clean energy solutions

What to do once you have decided to do an Energy Performance Contract

GETTING TO "YES" is an excellent guide to getting stakeholders aligned around the benefits of investing in energy efficiency measures (ECM) in multifamily, commercial and industrial buildings. Reviewing "Getting to Yes" is the best starting point for individuals and groups interested in pursuing an investment to reduce utility bills and improve energy usage in buildings.

This guide before you is designed to advise groups that have made the decision to move forward with an energy efficient project in a building in excess of 20,000 sf. In particular, the focus is on a specific type of financing tool available to larger properties called Energy Performance Contracting (EPC) and the goal is to highlight key considerations for owners and property managers based on practical experience in the field. This guide was written by EPC professionals with over 60 years combined experience and it shares information not generally found in existing tutorials. It recommends some of the best-credentialed guides, offers some cautions based on experience in the field, and identifies practical tools from years of procuring and managing EPCs.

The guide is divided into two sections. The first section provides background on the history of EPCs and the Energy Service Company (ESCO) concept. The second section provides a step-by-step guide to entering into an EPC and is written in the general sequence of preparing, soliciting, negotiating, and managing EPCs.

For reader interested in pursuing policy that can incentivize building owners to invest in energy efficiency projects, please see the related documents *Commercial Program Barriers and Strategies to Overcome Them.*

Section I: A History of Energy Performance Contracts[1]

The genesis of energy performance contracting was the shortage of gasoline and enormous spike in oil prices caused by the Arab oil embargo in l973-4 and the subsequent Congressional passage of the National Energy Conservation Policy Act in l978. The Act declared the federal government's assumption of responsibility to lead the country into significant investments in energy conservation, including large scale projects in federal buildings and industrial facilities. Creating sizable tax credit incentives for paid-from-savings projects, the Act stimulated the formation of energy services companies that could combine energy auditing, financing, design, construction management and verification of savings under the same roof. A couple of companies in France, called chauffages, were the models for the new industry. When the tax credits expired in the early l980s, the industry collapsed amidst allegations of poor verification of savings and the inferior quality of some energy efficient equipment installations.

The second phase of the industry dates from the mid 1980s with the actions of state public utility commissions ordering integrated resource plans and demand side programs to slow the growth of expensive new capacity expansions featuring very expensive nuclear and fossil-fueled power stations. In the early nineties, the growth of the economy, growth of plug loads and air conditioning fueled the new power plant building. National energy service companies formed as divisions of controls companies, utility subsidiaries and as entrepreneurial ventures created by a handful of energy engineers. Customers were federal, state and local governments, universities and hospitals. In l991, public housing authorities joined this collection, made possible by the insertion of regulatory incentives into the l987 Housing Act.

Since the early nineties, the public utility commission (PUC) and legislative mandates of California, the Northwest and the Northeast spread to most of the rest of the country, stimulating a $9 B national energy performance contracting industry today. With the mid 1990's formulation of an International Performance Measurement and Verification Protocol (IPMVP) and its adoption by the industry, costs came down, and confidence in the service went up. The emergence of municipal leases as standard project financing vehicles further reduced the cost of projects significantly, as did increasing reliance on the federal government and state governments on this energy efficiency vehicle. While energy performance contractors are still struggling to make a significant dent in the private, non-institutional commercial market sector, the industry now supports almost a dozen mature, national companies that offer a broad and sophisticated set of energy-related services. Both Maryland and Virginia's state and local governments and institutional sector have been well served by state laws and agency programs to stimulate widespread adoption of energy performance contracting over the past decade.

[1] The terms Performance Contract (PC), Energy Performance Contract (EPC), Energy-Saving Performance Contract (ESPC), and Energy Service(s) Contract (ESC) are used interchangeably in much of the literature, and no generally-accepted distinction exists. Federal legislation uses ESPC most often. In this guide we choose EPC for convenience.

An energy performance contract, of course, is an agreement between a contractor (most often an energy services company, or ESCO) and a customer to perform as a condition of payment. Performance in this context means meeting a guaranteed level of energy savings. In fact it is not possible to measure energy savings, because the definition is the difference between what the customer spends on energy and what s/he "would have spent" absent the contract. That requires setting a baseline—that amount of energy that would have been consumed times current prices per unit. Some of the risks in this process are discussed in later sections of this guide. For simple buildings that do not change over time, the baseline may be as simple as metered energy consumption before the installation; but for complex processes and variable loads, the baseline has to be adjusted in sophisticated ways. The IPMVP describes how to do this.

Financing EPCs has surprisingly little to do with baseline setting or savings in general. Underwriting criteria rarely recognize savings as a significant credit enhancement. In fact, to the degree that an EPC may have been sold as a "contingent liability" (payment contingent on meeting savings guarantees), a lender may be less confident that the contract imposes an absolute requirement of repayment. Instead, the underlying credit of the borrower and perfected security interests in hard assets (which energy retrofits rarely represent) are determinative.

Section II: A step-by-step guide to Energy Performance Contracts

Step 1: Approving the Work Plan

ESCOs are essentially design-build general contractors combined with a diagnostic front end and a guaranteed-savings back end. They should provide (by some combination of in-house staff and subcontracts) all the labor, materials, equipment, and subcontractor management to go through all the steps in this section. If they do that well, they need little supervision. That being said, consider engaging a trusted third-party advisor with experience on both sides of the table as an Owner's Agent. The cost should not exceed a few percent of the total savings and the benefit to the bottom line of the project and to the overall successful execution of the project, particularly for first time EPC participants, can be significant. It may also be prudent to retain an independent engineer to ensure your goals are being met, to review designs, oversee commissioning, and verify savings.

Soliciting and Negotiating EPCs

Congratulations, you have gotten your management and stakeholders to "Yes"! They have agreed to pursue an energy efficiency projects, and now you are considering an Energy Performance Contract. Here are the basic steps in the process:

1. Define user goals and criteria.

2. Invite ESCOs to submit qualifications pertinent to your goals, and to conduct a preliminary energy-use analysis and *walk-through* (ASHRAE[2] Level I) energy and water audit.
3. Select and contract with an ESCO for an *investment-grade audit* (ASHRAE Levels 2+3) to yield dependable cost quotes and savings guarantees.
4. Negotiate the EPC to implement the approved work found in the audit
5. Decide among financing options, some of which will be offered by the ESCO. Pages 26-28 of "Getting to Yes" describe most of the feasible options for commercial buildings.
6. Negotiate a long-term Operating and Maintenance (O&M) agreement, if that is among your goals. It will be especially useful if unfamiliar technologies are installed or if your maintenance staff needs on-going help even after training and documentation.

For your reference:

More detailed steps have been charted by the Hawaii Department of Business, Economic Development, & Tourism[3] and are also described well in the 2008 "North Carolina Guide to Energy Performance Contracting," available at www.energync.net.

A set of model documents aimed specifically at owners and managers of commercial buildings is offered by BOMA. Although in part a marketing piece (for the Clinton Climate Initiative, four ESCOs, and Hannon Armstrong), the website and its reference documents do lay out the process clearly, and offer specific templates: http://www.boma.org/sustainability/info-resources/Pages/boma-energy.aspx.

Define User Goals and Criteria

Energy savings are a means to an end. Some organizations hope primarily for immediate reductions in energy expense, while others may wish to apply all the savings to capital improvements or catching up on deferred maintenance; and there are other goals to be considered. The prioritization of goals is a more impactful decision than it may seem. It affects the choice of technologies, loan term, contractors, sharing of savings, and other contract terms. Trade-offs among the potential benefits of EPCs should be considered, as follows:

- Immediate savings are maximized by allocating less than 100% of savings to debt service, by lengthening the term of financing, and by choosing technologies like controls and lighting

[2] www.ashrae.org/resources--publications/bookstore/procedures for commercial building energy audits

[3] *Guide to Energy Performance Contracting*, July 1998, Hawaii Department of Business, Economic Development, & Tourism: Energy, Resources, & Technology Division; quoted extensively and elaborated in "Energy Management Services Guide" published in 2009 by the MA Dept. of Energy Resources (see p. 15 for a comprehensive chart of steps)

over longer-payback capital equipment replacements. This may be your principal goal, but it loses the opportunity to pay for longer-payback capital improvements out of savings.

- Capital equipment replacement and catching up on deferred maintenance are maximized by allocating 100% of savings to debt service, selecting both short and long-term payback technologies, and by dedicating future replacement and repair budgets to the servicing of EPC debt. ESCOs generally prefer this strategy, because it maximizes the costs incurred and borrowed, and most EPC profits are earned as a mark-up on direct costs. Many users also prefer this strategy, if they are faced with substantial deferred maintenance, urgent repairs, or opportunities to install upgrades or renewable energy. The user should be reminded, however, that avoidance of future capital expense is not in itself a real "saving" (which many EPCs call it): it is simply using EPC debt now instead of capital appropriations and borrowings later.

- Long-term operations and maintenance support may be important to users who are understaffed in their physical plant or are anticipating future changes that shift the emphasis from immediate improvements to "continuous commissioning" and other on-going energy/maintenance optimization. Some ESCOs emphasize this service, and staff for it more than others. It is usually handled by a separate contract rather than trying to capitalize the service into the base EPC.

- Reliability and quality of power and energy supply may be essential to users with critical data centers, industrial controls, and other sensitive loads. Technologies like synchronous cogeneration that can be islanded from the grid, flywheel storage, electronic controls, and cybersecurity protections may be essential in these EPCs, and require selecting ESCOs, technologies, and possibly liquidated-damage clauses that can support them.

RFQ and Walk-through audit.

There are plenty of ESCOs looking for work in every region of the U.S. You should be able to attract many statements of qualifications and offers to do a free Level 1 audit, if your plans and ability to enter into EPCs show significant opportunity for investment. Be sure to invite firms that have worked successfully in your kind of facility, for your kind of organization, and in your general area, so they will be familiar with local codes, contractors, and conditions. The NAESCO website publishes press releases by their members at www.naesco.org/news.

The walk-through audit is a marketing expense for ESCOs. At this stage of the engagement, you are selling too: show your candidate ESCOs that you are committed to going through with this; that your facility has substantial needs they can address; and that you have thought about your goals (see 1.1). Let them know if they can count O&M savings and capital replacements as "savings." Give them a chance to ask questions about your facility, goals, contracting ability, authority, schedule, and size of your energy and water budget, so they can judge the opportunity

to respond. Tell them how many candidates you plan to invite to do the walk-through, usually not more than three.

ESCO selection and Investment-Grade Audit (IGA)

ESCO capabilities are best judged on the basis of comparable work done for similar clients, as evidenced by their case studies and references. Their enthusiasm for your project is best judged by their walk-through audit and discussion. It's important to make a good match, including the specific individuals who will be assigned to your project.

Once you have selected an ESCO to proceed with the work you and they agree to (based on the walk-through audit and discussions), you will want to negotiate a project development agreement (PDA) that sets the terms and cost of the IGA, the audit procedures to be followed, and the form of the final EPC. In addition to the standard terms of the PDA, be sure that the ESCO agrees:

- to set a maximum price that you will pay for the IGA if you do not proceed to an EPC. (If you do proceed, the IGA price should be rolled into the financed cost of the EPC.) This price normally should not exceed around 25 cents per square foot of conditioned space or 7% of the expected project cost, unless there are complexities like industrial processes or highly-variable loads or other special circumstances that the ESCO can convince you should support a higher budget.
- that you can walk away without paying the budgeted price for the IGA if its final savings or costs differ by more than 10% to 15% or so from the walk-through audit estimates, or if its recommendations do not include most of the work you liked from that audit, or if the proposed work will not meet other standards (including those of any third-party funder).
- to conduct a thorough and comprehensive audit of all energy- and water-efficiency and renewable-energy opportunities, and all investigations and feasibility studies important to your goals.

Step 2. Negotiating costs and guaranteed savings

The IGA defines the work to be done, the costs to be incurred (based on contractor bids), the savings expected (which must exceed debt service), the lifetime of those savings (which must exceed the term of financing), and the methods proposed to measure those savings. You should study the IGA plan carefully to ensure it meets the Goals you set in Step 1.

The final scope of a large EPC is rarely known in advance, even after a well-studied IGA. You will want sufficient flexibility on both sides to discover additional opportunities and to extend

the financing to cover longer-term facility improvements. As the contract proceeds, you will want to approve each major decision: what specific project (ECM) to do next, its general design, budgeted cost and savings (and how those savings will be measured), its schedule, the contractors and equipment to be procured, the documentation and training to be provided, and whether post-installation maintenance support will be provided.

You should consider a separate contract for long-term operation and maintenance support if the installation involves technologies or equipment unfamiliar to your maintenance staff. Most ESCOs offer such support, along with "as-built" documentation, continuous commissioning, training and even certification of your staff.

The ESCO may want you to offset any shortfall in a particular year against surpluses in other years as part of the **baseline guarantee**, and may want the right to fix the problem and/or install other measures that will supply equivalent savings. These are not unreasonable but you will have to decide whether to accept such remedies.

The ESCO should guarantee both savings by units of energy/water and dollar savings sufficient to exceed debt service, against an agreed starting "baseline." Take care that the ESCO does not include a pre-agreed inflation rate of baseline energy/water rates such that the guarantee becomes worthless after some years of artificially-inflated energy/water cost projections. The dollar guarantee should be based on the guaranteed savings in energy/water units times the rates in effect during each guarantee year. (A minimum rate or "floor" is fair, to protect the ESCO against artificially-lowered savings due to price reductions.)

Savings from avoided future capital replacements are not real savings, but an alternative financing. You may indeed want to include such "savings" in order to increase the scope of work, but be aware that this part of your debt service is not covered by reduced waste (as are the energy-efficiency and renewable-energy parts). ESCOs often call these "avoidance of future capital and operational costs," but they are not avoided at all, just financed in the EPC.

Finally, Savings from operation and maintenance may be difficult to realize in practice. The avoidance of a service contract or other outside contractors are real, to the extent existing contracts can be modified or terminated. Savings in labor costs, however, may be subject to personnel policy restrictions, union contracts, and limitations in transferable skill sets.

Step 3. Negotiating other terms of the final contract

Most EPCs follow industry norms that can be found in the references provided above. There are a few clauses, however, that deserve special attention:

Performance Bond — The ESCO should post a performance bond at least equal to the expected total cost of the work. If they should fail or leave the project, the bond carrier will then step in and complete the work.

Financing — Most ESCOs will offer to "arrange" financing of the proposed work, as part of their marketing. Some will use their own sources (e.g., debt backed by the equity of a large parent corporation, placements of "certificates of participation" to institutional investors, etc.). Others will assist you in accessing the many forms of EPC financing now available, including those with various forms of credit enhancement. The "Getting to Yes" Guide discusses many of these forms.

Responsibility — For asbestos and other hazardous materials, sometimes including mold, lead-based paint, ground water contamination, etc. The ESCO can stop work if these are discovered, and usually will not take responsibility for their removal or abatement, so you should attempt to identify and remediate before work is started.

Indemnification — It is reasonable for both parties to indemnify the other from losses incurred due to negligence, misconduct, etc. You should review the exact terms with your counsel. Take care that your exposure is limited to losses from this particular project. The ESCO may also try to include a Limitation of Liability clause that restricts its obligation to amounts collected from you.

This Guide was prepared by Clean Energy Solutions, Inc. with funding provided by the U.S. Department of Energy, DE-EE0005460, "Accelerating Commercial Building Retrofits: Policy, Best Practice Compilation, Pilot Implementation."