Energy Performance Contracting by Public Housing Authorities

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ABSTRACT

This article provides an overview of the legal and contractual considerations for certain performance contracts for energy conservation and on-site energy generation projects for public housing authority (PHA) facilities. It focuses on the importance of achieving an effective and comprehensive energy audit agreement as an initial step in the process. It considers U.S. Department of Housing and Urban Development (HUD) requirements together with construction, financing and guarantee considerations.

INTRODUCTION

Public housing authorities are public bodies formed by cities and governed by city and state statutes. They are also regulated and partially funded by the U.S. Department of Housing and Urban Development.

PHA facilities exist in cities throughout the United States and provide affordable residential housing. PHAs may include diverse structures such as multifamily apartment buildings, scattered sites, other residences, meeting hall locations, sports facilities, administrative offices, district energy electric or thermal plants, garages, and other facilities necessary to serve the PHA residential communities.

Providing an adequate supply of affordable housing to low-income residents is important in many areas of the country. PHAs serve as one of the solutions for that need. While subsidized by HUD, PHAs are financially dependent upon rents paid by residents with limited incomes. Within such constrains, how can PHAs fund the capital costs required to implement large-scale energy efficiency, energy conservation and on-site generation projects? This need can be met with a combination of strategies and incentives that PHAs can utilize to finance

and implement such projects. PHAs are able to fund energy projects with the cost savings achieved by implementing energy measures such as lighting retrofits, heating, ventilating and air conditioning (HVAC) improvements, and controls solutions together with other measures.

Energy performance contracts (ESPCs) have several different forms but all share the characteristic that the savings generated by the project must amortize the capital cost of the energy conservation measures (ECMs). The energy services company (ESCO) undertakes the risk of achieving such savings by guaranteeing that the projected savings will actually be produced during the contract term.

The ESCO serves as a design-build general contractor providing all the services required to audit and evaluate existing facilities and equipment, recommend ECMs, design, procure, construct and implement a comprehensive project to include long-term monitoring. ECMs and other measures implemented by the ESCO at the customer's facilities are designed to address the requirements of each PHA facility. These measures may include energy efficiency, energy conservation, cogeneration, renewable energy generation, water conservation plus sustainable materials and operations.

Many ESPCs require that the ESCO provide measurement and verification (M&V) services to determine and validate project savings. A PHA should also hire its own independent energy consultant to verify the energy savings in the event that it lacks such capabilities. There are various ways to structure the M&V process.

After performing a preliminary walk-through and assessment, the selected ESCO enters into an agreement with the PHA to conduct a comprehensive energy audit of the PHA's facilities to develop an energy usage baseline, identify potential improvements for achieving energy efficiency, and estimate cost savings. This agreement should be carefully drafted and negotiated.

Financing ESPCs and Obtaining HUD Incentives

The role of the ESCO may also include arranging for financing using a third-party financier. Some ESCOs are reluctant to do this due to liability concerns under the Dodd-Frank Act. Some ESCOs specifically provide that they will not act as "municipal advisors" for the ESPC. The reason for such language is that, effective January 2014, the Dodd-Frank Act was amended to create a new class of regulated persons, called "municipal advisors," who must register with the commission prior to

offering financial advice concerning, in brief, municipal financial products such as structure, timing and terms of financial products. The term "municipal advisor" appears to partially exempt ESCOs by excluding engineers providing engineering advice, which is defined to include "feasibility studies, cash flow analyses, and similar activities," or "projections of output capacity, utility project rates, project market demand or project revenues" [1]. Dodd-Frank represents a sweeping overview of financial dealings. For that reason, it is understandable that ESCOs want to be careful before providing any advice that might be deemed regulated under the Dodd-Frank Act.

HUD financial support for PHAs includes providing funds for utility costs, including electricity and natural gas, together with other energy commodities. One of the types of incentives HUD allows is the "frozen baseline" method which supports ESPCs. Using frozen baseline financing, PHAs can implement energy conservation projects that substantially reduce energy consumption. HUD continues to make utility payments to the PHA at the pre-project baseline level (i.e., before the baseline is frozen) as though it had not reduced its energy consumption. The PHA can use the amounts paid by HUD in excess of the utility costs for debt service and certain other expenses. By guaranteeing the dollar amount of the energy savings, the ESCO guarantees that the PHA will be able to pay for project's improvements using the generated savings. HUD provides several mechanisms for PHAs to finance their energy projects: frozen baseline incentives, 24 CFR §990.185(a)(1)(i); add-on subsidy incentives, 24 CFR § 990.185(a)(3)(i); resident paid incentives, 24 CFR. § 185 (a)(2)(i); and rate reduction incentives, 24 CFR § 185 (b).

Financing options for PHAs include bonds and, to the extent permitted by state laws, may also include "municipal lease" financing, provided that the ESCO provides a savings guarantee. A municipal lease may be viewed as a hybrid between a true lease and time purchase agreement. Unlike a true lease, upon installation and acceptance of the ECMs, the PHA owns the ECMs and the lessor (typically a bank) retains a security interest.

Planning Process

It is not an easy process for a PHA to implement these energy projects. Projects are often complex and involve multiple steps and processes beginning with requesting and analyzing proposals. Contracts require preparation and negotiations in connection with audit agree-

ments, ESPCs and other related agreements. These steps also include securing HUD, utility and other incentives that may be available, plus arranging for the financing, administration, implementation and operation of the project. PHAs often rely on specialized consulting and professional services to provide guidance, assistance and support. A PHA must also comply with complex HUD regulations together with any applicable federal, state and local laws. HUD approval for the project and the ESPC might take months. Keeping the PHA's board informed of the project's on-going status is important since the process cannot proceed without board approvals.

Another consideration is the necessity of replacing critical equipment prior to failure. In one project, boilers in several residential building complexes of a PHA required replacement prior to the following heating season. A long lead time for ordering the boilers was necessary to ensure timely installation, yet HUD's approval of the project was pending as the lead time was expiring. Under those pressing circumstances, it was necessary to use a contract called an "agreement to proceed" which allowed boiler procurement to commence pending final HUD approval of the project. The boilers were ordered in advance to be installed prior to the onset of cold weather. The project was approved by HUD in time for the boilers to be installed, and the agreement to proceed was superseded by the contract between the ESCO and the PHA.

Energy Savings Guarantees

Energy savings guarantees are the core of ESPCs and certain other types of energy services agreements. Guarantees are contractual promises that, if unmet, create liabilities for the ESCO or regrets for the PHA that fails to understand the guarantee. They should be carefully written with attention by each party to the type of guarantee being offered. A poorly written guarantee often results in needless misunderstandings and disputes. Following are examples of types of energy savings guarantees and elements of comprehensive guarantees:

1) *Payments based upon deemed savings*. Since lighting is typically a large percentage of a PHA's electrical load, lighting retrofits such as sensor-controlled, light-emitting diode (LEDs) lamps reduce electric demand and consumption when compared to fluorescent lamps. LEDs generate less heat than fluorescents. Since the differences between the power requirements of the existing lamps compared to

the new replacement lamps can be calculated based upon manufacturers' specifications and data, the energy savings is sometimes determined by calculating and stipulating (deeming) the total savings. Following are examples of a portion of deemed savings provisions:

Baseline consumption. Electrical demand and electric energy consumption will be stipulated for each baseline lamp/ballast fluorescent combination based on the manufacturer's rated consumption and demand for each lamp/ballast combination.

Energy savings calculation. Electric energy and demand savings will be calculated as the difference between the baseline for each fixture and the manufacturer's data for each sensor-controlled LED fixture's electric energy demand and consumption, adjusted for the percentage of dimming time recorded by the LED control system. Total energy savings will be calculated using the electric energy and demand savings for each lamp or fixture (calculated as provided herein) multiplied by the operating hours and actual fixture counts.

2) *Payments based upon achieved savings*. Following is a type of guarantee which places the burden upon the ESCO to produce savings based upon measured savings multiplied by a variable index price, subject to a floor price, throughout the financing term based upon the actual cost of electric commodity to the customer:

Electric commodity. The unit price per kWh to be used to determine electric commodity savings with respect to each month following the commencement date shall be the same as the price per kWh that the PHA is charged by the utility during that month under account: _____ (or successor account having the same utility service classification). During the term, the electric commodity unit price shall not be less than the unit price per kWh for said account charged to the PHA with respect to the first month following the commencement date.

Energy and cost savings calculation algorithms. The ESCO shall base its calculations of savings upon the following: [algorithms are identified]. The ESCO may use other reasonable algorithms or methodologies to calculate savings with the PHA's prior written permission which may not unreasonably be withheld.

As with the first example, this one shows how the savings calculation is to be performed. There are several other factors that must be addressed to achieve a direct comparison between baseline energy consumption and post-installation energy consumption. These might include the need to adjust the baseline whenever the facility's equipment, occupancy or hours of use change, and to adjust for differences in experienced weather conditions.

Engineering and Regulatory Consultants

It is important for the PHA to have engineering and other technical consultants experienced in dealing with ESCOs available to support the PHA. ESPCs involve complex contracts which typically involve the installation of numerous energy measures (possibly including on-site generation) coupled with financing dependent upon performance over a period of years. Without solid experience and understanding of the process, it is very difficult for most PHAs—other than those with highly experienced in-house capabilities—to cost-effectively participate in an ESPC. I found it surprising that one of smaller PHAs I represented lacked in-house experience with ESPCs and had no outside consultant. The PHA eventually hired experienced outside consultants who were able to substantially and cost-effectively assist the PHA in achieving its objectives. In another case, a PHA was able to save millions of dollars in on-going M&V costs by using outside consultants to perform such services rather than having the ESCO perform comprehensive M&V.

The PHA must also have regulatory consultants experienced in dealing with HUD energy projects performed by ESCOs. Such consultants typically have multiple years of experience with HUD and are valuable in dealing with the ESCO and addressing HUD requirements and concerns.

On-site Generation and Microgrids

A typical large PHA has a reasonably consistent load profile from day-to-day activities and operates on a continual basis. It requires a very high degree of reliability and resilience for its energy supply. Its relative inflexibility of demand means that the PHA is generally not able to take advantage of lower off-peak pricing by purchasing utility power under a time-of use (TOU) service rate classification. While the PHA may be unable to readily curtail load in residential buildings during periods of high electricity prices and purchase power during lower cost periods,

administrative or maintenance buildings or equipment operated by a PHA may have such opportunities.

While there are technological strategies which enable customers to take advantage of TOU power (e.g., generating power for peak shaving purposes or using energy storage), they often require a significant investment which may not be feasible for a PHA. Though a PHA may have back-up generation capacity, without on-site generation, it's utility rate options are limited. Utility distribution grid outages become PHA outages unless the PHA has back-up generation or cogeneration capable of synchronous operation. Without a combined heat and power (CHP) unit or other form of generation, a PHA has limited control, limited flexibility and fewer opportunities to achieve environmental benefits.

Interconnection considerations. A traditional microgrid which contemplates synchronous generation with the utility distribution grid to enable sale of utility electric power, back-up or selling excess electric energy to the utility can require time-consuming interconnection approvals. It may be necessary for the PHA to pay for costly utility distribution or transmission upgrades above certain voltage levels. Such costs are likely to be impractical for a PHA. At PHA voltage levels, it is necessary to enter into an interconnection agreement with the local distribution utility. Some microgrids may be rejected for interconnection. Interconnection requirements include the imposition of utility tariffs and the applicability of state public service commission or public utility commission regulations. In addition, independent system operators may impose requirements. For these reasons, microgrids may only be feasible for certain large PHAs.

Qualified facility compliance and exemption. Will generation within an interconnected microgrid be a qualified facility (QF) subject to regulation? A PHA or operator of a generating facility with a maximum net power production capacity of greater than 1 MW may obtain QF status with the Federal Energy Regulatory Commission (FERC) by filing with the FERC. In the event that it satisfies the FERC requirements for a QF, the CHP unit will generally be exempt from most federal and state regulation.

SUMMARY

Making use of energy savings performance contracting to perform energy projects as described above can enable a PHA to obtain facility improvements that it would not otherwise be able to accomplish. ESPCs (and related agreements) rely heavily upon contractual commitments by the ESCO to the PHA and must be carefully drafted and effectively negotiated. To ensure success, it is important for the PHA to have engineering and other technical consultants experienced in dealing with ESCOs available to support their energy savings performance contracts.

References

[1] Securities and Exchange Commission (2013, September 20). 17 C.F.R Parts 200, 240 + 249. https://www.sec.gov/rules/final/2013/34-70462.pdf, pages 226-7.

Note: This article is not intended to provide legal advice. Readers should consult an attorney for legal advice.

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