figure IV, Sample Evaluation Schedule).

FIGURE IV

SAMPLE EVALUATION SCHEDULE

Activity	Timeframe
Receive Written Responses to RFP	Week 1
Evaluate Written Responses (Phase I)	Weeks 1-4
Conduct Client Reference Checks (Phase II)	Weeks 1-4
Tabulate Ratings	Week 5
Shortlist to the Three Highest Ranked ESCOs	Weeks 5-6
Invite Shortlisted ESCOs to Oral Interviews	Weeks 5-6
Conduct and Evaluate Oral Interviews (Phase III)	Weeks 6-7
Tabulate Point Data from Interviews	Weeks 7-8
Select ESCO to Proceed with Project	Week 8

The evaluation methodology used in this manual is a three-phase process:

Phase I - Review of Written Proposals
Phase II - Client Reference Checks
Phase III - Oral Interviews

This evaluation methodology uses the combined scores from Phases I and II to shortlist the three highest ranked ESCOs to be invited to participate in oral interviews, Phase III.

There are three sets of Sample Evaluation Forms contained in Appendix F, which correspond to the three phases of the evaluation process. Each set of forms contains the specific evaluation criteria and a range of point values from 0-5 points with 5 having the highest value.

For all three phases of the evaluation process, the evaluation criteria has been aggregated and organized into the following four major categories:

- Past Experience
- Approach to Project Management
- Technical Capabilities & Expertise
- Financial Strength

It is recommended that the evaluation categories be weighted to reflect their relative importance to the overall goals of the specific project. For example, the most important category could be weighted using a factor of 3 (e.g., where a 5 point score would be valued at 15 points, a 4 point score valued at 12 points, etc.). The less important category would then be weighted by a factor of 2 or 1 (e.g., a 5 point score would be valued at 10 or 5 points, respectively).

One very important design feature of the evaluation methodology is the **"Unable to Rank"** category, which should always be used when the evaluator has insufficient personal knowledge or experiences to be able to fairly rank the information provided. By checking **"Unable to Rank"** has no point value and therefore no impact (negative or positive) on the ESCO's overall score. This has been included to avoid unfairly penalizing or rewarding an ESCO for the evaluator's lack of expertise. On the other hand, a **"Not Acceptable"** ranking should be given when information requested to be provided by the ESCO is insufficient, non-responsive, or of poor quality. A **"Not Acceptable"** ranking has a negative impact on point scoring.

It is extremely important to instruct the evaluation team members on the difference between the "Not Acceptable" and "Unable to Rank" categories. The distinction between these two categories must be remembered and consistently used during all phases of the evaluation process.

Evaluation Procedures

Selecting the Evaluation Committee

Proposal evaluation requires knowledge and expertise in diverse areas, including but not limited to, facility management, financing, energy efficiency, etc. Effective evaluation requires first-hand knowledge of the facility's needs and operations. A committee approach provides the opportunity to have individuals with knowledge in each of these areas included in the selection of the ESCO. Suggested make up of the committee would be:

- The Procurement Officer for the agency
- Facility Operations/Building Manager
- Maintenance Supervisor
- Agency Administrator/Energy Officer
- Accounting/Finance Representative
- Legal Representative
- Performance Contracting Specialist

It is important to include the facility maintenance and planning staff since these individuals bring essential knowledge of on-site conditions, and they will be the ones working with the selected ESCO during implementation of the project. It will also strengthen their commitment to the project.

Phase I: Written Proposals

The first phase of the evaluation is a review of the written proposals submitted by competing ESCOs in response to the RFP. The written proposals provide the basic information that will be reviewed and further investigated throughout the evaluation and selection process.

Before the evaluation team ranks any of the written proposals, it is useful for the team members to briefly read through all of the proposals to acquire a sense of the variations in the competing ESCOs qualifications. Such a cursory review will also familiarize the evaluators with the proposal contents and how the information is presented and organized.

It is important to note that this is a comparative evaluation methodology. Team members will be ranking the competing field of ESCOs in comparison to each other, not to any abstract standard or "ideal." A simple way to do this is to conduct a “side-by-side” comparison of the written proposals. To assist evaluators in their review, each criterion on the Sample Written Evaluation form located in Appendix F has been indexed to identify where the relevant information is located in the proposal and as an aid for making a comparative appraisal of the quality of the information provided.

Phase II: Client References

The evaluation of client references provided by the ESCO is conducted concurrently with the evaluation of written proposals. It is recommended that client reference checking be done by telephone, each of which usually takes about 10-15 minutes to conduct. Each reference should be asked the same set of prepared interview questions outlined on the Sample Client Reference Evaluation Form located in Appendix F. It is important to request that the reference specifically rank the ESCO in accordance with the point values indicated on the form. This approach will alleviate the possibility of the evaluator subjectively interpreting the reference’s responses.

Since each ESCO will provide a number of client references to be contacted, the task of checking references can be distributed among the evaluation team members. It is recommended that, at a minimum, three client references be checked for each ESCO. This phase of the evaluation process is critical to the review of ESCO proposals since the client references will provide specific information regarding important aspects of the ESCO’s past performance and their satisfaction with the project.

ESCO Shortlist

The Sample RFP located in Appendix C addresses the essential components common to the majority of EPC arrangements. It has been designed to be flexible and can easily be customized to accommodate specific project needs and agency requirements. It will be necessary for agencies to prepare the following project-specific procedures and information for incorporation into the final document.

The tabulated results of Phases I and II are combined and the cumulative scores used to shortlist the three highest ranked firms. The three highest ranked firms are then invited to participate in detailed oral interviews, which constitute Phase III of the evaluation. (A Sample Letter of Invitation to Oral Interviews is located in Appendix F.)

Phase III: Oral Interviews

Oral interviews range from one and a half to three hours in length for each ESCO. Oral interviews should be structured to allow no more than a 15-minute formal presentation by each ESCO to provide an overview of its proposal, with the remaining time used for direct questioning by the evaluation team.

It is recommended that two sets of questions be prepared in advance of the interviews: one set should be asked of all ESCOs on a variety of topics and the other set should be based upon the specific information contained in each ESCO's proposal and information received from client references. It is recommended that one team member be designated to facilitate questioning; however, the format should be open so that all members of the evaluation team have the opportunity to ask questions as they arise.

It is suggested that each ESCO be ranked immediately following their oral interview. At the conclusion of all oral interviews, evaluators may re-rank the companies and discuss their impressions with other team members. (A Sample Oral Interview Evaluation Form is located in Appendix F)

ESCO Selection

The ranking data collected from Phase III is tabulated and added to the cumulative scores from Phases I and II. This results in the final evaluation ranking for each ESCO. A final team meeting should be held for the selection of the highest ranked ESCO to proceed with the project.

Tips for a Successful Evaluation

The following tips have been compiled to assist agencies in conducting a successful evaluation of ESCOs responding to the RFP for an energy performance contract and ultimately leading to the selection of the best and most qualified ESCO to implement the EPC project:

- Assemble a diverse evaluation team who will bring a broad base of technical, financial and legal expertise to the process
- Weigh each criterion in accordance with its importance to the project (e.g., a x 3 value for most important, a x 2 value for less important, and a x 1 for items that are negotiable)
- Briefly review all written proposals before ranking
- Conduct a side-by-side comparison of written proposals
- Check the "Unable to Rank" category if there is any uneasiness in evaluating certain information
- Check the "Unacceptable" category if the ESCO does not provide sufficient information or the information is of poor quality
- Conduct a minimum of three client reference checks for each ESCO
- Have client references indicate a specific ranking in response to the each criterion.
- Shortlist the three highest ranked firms to participate in oral interviews
- Prepare two sets of interview questions in advance of the oral interviews (general and proposal-specific) and designate one evaluation team member to facilitate questioning
- Limit ESCO presentations at the oral interviews to 15 minutes
- Gain consensus of the evaluation team in the selection of the ESCO for the agency's project

PART V

AUDIT PROCESS AND FINAL CONTRACT DEVELOPMENT

Overview of the Audit Process

After the agency has approved the selection of the highest ranked ESCO to proceed with the project, an investment grade technical energy audit agreement is negotiated and signed by both parties. This agreement authorizes the ESCO to proceed with the energy audit of the project site(s).

Under an EPC arrangement, the cost of the audit is agreed to with a provision that if the agency implements the EPC project, the audit cost will be rolled into the project financing and be repaid from the savings achieved. If the project does not go forward, then the cost of the audit will be paid by the agency.

A Sample Investment Grade Technical Energy Audit Agreement, which outlines a representative scope of the work to be performed, is located in Appendix E.

What are Investment Grade Audits?

A high-quality investment grade audit is the technical and economic foundation of a successful EPC project. It must provide sufficient detail that a technically competent evaluator can follow the ESCO's full analysis of the project site(s). In order to conduct a realistic analysis of potential energy and cost savings, the audit must establish and define representative consumption base years for each utility (e.g., gas, water, electric, etc.).

At a minimum, an investment grade audit should include the following:

- A summary table of the proposed measures which defines the cost per measure, annual maintenance cost, life cycle cost analysis and life of the measure, i.e., equipment replacement periodicity;
- A full analysis and definition of the energy base year for each fuel and type of utility; and,
- A full description of the analysis methods, calculations, data inputs, and all technical and economic assumptions.

The cost of investment grade audits varies, but it is important that a thorough and comprehensive technical and economic facility analysis be conducted since this serves as the basis for the design and performance of the project. However, there are economies of scale which help to control audit costs, such as large facilities that may be conducive to using representative equipment sampling. Generally, the cost of an investment grade audit ranges between 10 and 20 cents per square foot; however, in some instances costs may be higher or lower depending upon the complexity of existing equipment and the effort required to collect accurate data.

The time required to complete an investment grade audit will also vary, depending upon the facility size, complexity and data availability; ranging from 2 - 6 months or more in duration.

Challenges of Investment Grade Audits

There are a number of major challenges to completing a quality audit, including:

- Missing or inaccurate data on utility consumption/cost and equipment
- Inaccurate data on building operations and equipment loads
- Inadequate cost estimates for the implementation of savings measures
- Incorrect evaluation of available utility savings
- Undocumented estimates of operation and maintenance savings
- Inaccurate accounting for interactive effects between savings measures
- Lack of analysis of feasible savings measures
- Limited field measurements to verify equipment-operating parameters

Since the results of the audit contain a majority of the information that will be incorporated into the final contract, **it is very important that a rigorous technical review of the audit information be conducted by the agency.**

Overview of the Final Energy Performance Contract

The final energy performance contract document will serve as the blueprint of how the project is going to operate over the entire contract term. It should clearly define each party's roles and responsibilities and explicitly spell out how the project is expected and *guaranteed* to perform. The contract should explicitly detail the relationship between the agency and the ESCO: who is going to do what, when, at what cost and under what conditions. **Due to the long-term nature of this relationship, the contract must be carefully developed and flexible enough to accommodate both the current and future needs of the facility for the duration of the contract term.**

The main body of the contract frames the basic legal provisions and protections to which each party will conform. It specifies governing laws, contingent liabilities, conditions of default and remedies, any regulatory requirements (e.g., insurance, labor and wage rates, minority/women business goals, code compliance, etc.) and indemnification provisions. It can be customized to accommodate additional terms and conditions as necessary.

A Sample Energy Performance Contract is contained in Appendix G. This sample contract is designed as a guide to illustrate the "usual" legal provisions and protections covered in an energy performance contract. The annotations have been added to clarify or elaborate on specific provisions.

Individual projects and circumstances will vary widely. This document should not be construed as having legal authority relating to any single or specific situation; consult legal counsel regarding individual projects.

Contract Schedules

The contract schedules are referred to throughout the main body of the contract and contain the specific details of the project, which are negotiated between the parties. The schedules listed below are offered as illustrative examples of the types of contract schedules that may be negotiated and incorporated into the final energy performance contract. **Titles may be changed and additional schedules attached and elaborated on for specific projects and individual conditions.**

SCHEDULE: EQUIPMENT TO BE INSTALLED BY ESCO

This schedule should specify all of the newly-installed equipment, including manufacturer, quantity, location and warranties (there can also be a separate schedule for warranties). This schedule should also describe any modifications that may have been made to existing equipment, if applicable.

SCHEDULE B: DESCRIPTION OF PREMISES; PRE-EXISTING EQUIPMENT INVENTORY

This schedule contains basic information about the condition of the premises at the time of contract execution. Such information would include facility square footage, building construction, use, occupancy, hours of operation, etc., and any special conditions that may exist.

The inventory is important to include for the purpose of identifying what equipment was in place and how it was configured at the time of contract execution. This schedule is important to the accurate establishment of the energy base year and savings measurement and may need to be referred to in the later years of the contract.

SCHEDULE C: SAVINGS GUARANTEE

This schedule fully describes all provisions and conditions of the savings guarantee provided by the ESCO. The guarantee should define the units of energy and dollars to be saved for the duration of the contract term. Reference to the annual reconciliation of achieved vs. guaranteed savings should be included. (There is also language in Section 4.2 of the Sample Energy Performance Contract regarding annual reconciliation.)

SCHEDULE D: COMPENSATION TO ESCO

This schedule should contain the amount and frequency of any payments that may be made to the ESCO for maintenance, monitoring, or other services negotiated as part of the contract. It should contain information about how the compensation is calculated (e.g., a percentage of savings above and beyond the guarantee, flat fee, etc.) and if an annual inflation index is to be used to escalate fees over the duration of the contract term. An hourly fee structure will also likely be included to cover ESCO costs for any services provided beyond the scope agreed to at the time of contract execution.

SCHEDULE E: BASE-YEAR CONSUMPTION

The base-year utility consumption is the “yardstick" by which the savings achieved by the installed project will be measured. The methodology and all supporting documentation used to calculate the base-year, including unit consumption and current utility rates for each fuel type, should be located in this schedule. This schedule may also include base-year documentation regarding other cost savings such as commodity savings (e.g., bulbs, ballasts, filters, chemicals etc.) and cost savings associated with the elimination of outside maintenance contracts.

SCHEDULE F: SAVINGS CALCULATION FORMULAE; METHODOLOGY TO ADJUST BASE-YEAR

This schedule contains a description of the savings measurement, monitoring and calculation procedures used to verify and compute the savings performance of the installed equipment. This calculation will include a method to compare the level of energy that would have been consumed without the project (referred to as the "base-year") with what amount of energy was actually consumed during a specific time period (monthly, quarterly, etc.). All methods of measuring savings, including engineered calculations, metering, equipment run times, pre- and post-installation measurements, etc., should be explicitly described for all equipment installed. The technical review and approval process for base-year adjustments should be described. Periodically, the base-year may be adjusted to account for changes in conditions that impact savings (e.g., weather, billing days, occupancy, etc.).

SCHEDULE G: CONSTRUCTION AND INSTALLATION SCHEDULE

The timetables and milestones for project construction and installation should be contained in this schedule. If so desired, documentation of required insurance, subcontractor lists and any MBE/WBE required subcontracts may be included in this schedule or broken out into a separate schedule. **NOTE: It is important that the construction/installation phase of the project be treated in compliance with individual agency requirements and the appropriate governing statutes.**

Since construction is just one component of the overall project, a separate construction contract may be desirable and in some cases necessary. The construction contract would then be referred to in the body of the contract and attached as an exhibit, appendix or other type of attachment. Another approach would be to consolidate the appropriate construction language for inclusion in the body of the final contract. This will need to be decided as appropriate on a case-by-case basis.

SCHEDULE H: SYSTEMS START-UP

This schedule should specify the performance testing procedures that will be used to start-up and commission the installed equipment and total system. It should also provide for the agency to be notified of and be present during all commissioning procedures. **This schedule should contain a provision for the documentation of the agency's attendance (or their designee) at the various tests and their formal approval that the tests followed the specified procedures and met or exceeded the expected results.** Detailed specifications for commissioning procedures should be developed during project design.

SCHEDULE I: STANDARDS OF COMFORT

The standards of comfort to be maintained for heating, ventilating, cooling, lighting levels, hot water temperatures, humidity levels and/or any special conditions for occupied and unoccupied areas of the facility, should be explicitly described in this schedule.

SCHEDULE J: ESCO'S MAINTENANCE RESPONSIBILITIES

A complete description of the ESCO's specific operations and maintenance and preventive maintenance responsibilities should be included in this schedule. Also included should be the time intervals for the ESCO's performance of the stated operation and maintenance activities.

SCHEDULE K: AGENCY'S MAINTENANCE RESPONSIBILITIES

This schedule describes the operations and maintenance responsibilities that may be assigned to facility staff as agreed to by both parties. In some instances, it will contain no more than a description of routine operation and maintenance currently being performed on existing energy-consuming equipment in the facility. In other cases, facility staff may provide some maintenance on the new equipment installed under the performance contract, with the ESCO providing any specialized services as needed.

SCHEDULE L: FACILITY MAINTENANCE CHECKLIST

This checklist is a method by which the ESCO may record and track the agency's compliance with any of the maintenance procedures being performed by facility staff. The checklist typically specifies a simple list of tasks and the corresponding schedule for the performance of the prescribed procedures. The facility staff will complete the checklist and forward it to the ESCO on a regularly scheduled basis (monthly, quarterly, etc.). (This checklist is a very useful tool for both the ESCO and agency to verify that the required maintenance activities are being performed at the scheduled intervals.)

SCHEDULE M: ESCO'S TRAINING RESPONSIBILITIES

The description of the ESCO's training program or sessions for facility staff should be contained in this schedule; the duration and frequency of the specified training should also be included. Any provisions for on-going training, commitments to train newly hired facility personnel, and training with respect to possible future equipment or software upgrades, should also be described. Any fees associated with the agency's request for training beyond the contractual obligations of the ESCO should be specified.

SCHEDULE N: INSTALLMENT LEASE PAYMENT SCHEDULE

This schedule contains a copy of the project financing agreement or terms and conditions of whatever financing vehicle is used (e.g., lease, COPs, bank-financing, etc.). An amortization and payment schedule should also be included.

SCHEDULE O: ALTERNATIVE DISPUTE RESOLUTION (ADR)

This schedule describes the methods used to resolve any dispute or claim related to construction or the contract where the parties agree to exercise good faith efforts (e.g., mediation, dispute resolution board) and where litigation would be used only as a last resort. This has been included as an alternative to costly binding arbitration and litigation. (See Appendix H for sample ADR language)

Optional Contract Schedules

The following schedule types may be included or combined with others or may be contained in the audit report as desired.

PRE-EXISTING SERVICE CONTRACTS

Information regarding the scope and cost of pre-existing equipment service contracts may be located in this schedule. This gives both the agency and the ESCO information as to how and when the existing equipment is being serviced. As well, if the ESCO is credited with any maintenance savings or is taking over any existing service contracts, the scopes and costs of such contracts will be useful in tracking the performance of the ESCO in providing the required services and documenting any attributable cost savings.

ENERGY SAVINGS PROJECTIONS
This schedule should contain the projected energy savings in units for each year of the contract. Oftentimes, these projections are broken down on a measure by measure basis, although some measures may be aggregated into general categories, such as lighting or HVAC. If there are several buildings involved in the project, this schedule should contain projections for each facility even though they may all be covered under a single guarantee.

PROJECTED FINANCIAL PERFORMANCE
This schedule should contain a spreadsheet depiction of the expected financial performance of the project for the entire contract term. It should clearly identify all of the financial components of the project, including interest rates, current fuel prices, any escalation rates to be applied, the guaranteed savings figures, ESCO compensation figures, cash-flow projections, and projected Net Present Value of any cumulative positive cash-flow benefits to the agency.

FACILITY CHANGES CHECKLIST
A "Facility Changes Checklist" or other method may be provided by the ESCO for the agency to notify the ESCO of any changes in the facility that could have an impact on energy consumption (e.g., occupancy, new equipment acquisition, hours of use, etc.). This checklist is generally submitted on a monthly or quarterly basis.

CURRENT AND KNOWN CAPITAL PROJECTS AT FACILITY
If there are any current or planned capital projects to be implemented in the facility, such information should be contained in this schedule. This information could prove to be very useful in the out-years of the contract to avoid potential disputes over long-term savings performance, overall facility energy consumption and associated energy costs.

Managing EPC Projects to Avoid Disputes

EPC projects require cooperative efforts between the agency and ESCO to achieve the goals of energy and cost savings, more efficient, effective equipment maintenance and a comfortable building. The long-term results from a 20-year EPC contract require effective communication, a mutual understanding and the fulfillment of contract responsibilities. If any of these areas are inadequate or nonexistent, the relationship between the agency and the ESCO will degrade and the success of the project could be jeopardized.

Mutual duties should be explicitly defined in the contract and clearly understood by both parties. Any contractual conditions which could affect changes to the savings guarantee must be realistic and technically sound.

Adequate staff training and accurate documentation of equipment technical performance requirements are essential to successful project performance. Consistent monitoring of the project and reviews of project performance provide important feedback to keep the project on track. The coordination of energy performance contracts with other construction projects will help to minimize conflicts between project goals.

A good way to avoid disputes is to put all agreements about changes to the project in writing. The resolution of problems through prompt and effective action by both the ESCO and agency is essential to avoiding disputes. Sound technical solutions, which are transparent to both parties, should satisfy each one's legitimate interests. It is advisable to have a process in place to confirm, by mutual sign-off, that performance problems are solved.

Since vague definitions of technical and economic data and methods of performance measurement invite misunderstanding and differing perceptions, **it is important that clear definitions be provided.** Technically and economically feasible methods of measurement should be consistent with industry practices, well documented and mutually approved. All technical calculations should be double-checked for data input and math errors and fully documented to explain any necessary base-year adjustments.

Open and timely communication between the ESCO's and agency's staff that are charged with performance responsibilities is crucial to project success, especially during project commissioning. **Each party should fully describe any project performance concerns and objectively evaluate the merits of a variety of options to fairly and efficiently resolve performance problems.**

It should be a mutual goal of the ESCO and agency to voluntarily resolve performance problems. It is not advisable to delegate a technical dispute to attorneys or experts and relinquish personal involvement in its resolution. **It is important to fully disclose all pertinent information and not allow frustration to result in lost focus of the parties' real interests and value of the project.**

The voluntary resolution of performance problems is greatly facilitated when the parties are committed to seeking a resolution based on good faith. **All pertinent facts should be fully disclosed early in the resolution process and both parties need to devote sufficient time and resources to properly evaluate viable options.** The ESCO and the agency must realistically evaluate the high risks and costs of seeking legally binding involuntary resolution. Litigation and formal arbitration are usually very expensive and involve lengthy procedures where the judges or arbitrators often have inadequate expertise to understand complex technical issues. Alternative dispute resolution (ADR) that requires the use of mediation should be included as a standard contract provision to minimize the high cost of resolving performance problems (see Appendix H for ADR language).

PART VI

SAVINGS MEASUREMENT AND VERIFICATION

What is Measurement and Verification (M&V)?

Since energy and operating savings are calculated by comparing consumption and costs before and after the installation of energy efficiency equipment, the key is to estimate what the building energy use would have been if no energy project had been installed.

This estimate is defined as:
The base-year utility consumption and cost for the building or a specific energy-using system (e.g., lighting system, HVAC).

The base year provides the foundation for the technical and economic analysis of savings from the new energy equipment and is used to define, measure, calculate and monitor the value of future energy savings.

The base year definition can be affected by a variety of factors, each of which must be carefully analyzed. These factors include:

- Changes in building equipment, schedule, occupancy or controls
- Changes in operations or maintenance procedures
- Unusually mild or severe weather
- Changes in utility costs
- Existing service levels for lighting, ventilation, temperature and humidity
- Equipment sizes, loads and operating condition

Significant changes in the building or energy-using systems that could occur after project installation may require the base-year to be adjusted to correct for the impact on savings as a result of changes. In such instances, a corrected base-year would need to be used in calculating savings.

Due diligence by both the ESCO and the agency is required to develop an accurate representative base year. Some challenges to calculating accurate base year estimates include:

- Data analysis which does not account for the impact of broken or offline equipment
- Utility data errors due to billing or metering problems
- Unknown equipment run hours
- Unknown actual equipment loads
- Inaccurate data provided to the ESCO by facility staff

Why Measure and Verify Savings

Based on a 1990 study conducted by Lawrence Berkeley Laboratory on measured savings in 1,700 commercial and institutional buildings, only 16 percent of the buildings came within 20 percent of predicted energy cost savings. In large buildings, equipment monitoring has the potential to significantly boost energy efficiency through improved operations and maintenance.

- Periodic measurement maximizes the persistence of cost savings over the contract term
- Verification of the value of savings provides project performance accountability
- Monitoring improves equipment reliability and provides optimized system performance
- Periodic savings reports provide valuable data for cost accounting and budget forecasting
- Measurement of building systems provides data needed for corrections to the base year
- Detailed energy data provides benchmarking data for cost reductions in similar buildings
- Measurements also provide useful load profile and accurate analysis data for negotiating with energy suppliers

Methods of Measurement and Verification

The International Performance Measurement and Verification Protocol (IPMVP) was developed by the U.S. Department of Energy in cooperation with many nationally recognized technical advisors. This protocol is intended to define technical guidelines in the field of M&V. The IPMVP provides many basic technical ideas. Keep in mind it must be customized before it can be applied to a specific EPC project. An electronic copy of the IPMVP can be downloaded from the following website: *http://www.ipmvp.org*.

The IPMVP identifies four main options for M&V:

- Option A is designed to estimate savings for projects where one-time measurements of pre- and post-energy use or manufacturer's measurements are used in conjunction with agreed-to operating hours. Equipment inspections may also be required to verify equipment conditions.

  Option A costs between 1-5 percent of construction costs and provides an accuracy of +/- 20 percent.

- Option B involves continuous measurement of pre- and post-energy use for specific equipment or an energy end-use equipment sample. Sub-metering is typical of this approach.

  Option B costs between 3-10 percent of construction costs with an accuracy of +/- 10-20 percent.

- Option C uses the main building meter to measure savings from all project efficiency measures. This approach also involves continuous measurement of usage.

  Option C, with monthly data, costs between 1-3 percent of the construction cost with an accuracy of +/- 20 percent.

- Option D uses calibrated computer simulation of post installation energy use to measure savings.

  Option D costs between 3-10 percent of construction costs and provides and accuracy of +/- 5-10 percent.

Factors that affect the cost and appropriate level of M&V include:

- Value of projected savings
- Complexity of efficiency equipment
- Total amount of equipment
- Number of interactive effects
- Level of uncertainty of savings
- Risk allocation for achieved savings between agency and ESCO
- Other valuable uses of M&V data (e.g., optimizing operations and maintenance)
- Availability and capability of an energy management system

Measurement and verification of operations and maintenance savings are usually stipulated by the parties and are based upon calculations of labor and commodity cost savings. These may include reductions in outside labor costs, scheduled maintenance, unscheduled repairs, parts and materials, internal labor costs and inventory costs.

The IPMVP contains guidelines on verifying operation and maintenance savings. A key contractual issue to address is whether the ESCO will reimburse the customer if operation and maintenance savings are not achieved.

Guidelines for M&V and Project Performance Monitoring

The following guidelines can be used for conducting M&V and project performance monitoring:

- Describe the efficiency measures and data required for calculating savings
- Plan how to best collect the data required, how the data are to be formatted, and define any input for calculations
- Value savings using utility bill reconstruction to reflect the true costs of the new levels of utility consumption
- Clearly calculate and document operation and maintenance savings
- Clearly define reasonable escalation rates used to value future savings and service fees in the contract
- Use measurement procedures which produce consistent results no matter which party uses the procedure
- Use measurement methods which are clearly defined, provide timely data and are cost-effective, technically sound, reasonably accurate and contractually binding
- Evaluate M&V data promptly and implement corrective actions (if necessary) to optimize project performance
- Make certain that monitoring reports document the calculations supporting any base year adjustments
- Implement a formal savings report schedule and review and approval process
- Present both consumption and cost savings in relation to target savings in graphic and numeric data formats
- Provide data sources, time periods and explanation for any variance from predicted savings performance

M&V plans must specify the following:

- What will be measured, calculated, simulated or estimated and by whom
- When measurement or calculations will be done
- Description of any measurement devices, calculations, computer models and assumptions
- How measurement devices are checked for accuracy
- How measured or calculated data will be used to verify savings and sample calculations of savings
- A sample periodic savings report showing all the data and results

RESOURCES

Alabama Department of Economic and Community Affairs
Energy Division
401 Adams Avenue, Suite 560
P.O. Box 5690
Montgomery, AL 36103-5690
(334) 242-5290
www.adeca.alabama.gov/energy

National Association of Energy Service Companies (NAESCO)
1615 M Street NW, Suite 800
Washington, DC 20036
(202) 822-0950
www.naesco.org

National Association of State Energy Officials (NASEO)
1414 Prince Street, Suite 200
Alexandria, VA 22314
(703) 299-8800
www.naseo.org

U.S. Department of Energy
www.doe.gov
"Rebuild America Program"
www.ornl.gov/rafs/rafs.htm

Energy Service Coalition (ESC)
www.energyservicescoalition.org

Federal Energy Management Program (FEMP)
www.eren.doe.gov/femp

Florida Department of Community Affairs—State Energy Program
2555 Shumard Oak Boulevard
Tallahassee, FL 32399-2100
(850) 488-2475

International Performance Measurement Verification Protocol
www.ipmvp.org

Association of Energy Engineers (AEE)
www.aeecenter.org