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Energy Savings Performance Contracting for Small Projects

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FOR MORE INFORMATION

This document and additional Energy Savings Performance Contracting (ESPC) resources are available in DOE's ESPC Toolkit, located at Energy Savings Performance Contracting (ESPC) Toolkit | Better Buildings Initiative and on DOE's State and Local Solution Center, located at Energy Savings Performance Contracting | Department of Energy.

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List of Acronyms

DOE	U.S. Department of Energy
EIA	U.S. Energy Information Administration
ESCO	energy service company
ESPC	energy savings performance contracting
FEMP	Federal Energy Management Program
HVAC	heating, ventilating, and air conditioning
IGA	Investment Grade Audit
M&V	measurement & verification
O&M	operations & maintenance
RFP	request for proposals
SEO	state energy office
TELP	tax-exempt lease purchase agreement

Contents

Executive Summary

Energy savings performance contracting (ESPC) is commonly implemented by large, public-sector entities such as states, universities, and large metropolitan school districts. However, there is a significant opportunity, estimated at $35.6 billion,[1] for upgrades in small and rural facilities throughout the country. ESPC offers these under-funded governments a strategy to upgrade aging infrastructure and buildings without straining local budgets.

For decades, state and local governments across the country have used ESPC to successfully upgrade facilities. Instead of making capital improvements as funds become available, ESPC provides a way to fund and implement facility-wide, comprehensive, and cost-effective improvements all at once using self-generating funds. Projected guaranteed savings from energy-saving projects and operations and maintenance (O&M) cost savings meet finance payments over the useful life of the equipment. ESPC operates on the concept that the operating budget has opportunities for improved efficiency throughout, and these savings can be redirected to pay for improvements.

Historically, smaller towns, rural counties, and small school districts with fewer, smaller buildings were considered poor candidates for ESPC projects because of the unique challenges that small projects present. For example, energy service companies (ESCOs) that implement ESPCs often hesitate to take on small projects because the project development cost is about the same as for a large project, but small projects have limited savings opportunities to absorb these costs. Small projects may also consist of widely distributed buildings or rural locations that increase the ESCO's travel time to reach facilities, further increasing project costs.

Small projects can successfully overcome these challenges to using ESPC by applying one or more of the following strategies:

- **Streamline the process.** Reduce overhead costs for yourself and your ESCO by simplifying the scope of work, using preselected ESCOs where possible, and standardizing the procurement and implementation processes.
- **Partner with others.** Initiate a multi-government partnership to select the same ESCO and unlock economies of scale.
- **Think more broadly.** Include all relevant buildings, infrastructure, and grounds across all divisions for an organization-wide ESPC project.
- **Use a phased approach.** If your jurisdiction has used ESPC before but only looked at large projects, focus on small buildings as part of a final phase of an ESPC.
- **Go deeper.** Capture deep cost savings from heating, ventilating, and air-conditioning (HVAC) equipment and controls; lighting system upgrades; water use; building envelope improvements; and more. Supplement with solar photovoltaics.
- **Consider all funding streams.** Apply ancillary savings from O&M budgets. Bring in supplemental funds to expand the project such as grants, capital contributions, and utility rebates.

> Energy consumption in state and local government buildings totals 1,451 trillion Btu and $29.3 billion annually. With a 20% improvement in energy performance, these buildings could save $6 billion per year.
>
> *Source: EIA, 2012 CBECS, Tables C1 and C2*

Specific project examples in this guide demonstrate how small projects, often rural with small-scale buildings, upgraded their facilities through ESPC by employing small-project strategies:

- The small town of Stafford, Connecticut (population 12,000), upgraded all of its 15 municipal buildings, including five schools. The $1.6 million project is paid for through annual guaranteed savings over a 10-year financing term.

- The small, rural city of Bemidji, Minnesota, applied the strategies to expand its ESPC project to $2.45 million, improving all municipal facilities in the town in addition to upgrading city streetlights and lighting in the wastewater treatment plant.
- Clear Creek County, Colorado is a small, rural mountain community with 10,000 residents. Facing an uncertain economic future because of a pending mine closure, the county used ESPC to upgrade all county facilities and manage utility and operations budgets. With the exception of the historic courthouse, buildings in the county were small, with a median area of 10,000 square feet. The ESCO developed a $1.1 million ESPC project and helped the county leverage the $54,000 guaranteed annual savings, using the amount as a funding match for an additional $1.5 million capital improvement grant and turning a small ESPC project into a $3.1 million capital improvement project.
- The town of Chapel Hill, North Carolina, used ESPC to install temperature and humidity controls in two pool facilities and smart scheduling controls for the town hall. The $871,000 ESPC project is supported by $71,000 in guaranteed annual savings over 15 years.
- In Massachusetts, multi-government partnerships are proving effective as a way for small towns to utilize ESPC. The Metropolitan Area Planning Council and the Merrimack Valley Planning Commission both coordinated group procurements, attracting ESCOs to small projects by presenting a large regional group of independent projects. The towns of Chelsea, Merrimack, and Sudbury completed projects that included many small buildings totaling $800,000, $1 million, and $1.1 million respectively.

This guide presents strategies, project examples, and resources to facilitate ESPC in small projects or small buildings. Continuing the tradition of the ESPC series, the guide provides a quick overview of ESPC and proposes strategies that can lead to successful performance contracts even on a small scale.

HOW IT WORKS

An ESCO develops and implements the ESPC project and guarantees projected results. A third party finances the total project cost based on the guaranteed annual savings to pay for the improvements. The finance term is typically within 15 to 25 years, limited by the useful life of the equipment. The ESPC process is authorized in state statutes that set requirements for government sectors. This guide describes a typical five-step ESPC process and provides additional resources and guidance to help you get started on your ESPC project. Many states provide additional guidelines and offer supporting resources (See Chapter 7 for guidance and resources).

CHAPTER 1. Introduction to Energy Savings Performance Contracting

What is Energy Savings Performance Contracting?

Energy savings performance contracting (ESPC), or performance contracting, is a budget-neutral approach to implementing facility improvement projects without using funds from capital budgets. Guaranteed cost savings from energy- and water-saving projects meet finance payments over the useful life of the equipment. ESPC can also be an effective near-budget-neutral approach to leverage capital budgets or other funding sources. Find more ESPC information in the U.S. Department of Energy's (DOE's) ESPC Fact Sheet and in DOE's ESPC Toolkit.

If you face these problems at your facility, ESPC may be an ideal solution:

- ✓ Old or inefficient equipment.
- ✓ Too many demands on your budget.
- ✓ Deferred and/or recurring maintenance problems.
- ✓ Limited available staff time.
- ✓ Comfort, operations, or compliance issues.

Many successful ESPC projects have been completed in the federal, state, and local government sectors. Any large facility (>50,000 square feet) or group of facilities is a good candidate for ESPC, including schools, colleges, hospitals, office buildings, and multifamily buildings.

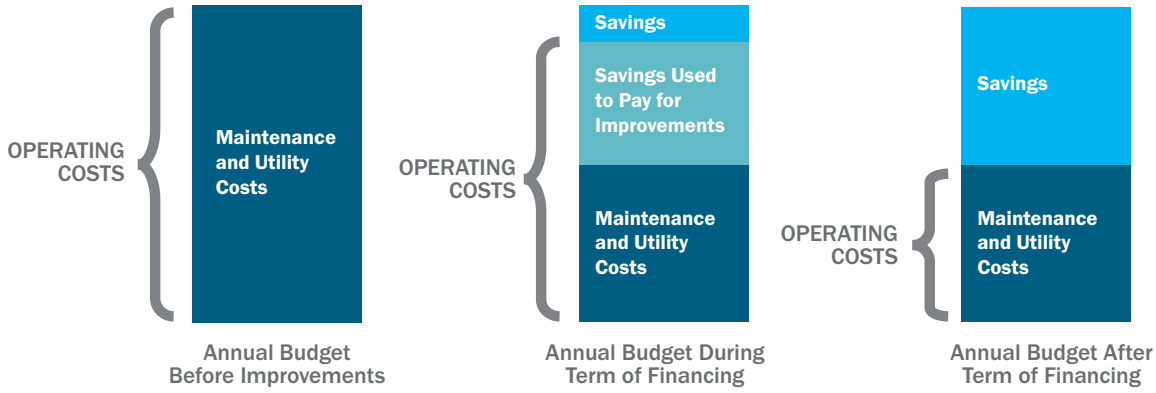
ESPC OPPORTUNITY

ESPC is commonly implemented in large public-sector entities such as states, universities and large metropolitan school districts. Smaller towns, rural counties, and small school districts with fewer, smaller buildings were often considered poor candidates for ESPC projects. However, with careful planning, small buildings or projects can also take advantage of ESPC.

Redirecting Utility and Operational Savings to Pay for Facility Improvements

It is rare for a facility to be operating at maximum efficiency. Deferred maintenance, aging equipment, and inefficient operations all increase utility and operations and maintenance (O&M) costs above optimum levels. ESPC redirects such unnecessary utility and O&M costs to pay for improvements over the useful life of the equipment, as shown in Figure 1 below.

Figure 1: How Savings Pay for Improvements



Upgrading to more efficient equipment and optimizing operations reduces utility costs. Using new equipment reduces the demand for replacement parts and contracted maintenance services, resulting in O&M savings. The resulting savings free up a portion of the annual budget to pay for improvements over time. Figure 1 depicts an annual operating budget before, during, and after payments for improvements. The middle column shows that the annual utility and O&M savings resulting from facility improvements are redirected to make payments throughout the financing term. The last column shows that after the financing term is complete, the equipment owner continues to accrue savings which can be used for other purposes.

An energy service company (ESCO) develops and implements the ESPC project and guarantees projected results. A third party finances the total project cost based on the guaranteed annual savings to pay for the improvements. The finance term is typically within 15 to 25 years, limited by the useful life of the equipment and state statutes.

See Chapter 5 for more details on the components of ESPC.

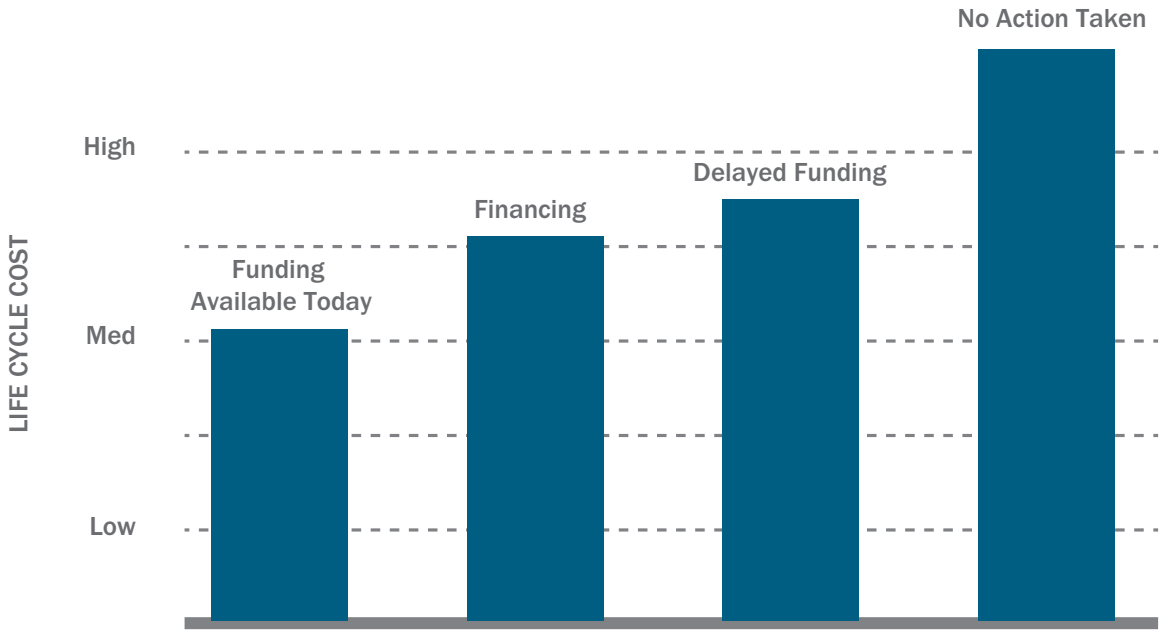
See Chapter 7 for additional resources and guidance to help you get started on your ESPC project.

Benefits of Energy Savings Performance Contracting

Overcome the Barrier of Limited Budgets

Limited capital budgets present a barrier to funding energy efficiency projects. ESPC can remove the financial barrier by using savings to pay for upgrades today instead of waiting for a capital budget allocation. If you wait for funding to become available in the future instead of financing today, it will actually end up being more expensive, because the cost of continuing to pay high utility bills during the waiting period exceeds the interest cost of financing the improvements today. By comparing different project funding approaches using the ENERGY STAR® Cash Flow Opportunity Calculator and Financial Value Calculator located at www.energystar.gov/financialevaluation, Figure 2 shows that financing energy efficiency projects is more cost-effective than waiting for future capital budget appropriations or taking no action.

Figure 1: How Savings Pay for Improvements



Improve Facilities and Systems

ESPC's comprehensive approach may upgrade some or all of an owner's systems or facilities at once, capturing synergies and economies of scale. It modernizes infrastructure, improves the work environment, and streamlines maintenance practices to sustain savings and effective operations.

Demonstrate Environmental Stewardship

Reducing long-term energy use through efficiency and renewable energy conserves natural resources, reduces air and water pollution, and reduces our dependence on fossil fuels. Many governments have climate and energy savings goals or long-term sustainability plans. ESPC provides the financial means and technical expertise to achieve those goals, comply with environmental standards, replace antiquated systems, improve processes and operations, and reduce waste.

Use Capital Budget Dollars Wisely

Capital budgets are limited and often stretched across many priorities. With ESPC, utility and O&M dollars that are no longer needed for their original purpose are invested in infrastructure improvements. Reducing energy and water use helps stabilize the utility budget, reducing the risk of future volatility in energy prices and reducing the associated taxpayer burden.

Support Economic Development

ESPC projects create jobs, and some ESCOs report anecdotally that as much as 70% of the project cost remains in the community. ESCOs often use local contractors that are familiar with the facility and already have a good working relationship. Many owners have challenged ESCOs to buy locally and contract with local companies as much as feasible—an objective stated in the ESCO solicitation.

ESPC OPPORTUNITY

ESPC has been helping public facilities accomplish their priorities for decades. In 2017, ESCOs were projected to have completed $7.6 billion in projects with 53% of that amount coming from non-federal public buildings (state and local, K–12 school, public housing, and hospital), but enormous public-sector needs remain. ESPC provides a technical and financial turnkey solution to upgrade and manage facilities.

CHAPTER 2. Energy Savings Performance Contracting and the Challenges of Small Projects

Public buildings are the home for critical services in their communities and this is especially true in small and rural locations. This chapter outlines the priorities and challenges of public building owners and operators, highlights the unique challenges facing small buildings and associated small projects, and describes how ESPC can address these priorities.

The State of Public Buildings

Owners and operators of public buildings of all types and sizes share several priorities and challenges.

Accomplishing Deferred Maintenance

Deferred maintenance is the postponement of building repairs and maintenance due to budget shortfalls or for short-term cost savings. Infrastructure in the United States, which includes public buildings, has received a cumulative grade of D+ from the American Society of Civil Engineers,[2] reflecting the vast deferred maintenance needed. The age of most public buildings compounds the problem. According to the Commercial Buildings Energy Consumption Survey, 80% of all state and local government-owned buildings in the United States are more than 20 years old and 40% are more than 50 years old.[3]

Aging facilities, especially those with deferred maintenance, are challenging and costly to operate and maintain. With deferred maintenance costs for K–12 schools estimated at $254 billion[4] and the required capital investment for wastewater and stormwater systems estimated at $271 billion over the next 25 years,[5] deferred maintenance across all public facilities may total in the trillions of dollars. State and local governments have limited funds to modernize facilities and keep up with maintenance requirements. The resulting cycle of piecemeal funding for equipment repair and maintenance leads to a backlog of capital needs.

Small Projects Defined

For the purposes of this guide, the term "small projects" refers to the scale of a potential ESPC project. Typically, a facility with a potential project of $1 million or more is considered a "standard" ESPC project. Small project candidates likely meet one or more of the following criteria: A total square footage of less than 100,000, an annual utility budget of less than $200,000, and an initial potential project size of less than $1 million.

Small projects are often associated with small or rural towns, counties, or municipalities that exist in every state.The term "small" can apply to potential projects in individual small-scale buildings, like a rural courthouse or town hall. The Commercial Buildings Energy Consumption Survey reports that 84% of all state and local government-owned buildings in the United States measure 50,000 square feet or less and 93% measure less than 100,000 square feet.

Small projects can also consist of groups of small buildings, such as small school districts with fewer than five schools; a state agency like a parks department with small offices, museums, and visitor centers scattered throughout the state; or small office buildings that were not included in previous ESPC projects.

Public building operators across the country face common challenges:

- Juggling competing budget priorities.
- Managing operational and utility costs to reduce taxpayer burden.
- Handling increasingly challenging maintenance needs with shrinking budgets.
- Upgrading infrastructure as needed to provide mission-critical services.
- Operating aging facilities.
- Providing support with limited staff.

Managing Energy Costs

The public sector spends about $29.3 billion a year on energy.[6] Just like capital budgets, operating budgets are stretched, and the cost of energy continues to increase. Between 2000 and 2010, the cost of energy in the United States increased by approximately 80%,[7] and the U.S. Energy Information Administration (EIA) expects energy costs to continue increasing through 2040.[8] EIA projects that the prices of oil (5.1%/year), natural gas (4.6%/year), coal (2.7%/year), and electricity (2.3%/year) will all rise.

Compounding the cost issue is the fact that many existing public buildings were designed when energy was relatively inexpensive and concern for long-term energy price escalation was not factored into their construction. As fuel prices fluctuate and buildings age, those inefficient buildings can be increasingly expensive to operate. Addressing energy costs is critical for building operators as part of their building management strategy.

Maintaining the Indoor Environment

A building's indoor environment refers to the ambient conditions inside the building for its occupants. Studies have shown that poor air quality, inconsistent temperatures, and inadequate lighting in buildings compromise health, comfort, and productivity for building occupants, such as employees of an organization or students in a school.[9] For example, pollutants, allergens, and other contaminants can lead to respiratory infections and other physical ailments, which result in increased sick-day absences. Poor ventilation can also contribute to air quality problems and result in diminished occupant productivity. Aging heating and cooling equipment can make it difficult to maintain consistent, comfortable indoor temperatures, and insufficient natural daylight and poor-quality indoor lighting can compromise occupant well-being and productivity. Poor indoor environmental quality can be particularly relevant in older public buildings where the current use case has changed significantly from the original design intent.

Energy efficiency building upgrades have proven to be an effective tool in improving the indoor building environment. Building system upgrades have supported improvements in "occupant performance" by up to 26%. Building improvements also reduce instances of respiratory diseases by as much as 20%, allergies and asthma by up to 25%, and other occupant health and discomfort by as much as half,[10] reducing the number of missed workdays due to illness.

Unique Challenges Facing Small Projects

Beyond the challenges shared with other public building projects, small projects face three additional, unique challenges that make it difficult for them to readily use ESPC, namely: 1) identifying economically viable retrofit projects, 2) finding staff with the time and expertise to oversee an ESPC, and 3) managing risk.

1. Designing projects that are economically viable

ESCOs determine a project's suitability for ESPC by looking at the facilities' annual utility expenditures and rates, building age, past equipment upgrades, and funds available to contribute to the project. They compare the potential technical scope of the project (and therefore potential savings to pay for it) to the costs required to develop the project. Because an ESCO's project development costs are about the same for a large project as for a small one, it is often challenging for small projects to reach a technical scope for ESPC that promises sufficient technical savings opportunities to absorb standard project development costs.

Complicating matters, small projects often present additional costs not present in large projects. For example, small projects may consist of widely distributed buildings or rural locations far from the ESCO's operating area that increase the ESCO's travel time to reach facilities. It is important for small projects to include a technical scope and savings that outweigh the extra costs required to manage the project and attract the interest of ESCOs.

2. Identifying experienced staff to lead an ESPC project

For those with little prior experience, trying to manage the entirety of ESPC process can be challenging. This is particularly true for small local governments with limited staff already stretched thin with other obligations.

3. Designing projects that adequately manage risk

Financial institutions assess a range of risks before approving investment in projects. Unfortunately, some of the risks that jeopardize investment approval are common in small or rural projects:

- Smaller project sizes (lower dollar amounts) are often less attractive to potential financial partners than large- dollar-volume projects.
- A shrinking tax base, particularly in rural communities experiencing population decline, impacts a community's ability to make future payments.
- The "essentiality" of buildings is considered a risk factor in whether the building continues to receive funding or is potentially mothballed. For example, a jail or town hall is more likely to remain in use than a municipal golf course or community building.

These risks make it difficult for small communities and their projects to represent a sound investment. Thus, it is important for small projects in particular to adequately manage these risks and gain the confidence of financial institutions.

Despite their challenges, it is essential to address small buildings, given their significant share of the U.S. building stock, important role in their communities, and deferred maintenance and upgrade needs. The National Institute of Building Sciences estimates that the investment potential for energy retrofits in buildings smaller than 50,000 square feet is $35.6 billion.[11]

The ESPC Solution

The good news is that many ESCOs are interested in implementing small-scale projects and there are ways to design small ESPC projects that are both economically and technically viable.

This guide provides information, strategies, and resources to make ESPC a more accessible option for small projects. The next chapter (Chapter 3) describes successful strategies that small projects can use to partner with ESCOs and financial institutions for energy savings performance contracts. Chapter 4 then shares success stories demonstrating how specific small projects have made ESPC work for them.

CHAPTER 3. How Small Projects Can Use Energy Savings Performance Contracting

As noted in Chapter 2, the critical challenge lies in developing projects that attract both the interest of ESCOs and the confidence of financial institutions. This chapter outlines strategies for developing economically and technically viable small projects to meet the challenge and provides case studies that demonstrate how ESPC can work for small projects.

Strategies for Successful Energy Savings Performance Contracting in Small Projects

The ESPC model depends on a scope of work in which the opportunity for savings is sufficient to repay the project financing over time. The key to successfully implementing ESPC in small projects is to design and plan for technical and economic viability. This section presents a set of key strategies that can help improve the viability of small projects. Not every strategy needs to be implemented on every project; in fact, some strategies may be mutually exclusive. State and local law and regulations may also prescribe certain ESPC approaches and limit or even prohibit the use of some of the strategies outlined below. Many state energy offices (SEOs) have ESPC programs that can serve as an excellent starting point to get up-to-date information on what is allowed in your state.

1. Optimize the Process

Overhead costs for an ESCO to develop and oversee a project can make the difference in the go/no-go decision for your small-scale project. As mentioned in Chapter 2, project development costs are about the same for a large or small project. Those costs represent a larger share of a small project, eliminating savings that would otherwise pay for equipment. Several steps can streamline the process and cut transaction costs for the project:

Six Key Strategies for Success

1. Streamline the process. Reduce overhead for you and the ESCO.
2. Partner with others. Initiate a multi-government partnership.
3. Think broader. Include all community facilities and assets.
4. Use a phased approach. Focus on small buildings as one phase of a series of ESPC projects over time.
5. Go deeper. Include more measures to capture all possible cost savings.
6. Leverage all available funding streams. Explore all options to bring in more funds.

a. Make Use of Expert Assistance Where Available
ESPC is complex and organizations may be unable to work through those complexities on their own. ESPC specialists—from your SEO, for example—may be available at minimal or no charge to help you develop and oversee a project. This third-party support will reduce your staff time commitments as well as the ESCO's, which can translate to reduced costs. Many states have ESPC programs offering support such as educational resources, preapproved process documents, prequalified ESCO lists, and technical assistance that may be available to you (see Chapter 7, Getting Started). The General Services Administration Schedule 03 FAC 871 200-211 also provides a list of pre-qualified firms offering energy management support services for small facilities and may be useful in identifying project facilitators.

b. Select an ESCO with Experience in Small Projects
Selecting an ESCO with interests and a business model suited to small projects or to projects in your region will give your ESPC project a better chance of moving forward. DOE's ENABLE program offers a list of ESCOs pre-qualified for small projects throughout the nation (see "ENABLE" text box for the link).

Location is also an important criterion for ESCO selection. An ESCO that has ongoing projects in your region, particularly if your project is in a distant rural area, is a good match because travel time to your project would no longer be prohibitive or add excessive costs. Further, an ESCO that provides on-call mechanical services in your region may be interested in follow-up maintenance services or other continued work on the project facilities, making the project more attractive as a package, even in remote locations.

c. Streamline the Process

Depending on what is allowed in your state, streamlining parts of the ESCO selection and implementation phases can keep ESPC project costs in line. At the procurement step, the key is to avoid making it costly for the ESCO to respond to the solicitation. Providing as much facility information as can be reasonably available in the request for proposal can help ESCOs assess the opportunity before responding (see Chapter 6, Step 2). Streamlining the request for qualifications and experience also reduces costs for responding. The Federal General Services Administration cooperative agreement for state and local governments also allows state and local governments to procure ESCO services through its standing ENABLE program (see "ENABLE" text box for the link).

Once the ESCO embarks on an assessment of the project facilities, streamlining the auditing process is a good way to keep costs in check. Finally, measurement and verification (M&V) costs can be controlled by adjusting M&V requirements to fit the measures involved in small projects. Those adjustments might mean limited measurements at longer intervals to verify performance without compromising the guarantee. The ENABLE Investment Grade Audit (IGA) tool provides M&V recommendations for the most common energy conservation measures. M&V can also be streamlined to match the simpler HVAC and controls systems typical in small buildings.

ENABLE

DOE's Federal Energy Management Program (FEMP) developed a simplified ESPC process for small federal facilities called ENABLE. It is designed to streamline the ESPC process, delivering projects in six months or less, and is also available to state and local governments through General Services Administration Federal Supply Schedule 84, SIN 246-53. ENABLE supports five measure types: lighting, water, HVAC controls, HVAC systems, and solar PV. The following may be of particular interest to state and local governments:

The General Services Administration cooperative agreement for state and local governments allows state and local governments to access General Services Administration schedule products and services: https://www.gsa.gov/buying-selling/purchasing-programs/gsa-schedule/schedule-buyers/state-and-local-governments.

The ENABLE list of prequalified ESCOs for small facilities provides pre-vetted ESCOs that work on small projects: https://www.energy.gov/eere/femp/energy-savings-performance-contract-enable-energy-service-companies.

The ENABLE Investment Grade Audit (IGA) tool standardizes the investment grade audit process for five common measures: https://www.energy.gov/eere/femp/energy-savings-performance-contract-enable-federal-projects.

Action Steps

- Investigate potential free expert assistance available from the state's ESPC program.
- Select an ESCO with experience in small buildings and ESCOs already active in the project location. Reference a list of prequalified ESCOs with small project experience available from your SEO or through ENABLE.
- Where allowed by state statute, ask the selected ESCO to use the small-project auditing and M&V processes from the ENABLE program.

2. Partner with Others

Cities, counties, towns, school districts, and community colleges in the same region can form a partnership to jointly solicit an ESCO through a group procurement. A cooperative procurement authority, regional council of governments, or planning council can be invited to coordinate the parties and manage the solicitation. If one of the partners is larger and has an anchor project that might be viable on its own to attract an ESCO, that local government or college can share its staff and expertise to manage the effort for the smaller entities within the partnership.

In a group procurement, each participant agrees to use a standardized contracting approach and to select and use the same ESCO. This lowers the cost of doing business for the ESCO within an area and makes smaller projects more viable. In the most flexible type of group procurement, once the ESCO is selected, each participant then moves forward independently to contract with the ESCO and develop its own ESPC project. This approach has the advantage of allowing separate entities with independent building ownership, budgets, payment commitments, cost and savings projections, and credit ratings to move forward with ESPC. Offering a broader scope of work for the ESCO returns an economy of scale in ESCO pricing, potentially reducing each participant's project costs. When work on multiple projects in the same region is concurrent, it reduces the ESCO's travel time and costs. It can also reduce overhead costs for the ESCO to mobilize a site supervisor and work crews. More work and reduced individual project management costs for the ESCO increases the likelihood that the ESCO will be accessible for quality, long-term maintenance services, particularly for rural projects.

Defining Group Procurements and Joint Contracting

The state of Colorado defines three different types of grouped ESPC approaches as follows:

Aggregation – The aggregating of multi-jurisdictional efficiency and/or renewable energy projects into one ESCO contract and one financing contract.

Pooling – The pooling of multi-jurisdictional energy efficiency and/or renewable energy projects into one ESCO RFP. After the ESCO is selected, each public jurisdiction enters into a separate ESCO contract and financing contract.

Bundling – a single public jurisdiction bundling all of their smaller departments under one ESCO and financing contract.

Joint contracting (bundling buildings across multiple independent entities into a single project) and joint financing (co-funding a project) are also possible group contracting approaches but are complex and rare in practice.

Although there have been some attempts to standardize (see sidebar), the terms "aggregated," "bundled," or "pooled" are often used interchangeably to describe various forms of group procurement and joint contracting.

Action Steps

- Seek out neighboring or similar organizations to join together to solicit an ESCO.
- Form a team to collaborate effectively. Identify a champion to lead the educational effort and a procurement coordinator to manage the group solicitation.

3. Think More Broadly

Including all of your facilities in your project plan, instead of tackling them one at a time, can make an ESPC project economically viable for an ESCO by streamlining the mechanics of ESPC, which most easily suit large-scale projects.

A town or county can plan a community-wide ESPC project that includes the general services administration, parks and recreation, transportation, public works, and the water or wastewater utility. Instead of pursuing an energy savings performance contract individually, a small division within a city department could look to the department to develop a single comprehensive project across all department divisions.

In addition to including all energy-using facilities, a community can involve streetlighting, grounds, and outdoor facilities that consume energy or water. For example, a district-wide schools project would include all schools, administrative buildings, bus garages, maintenance facilities, gyms, pools, ballparks, parking lots, and landscaped grounds.

Including all buildings and other facilities in a community creates a technical scale of work that can generate sufficient savings to cover the costs of developing the project and represent a viable ESPC project for both ESCOs and financial institutions.

Action Steps

- Compile a complete list of all facilities and assets in your town or county to explore a comprehensive organization- or community-wide ESPC project.
- Get buy-in across all departments and divisions to potentially upgrade their facilities through ESPC.
- Set the stage for a broad project starting in the ESCO solicitation. Provide ESCOs the opportunity to define a viable project size by listing all energy- or water-using buildings, outdoor facilities, and grounds.

4. Use a Phased Approach

A phased approach is common for ESPC projects and typically allows an ESCO to address facilities in a community in groups or rounds, as funding or capacity allow. In order to set up a procurement to take advantage of a phased approach, it is imperative to include all facilities in the procurement, even if you are not considering addressing all of them at first. This approach provides an opportunity to make small projects more attractive to ESCOs as part of a comprehensive community upgrade plan that can then be approached in phases.

Action Steps

- Include all energy-using facilities in the solicitation, which enables a phased approach and eliminates future bid protests.
- Include a general statement that a phased approach may be considered.

5. Go Deeper

Small buildings have energy- and water-saving opportunities much like large buildings, but the systems are smaller in scale, less complex, and may have few operating hours with limited opportunity for savings to make an ESPC project viable. In certain situations where the streamlined energy-savings measures are not sufficient to produce a viable project or where a facility has a specific deferred maintenance need, ESCOs may need to dig deeper within the buildings for more opportunities to capture all possible savings. They can look beyond streamlined measures (such as HVAC and related controls, lighting, water conservation) and consider other less common, but equally viable upgrades such as solar photovoltaic (PV) or non-building assets such as fleet, parking lot, or wastewater treatment operations.

Sometimes a building needs a specific fix, such as a failing boiler that must be replaced before the next heating season. Although the replacement of a single piece of equipment is not compatible with ESPC, it can be an opportunity to include additional equipment upgrades, controls, and maintenance practices. Depending on the situation, a comprehensive set of measures can increase the viability of the project and support a performance contract that an ESCO is willing to implement.

Action Step

- In the solicitation and follow-on work, ask the ESCO to assess additional possible improvements within individual facilities as well as in related functions and spaces.

6. Leverage All Available Funding Streams

Small projects can become economically viable ESPC projects by adding sources of funding. ESPC projects can take advantage of a range of funding and incentive sources to increase the number of measures included and the length of the financing term. There are several options to consider:

a. Think Long-Term
The term of an ESPC contract is determined by a number of factors, including the term permitted in state statutes, the useful life of the equipment, and the financing requirements. A longer financing term extends the number of years for achieving annual guaranteed savings and allows for a larger scope of work in a project.

b. Capture Associated Operations & Maintenance Cost Savings
Facility improvements to save energy or water often reduce O&M costs as well. For example, installing new lighting systems, in addition to reducing electricity costs, reduces demand on your maintenance budget to replace lamps and ballasts. The avoided future costs in your annual maintenance budget can be quantified based on equipment lifetimes and hours of use, providing more savings to contribute to project payments. This is a common and well-accepted practice as long as the projected savings can be quantified.

c. Assign Budgeted Capital Dollars to Implement Planned Projects
In some states, if you have capital improvement projects planned and budgeted for the coming year, you can consider incorporating the project in the scope of an ESPC and assigning the associated budget to the project as a buy-down. This is a common practice for any size project but particularly helpful to increase the scope of work for a small project because it both increases the overall size of the project and allows for the captured energy savings to be put to work financing other improvements.

d. Leverage Guaranteed Cost Savings to Secure Added Grant Funds
Consider using your guaranteed cost savings as a funding match to apply for a capital improvement grant that may be available to you. (Look for local, state, or federal grants; see Chapter 7, Getting Started, Guidance and Resources.) Your ESCO can propose further capital improvement recommendations with cost projections and savings estimates to quantify the funding match. This may be an effective way to fund any remaining measures deemed uneconomical for the ESPC project and therefore not included in the final negotiated project scope.

e. Attract Financial Incentives from Utilities
Many electric, gas, and water utilities offer rebates or other financial incentives to customers that install approved energy- or water-saving equipment or achieve measurable and verifiable reductions. Your ESCO can take the lead in bringing in these funds to buy down project costs.

f. Piggyback on a Bond Initiative to Reduce Financing Costs
If a bond initiative is in development in your community, piggyback the ESPC financing on the bond initiative. The guaranteed savings can justify and support the bond payments. The piggyback strategy enables you to get the benefit of low-cost bond financing and has the added benefit of saving the bond issuance fee, which can be cost-prohibitive.

Action Steps

- In the ESCO solicitation, specify that O&M savings, budgeted capital projects, grants, rebates, and other incentives may be included to help pay for the project.
- Require the selected ESCO to help you apply for any available capital improvement grants to expand the scope of work and to capture all available incentives from utility companies.
- Research whether your community is preparing any bond initiatives and see if preparation of the ESPC could fit the timing to participate.

CHAPTER 4. Small Energy Savings Performance Contracting Project Successes

This chapter presents 10 examples of small projects that have successfully used ESPC. The first section summarizes how these real-world successes applied the small-project strategies discussed in Chapter 3 to attract the interest of ESCOs and financial institutions, with page references to detailed project descriptions in the second section of the chapter.

Project Successes – **Streamline the Process**

All of the example projects employed some form of expert help or process streamlining to lower overhead. Key examples include:

- ESPC programs offered by SEOs provided free resources and often direct technical assistance for projects in North Carolina, Massachusetts, New Mexico, Colorado, and Connecticut.
- A financial advisor, already under contract to the city, helped Bloomfield, New Mexico, develop the financing package (see page 15).
- Several projects involved locally based regional ESCOs: Clear Creek County, Colorado (see page 17); Chapel Hill, North Carolina (see page 22); and Montezuma-Cortez School District, Colorado (see page 21).
- Other projects involved large nationwide ESCOs with a local or regional presence, such as Stafford, Connecticut (see page 23) and Bemidji, Minnesota (see page 14).

Project Successes – **Partner with Others**

Two of the project examples looked beyond their own facilities and partnered with neighbors to expand their projects. Through group procurements, they attracted ESCO interest through economies of scale and benefited from shared expertise within the region.

- The Green Communities projects in Massachusetts used group procurements. One involved a regional planning agency with eight cities and towns and another involved a planning commission, six towns, and a vocational school (see page 18).
- Hamilton County, Ohio, issued a group procurement for three towns to join the county in selecting an ESCO (see page 20).

Project Successes – **Think More Broadly**

Most project examples implemented some form of the “think more broadly” strategy as follows:

- The Town of Stafford, Connecticut, completed an ESPC that totaled 15 buildings, including five schools (see page 23).
- The City of Hutchinson, Minnesota, upgraded lighting in all 16 city buildings, including the city center, library, airport, ice arena, cemetery, parks, event center, police department, senior center, recreation center, fire department, and water and wastewater treatment plants (see page 16).
- The City of Bloomfield, New Mexico, considered all facilities across all divisions including the city hall, police and courts buildings, cultural center, municipal building, indoor natatorium and outdoor aquatic center, water treatment plant, senior center, and parks and recreation facilities (see page 15).
- The City of Bemidji, Minnesota, included all of its buildings in addition to city streetlights and the wastewater treatment plant (see page 14).
- The Montezuma-Cortez School District in Colorado upgraded all of its 10 buildings including 6 schools and administrative buildings (see page 21).
- The “Green Communities” Partnerships in Massachusetts included all facilities as recommended by the coordinating agencies. Municipal projects included public schools (see page 18).
- Hamilton County, Ohio, addressed all of its buildings and the small partnering towns did the same (see page 20).

Project Successes – **Use a Phased Approach**

One project chose to revisit ESPC as a way to add on additional work:

- Hutchinson, Minnesota, completed the small $375,000 ESPC project presented in the project example described in this guide, then years later leveraged that project to implement a subsequent phase of work with the ESCO (see page 16).

Project Successes – **Go Deeper**

All project examples implemented some form of the "go deeper" strategy. Some projects involving equipment replacements also included insulating ductwork, destratification fans in high-ceiling areas such as gymnasiums, garage infrared heating systems, or oil to natural gas equipment conversions. Several projects included water conservation measures such as low-flow toilets, showerheads, or faucets. Many projects included building envelope improvements such as roof or wall insulation, weather stripping, window film, and door seals to reduce leaks. Less common envelope improvements include replacing single-pane windows and uninsulated garage doors.
The following highlights some particularly novel implementations:

- The Town of Sudbury, part of the Green Communities program in Massachusetts, installed a system that included the ability to control the power loads from personal computers when not in use (see page 18).
- An innovative educational program further reduced operating costs for Montezuma-Cortez School District, Colorado (see page 21).
- The Town of Stafford, Connecticut, installed high-efficiency transformers and power factor correction. (see page 23).
- The Town of Chapel Hill, North Carolina, replaced and reconfigured the problematic and oversized pool dehumidification and air-conditioning unit and increased the efficiency of pool filter pumps with variable frequency drives (see page 22).
- ESPC invested in cost-effective efficiency first and then turned to clean energy sources in Hutchinson, Minnesota (see page 16), and in the Green Communities program in Massachusetts. (see page 18).

Project Successes – **Leverage All Available Funding Streams**

Several of the example projects leveraged their guaranteed cost savings with an additional funding source. These examples from the case studies highlight unique strategies for leveraging funding:

- Clear Creek County, Colorado, involved the ESCO to develop a successful grant application for a broad scope of work supported by a cost and savings analysis, using the ESPC project's projected savings as a funding match. The state grant brought in an additional $1.5 million, adding to the $1.1 million scope of the ESPC project (see page 17).
- The Town of Stafford, Connecticut, piggybacked the project cost on a bond initiative already in progress. This avoided the bond issuance fees, provided a low financing rate, and eliminated the need to manage a separate financing agreement (see page 23).
- Hamilton County, Ohio, applied for a federal grant and shared it with towns to encourage small projects (see page 20).

ESPC Project Examples

The 10 project examples below demonstrate how small towns, counties, and school districts were able to make their small ESPC projects viable and successful.

City of Bemidji, Minnesota

The city of Bemidji is a small town in Minnesota of almost 15,000 residents. Known as the "First City on the Mississippi," it is a rural, north woods city about a 4-hour drive from the Minneapolis-Saint Paul area. After first learning about ESPC at a workshop featuring energy efficiency as a job creation strategy for municipalities, city representatives reached out to ESCOs attending the event and explored the potential for a citywide ESPC project. The city looked at energy savings as a great way to implement facility improvements while building on its sustainability efforts to be a good steward of the environment.

The city selected a large national ESCO with a strong presence in the state. Bemidji was the first to participate in the Minnesota Department of Commerce's Guaranteed Energy Savings Program,[12] which provided technical expertise at every step of the project.

The comprehensive project improved lighting, energy management controls, and mechanical systems in the city hall, administrative building, convention center, history center, and library. Other measures included lighting upgrades in the remaining buildings and the wastewater treatment plant. Rounding out the project, Bemidji converted more than 860 streetlights around the city to LEDs.

The city leveraged $122,000 in utility rebates and $273,000 in previously approved capital improvement plan dollars, providing no other up-front costs from the city and its taxpayers to fund the $2.4 million project. Savings guaranteed by the ESCO paid for the financed amount over 20 years. Actual savings exceeded the guaranteed annual savings of $126,000 in the first year.

PROJECT COST
$2.45 million

GUARANTEED ANNUAL SAVINGS
$126,000
(exceeded in first year's savings verification)

SUPPLEMENTAL FUNDING
$122,000 utility rebates
$223,000 capital budget contribution

FINANCING
20-year TELP financing of
$2 million

Strategies Employed:
Think more broadly
Go deeper
Leverage funding streams
Streamline process

City of Bloomfield, New Mexico

The small city of Bloomfield, New Mexico, with 7,000 residents, is in a rural corner of the state far from a major metropolitan area. With a volatile economic base in the oil and gas industry, the city viewed ESPC as a way to manage long-term utility and operating costs. The city selected an ESCO whose parent company provides a wide range of statewide building services as a good partner to satisfy long-time service needs.

The small buildings across all departments total almost 122,000 square feet including city hall (the largest building with 31,000 square feet), cultural center (20,900 square feet), police and courts building (18,600 square feet), municipal center with fire station (15,200 square feet), indoor natatorium (11,800 square feet), water treatment plant (7,900 square feet), senior center (7,400 square feet), and parks and recreation facilities that include an outdoor aquatic center (5,200 square feet) and a fire substation (3,900 square feet).

The ESCO conducted a comprehensive IGA, evaluating the cost and savings of more than 25 measures from window films to pump and motor replacements to water treatment improvements. Some buildings have low operating hours or energy use, with limited potential to reduce utility consumption. The ESCO identified measures that, bundled together, could be self-funded through savings within the desired 15-year financing term. Interior tube lights (T-12 and T-8 lamps) and exterior high-pressure sodium lights were upgraded to 15-Watt LEDs, providing better quality light with minimal long-term maintenance. PV systems installed on five facilities provide 6% of the city's electricity needs, helping to stabilize future electricity costs.

PROJECT COST
$453,000

GUARANTEED ANNUAL SAVINGS
$30,000

TERM
14.8 years

Strategies Employed:
Think more broadly
Go deeper
Streamline process

Annual savings of more than $30,000 are guaranteed to support the full project cost and financing fees over a 14.8-year financing term. A financial advisor arranged the financing package that the state's financing authority easily approved and funded. The city leveraged the Clean Energy Program[13] offered by the New Mexico Energy, Minerals, and Natural Resources Department's Energy Conservation and Management Division to receive a standardized procurement and contracting process that included a technical review and a prequalified list of ESCOs with approved price agreements.

City of Hutchinson, Minnesota

The small city of Hutchinson, Minnesota (population of 14,000), used ESPC to upgrade its more than 3.5 million-gallon-per-day water and wastewater treatment facilities and installed new lighting and variable frequency drives in all of its facilities. Its motors now run at 30%–35% capacity instead of at 100%, saving significantly more than originally projected. Upgraded lighting saves energy and enhances aesthetics in all 16 city buildings, including the city center, library, airport, ice arena, cemetery, parks, event center, police department, senior center, recreation center, and fire department.

City representatives benefitted from the Minnesota Department of Commerce's Guaranteed Energy Savings Program[14] that offers ESPC experts to help the local government through the process. The Guaranteed Energy Savings Program provides information to help project owners make decisions at critical points during the ESPC that further guarantee a successful project.

The ESPC guaranteed $32,000 in annual savings, but actual measured savings almost doubled the savings guarantee, exceeding $60,000 annually. Along with a state grant of $139,000 and $16,000 in utility rebates, the result was a budget-neutral $375,000 ESPC project.

Post-project, maintenance staff can now spend less time maintaining motors and replacing lighting equipment and turn their attention to other important building maintenance tasks. The project led the city to establish a City Facility Committee to more effectively manage and prioritize facility capital improvement projects. The ESCO identified additional measures that the city chose to implement in a subsequent phase of ESPC.

The city worked with a national ESCO for its ESPC projects. In a subsequent phase of work with the ESCO, the city installed a 400-kilowatt solar array tied directly to the wastewater treatment plant nearby, helping to offset energy use for the city's municipal energy consumer.

PROJECT COST
$375,000

GUARANTEED ANNUAL SAVINGS
$32,000
(over $60,000 in verified measured savings)

SUPPLEMENTAL FUNDING
$139,000 state grant
$16,300 utility rebate

Strategies Employed:
Think more broadly
Go deeper
Leverage funding streams
Streamline process
Use a phased approach

Clear Creek County, Colorado

Situated in the mountains of Colorado, Clear Creek County is a small historic county with 10,000 residents. The county's main source of property taxes is in jeopardy with the planned closure of a large mine. Preparing for an uncertain economic future, the county used ESPC to address deferred capital needs, improve facility operations, and reduce utility costs.

The courthouse of 56,000 square feet is the largest municipal building. The other buildings included a 760 square-foot transfer station office, 16,000 square feet of maintenance and ambulance garages, a 5,400-square-foot animal shelter, and various office buildings from 1,700 to 5,600 square feet, some in converted houses. The median size of the 16 buildings is 10,000 square feet, presenting a challenge for the ESCO to find sufficient

A locally based, regional ESCO tackled the project to help the county meet its goals in a three-pronged approach:

- Financed $1.1 million ESPC project through guaranteed savings.
- Used the projected guaranteed savings as a funding match for a $1.5 million capital improvement grant, with the ESCO's help to develop the proposal.
- Combined these with another $500,000 grant to remodel a facility with the ESCO as the general contractor.

Annual utility savings of $54,000 amounted to an 18% reduction in energy use. The county achieved annual operating savings of $1,000 from materials and maintenance services no longer needed. Together these guaranteed savings paid for the $1.1 million ESPC project to make the following improvements:

- LED lighting retrofits.
- New or upgraded HVAC equipment and controls, insulated ductwork.
- Refrigerator and laundry equipment replacements, refrigerated vending machine controls.
- New insulated garage doors integrated with heating system shut-off, new windows replacing single-pane windows, and weather stripping on doors and windows.
- Solar PV on four highly visible buildings to demonstrate environmental stewardship.
- Controls on fleet vehicle block-heaters.
- Maintenance staff training.

The county participated in the Colorado Energy Office's Public Energy Performance Contracting Program.[15] The ESPC program provided one-on-one technical assistance throughout the process, tested procurement and contract documents, and pre-qualified ESCOs for consideration.

PROJECT COST

$1.1 million

ESPC project (combined with other grants to create a $3.1 million total capital improvement project)

GUARANTEED ANNUAL SAVINGS

$54,000

utility cost savings escalated at 3%

$1,000

maintenance savings

SUPPLEMENTAL FUNDING

$158,000 utility incentives (lighting and renewables) plus a capital contribution (previously budgeted for the first year)

ENERGY SAVINGS

18%

Strategies Employed:

Think more broadly

Go deeper

Leverage funding streams

Streamline process

Energy Management Services Program in Massachusetts

The Massachusetts Department of Energy Resources' Energy Management Services Program[16] provides education and resources to local governments. In the two Massachusetts-based projects below, the state's Department of Energy Resources encouraged a group procurement approach, provided a proven ESPC process with contract documents and prequalified ESCOs, and provided grant funding for an owner's representative to help participants develop successful projects that meet regulatory requirements.

This project features the work the Massachusetts Department of Energy Resources did with the Metropolitan Area Planning Council, a regional planning agency promoting smart growth and regional collaboration. In this role, the Metropolitan Area Planning Council coordinated a group ESPC procurement. Fourteen cities and towns initially participated, agreeing to select the same ESCO, move forward independently to develop projects, and share their expertise and staff resources to evaluate ESCO proposals. They selected a large nationwide ESCO that was attracted to the large scale of the work.

The ESCO implemented projects with eight towns, ranging in cost from $800,000 to $6.2 million. Improvements on municipal buildings and public schools included infrastructure repairs, equipment upgrades such as boiler and HVAC rooftop replacements, and renewable energy systems from rooftop solar PV. ESPC enabled the cities and towns to uncover and reinvest energy cost savings back into the community on a budget-neutral

As two examples of this collaborative effort, the town of Chelsea, Massachusetts, invested $800,000 in a project that guaranteed annual savings of $62,000 over 15 years, and the town of Sudbury, Massachusetts (population under 20,000), completed a $1.1 million project that paid for itself through $80,200 in annual guaranteed savings over the same time frame.

METROPOLITAN AREA PLANNING COUNCIL, MA

GROUP PROCUREMENT OF 8 PROJECTS

TOWN OF CHELSEA, MA
PROJECT COST
$800,000

GUARANTEED ANNUAL SAVINGS
$62,000

FINANCING
15-year TELP

TOWN OF SUDBURY, MA
PROJECT COST
$1.1 million

GUARANTEED ANNUAL SAVINGS
$80,200

FINANCING
15-year TELP

Energy Management Services Program in Massachusetts *continued*

The ESCO evaluated opportunities for savings in the town hall, community center, library, fire stations, office buildings, and five public schools administered by the town. Lighting systems were replaced or upgraded to enhance the quality, consistency, and color rendering and standardize the inventory needed for replacement parts. Energy management systems were upgraded and integrated for central monitoring and control. Software controls minimize the power load of personal computers when they are not in use. Programmable thermostats, vending machine controls, efficient showerheads, weatherization improvements, and HVAC upgrades provided further savings and improved operations.

In another project, the Merrimack Valley Planning Commission had similar results to the Metropolitan Area Planning Council. The Commission initiated ESPC to address regional challenges to economic growth. It issued a group solicitation for ESCO services in the region. Of the initial 14 town solicitation participants, seven followed through with projects.

The small town of Merrimack (population less than 7,000 encompassing 8.6 square miles) upgraded 17 buildings including the town hall, library, police and fire station, and two public schools. The ESCO installed lighting system upgrades, new energy management controls, efficient boilers, infrared heating systems, window film, weather stripping, vending machine controls, and new ENERGY STAR® qualified appliances. It also converted equipment to use natural gas instead of oil.

The $1 million budget-neutral project delivers $107,000 in guaranteed annual savings and pays for itself through an 11-year tax-exempt lease purchase agreement (TELP). It provides a better working environment for students and staff and is considered an investment in the future of the community.

MERRIMACK VALLEY PLANNING COMMISSION, MA

GROUP PROCUREMENT OF 7 PROJECTS

TOWN OF MERRIMACK, MA
PROJECT COST
$1 million

GUARANTEED ANNUAL SAVINGS
$107,000

FINANCING
11-year TELP

Strategies Employed:

Think more broadly

Go deeper

Leverage funding streams

Streamline process

Partner with others

Hamilton County, Ohio – Three Small Towns

Hamilton County, Ohio, used a $3.4 million Energy Efficiency and Conservation Block Grant[17] to implement ESPC in its own facilities and incentivize local municipalities to explore and implement their own ESPC projects. The county assembled a team, including an ESPC project facilitator, to develop an action plan and educate potential participants about ESPC.

The county's million square feet in building stock was sufficient procurement, enabling towns to piggyback on its project, making ESPC a viable prospect for small-scale projects.

Three small towns participated in the group procurement, with continued guidance from the county-funded project facilitator to help them develop successful projects: Blue Ash (population of 12,000 with 10 buildings totaling 310,000 square feet) developed a sizable $2 million project. The smaller town of Cheviot (population of 8,000 with four buildings totaling 53,000 square feet) developed a $630,000 project. The Village of Lockland (population of 3,500 with 5 buildings totaling 30,000 square feet) developed a $274,000 project.

Savings measures included lighting system improvements, building automation controls, water conservation measures, boiler and chiller replacements, outdoor air ventilation control, roof insulation, and HVAC replacements and upgrades. Guaranteed energy, water, and operational savings funded the projects along with county incentives and utility company rebates that supported 15%–40% of the project costs.

The successful effort is a result of the county inviting other small towns to participate in a group procurement, agreeing to select the same ESCO for each independent project, involving a paid ESPC expert (i.e., project facilitator) from the planning stage to project completion, providing financial incentives, and serving as the convener and coparticipant. For more information, see https://www.energy.gov/sites/prod/files/2017/11/f46/hamilton-county-case-study.pdf.

GROUP PROCUREMENT LED BY COUNTY PARTNERSHIP WITH 3 SMALL TOWNS

PROJECT COST

$274,000 (Lockland)
$630,000 (Cheviot)
$93,000 (Blue Ash)

GUARANTEED ANNUAL SAVINGS

$9,000 (Lockland)
$27,000 (Cheviot)
$93,000 (Blue Ash)

SUPPLEMENTAL FUNDING SOURCES

Utility incentives and county incentives from federal grant

FINANCING TERM

15 years

Strategies Employed:

Think more broadly
Go deeper
Leverage funding streams
Streamline process
Partner with others

Montezuma-Cortez School District, Colorado

The Montezuma-Cortez School District is in the rural southwest corner of Colorado, a day's drive from a metropolitan area where ESCOs are typically based. It has almost 3,000 students in six elementary schools, a middle school, high school, and preschool, for a total of ten buildings and 500,000 square feet. The $1 million ESPC project accomplished the district's goal of increasing energy and operational efficiencies across its facilities.

In addition to lighting upgrades, a new HVAC system controls equipment operation and scheduling, provides remote access, and conducts remote system diagnostics.

Vending machine controls on 13 refrigerated vending machines throughout the district minimize energy use without impacting product quality. Retro-commissioning ensures that equipment and systems continue to perform as intended and needed.

An innovative educational program further reduced operating costs. The packaged program facilitated by the ESCO educated staff and students about energy efficiency and waste reduction, called them to action, and provided a communications and competition tool. The ESCO tracked the district's progress, provided an online dashboard to share results, and implemented further improvements. Mesa Elementary received the U.S. Department of Education Green Ribbon Schools award for exemplary achievements in sustainability, reducing its energy use by 32%.[18] Overall, the district reduced energy use by 25% and established energy guidelines to continue running buildings efficiently.

The district selected an ESCO that focuses on the western part of the nation with a strong base in the state. The Colorado Energy Office's Public Energy Performance Contracting Program[19] provided one-on-one technical assistance throughout the process, tested procurement and contract documents, and prequalified ESCOs for consideration.

PROJECT COST
$1 million

GUARANTEED ANNUAL SAVINGS
$100,000 (estimated)

SIMPLE PAYBACK
10 years

Strategies Employed:

Think more broadly

Go deeper

Leverage funding streams

Streamline process

Town of Chapel Hill, North Carolina

The Town of Chapel Hill, North Carolina, turned to ESPC to implement temperature and humidity controls in two pool facilities and smart scheduling controls for the town hall.

The ESPC project of $871,000 is guaranteed to save $71,000 annually over 15 years. The first year's performance exceeded guaranteed savings by more than 15%, confirmed by rigorous measurement and verification.

The town selected a regional ESCO operating in two states, whose parent company offers mechanical engineering services, providing confidence in long-term technical support to ensure performance.

The ESCO worked with the town, identifying additional energy and operational cost-saving improvements that expanded the project scope within the three buildings:

- Replaced outdated interior and exterior light fixtures, installed occupancy and daylighting controls, and redesigned the lighting system in the gym.
- Replaced and reconfigured the problematic and oversized pool dehumidification and air-conditioning unit; implemented new and improved building HVAC automation controls, overcoming inefficiencies and maintenance problems and allowing central control and room scheduling; and upgraded other HVAC units and delivery systems.
- Installed insulation, weather stripping, and door seals to reduce leaks.
- Increased the efficiency of pool filter pumps with variable frequency drives.

PROJECT COST
$871,000

GUARANTEED ANNUAL SAVINGS
$71,000 (estimated)

FUNDING:
PIGGYBACKED ON CITY BOND INITIATIVE, 15 YEARS

Strategies Employed:
Think more broadly
Go deeper
Leverage funding streams
Streamline process

Instead of stand-alone financing, the town added the $871,000 project cost to a $2.5 million bond initiative already underway. The project's guaranteed annual savings support the bond payments.

The North Carolina Department of Environmental Quality's Utility Savings Initiative[20] provided technical support, prequalified ESCOs, and contract documents.

Town of Stafford, Connecticut

The town of Stafford, Connecticut, is a small town with slightly more than 12,000 residents. The town has a proactive Energy Advisory Committee of volunteer citizens dedicated to reducing energy use, using clean renewable energy sources, and leading other Connecticut towns by example. ESPC proved a good fit to achieve energy efficiency goals to eliminate waste in its 15 buildings, including five schools that serve a total of 1,550 students. Cost-effective building improvements included:

- Lighting retrofits.
- Domestic water upgrades.
- Building envelope measures.
- Heating equipment replacements from boilers to geothermal heat pumps in four buildings.
- Boiler controls.
- Walk-in refrigeration controls.
- Air destratification fans.
- High-efficiency transformers and power factor correction to eliminate a penalty fee from the electric utility.

The project scope of $1.6 million was fully funded through $144,000 in annual guaranteed savings. A TELP agreement provided financing. A large national ESCO executed the project. A project facilitator under contract to the town validated the ESCO's cost and savings projections and the first year's M&V report.

The ESPC project reduced energy use by 24%, delivering a return on investment of nearly 28%. The Capital Region Council of Governments presented the town of Stafford with a 2017 Regional Sustainability Award for its exemplary energy project work, its long-range vision for a greener future, and its leadership in promoting community and regional sustainability.

PROJECT COST
$1.6 million

UTILITY REBATES
$300,000 (estimated)

GUARANTEED ANNUAL SAVINGS
$144,000

FUNDING SOURCES
10-year TELP

ENERGY SAVINGS
24%

Strategies Employed:

Think more broadly

Go deeper

Leverage funding streams

Streamline process

CHAPTER 5. The Components of Energy Savings Performance Contracting

ESPC can capture guaranteed cost savings to provide facility improvement projects today, without the need to use funds from capital budgets unless desired. Understanding the components that make up ESPC enables facility owners and managers to make full use of this tool. This chapter explores the role of ESCOs, covers the identification of projects and savings opportunities, discusses funding sources and financing, and explains what a savings guarantee is and how it works.

State Laws

Most states have enabling legislation for ESPC contracts that may set requirements for ESPC projects in state and local governments regarding procurement protocol, allowable measures, financing terms, structure of the guarantee, measurement and verification, and budget funding streams. Contact your SEO for information and guidance.

See Chapter 7 to locate your SEO and other resources.

Energy Service Company

An ESCO develops and implements performance contracts and provides the following services in a turnkey approach:

- Identifies and evaluates project opportunities.
- Proposes a project with a cash flow from savings to pay for all costs.
- Provides education on project financing.
- Designs, installs, manages construction, and commissions the project.
- Trains staff members.
- Provides ongoing maintenance services (optional).
- Measures, verifies, and guarantees savings.
- Provides a fixed-cost project, carrying the risk and cost of change orders.

This mature industry uses standardized processes and approaches with flexibility and creativity to meet ever-changing challenges and interests of owners. ESCOs differ from energy engineering firms in that they assume both the technical design risk and system performance risk and apply the financial savings guarantee. The result is comprehensive projects with guaranteed performance. It is critical to select an ESCO with specific experience in your sector and with your facility types, preferably with a presence in your state or region.

Candidates for ESPC Projects

The size and scope of ESPC projects are governed by facility needs, the operations savings potential, financing term, savings stream options, and the minimum project size an ESCO is willing to develop.

State and local government facilities are generally good candidates for ESPC projects. With long-term ownership of the facilities, governments typically allow for 15- to 25-year financing terms, enabling comprehensive projects addressing all buildings and facilities.

Although ESCOs typically develop projects of $1 million or more, some ESCOs will develop smaller projects. Several different strategies can overcome the size and scope barriers to attract an ESCO. Expanding the project scope to all facilities and across multiple divisions can make a project economically viable for ESCOs. Yet another way is to incentivize ESCOs to develop projects with up-front capital if available. Small-scale governments can consider a group procurement request for proposal (RFP) with neighboring governments that agree to select a single ESCO for each individual project, variously called bundling, pooling, or aggregating.

ESPC SUCCESS TIP

Small projects and small buildings are discussed in detail in Chapter 2. The challenge is to create a project that generates enough cash flow to cover project development costs and repay the financing. Chapter 3 presents strategies for developing small-scale projects that are viable.

Facility Improvement Measures

ESPC projects can include a wide variety of facility improvement measures. The ESCO will assess the costs and benefits of each measure and present a package of measures to the owner. Together the owner and ESCO select a package of bundled measures that best meets the owner's needs and requirements.

The cost-saving measures generate the savings to pay for the ESPC project. This arrangement presents a unique opportunity for a comprehensive approach to address potential cost-saving improvements needed in the owner's facilities and capture synergies among measures.

Typical Facility Improvement Measures

ESPC measures often include the following equipment upgrades in buildings and grounds, along with optimized management and operational strategies.

Equipment Upgrades

- Lighting equipment.
- Boilers, chillers, HVAC equipment.
- Landscape irrigation systems.
- Water-saving fixtures.

Infrastructure Improvements

- Central plant.
- Distributed generation systems.
- Combined heat and power systems.
- Renewable energy systems.

Budget Management and Operation Improvements

- Automation system upgrades.
- Demand response technologies.
- Utility rate adjustments.
- Staff training programs.
- Energy management services.

The complete list of potential facility improvement measures is extensive. Each type of facility has additional opportunities specific to its own operations.

Some states, through legislation, have expanded the potential scope beyond typical facility improvements to include:

- Vehicle conversions and fueling/charging station infrastructure.
- New construction, to help fund energy efficiency improvements in new facilities.
- Greater percentage of operational savings.
- Power Purchase Agreements to secure lower-rate utility costs through solar energy systems.
- Waste management services.
- Data management systems.
- Revenue generation enhancements.

Bundling of Measures

The ESCO will identify each potential measure and estimate the itemized costs and savings. Although each measure is assessed for its own cost-effectiveness, a group of measures can be "bundled" to produce annual savings that can support financial terms. The bottom line determines which bundle of measures can be included in the ESPC project. That is, the sum of annual cost savings for all measures, in addition to other funding sources that may be available, are intended to meet or exceed the annual finance payment over the allowable financing term. For example, lighting and controls projects have short payback periods which, when bundled, offset the higher payback periods of boiler and chiller replacements or renewable energy systems.Even measures that increase energy use to improve operations can be included if balanced by short-payback measures that deliver savings to offset the new cost. On the other hand, some long-payback measures may need to be cut if the overall project savings are not sufficient to offset those costs.

Funding Sources

Measures deliver savings (avoided costs) in various budget items such as utilities, O&M, and capital. Budget savings streams are funding sources used to pay for projects. All funding sources should be considered to leverage the savings for optimum value.

Budget Savings Streams

Those savings to be redirected may come from several government budget categories. State statutes often specify budgets that can be applied to ESPC financing, such as:

Utility budget

- Gas, electricity, steam, chilled water, etc.
- Water and sewer savings.

Operations budget

- Budgeted products or services that will not be needed after installation, such as replacement parts and outmoded maintenance contracts on replaced equipment.

Personnel budget

- Funds made available by eliminating a staff position that will not be needed after installation; this is rarely used because displaced staff members are usually reassigned rather than terminated.

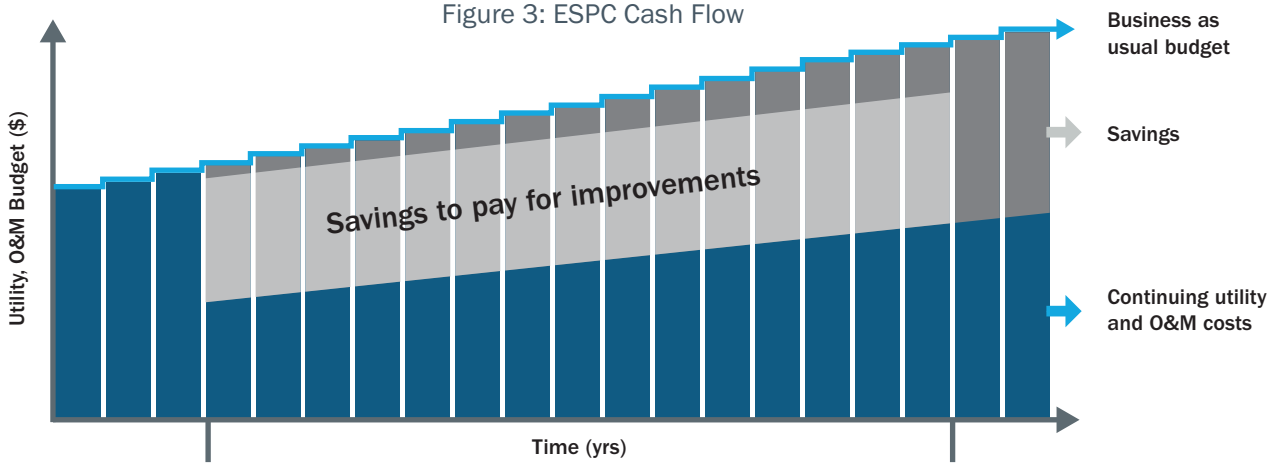
Capital budget

- First-year capital infusion to buy down the cost of the project.
- Future capital avoidance (e.g., when capital improvement funds are scheduled for future equipment replacements that can instead be folded into the ESPC project).

Cash Flow

Figure 3 illustrates the typical cash flow scenario throughout the life of an ESPC project. The dark blue segments show the true utility and O&M costs before and after the retrofits. The light grey block shows the money no longer needed (avoided costs or what are referred to as project savings) that pays for the project over the financing term. The dark grey segments show the savings that continue after the owner finishes paying for the ESPC project, through the remaining useful life of the equipment.

Figure 3: ESPC Cash Flow



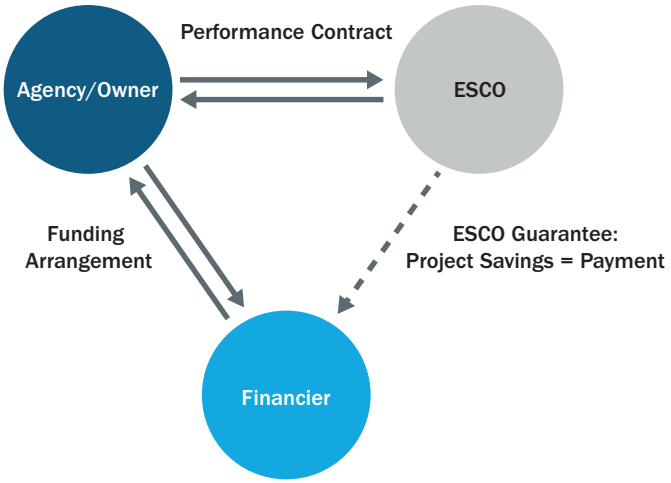
Leveraging Funds

An ESPC project is often structured to be self-funding through projected guaranteed savings. However, other funding sources can augment the savings streams to expand the project scope. For example, internal funding, utility rebates, grants, emissions reduction credits, tax credits, or other funding sources may be used as a project buy-down.

Financing

Figure 4 displays the contractual arrangements between the ESCO, the facility owner, and the financing institution (financier). The facility owner has a performance contract with the ESCO and a separate contract with a financing company. The financier relies on the ESCO's guarantee as a backstop to ensure payment from a creditworthy owner. The guaranteed projected savings are intended to exceed the annual financing payment each year. Via the guarantee, the ESCO bears the financial risk as a backstop to the owner for the financial obligation and performance risk it undertakes to construct the project. In the event of a shortfall in actual savings in any year, the ESCO, through the terms of the critical savings guarantee in the contract, pays the owner the difference.

Figure 4: Two-Contract Agreements



The ESCO can educate the owner about the financing arrangement. Recent federal regulations prohibit the ESCO from participating in an advisory role unless they are registered as a municipal advisor in the state in which they are operating. The ESCO typically does not provide project financing for governments, as governments can usually obtain better financing terms from financiers directly.

Financing Mechanisms

One of the most common financing mechanisms for a government ESPC project is a Tax- Exempt Lease-Purchase (TELP) agreement. A number of national-level financing companies are knowledgeable about the ESPC approach and offer such financing (see Chapter 7 for resources).

Owners can also consider internal financing or bonds and can compare the rates and benefits of different options. If a bond project is already being pursued, consider including the ESPC project as an "add-on" to avoid the cost of separate issuance. The Financing Decision Tree in DOE's ESPC Toolkit can help you identify financing mechanisms to consider. See https://betterbuildingssolutioncenter.energy.gov/espc/financing-decision-tree.

Financing—Minimum Amounts

The minimum project cost is dependent on what the ESCO and financing companies will consider. ESPC projects typically range in the millions of dollars, but some ESCOs are willing to do smaller-scale projects. Financing companies have a minimum threshold for TELP financing (often $500,000 or more). This minimum financing amount can vary regionally and with the national economic climate, so ask firms that specialize in financing ESPC projects about their minimum financing level for your area. Local commercial banks can be an option, especially for smaller amounts, and may provide competitive financing.

Financing Term

- Most states have enabling legislation for ESPC projects that provides for multi-year financing in state and local governments. The maximum financing term for an ESPC project is defined by several key factors:
- Legislation in most states allows a financing term of 15–25 years.
- The financing term should not exceed the average useful life of the equipment.
- Financial institutions set the maximum finance term based on the project value and risk.

Debt Consideration

TELP financing is structured to be paid from projected savings in annual utility and operating budgets. Those budgets are annually renewable and subject to annual appropriations, so the payment obligations may not be considered debt and may not impact your debt ceiling according to state statutes and rulings.

Guarantee of Projected Cost Savings

Projected annual cost savings are guaranteed to meet or exceed the annual financing obligation, as set forth in the ESPC contract and financing agreement. If projected annual cost savings do not meet the guaranteed amount in any year, the ESCO will make up the cost difference.

In most states, statutes establish the minimum guarantee period. The guarantee is often required for each year of the financing term; however, some states have set a lower requirement for the first 3 years of demonstrated performance. Contact your SEO about requirements in your state (see Chapter 7, Getting Started).

To arrive at the guarantee of savings, the ESCO first establishes a baseline year of unit utility use (kWh of electricity, therms of natural gas, gallons of water, etc.). Then the ESCO estimates unit savings compared to the baseline. Estimates are based on standardized engineering calculations, equipment specifications, and measurements or computer models, assuming a typical weather year and consistent facility operations. The ESCO sets forth a conservative guarantee of savings, typically 85% or more of expected unit savings.

The approach to establishing the guaranteed energy savings varies as required by state statutes (for government facilities), state ESPC programs, or ESCO practices. A common approach is for the ESCO to project annual cost savings based on unit savings. For the first year, current utility rates establish cost savings. For future years, the ESCO applies an agreed-upon escalation rate to forecast cost savings. The escalated unit rates, whether higher or lower than the actual unit rates for the specified year, determine the

guaranteed cost savings. Actual future utility and inflation rates may differ from the forecasts. The ESCO is not at risk if actual future rates are lower and does not benefit if actual future rates are higher.

A process to measure and verify savings is needed to determine if the guarantee is met each year, as described below. Technical assistance can be very helpful in assessing and negotiating the performance guarantee (see Chapter 7 for technical assistance options).

Measurement and Verification

A rigorous M&V process is critical to validate savings and is a typical best practice to ensure a successful ESPC. The International Performance Measurement and Verification Protocol is a standardized approach to measure and verify savings of ESPC projects. It provides four options for measuring performance, with varying levels of cost and accuracy to apply to different types of measures. DOE's Federal Energy Management Program also offers a practical guide, often used by states, to applying International Performance Measurement and Verification protocols in projects, entitled M&V Guidelines: Measurement and Verification for Performance-Based Contracts.[21] This guide and several other M&V resources for evaluating ESPC project results are available in DOE's ESPC Toolkit.[22]

The ESCO will develop an M&V plan to establish the protocol for determining actual savings. Each year that a guarantee is required, the ESCO will verify performance with respect to the M&V plan and deliver an annual M&V report. If guaranteed savings are not achieved, the ESCO will pay for the deficiency as guaranteed in the contract.

A measurement or calculation process is preferred over stipulated (agreed to in advance) savings for all measures. Basing reported savings on actual measured results ensures the ESCO bears the risk of performance.

The M&V plan should be prepared by a Certified Measurement & Verification Professional. A technical consultant can provide independent, third-party review of the M&V plan, contract documentation, and annual M&V reports.

See Chapter 7 for technical assistance options.

Summary of M&V Options

The International Performance Measurement and Verification Protocol presents a standardized approach to measure and verify savings of ESPC projects. A companion resource, *Federal Energy Management Program M&V Guidelines: Measurement and Verification for Performance-Based Contracts, Version 4.0*, presents ways to apply International Performance Measurement and Verification in projects: https://energy.gov/eere/femp/downloads/mv-guidelines-measurement-and-verification-performance-based-contracts-version.

There are four options for measuring performance, with varying levels of cost and accuracy for applicability to all types of measures. One can determine savings for an individual measure or for the whole facility, as shown below.

Individual Measure Options

- Option A—Retrofit Isolation Key Parameters: Savings are determined by field measurement of a key parameter.
- Option B—Retrofit Isolation All Parameters: Savings are determined by field measurement of all parameters of the system.

Whole-Building Options

- Option C—Whole Facility: Savings are determined by measuring energy use at the whole facility level.
- Option D—Calibrated Simulation: Savings are determined through simulation of the energy use of the whole facility.

It is important to apply an appropriate level of rigor to each type of measure—that is, to avoid over-simplification for a dynamic and high-cost system and avoid excessive measurements for a simple low-cost measure.

ESPC SUCCESS TIP

For small projects it's important to keep the cost of M&V to a minimum without compromising the need to measure and verify that guaranteed savings are achieved. Option A is often used for most measures, while Option B is used for solar projects.

Annual Budgeting

Annual finance payments are paid out of annually appropriated utility and operating budgets. Several cost drivers impact your actual budget from year to year, such as atypical weather, changes in facility operating hours and scheduling facility upgrades, unexpected changes in utility rates, and changes in facility use. These are outside of the ESCO's control and budget appropriations will be impacted and managed as usual.

Mitigating Risks

It is important to understand and mitigate potential risks when negotiating the ESPC contract. Risks fall into three general categories: financial, operational, and equipment performance.

You can mitigate risks in several ways:

- Contact your SEO or other state entity responsible for ESPC for technical assistance. Some state ESPC programs maintain a prequalified list of ESCOs: https://www.naseo.org/members-states.
- Use standardized procurement and contracting documents.
- Hire a project facilitator (some states provide a list of pre-qualified firms).
- Clearly state project plans, financial performance, expectations, and roles and responsibilities in contract documents.
- Use the Risk, Responsibility, and Performance Matrix to assess risks you and the ESCO would carry (see Chapter 7, Tools).
- Require a detailed M&V plan before executing the contract, including clearly defined M&V procedures.
- Establish consensus of the financial arrangement and contract requirements by finance, facilities, and administrative personnel.
- Identify a project champion to shepherd the project and track and monitor project results.

CHAPTER 6. The Energy Savings Performance Contracting Process

ESPC can be a straightforward process. This chapter outlines the ESPC process used by many state and local governments since the mid-1990s. The exact steps may vary by state, but most states have enabling legislation that prescribes the procurement, contracting, and financing process for state agencies, higher education institutions, public school districts, and local governments.

- Step 1: Decide if ESPC is a good solution for you.
- Step 2: Select an ESCO.
- Step 3: Assess cost-saving opportunities through an Investment Grade Audit.
- Step 4: Execute an energy savings performance contract and financing agreement.
- Step 5: Verify savings and enjoy the benefits.

See Chapter 7 for more resources and guidance to help you get started.

STEP 1: Decide if Energy Service Performance Contracting is a good solution for you

The first step is to consider how a performance contract would work for you. Review your facility needs, current staff capabilities, and the potential to make cost-saving facility improvements. Set goals and gain internal consensus to pursue ESPC. Get to the "go" decision.

Find resources that may be available in your state. Contact your SEO to learn about resources or technical assistance that may be available (see Chapter 7 for resources).

Check requirements in your state. State statutes establish ESPC requirements by sector. Contact your SEO for details (see Chapter 7 for details).

Learn more about ESPC. Gather enough information about performance contracting to articulate how ESPC works to decision-makers and other potential champions within your organization. There may be assistance available to help you get started via the following (see Chapter 7 for guidance):

- **DOE's ESPC Toolkit:** https://betterbuildingssolutioncenter.energy.gov/energy-savings-performance-contracting-espc-toolkit.
- **Energy Services Coalition Resources:** http://energyservicescoalition.org/performance-contracting.

Identify a champion. Identify a champion inside your organization who understands the benefits of ESPC and can help achieve consensus. You may be the champion, but it will be invaluable to gather allies that can help you advance the ESPC process within your organization. DOE's ESPC Toolkit includes a set of tools and resources to build a successful network of ESPC project champions at: https://betterbuildingssolutioncenter.energy.gov/node/5327.

Determine if your facilities are good candidates for a performance contract. Your ability to use ESPC depends on whether there are significant energy, water, and O&M savings opportunities. ESCOs vary in the minimum size of projects they will take on. A simple rule of thumb is that you may have potential for a performance contract if combined energy and water utility bills for the targeted project buildings are greater than $60,000 per year. Preliminary discussions with local ESCOs will help you answer this question for your area.

Assemble a project team. Put together a project team within your organization to explore the possibility of a performance contract and to later usher it through. The project team—ideally led by a champion—has a common understanding of the ESPC process, its risks, costs, challenges, and benefits. Include facilities staff as well as financial, legal, and procurement staff at the outset.

ESPC SUCCESS TIP

Consider a multi-government partnership. Consider partnering with multiple governments to jointly solicit an ESCO. (Once the ESCO is selected, each participant moves forward independently to contract with the ESCO and develop a stand-alone ESPC project.) Partner with other governments in your region or with similar types of governments. Look to the largest government to lead the effort or pursue a coordinating body such as a regional council of government, area planning commission, or group purchasing provider. Identify a champion to lead the educational effort and a procurement coordinator to manage the group solicitation. Establish common goals, ensure a full understanding of ESPC, and secure commitment from senior management of each participant's project team.

Set goals. Think big! ESPC projects are broad in scope and scale with a variety of measures that deliver energy, water, and operational savings.

Get buy-in. Internal consensus and buy-in are critical for the success of an ESPC project. The project team makes a consensus-based decision to proceed with ESPC, while key decision-makers and influencers agree to support the success of an ESPC project. Diverse goals may lead to the same solution. For example: The chief financial officer wants ways to fund the backlog of facility needs. Top decision-makers want to use limited budget dollars for maximum benefit to the organization and stakeholders. A city may have a policy to demonstrate sustainability or a specific target to reduce energy efficiency. Facility staff may be more interested in improved equipment and operations. ESPC provides a potential solution to meet all these needs. For additional tools and resources to assist with building a successful network of support for performance contracting, see the Better Buildings ESPC Networking Toolkit: https://betterbuildingssolutioncenter.energy.gov/node/5322.

STEP 2: Select an ESCO

An ESCO will be your partner for a long time, so it is important to select one that shares your vision and is capable of meeting your needs. An RFP is an excellent way to identify interested ESCOs and compare approaches.

Get assistance. Many states have procurement assistance or pre-qualified ESCOs to streamline your solicitation process and provide peace of mind (see Chapter 7 for resources and technical assistance).

Review the model RFP. Working with your procurement office, review the model RFP and evaluation protocol to customize for your project. Note the unique differences for this type of procurement: 1) Because an ESCO solicitation is largely qualifications-based, it is premature to expect a cost proposal at this stage. An ESCO can provide cost markups for each category and the cost to conduct the IGA. 2) An ESPC scope of work is not developed before the RFP. The successful respondent will both develop the scope of work and perform that work. 3) It is helpful to ask for documentation of specific experience with small- scale projects.

What can an energy service company do for me?

- Identify and evaluate energy, water, and operational savings opportunities.
- Provide engineering services from design to equipment specifications.
- Act as the prime contractor constructing a wide variety of projects.
- Provide long-term energy management and maintenance services as desired.
- Educate staff about financing, identify financial incentives, and help bring in a financial partner.
- Guarantee performance through efficiency savings.

Define the Scope. Set the stage for a broad organization-wide project that ESCOs will consider implementing. List all energy-using or water-using buildings, outdoor facilities, and grounds as well as the improvement needs in your facilities. This leads to the economy of scale to achieve the best value from your ESPC project. Prioritize the list to identify the greatest needs. Once you select your ESCO, you can work together to determine a specific plan of approach.

Develop a facility profile. Include a facility profile in your RFP to help the ESCO assess the potential opportunity for ESPC. Describe the facility condition, maintenance problems, and any planned equipment replacement or renovation plans. Include utility bill history for at least the past year.

Specify your needs and goals. List any specific projects or issues you would like the ESCO to consider. These could include replacing failing equipment, funding planned replacements, meeting efficiency targets, overcoming maintenance problems, improving operations, achieving deep retrofits to optimize efficiency, and ensuring minimal disruption of operations during construction. List any environmental regulations that apply and any special considerations. Project needs are not intended to be prescriptive but will direct the ESCO to identify cost-saving strategies.

Solicit ESCOs. Invite ESCOs to participate. Visit the following resources to find a list of service providers:

- State Energy Office: http://naseo.org/members-states.
- Energy Services Coalition: http://energyservicescoalition.org/members.
- National Association of Energy Service Companies (NAESCO): http://www.naesco.org/members-escos.
- DOE's Qualified List of Energy Service Companies (ESCOs): http://energy.gov/eere/downloads/department-energy-qualified-list-energy-service-companies.

ESPC SUCCESS TIP

For small projects, it is helpful to simplify the process to reduce overhead costs. Streamline the procurement to reduce proposal costs for the ESCO and reduce proposal evaluation time for your staff. Use a qualifications-based procurement and select your ESCO based on experience with similar project types and scales as well as a commitment to develop your project and provide long-term support.

Invite ESCOs to tour the facility. Interested ESCOs will want to visit your facility and interview facility staff before preparing their proposals. Schedule a site visit for all interested ESCOs to attend at the same time. To maintain a level playing field, ensure that all attendees hear all responses. Restrict the site visit to a few hours, making sure there is sufficient time to see critical facilities and operations. The RFP response will not result in a preliminary audit so extended access to facilities and staff does not need to be granted at this time. For rural sites or small-scale projects, this step can be excluded to keep ESCO response costs low and attract more ESCO responses.

Evaluate proposals and select your ESCO. Evaluate the qualifications of each ESCO for the skills, expertise, and experience you need, especially experience with small projects. Review the cost markups based on reasonableness. Use a quantitative and qualitative approach; assign specific point values to each scoring criterion and provide qualitative descriptions that support the point value. Interview the top contenders to better evaluate their approach and their ability to work with you. Notify the top-ranked ESCO and begin negotiations.

STEP 3: Assess cost-saving opportunities through an Investment Grade Audit

Your ESCO will perform an IGA that identifies cost-saving opportunities and evaluates their potential. This provides you with critical information to later negotiate your energy savings performance contract and implement the project. Based on results of the IGA, the ESCO will prepare a project development agreement proposing a package of measures to include in the project.

Get technical assistance. It is valuable to have expert assistance at this stage to review the ESCO's analysis of costs, cost savings and M&V approaches (see Chapter 7 for resources and ways to obtain technical assistance).

Set aside interim funds for the Investment Grade Audit. The cost of the IGA can ultimately be rolled into your ESPC, so that the guaranteed savings pay for the IGA. However, if you choose not to sign a performance contract after the IGA is performed, you will still be responsible for paying for the audit, so it is critical to have funds set aside in advance. You do not pay for the audit if the ESCO is unable to identify a package of measures that can be paid from projected savings given the criteria you established.

Negotiate an IGA and project development agreement with your ESCO. Establish your criteria for the audit. Typically defined in legislation, these criteria include the maximum financing term and budget categories that can be used as savings (e.g., energy, operations, personnel, etc.).

Execute the contract. Host a kickoff meeting with your ESCO to reinforce goals, discuss facility operations and needs, and set the schedule and next steps.

Approve the baseline. The last 1–3 years of utility bills provide a pattern of your facility's energy and water use, given the operations, schedules, and weather impacts. The ESCO establishes a baseline to represent the energy use before the ESPC This is the basis for establishing ESPC savings. It is important to review and approve the ESCO's assumptions.

Take an active role in the process. Make facilities staff available to provide facility access and share operational details. Hold regular meetings with your ESCO to discuss preliminary findings and reinforce your goals.

Review the IGA results. Review the technical and cost details presented in the IGA and discuss the suggested improvements with your ESCO. Your ESCO will recommend a set of measures that optimizes cost-effectiveness and benefits.

Ensure savings can be measured and verified. An M&V plan provides the protocols for determining savings. Discuss and negotiate the reasonable level of M&V services to provide for each measure. Avoid stipulated (pre-agreed) savings in favor of a measurement approach where feasible and cost-effective.

Assess the risks. Discuss what financial and performance risks you take on and which are taken on by the ESCO. The risk matrix developed by DOE's FEMP provides a good basis for this discussion.

Bundling Measures:

Combined savings from bundled measures pay for the total cost.

- **Controls:** Install a new energy management control system to improve operational strategies.
- **Lighting:** Replace lamps and ballasts or entire fixtures.
- **Process Improvement:** Install variable frequency drives (VFDs) or replace pump motors.
- **Renewables:** Wind, and solar PV can be included as well, when cost-effective in the bundled package.
- **Operations:** Make a variety of O&M improvements.
- **Water Conservation:** Low-flow fixtures and aerators, low-impact landscaping.

Measures that typically have short payback periods, such as lighting and controls improvements, offset the measures with higher payback periods when bundled together. This results in a comprehensive approach to optimize system performance and cost-effectiveness.

Also approve an acceptable price escalation rate using a DOE FEMP tool for ESPCs based on projections of the U.S. Energy Information Administration. FEMP provides an energy escalation-rate calculator using National Institute of Standards & Technology projections to determine a reasonable escalation rate for the term of the project (see Chapter 5, Mitigating Risks for more discussion; also see Chapter 7, Tools to locate these resources).

Consider the project proposal. The ESCO will present a financial pro forma, or cash flow analysis, of a proposed ESPC project. It includes a list of potential measures along with the cost and annual savings. The ESCO presents a bundle of measures that will deliver cost savings sufficient to repay the annual finance payments over the financing term. The projections include an escalation rate for future utility rates and other costs as well as the interest rate for financing. It shows the annual guaranteed savings versus the annual finance payment. This is the basis for negotiating the subsequent performance contract to install and implement the measures.

STEP 4: Execute the Energy Savings Performance Contract and Financing Agreement

An energy savings performance contract is your road map for implementing and tracking the project over the long term. It should clearly define roles and responsibilities and explicitly state how savings are determined and how the guarantee will be applied.

Get technical assistance. It is valuable to have independent third-party review to help negotiate an effective ESPC (see Chapter 7 for resources and technical assistance).

Negotiate the scope and terms of the contract. Fully review and discuss the contract. Make sure the ESCO fully documents the schedules that define roles, responsibilities, construction schedule, training from the ESCO, equipment to be installed, equipment warranties, and the structure of the guarantee and how savings will be verified. If you are joining together with other building owners for your project, you will find it valuable to issue a joint RFP, but most efficient to negotiate an individual contract directly with the ESCO. Get input from your engineering, financial, and legal staff. Negotiate costs and ask for open-book pricing to ensure that you receive good value. Consider the impact of escalation rates to estimate future cost savings.

Negotiate a guarantee to meet your needs. The guarantee is the cornerstone of an ESPC. Projected savings are guaranteed and structured to cover the annual financing payment. The ESCO pays any remaining balance if projected annual savings levels are not reached.

Arrange financing. Work with your financial officer to determine the best funding or financing strategy, with educational support from your ESCO. A common option for governments is a TELP. Leverage grants, utility rebates, and in-house funds to maximize your project scope and reap more benefits. Competitively select a financing company (see Chapter 5 for more detail).

Review maintenance requirements and services. An ESCO often requires routine maintenance on new equipment to guarantee performance or savings. Additional services can include reviewing operation strategies, reporting on equipment operating problems, and repairing and replacing equipment.

Execute the contract. The energy savings performance contract and financing agreement are signed at the same time.

Oversee construction. Meet regularly with your ESCO to discuss the schedule and approve next steps.

Manage the escrow account. Set up and manage an escrow account that enables drawdown payments to the ESCO during the construction period.

ESPC SUCCESS TIP

Due diligence is critical. Involve your professional team, including any consultants, to review and approve contract terms and have discussions with the ESCO if needed to get all questions answered.

STEP 5: Verify savings and enjoy the benefits

Follow-up monitoring helps ensure that you are getting full value from your energy savings performance contract. The success of the monitoring effort depends on the level of detail you documented in the contract.

Approve the installation. Review the requirements detailed in the contract and upon completion of the project installation check that all equipment was installed as specified.

Participate in commissioning. Confirm that equipment and systems function as designed. Also confirm that applicable codes and environmental regulations are met.

Operate the facility as mutually agreed in the contract. The ESCO will maintain, monitor, and verify the installation as specified. Review the roles and responsibilities as stated in the contract to ensure you do your part to sustain equipment performance and savings.

Maximize benefits through trained staff. Your ESCO will train your facility staff in optimal operation of equipment and systems. Ask for a video of the training or a training manual. Staff training will help ensure savings and minimize future maintenance, while maximizing the life of the equipment.

Initiate preventive maintenance practices. With new equipment and trained staff, and with maintenance problems eliminated, staff can turn their attention from short-term fixes to long-term preventive maintenance.

Review the annual M&V reports. Meet with your ESCO regularly to ensure guaranteed savings are achieved as outlined in the contract. Report any concerns immediately and apply the contract protocol in the event of a savings shortfall (i.e., realized savings do not meet the contract specifications).

Develop a life-of-contract plan. Savings and contract benefits accrue during the guarantee period and financing term that may last 15 years or longer. During this "life-of-contract" phase, maintaining long-term operational performance is critical to realizing continued savings. Develop a life-of-contract plan to manage the contract for the entire guaranteed savings period and capture performance data from M&V reports and energy management systems. Personnel responsible for the project's success can use this plan to monitor and document activities during the contract term, providing continuity in the event of personnel changes.

CHAPTER 7. Getting Started

If you are not familiar with the ESPC approach, getting assistance from an ESPC professional can support a smooth process and a successful project outcome. ESPCs are complex, involving construction, engineering, budgeting, financial, and legal issues, with finance payments hinging on guaranteed projected savings over a long-term performance period. Technical assistance and proven resources can help all of these steps run smoothly.

Guidance and Resources

U.S. Department of Energy

- **ESPC Fact Sheet.** DOE summarizes the benefits of ESPC, includes example projects, and compiles a list of ESPC guidance and resources across DOE: https://betterbuildingssolutioncenter.energy.gov/sites/default/files/FL1709_WIP_ESPC%20Fact%20Sheet_FINAL%20VERSION_Jan%202018.pdf.
- **ESPC Toolkit.** DOE provides general information about ESPC as well as targeted resources to support decision-making and eliminate barriers to ESPC projects: https://betterbuildingssolutioncenter.energy.gov/energy-savings-performance-contracting-espc-toolkit.
- **State and Local Solution Center.** DOE provides informational resources and tools to help state and local governments understand and implement ESPC projects: http://energy.gov/eere/slsc/energy-efficiency-savings-opportunities-and-benefits. The Center includes North Carolina's successful model for accelerating ESPC adoption for small projects among local governments: https://www.energy.gov/eere/slsc/downloads/north-carolina-implementation-model-enhancing-performance-contracting-k-12.
- **Federal Energy Management Program.** Designed for federal agencies, FEMP provides many resources and tools suitable for developing successful ESPC projects that can be used in the state and local government space as well: http://energy.gov/eere/femp/energy-savings-performance-contracts-federal-agencies.

The ESPC Accelerator catalyzed public-sector energy efficiency investments of

MORE THAN $2 BILLION

during the program and left a legacy of valuable tools and resources to support ESPC into the future.

Access the tools and resources created by the 25 state and local partners in this Accelerator in DOE's ESPC Toolkit: https://betterbuildingssolutioncenter.energy.gov/energy-savings-performance-contracting-espc-toolkit.

State Energy Office. A number of SEOs have ESPC programs, including customized documents, a list of prequalified ESCOs, free technical assistance and other resources. Find contact information at:

- National Association of State Energy Officials website: http://naseo.org/members-states.
- Energy Services Coalition website: http://energyservicescoalition.org/chapters.

Energy Services Coalition (ESC). ESC is a public-private partnership that promotes and supports the widespread use of ESPC. Search for ESCOs serving your area, financing companies that finance ESPC projects, and consultants: http://energyservicescoalition.org.

ESPC SUCCESS TIP

The first step is to determine if you have a viable ESPC project as discussed in Chapters 2 and 3. Your SEO is a good first contact, particularly if it has a performance contracting program in which program experts can provide free guidance and resources. You may also want to contact several ESCOs operating in your area to get their assessments of ESPC applicability prior to issuing an RFP if your procurement policy allows a request for information process.

DOE Tools

Model Procurement and Contract Documents

Model procurement and contract documents are available for download from the DOE website: http://energy.gov/eere/wipo/model-documents-energy-savings-performance-contract-project.

Documents include:

- RFP templates to solicit an ESCO both directly and as part of a pre-qualified ESCO list.
- Contract for an IGA.
- Energy savings performance contract.
- Financing solicitation.

Customized documents may also be available from your SEO. (See above for contact information.)

eProject Builder

This database tool provides consistent tracking and reporting of ESPC project data, enabling project owners to make the business case for ESPC, negotiate strong ESPC projects, and standardize project results reporting: https://eprojectbuilder.lbl.gov/home/#/login.

Risk, Responsibility, and Performance Matrix

This document helps determine the risk, responsibility, and performance of a contractor's proposed approach under a federal ESPC: https://www.energy.gov/eere/femp/downloads/espc-risk-responsibility-and-performance-matrix.

Energy Escalation Rate Calculator

The Energy Escalation Rate Calculator computes an average annual escalation rate for a specified time period, which can be used as an escalation rate for contract payments in energy savings performance contracts and utility energy services contracts: https://www.energy.gov/eere/femp/building-life-cycle-cost-programs.

ESPC Financing Decision Tree

The ESPC Financing Decision Tree for public-sector organizations enables users to select the form(s) of ESPC financing best suited to their jurisdiction's conditions. The tool includes a mini-glossary with an explanation of each financing type included. Developed especially for the public sector: https://betterbuildingssolutioncenter.energy.gov/espc/financing-decision-tree.

Better Buildings Financing Navigator

The Better Buildings Financing Navigator helps you cut through the complexity of the many ways to finance projects to identify financing mechanisms to consider for your specific project: https://betterbuildingssolutioncenter.energy.gov/financing-navigator.

Hiring Additional Assistance

Even with the resources mentioned above, it may be prudent to obtain additional professional technical assistance. Overseeing an ESPC project requires specialized technical energy expertise. It also requires in- depth knowledge and understanding of ESPC to critically review the contracts and conduct the necessary due diligence. It requires time and attention to detail that may be a burden for staff to assume on top of existing duties.

Project Facilitator, Owner's Representative, or Agent/Third-Party Consultant

A specialized industry developed to provide ESPC technical assistance in the form of project facilitators, also known as owner's representatives or agents or third-party consultants. Involving a project facilitator is a recognized best practice and is often required or recommended for projects.

A project facilitator can help you navigate the process, serve as your technical expert to conduct due diligence during project development and provide confidence in cost and savings projections to ensure your project's performance. The facilitator will be most involved during the IGA, through contract negotiations, and during the post-construction M&V period and first-year M&V report review. A project facilitator can provide strategic advice and guidance, such as ensuring engineering calculations are reasonable and accurate, recommending and approving measures, considering risk management strategies, ensuring the M&V plan is reasonable, applying recognized standards and best practices, and validating annual M&V reports.

The best time to engage a project facilitator is after the ESCO has been selected, but before contract negotiations begin. This is when "the rubber meets the road" and when the project facilitator can provide the most value. If desired, a project facilitator could help develop an RFP and advise on ESCO selection, but this is a less critical task and free services may be available. Some states provide free services through ESPC programs, usually to assist with up-front education, getting internal buy-in, and soliciting an ESCO.

Specialty Consultant

In addition to an ESPC project facilitator, other specialists can supplement your staff capabilities, including:

- Project management firm to help oversee construction.
- Design engineer familiar with any specialized technology or system in your facility.

What to Look for in An Energy Savings Performance Contracting Project Facilitator

Substantial ESPC experience is critical, along with energy engineering credentials and M&V experience. Certifications ensure minimum requirements and understanding of recognized protocols, such as Certified Energy Manager and Certified Measurement and Verification Professional. A professional engineer and/or an academic engineering degree is also valuable but not necessarily required. See Appendix for qualifications to consider.

Payment Strategies

At least part of the consulting cost may be integrated into the ESPC project cost and paid from savings. Payment options include a fee for services, hourly rate structure, fee as a percentage of total contract value, fee paid from energy saved, and in some cases, subsidized assistance through the SEO.

How to Find a Consultant

Some state ESPC programs have prequalified consultants, so first ask your SEO or neighboring SEOs for a list of qualified consultants who serve your region. The Association of Energy Engineers certifies professionals through rigorous testing and background requirements. See the Association of Energy Engineers' Certified Professionals Directory, including Certified Energy Managers and Certified Measurement and Verification Professionals: https://portal.aeecenter.org/custom/cpdirectory/index.cfm. The Energy Services Coalition, with its ESPC mission, is also a good resource. See Appendix for a potential scope of work to include in an RFP to solicit a qualified project facilitator. Also consider joining chapters of professional organizations for local engagement and networking with ESPC stakeholders and the ESPC market in your area.

U.S. Department of Energy Accelerators

DOE's Energy Savings Performance Contracting (ESPC) Accelerator was designed to support expanded use of ESPC by state and local governments and K–12 schools. During 2014–2016, DOE worked with 25 state and local agencies to develop solutions for the most common barriers to ESPC, leveraging innovative and best-practice approaches for success. As a result, the ESPC Accelerator catalyzed public- sector energy efficiency investments of more than $2 billion during the program and left a legacy of valuable tools and resources to support ESPC into the future.

The ESPC Toolkit is a collection of those resources that will enable state and local communities to learn and benefit from the work of the ESPC Accelerator. It includes the best practices and innovative approaches that states, cities, and K–12 schools have used to successfully establish and implement performance contracting. Resources are organized by phase of an ESPC project so that potential users of the mechanism can easily find the information they need at each stage of their ESPC decision-making process. Access the Toolkit here:

https://betterbuildingssolutioncenter.energy.gov/energy-savings-performance-contracting-espc-toolkit

APPENDIX. Supporting Materials for Chapter 7: Getting Started

Request for Proposals for Project Facilitator Services

Below are potential core elements to include in an RFP to solicit a project facilitator for an ESPC project. The examples provided are based on state and local government best practices and lessons learned.

Project Overview

Include an overview of your potential project, including a list of operations and systems and a general description of facility needs.

Contractor Requirements

Proposers must, at a minimum, meet the following requirements:

- Five years of experience in overseeing or advising on performance contracting projects for governments, with references, preferably in projects for similar types of facilities.
- Experience or equivalent involvement providing these services for at least three projects, preferably in your sector.
- Energy engineering expertise, experience, Certified Energy Manager credential and academic background (professional engineer preferred but not required).
- M&V expertise including a Certified Measurement & Verification Professional.
- Engineering analysis experience including energy auditing, utility rate analysis and work with a variety of energy systems.
- Ability to perform the tasks outlined below.

Tasks

Act in an owner's advisory role to comment and make recommendations, balance water quality requirements and standards with selection and installation of energy conservation measures, provide technical insight and quality control, and assist in interactions and communications with the ESCO. The awarded proposer may participate in some or all of the following tasks:

Investment Grade Audit and Project Development

Assist in negotiating the IGA contract with the ESCO. Attend the kickoff meeting to establish an agreed plan of action. Review the audit and project proposal, including baseline calculations, proposed measures, assumptions and savings calculations, cost estimates, commissioning plan, O&M plan, and M&V plan. This will involve participation in multiple progress meetings including review meetings for the IGA process. The development of a valid energy baseline and an appropriate M&V strategy is fundamental and paramount to the overall viability of the ESPC project. The project facilitator will help evaluate the risk and cost of the performance measurement strategies.

Contract Negotiations and Contract Review

Review the draft contract and make recommendations for negotiations. Critical elements include project scope, cash flow, guarantee, M&V protocols, training by the ESCO, construction schedule, standards of comfort, equipment to be installed, equipment warranties, and roles and responsibilities for O&M.

Design, Construction and Implementation Support

Provide general project oversight services during construction to ensure that the project is completed on schedule and designed and built as planned. Review submittals of designs, equipment performance specifications, and installation plans. Help establish roles, responsibilities, expectations, timelines, communications, logistics, and an effective submittal review process. Help ensure regular inspections,

commissioning, training, acceptance criteria, O&M requirements, and M&V guidelines are met. Monitor work progress in accordance with the planned schedule. Help provide resolution to any project-related issues that might arise.

Measurement and Verification- Review and Validation

Review, comment, and approve the ESCO's M&V plan. Review and approve annual M&V reports submitted by the ESCO to ensure the M&V plan and contract provisions are correctly applied to determine savings according to the guarantee. The M&V period may extend through the entire financing period, up to 25 years in some states. The first several years are most critical to ensure performance, so you can consider reducing the frequency of reports in later years.

Other Support

Other support services may be desired depending on staff capabilities and project scope:

- Internal Education and RFP Support: Prior to issuing an RFP, help compile and organize utility and facility information. Assist to build internal understanding and consensus for the project, potential scope and approach. Advise on RFP development and ESCO selection.
- Project Management: Provide assistance to oversee the project during installation and implementation.
- Engineering Support: Additional assistance in design.

Contractor Request For Proposal Response Requirements

Experience

- Describe demonstrated experience in the evaluation, design, development, and management of performance contracts on behalf of public-sector clients. Include the length of time providing services described in this RFP, with a minimum of 5 years of similar experience in overseeing or advising on performance contracting projects for governments for the listed tasks. Include technical experience in analysis of energy systems, including controls, utility rate analysis, etc.
- Describe the processes, tools, resources, and services to provide third-party consulting assistance associated with a performance contracting project related to the project design and development, audit review, ESCO interactions, contract negotiations, implementation, management, M&V, training, and other core services.
- Describe your experience and/or understanding of financing mechanisms and financial assistance that may be available.
- Describe your working knowledge of relevant state statutes and typical government procurement and contracting practices for performance contracts.
- Identify the individual(s), including subcontractors, assigned to this project. Note that a single individual may be desired to be the lead contact and main service provider to maintain continuity and ease of communications. If additional people are intended to provide some of the core services, describe the rationale for this approach and how communications will be managed and coordinated. Provide resumes, descriptions of their roles and responsibilities, qualifications, and experience related to these tasks. Identify personnel certified by the Association of Energy Engineers as a Certified Energy Manager or personnel with similar credentials from a comparable nationally recognized organization. Identify personnel who have a state professional engineer license.
- Provide a signed statement that no conflict of interest issues would exist; assigned individuals would avoid working for any ESCO that may be selected for this work and maintain the confidentiality of the project during the development and procurement phases; and that the firm will avoid any other work with the selected ESCO through the duration of the contract resulting from this RFP.

References

Provide three references from similar projects performed, preferably small projects:

Project Name:	
Primary Contact Person:	
Name:	
Street Address:	
City, State, Zip	
Phone, including area code:	
Email address:	
Alternate Contact Person:	
Name:	
Street Address:	
City, State, Zip	
Phone, including area code:	
Email address:	

Description of the project. Include project size (facility size and dollar amount), start and end dates, types of measures, unique features, issues or problems and how resolved, etc. This may be presented in a full-page format, not to exceed 2 pages per project.

Description of services performed. This may be presented in a full-page format, not to exceed two pages per project.

Cost

Hourly Rates: Provide all-inclusive hourly rate for these services. Billing rates may be listed as a blended rate (desired) or as a rate per individual (in this case, list the percentage of time each person will spend on the project).

Proposed Cost: Propose the number of person hours to be dedicated to each task and the resulting cost.

Proposed Payment Strategy: Propose how some or all consulting costs can potentially be rolled into the ESPC and paid through savings.

Travel Costs: Note if travel expenses are included in the hourly rate. Describe the mode of travel, typical travel expenses that would be billed, and origin of travel.

Energy Savings Performance Contracting Series – Guides for State and Local Government Sectors

DOE's Energy Savings Performance Contracting Series for State and Local Government Sectors introduces how ESPC can increase energy efficiency and upgrade facilities in particular government sectors. Each guide provides critical detail for owners to consider ESPC as an option and core resources to take the next step to initiate a project. Each provides information on how ESPC works, its components, and the potential project benefits with respect to typical barriers in the sector. Project examples demonstrate how guaranteed annual energy and operational savings cover the cost to install a wide variety of sector-specific measures. Industry representatives involved in the government sector provided experience and insight on barriers, opportunities, and benefits. In addition to the strategies for small projects included in this guide, the series includes:

K-12 SCHOOLS:

Performance-Based Contracting: A Primer for K-12 Schools (2014)

This primer explains how schools can use ESPC to save money by improving building energy efficiency and reducing operating costs, all while increasing occupant comfort and productivity. The resource provides K–12 faculty, school boards, and building managers with an introduction to ESPC benefits, guidance for getting started, and resources to support the ESPC implementation process. Find the **Performance-Based Contracting: A Primer for K-12 Schools** guide here: https://betterbuildingssolutioncenter.energy.gov/sites/default/files/attachments/K-12-ESPC-Primer.pdf.

WATER RESOURCE RECOVERY FACILITIES:

Energy Savings Performance Contracting for Water Resource Recovery Facilities (2018)

This guide was specifically developed to provide decision makers at water resource recovery facilities with information, examples, and resources to consider the option of ESPC as a way to upgrade facilities with an emphasis on compliance. Find the **ESPC for Water Resource Recovery Facilities** guide here: https://www.energy.gov/sites/prod/files/2018/03/f49/WIP_ESPCGuide_Wastewater_FINAL.pdf.

COMING NEXT:

HOSPITALS AND HEALTHCARE FACILITIES: Energy Savings Performance Contracting for Hospitals and Healthcare Facilities

Endnotes

1 https://swsu.ru/sbornik-statey/pdf/CFIRE_CommBldgFinance-Final.pdf

2 https://www.infrastructurereportcard.org/americas-grades/

3 https://www.eia.gov/consumption/commercial/data/2012/bc/cfm/b8.php

4 *Building Minds, Minding Buildings: School Infrastructure Funding Need: A State-by-State Assessment and an Analysis of Recent Court Cases.* https://files.eric.ed.gov/fulltext/ED517698.pdf

5 American Society of Civil Engineers. *2017 Report Card for America's Infrastructure - Wastewater.* 2017. http://www.infrastructurereportcard.org/

6 U.S. Green Building Council. *The Business Case for Green Building.* February 10, 2015. https://www.usgbc.org/articles/business-case-green-building

7 U.S. Energy Information Administration. Annual Energy Review 2011. Page 72. 2012. DOE/EIA-0384 (2011). http://www.eia.gov/totalenergy/data/annual/pdf/aer.pdf

8 U.S. Energy Information Administration. Annual Energy Outlook 2015 with Projections to 2040. Pages ES-5, ES-7. 2015. https://www.eia.gov/outlooks/archive/aeo15/pdf/0383(2015).pdf

9 International Society of Sustainability Professionals. *Quantifying the Hidden Benefits of High-Performance Building.* 2011. TAMU Mays Business School Cooperative Study. http://www.unece.lsu.edu/greenbuilding/documents/2013Mar/gb13_19.pdf

10 U.S. Green Building Council. *The Business Case for Green Building.* February 10, 2015. https://www.usgbc.org/articles/business-case-green-building

11 https://swsu.ru/sbornik-statey/pdf/CFIRE_CommBldgFinance-Final.pdf

12 https://mn.gov/commerce/industries/energy/technical-assistance/gesp/

13 http://www.emnrd.state.nm.us/ECMD/

14 https://mn.gov/commerce/industries/energy/technical-assistance/gesp/

15 https://energyoffice.colorado.gov/clean-energy-programs/energy-performance-contracting

16 https://www.mass.gov/energy-management-services-ems

17 https://www.energy.gov/eere/wipo/energy-efficiency-and-conservation-block-grant-program

18 https://www2.ed.gov/programs/green-ribbon-schools/2014-schools/awards.html#co

19 https://energyoffice.colorado.gov/clean-energy-programs/energy-performance-contracting

20 https://deq.nc.gov/conservation/energy-efficiency-resources/utility-savings-initiative/performance-contracting

21 Prepared for the U.S. Department of Energy Federal Energy Management Program. *M&V Guidelines: Measurement and Verification for Performance-Based Contracts, Version 4.0.* November 2015. http://energy.gov/eere/femp/downloads/mv-guidelines-measurement-and-verification-performance-based-contracts-version.

22 https://betterbuildingssolutioncenter.energy.gov/evaluating-espc

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