Performance Contracting For Small Fry - Including Individually Owned Multi-Family Buildings in a Public/Private Sector Partnership

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ABSTRACT

Performance contracting has worked well in large multi-family building markets, such as public housing authorities. As equally deserving a market are assisted housing developments, which tend to be smaller scale in terms of size and ownership. This scale discourages energy service companies (ESCO's) from approaching these developments because marketing and other transaction costs may be considered prohibitive. One answer to this barrier is a partnership that may act as an umbrella and aggregator for this market. The Illinois Housing Development Authority, assisted by the U.S. Department of Energy's Chicago Regional Support Office, is piloting such a partnership for developments that has its mortgages. Working with ESCO Landis & Staefa, Inc., this ongoing initiative is expanding performance contracting into the assisted housing market.

Introduction

Lodged between the hulking monuments known as public housing and the apartments, townhouses and single-family houses of the middle class and well-to-do, is a huge segment of the multi-family housing market known as assisted housing. Defined as buildings or complexes built for families eligible for assistance under U.S. Department of Housing and Urban Development (HUD) Sections 8 and Section 236 Programs, the multi-family assisted housing market faces many of the barriers common to the multi-family sector generally when it comes to getting efficiency investments made without additional subsidy; particularly the split-incentive problem. This market also shares some of the less enviable characteristics of the public housing sector, principally its association with Department of Housing and Urban Development (HUD) rules and regulations which have not caught up with reforms started by HUD in 1991 for public housing performance contracting. In fact, the nature of some of these rules as they apply to utility allowances makes the financing of efficiency even more difficult.

This market does enjoy one advantage not shared with the rest of multifamily housing, and that is its relationship with state housing agencies. These agencies, structured in many different ways, leverage hundreds of millions of dollars annually for the construction and renovation of low and moderate income housing. In some cases, the public funding comes exclusively from HUD HOME Program[1] monies and low income housing tax credits allocated by the federal government. In other states, such as Illinois, the housing agency has significant authority to raise funds through the sale of bonds to finance housing construction.

State agencies demonstrate innovation and flexibility in public policy that illustrates the possible. In Illinois, the Illinois Housing Development Authority (IHDA), in cooperation with the Department of Energy's Chicago Regional Support Office (CRSO), has developed a performance contracting program designed to bring millions of dollars of efficiency investment to low- and moderate-income multi-family housing (the Residential Energy Efficiency Program - *REEP*). This initiative is being carried out by

[1]The Home Investment Partnership (HOME) Program is a formula Federal block grant to state and local governments for the purpose of creating affordable housing for low-income neighborhoods.

CRSO as part of the DOE's Partnerships for Affordable Housing.[1]

In early March 1998, 13 multi-family housing complexes representing 3,622 units considered participation in a pilot of IHDA's REEP,. The energy service company selected by IHDA for the pilot, Landis and Staefa, Inc., has completed walk-throughs of six developments and has prepared specific performance contracting proposals for two of the complexes (with more expected). Based on the walk-throughs, savings for master-metered utilities (gas and electricity) were conservatively estimated, ranging from a little over 10 percent for a high-rise building with thermopane glazing to the low- and mid-20 percent range for low-rise, multi-building complexes. Measures initially included were almost exclusively in the HVAC, controls and lighting area. Shell measures, such as cavity insulation and air-sealing, have been identified as potentially cost-effective improvements, but have not been quantified in the walk-thru estimates.

Although the project is still in its early stages, with issues surrounding the performance contract itself taking longer than anticipated, several conclusions already are emerging. On net, our experience suggests that this market segment is even tougher to crack than we originally thought for several reasons, the principal of which has to do with the nature of the private multi-family real estate market and the basic characteristics of multi-family buildings as targets for performance contracting. We elaborate on these conclusions below.

Background

Nationally, there are about 19,400 assisted housing developments representing almost 2.8 million housing units, where assisted housing is defined as privately-developed housing available under either HUD Section 8 or Section 236. These buildings house approximately 6.3 million people. Unlike public housing multi-family developments in which all units are subsidized, affordable housing units can and often do exist in buildings with a substantial percentage of market-based rental units. In fact, one of the buildings included in the IHDA REEP pilot is located in one of Chicago's higher rent areas. Nationally, 41 percent of subsidized units are in developments where under 10 percent of the development's units are subsidized. However, the national average household income for affordable housing tenants was only about $9,500 in 1997. CRSO's interest as part of the Partnership for Affordable Housing Initiative was to find and help develop affordable housing projects that could demonstrate the feasibility of aggregating small customers to deliver both energy and energy efficiency in a restructured environment. Through several meetings with performance contractors and investment bankers CRSO was made aware of IHDA's interest in similar projects.

The Illinois Housing Development Authority was created in 1967 to stimulate production of affordable housing for low and moderate income families, the elderly and the handicapped. IHDA is a public benefit corporation, using no tax revenues nor receiving any state appropriations. It is authorized to issue its own tax-exempt notes and bonds, the proceeds of which are used to provide loans to private, limited-dividend developers and non-profit organizations. The Authority also provides credit enhancements and administers several federal housing finance programs. The Authority neither builds nor

[1]The Partnership for Affordable Housing is an initiative the US DOE Office of Building Technologies which provides technical and some financial assistance to community-based providers of low- and moderate-income housing to reduce production, energy and maintenance costs.

operates housing developments except in cases of owner insolvency. Since its inception, IHDA has financed 105,000 single and multi-family affordable housing units, representing over $1 billion invested in over 200 developments.(IHDA 1991)

CRSO met with IHDA and others to discuss options in January, 1997. In that and several subsequent meetings in 1997, a three-stage project and partnership were outlined. First, CRSO would work with IHDA, as a technical resource, to develop a pilot program to test the efficacy of performance contracting as a vehicle for efficiency investment in private multi-family housing. Second, CRSO would work with IHDA to explore ways to incorporate efficiency criteria into IHDA's lending programs. Third, we would assist IHDA in its exploration of future options for energy brokering. The first phase would commence as a pilot project running through 1998 and early 1999. We hoped that this pilot would establish the feasibility of:

- Aggregating small building developments to a market size sufficient to attract the interest of an energy service company.
- Expanding the measures associated with energy performance contracting beyond HVAC, controls and lighting measures toward envelope improvements.
- Increasing efficiency investment in tenant-metered buildings and changing program procedures such that improvements could be financed by a shift in subsidies from utility allowances to higher fair market rents, while resulting in an overall lower monthly housing cost.
- Developing a market-based mechanism that would continue the use of performance contracting in this housing segment with minimal government-based assistance.

The Project To Date

Throughout 1997, IHDA refined its pilot, held discussions with possible performance contractors and reviewed its options for financing. Initially, the Authority considered using its own bonding authority to raise capital, but for a number of reasons decided that, if possible, it would prefer a performance contractor that could bring a performance guarantee as well as financing to the table. IHDA's role would be to market the program to building owners, lending credibility to the program. This had the promise of reducing the transaction cost of selling to individual developments, especially small ones, cited by Shippee (1996) as a barrier to serving non-public housing authority multi-family markets.

CRSO's role was to coordinate all technical assistance, review the draft performance analyses and agreements, and organize and conduct training sessions pertaining to performance contracting. Ultimately, IHDA settled on Landis and Staefa, Inc. as its performance contractor for the pilot phase, securing at least two advantages. First, Landis was associated with Siemens Credit Corporation, which agreed to privately finance the project. The use of Siemens' resources permits IHDA to save its resources, particularly general obligation bonding authority, for new construction and more extensive rehabilitation projects.

Second, unlike at least one other company with whom IHDA discussed the project, Landis agreed to consider building shell measures. CRSO considered this willingness key. Many energy savings performance contractors work almost exclusively with HVAC systems, controls and common-area lighting. Improvements are often straightforward, economic returns tend to be higher and more predictable, and the companies tend to understand these systems better (in some cases being both the manufacturer and retailer of the equipment).

While improvements in mechanical and lighting systems are valuable, exclusive focus on these

systems ignores the huge savings potential in building envelope improvements. Direct economic returns often will be lower with shell measures, and such measures are difficult to collateralize (it's difficult for the company to tear out windows if the project goes into default). However, shell improvements can add significantly to tenant comfort, and to the life and value of the building. In addition, Siemens decided not to base the financing on collateralization of fixtures or equipment, but on the clients' creditworthiness and anticipated energy savings. This may remove further institutional resistance to shell improvements as part of an agreement.

In August 1997, DOE sponsored a workshop for IHDA staff with participation from Argonne National Laboratory's Existing Building Efficiency Program and the National Center for Appropriate Technology's Public Housing Program (NCAT). The workshop was an important step in IHDA's learning process, since the Authority had no in-house expertise in performance contracting or building energy use. Following the workshop in early Fall, and concurrent with its vetting of performance contractors for the pilot phase of the program, IHDA began marketing the program to owners of buildings in its mortgage portfolio. Since its inception, IHDA has financed the construction of some 200 apartment and townhouse complexes across Illinois. Although these developments are privately-owned, IHDA does, in most cases, retain a financial interest as mortgage holder. In two cases, IHDA has taken over property that has gone into default.

A second workshop was held in late October 1997 for managing partners of the developments that indicated interest to participate in the pilot. The purpose of this gathering was to brief the owners and building managers on the basics of energy efficiency investment, the performance contracting process, and the likely financing package. IHDA sought 10-15 of its "best" developments, where best was defined as having master metered utilities (at least for heating, cooling and electricity), being relatively (20-30 years) old and therefore likely to be least energy efficient, and financially marginal (i.e., improving cash flow through energy cost savings could help keep the development in the black.). The target market that indicated interest and attended the October workshop consisted of the following:

- 13 developments, containing 3,622 units in 167 buildings, totaling 2,954,045 square feet.
- A mixture of low- (3 stories or less), mid- (4-8 stories) and high-rises (over 8 stories), located throughout Illinois. One development, a high-rise, has significant commercial space.
- The master metered costs average out to natural gas at $0.37 per square foot per year (/ft^2-yr), and electricity costs at $0.25/ft^2-yr, and a total master metered cost, including water and sewer, of $696 per apartment unit per year. This represents generally moderate to moderately high consumption costs, where energy saving opportunities under moderate rehabilitation circumstances would be available but with few "no-brainers". Only one development had gas and electricity costs considerably above $1.00/ft^2-yr.

Following the meeting, Landis & Staefa, Inc. began its own vetting process, reviewing utility bills and the design of the developments to determine which suggested savings levels that could support a performance contract. Ultimately nine developments were selected as potential targets and walk-throughs were scheduled in December 1997 and January 1998. The rejections were due to the developments having too small master-metered utility costs to work with. Six developments remained interested in participating.

Over the winter of 1997-8, DOE, IHDA, NCAT and performance contracting experts at the Illinois Department of Commerce and Community Affairs worked with Landis & Staefa, Inc. to resolve a number of contract issues, including:

- Introduction of language to protect building owners and Landis & Staefa, Inc. from exposure to payouts if energy prices go up or down, as well as the use of any escalation clauses.
- Adjustment of the level of monitoring and verification, as well as some technical support, to a level appropriate for less energy intensive operations than Landis & Staefa, inc. is accustomed.
- Improved baseline setting and cash flow accumulation for building owners.

Landis & Staefa, Inc. presented the results of its walk-throughs in March and April to the six remaining building owners. Only the two developments presently owned by IHDA went ahead. The reasons had little to do with the technical aspects of the proposal. The other owners adopted a "wait-and-see" attitude on how the process of engineering analysis, installation and operation of the projects works before they finally commit. There was also concern about committing their development to a 10-12 year performance agreement, because ownership typically consisted of limited partnerships that generally existed for five to seven years, primarily to take advantage of tax credits associated with low-income housing developments.

As of June 1998, the two preliminary analyses on the IHDA developments were completed. The low-rise development in Joliet had a package of lighting, heating, domestic hot water, controls and water conservation measures that would save 21% of energy and water costs. The high-rise development in Chicago had a package of lighting, domestic hot water, controls and water conservation measures that would save 11% of energy and water costs. Both proposals would save over $50,000 in energy and water costs per year.

Lessons Learned So Far

As this paper goes to press (June 1998), CRSO is learning four lessons in this case study of market transformation:

(1) *Selling Performance Contracting to a New Market.* After nearly a decade of performance contracting in building market sectors such as commercial offices or public housing, the assisted housing sector is still relatively uninformed about its concept and a fair amount of generic "selling" and education was needed to prepare this market to consider and participate in it. This marketing is especially critical as this venture was conducted without any financial assistance attached to it beyond the benefits of the performance contracts.

(2) *Getting Into The Business Cycle Of The Market.* Once the initial marketing is underway or done, a big challenge is to get the concept in front of the building owners while any major projects are no further along than the concept phase. This often means marketing for up to three years before a project is underway. Several of the developments had significant measures either planned or underway during this initiative. For example, the low-rise development in Joliet recently had its flat and pitched roofs replaced without addressing insulation, and was presently undergoing replacement of its glazing with thermopane windows. This tended to "fog" the efficacy of proposed energy saving measures.

(3) *Not Forcing The Issue.* A completely market transformation results in change without the need for any further external stimulus once information is presented and acted upon. In the real, subsidized world of construction, especially subsidized housing, a successful market transformation may be considered such when a change is made without the need for additional financial subsidy. In that aspect, this initiative has great promise. The concept of performance contracting is being accepted in this market, and no extra inducements are given to adopt measures beyond increased technical assistance for measures

that are new to this market, such as infiltration and ventilation control, as well as overall technical assistance.

From a market transformation point of view, the performance contract proposals have gone almost as well as could be expected. The two developments received a parallel analysis from staff from CRSO and Argonne National Laboratory. A particular goal was to encourage the expansion of the performance agreement into envelope measures. Their findings were as follows:

- The energy intensity of these developments were not large in the first place, coming in at about 10 BTU's per square foot per heating degree day (BTU-ft^2-HDD) for the low-rise development, and about 5.5 BTU-ft^2-HDD for the high rise. This made measures, especially envelope ones, harder to justify.
- Air leakage testing for a sample of Joliet low-rise apartments with new windows were 0.50-0.55 air changes per hour at atmospheric pressure, which presented little opportunity for air sealing without providing continuous ventilation. There is a possibility that the high-rise development in Chicago may benefit from ventilation control measures that are being pioneered by Lawrence Berkeley Laboratory.
- The insulation levels in the low-rise development may be considered to be at a "frustrating" level. The levels were found to be around R-11 in the flat roofs and R-19 to 25 in the pitched roofs. Both types of roofs or their ceilings would required considerable retrofitting work besides the insulation. From a performance contracting point of view, it would not have been considered cost-effective to add insulation to an acceptable level of R-38 to 44.
- Many measures that would have been cost-effective were under tenant meters, and thus not accessible under this initiative. These were primarily electrical measures, such as light fixture replacements in tenants' kitchens, bathrooms and hallways, and appliances such as refrigerators.

In these two developments, Landis & Staefa, Inc. made a good faith effort to incorporate envelope measures. It just wasn't appropriate in the context of performance contracting.

(4) *Facilitating An Infrastructure*. If the other concept of successful market transformation is to walk away or at least back away from the process, there is great hope in this initiative. Besides the wonderful level of cooperation of technical assistance from a DOE Regional Support Office, a HUD contractor, two National Laboratories and a state energy office, a third party presence to help validate and monitor the process on behalf of IHDA and its mortgagors is being developed. This private sector third party assistance also serves as a business development platform while freeing the above mentioned organizations to leverage their technical assistance resources. By developing a procedure, CRSO will further help IHDA to be a gateway for these services without becoming an undue administrative burden.

Where We're Heading

We began this project with high hopes that it would yield the kind of results that would make it a model for similar efforts by other housing finance agencies. First, we have found that energy service companies find potential in pursuing smaller multi-family projects outside of public housing. Whereas many performance contractors prefer clients with utility costs greater than $600,000 per year (Shippee 1996), clients with 40% of that amount were being serviced in this pilot, and budgets as low as $150,000

per year remain good candidates. But, while it remains too early to suggest our hopes were misplaced, we are feeling a bit less optimistic for three related reasons.

First, this segment of the market is privately owned, often by limited partnerships of often limited duration. A partnership is formed, the development is built, the return is earned (with the help of federal tax credits), the development is sold and the partnership dissolves. The financial horizon of the owners of these developers is short - certainly less than 10 years. If one cannot demonstrate either positive net cash flow from very early in the project with a payback of less than 10 years, or that the value of efficiency investments will be returned in the sale price of the building, it will be difficult to sell the owners on the idea of the development taking on new debt.

Although no formal offers have been presented to the owners yet, the results coming back from the walk-throughs conducted by Landis are showing energy saving and financial returns that IHDA worries may be too low to sell the project. This may dissuade the building owners from agreeing to the next stage, an engineering analysis. If the owners agreed to the analysis, but were not satisfied with the results and proceeded no further with the project, they would then be liable for payment for the analysis. This may raise the issue of whether an additional outside guarantor of savings, such as the standard offer contract proposed by a New Jersey utility company to assisted housing projects, may be necessary (Morgan 1994).

While it may be considered better for an energy service company to avoid over-estimating in the preliminary analysis to avoid disappointment or acrimony in the engineering stage, there needs to be a balance that would show a significant enough impact on the development's energy usage to warrant a development to get into the agreement. A parallel issue is getting the financing entity, Siemens Credit Corporation, to commit to a longer time span, at least the same 12 year length as permitted in public housing performance contracting.

Second, the reason that the savings estimates are coming out low is a function of the types of buildings characterizing this particular market. As residential facilities, the load factors are not particularly high. Moreover, only the savings owing to improvement in central heating, cooling, water, common-area lighting systems, and envelope systems can be considered. While these very well may represent the bulk of potential savings in some buildings, in others, substantial, individually metered energy use occurs within individual units. In theory, these savings could be captured through innovative financial arrangements between tenants, the building owner(s) and the performance contractor. Unfortunately, Section 8 tenants are given a utility allowance which, under existing HUD rules, will be reduced by the amount of any savings. Thus, the tenants have no incentive to participate in any energy-saving program even when their units are individually metered. We believe that it may be possible to secure a HUD waiver allowing tenants to retain a portion of savings. However, because a waiver is likely to require a substantial investment of time *to* convince HUD, the partners decided to forego this option for purposes of the pilot (Solan 1998). The issue of Sections 8 and 236 utility allowances in assisted housing is also being addressed in a pilot program starting up in New York (Muller 1998).

Finally, one of the most attractive features of the program to CRSO, as it was conceived, was that it would bring the resources of performance contracting to the problem of upgrading multi-family building envelopes - measures not typically considered. Unfortunately, while envelope measures appear to hold substantial promise in several cases, the relatively weaker economics of shell measures as well as the relatively low level of energy intensity tend to extend the payback period beyond the relatively short frame of the owners. To get the kinds of improvements that would really make a difference in the building, we need to be able to stretch acceptable payback periods beyond ten or even twelve years.

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