Models of Public and Private Investment in Energy Efficiency for Low-Income Housing

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Creative involvement of the private sector can expand the reach and improve the quality of energy efficiency in low-income households. Resources from utility demand-side management programs, quasi-public financing agencies, pension funds, energy service companies, community loan funds, community credit unions, private foundations and private investors can be combined in innovative ways to upgrade the energy efficiency of low-income housing at the time of construction, rehabilitation, refinancing, or as a stand-alone energy retrofit activity.

A team of nonprofit organizations has undertaken to pilot this concept in several states. The efforts in Vermont to develop and implement two models for directing private investment capital into financing of energy efficiency improvements in low-income housing are described here. One model uses loan capital from a housing finance agency; the other uses capital from a community-based lender. In both models, the benefits of using an energy service company (ESCO) to package financing and reduce the "hassle factor" associated with identifying the types of improvements to make, and the appropriate financing to obtain, are explored. These loan funds may be combined with utility investment, weatherization funds, and other sources as needed for each specific project.

Introduction

A team of nonprofit organizations has developed two models for directing "private" investment capital into the financing of energy efficiency improvements for low-income housing. The low-income housing to be targeted in these early stages of testing the two models includes only multifamily housing. The multifamily housing to be targeted primarily involves complexes with more than 20 units, although developments as small as six units may be considered as well.

The two models include: (1) the Housing Finance Agency (HFA) model; and (2) the Community-Based Lender model. Before explaining these models specifically, however, this paper identifies the common themes between the two models and briefly outlines some of the common problems that both models are intended to address.

The models anticipate the promotion of "community-based Energy Service Companies" (ESCOs). They recognize that traditional ESCOs, which deal primarily in the commercial and industrial sector, do not fit the models described. The community-based ESCO concept is thus important to the efficacy of the lending models presented.

The Underlying Theme

Advocates of energy efficient low-income housing have been forced to look for new means" of financing energy efficiency measures as federal Low-Income Weatherization Assistance Program (LIWAP) dollars are limited and oil overcharge funds are continuing to decrease or disappear. No longer can advocates afford to view the provision of energy efficiency improvements as simply a government benefits program. If, indeed, conservation and weatherization measures will save the energy, and thus the costs, historically claimed,[1] it should be possible to make the case for the commitment of public and private *investment* funds on the promise that such funds will be returned with interest or profits based on the energy saved.

Advocates for energy efficiency in low-income households must become as adept at marketing investment opportunities, and at generating private and public investment capital, as advocates of economic development and small business incubation have become. Generating such capital entails understanding where the capital comes from and what motivates investors to commit their funds to

particular enterprises. It further involves marketing the potential of low-income conservation and weatherization as a means of returning a profit to the investor.

New sources of capital *can* exist for low-income energy efficiency strategies. Such funds will not be made available as grants, but rather will be made available as investments in energy savings. If the potential of conservation is appropriately marketed and appropriate processes for capturing and providing a return are created, both public and private sources of capital can be tapped. Capital can be raised from public sources such as state housing finance agencies, public sector pension funds, government loan programs, and government investments through a variety of bond types. Private financing can be obtained through community development loan funds (CDLFs), community development credit unions (CDCUs), or private banks seeking to fulfill federal Community Reinvestment Act (CRA) obligations.

To generate new funds to promote energy efficiency, careful attention must be given to identifying the self-interest of potential sources of capital. From a private investor's perspective, the commitment of capital to energy efficiency improvements must yield advantages in cash flow, rates of return and/or portfolio diversification. From the perspective of public sector investors, lesser financial advantages may be acceptable if, in return, the improvements yield other useful impacts such an increased tax revenue or a reduced need for social programs. Public sector investment may be warranted, as well, if, from a societal perspective, new investment will fill in capital gaps and provide corrections to an inefficiently operating capital market.

A project in pursuit of these goals is intended to generate additional financing of efficiency improvements and weatherization in low-income housing. The purpose of such a project is to identify the potential of low-income conservation to generate investment returns so that third-party financing can be attracted as a new source of dollars to supplement increasingly limited federal appropriations and "oil overcharge" funds historically devoted to such a task. Integrally related to this task is to identify whether public sector or utility assistance can complement private sector investment to make such investment more feasible and remunerative.[2]

The Common Problems

Both of the private investment models developed in the Vermont efforts will be directed towards low-income housing developers and managers. These developers and managers may include both for-profit and not-for-profit entities. They include property owners holding Section 8 housing, as well as property owners and managers who administer other types of publicly assisted housing. Within this context, the term "publicly assisted housing" is used to denote privately-owned, but publicly-assisted, housing. It includes housing assisted in whole or part by Low-Income Housing Tax Credits, Vermont's Housing and Conservation Trust Fund, and the Vermont Housing Finance Agency (VHFA), as well as HUD-assisted and insured housing.

Institutions involved with the development of low-income housing find several obstacles to the aggressive inclusion of energy efficiency measures. Perhaps the most significant obstacle is the "over-improvement" of the properties in the first instance. This "over-improvement" is significant for those seeking additional debt with which to finance energy efficiency measures, even if such measures are cost-effective over the lifetime of the project.[3] In those instances where a housing developer has borrowed at or in excess of traditional loan-to-value ratios, additional debt most often will *not* be provided for energy efficiency measures.[4] In this regard, traditional lenders view investments in energy efficiency as additional capital investments, while not taking into account the reduced operating costs that arise as a result of the energy savings (and thus reduced bills).

The situation identified above can be summarized as two problems: first, there is the inability to receive additional debt financing through traditional lenders, even for cost-effective energy efficiency improvements due to the perceived insufficient value of collateral. Second, lenders traditionally do not equate energy savings with the ability to service more debt during their underwriting review of estimated operating costs.[5]

A second major obstacle to the pursuit of energy efficiency measures in low-income housing developments is the "hassle factor." As one developer observed, developers are meeting an increasing number of mandatory regulations. As this developer pointedly put it, "when it comes down to lead paint abatement or energy efficiency improvements, energy efficiency loses. " This problem is not so much a problem of financing-although financing overlays everything in the arena of low-income housing development–as it is a problem of limited technical and human capacity (or rather lack thereof) to add another layer of "things to do" to any particular project. The project by the Vermont consortium is directed toward eliminating this need to "choose." Through the financing models developed, if the ESCO handles the energy component, the housing developer/manager can handle the other issues.

The purposes of the two models outlined below, therefore, are three-fold: (1) to generate new sources of dollars for energy efficiency improvements in low-income housing;

(2) to generate those dollars such that the savings attributable to the energy efficiency improvements will be taken into consideration in the financing scheme; and (3) to make the addition of energy efficiency improvements to the low-income housing as easy, automatic and "painless" as possible.

The Point of Intervention

The most obvious points at which energy efficiency can be introduced to low-income housing developers are at the time of new construction or rehabilitation, particularly because a "lost opportunity" is created if energy efficiency is not optimized at this time.[6] Clearly, new construction and rehabilitation are important processes, but they are perhaps not even the most important point of intervention.

A second point' of intervention is at the time of refinancing. In Vermont, for example, most of the HUD Section 8 housing mortgages are held by VHFA. This housing might be refinanced during periods of low interest rates. A common time for refinancing, as well, of course, is at the time of a change in ownership.

A third point of intervention is at the time of resale or transfer of ownership. The financing involved with such ownership transfers would be an ideal vehicle through which to consider energy efficiency improvements.

A fourth point of intervention is to maximize the opportunity to save energy through an energy retrofit. This intervention will be brought about by marketing the opportunity to save energy and money to the project owner. In sum, the energy efficiency financing models proposed below are not applicable only when major structural work is being done to low-income housing. The models can be applied either to "new" or to "existing" projects.

The Models

The two models outlined below include (1) the HFA model; and (2) the Community-Based Lender model. They are separately explained below.

The Housing Finance Agency Model

The Housing Finance Agency Model is graphically illustrated in Figure 1. It involves five major players: (a) the developer/manager; (b) the ESCO; (c) the local utility; (d) the local WAP agency; and (e) the state Housing Finance Agency (HFA). The developer/manager is at the top of the process. In the HFA model, the developer/manager is not necessarily seeking HFA financing. While they *could* be seeking such HFA assistance for purchase, finance or rehab, a project could also be initiated just by the desire to save energy or money. Moreover, the developer/manager may have gone directly to an ESCO, who in turn may go to an HFA for financing energy improvements.

The HFA Model posits that the developer/manager will enter into a contract with an Energy Services Company (ESCO). The ESCO will then package all available sources of financing to gain the maximum cost-effective investment in energy efficiency improvements. The ESCO is most likely to have the *technical* expertise to determine the most appropriate financing sources, to access those sources, and to link those sources in the most effective and efficient way. Three financing sources that would generally be available include:

1. **Utility DSM:** The utility's investment in demand side management (DSM) measures for the project. The utility should invest in any measures that are found to be cost-effective from the perspective of the utility.

2. **Weatherization Assistance Program:** The federal WAP program could provide dollars for low-income weatherization if the tenants are "income eligible." Funds are limited, however, both on a per unit and on an aggregate basis. WAP investments are limited to $1600 per unit, despite an average need of $3000 to $4000 per unit. Moreover, the uses to which WAP dollars can be put impose a variety of restrictions on those funds, not the least of which is the requirement for income to be 150% or below of the federal Poverty guidelines.

3. **HFA Financing:** HFA debt financing will be the "gap financing." The "gap" to be filled involves those dollars of energy efficiency investment that will not be met by either utility or WAP funds.

The three sources all are of different natures. The utility dollars are an investment in energy efficiency improvements. The WAP dollars are a grant to the low-income household or a grant/loan combination to the housing owner. The HFA financing is straight debt financing, to be repaid with appropriate interest. These three financing sources, however, need not be the only sources available.

While the involvement of an ESCO is not required,' it is beneficial. The purpose of the involvement of the ESCO in this process is several-fold. First, the ESCO is more likely than any particular housing developer to be familiar with the various sources of energy efficiency financing which are available. Second, the involvement of the ESCO should lessen the burden on the developer/manager. The developer/manager will sign a standard contract with the ESCO. The packaging of financing, determination of

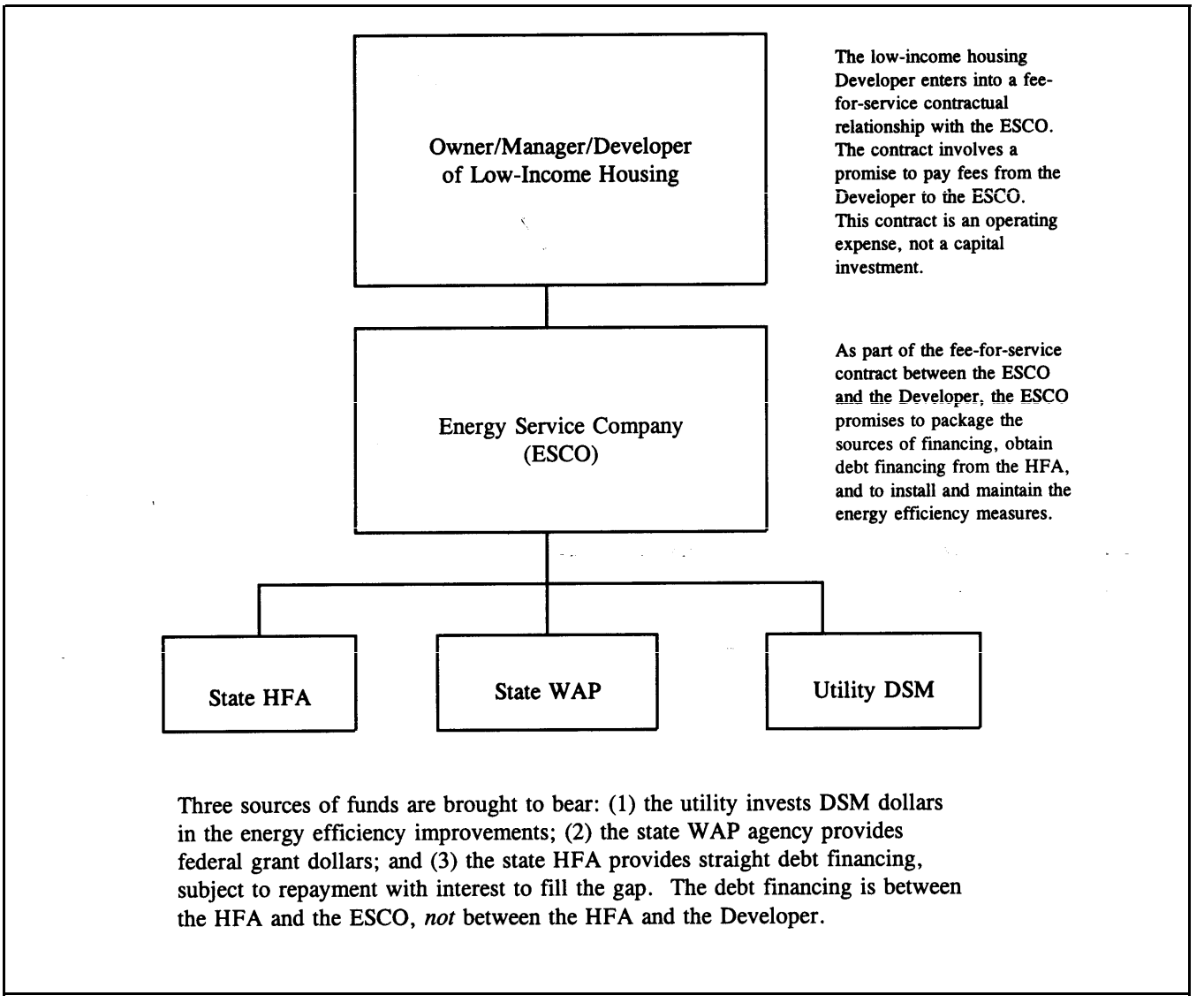

Figure 1. Housing Finance Agency Model

appropriate energy efficiency measures, and the proper installation of these measures then falls to the ESCO. The involvement of the ESCO, in other words, will make the energy efficiency transaction both easier and more effective for the developer/manager.

The HFA Model involves two important financial arrangements.

1. **The Developer-Manager/ESCO Contract:** The first important financial arrangement is a contract between the developer/manager and the ESCO. From the ESCO, this contract will involve an estimate of savings to be generated; a guarantee of those savings; a commitment to maintenance of the energy efficiency improvements over the life of the project; and a commitment to raise the capital to finance the energy efficiency improvements. The developer/manager provides a commitment that a service fee will be paid to the ESCO to compensate the ESCO for the services provided. The intent, here, is to make the developer-manager/ESCO contract a routine part of obtaining HFA project financing. In larger multifamily projects, the ESCO may provide a shared-savings or performante guarantee.

In situations where loan-to-value ceilings are a problem or where construction or rehabilitation caps exist to limit investment,[8] the ESCO contract also provides the benefit of moving the energy efficiency financing from the capital side of the equation of debt financing and placing it instead on the operating expense side of the equation. As such, it should *not* be considered in determining the loan-to-value ratio of the units being pursued by the developer/manager, since it is not a "debt" of the developer/manager.

Moreover, even if the financier *does* consider the ESCO contract, the situation will have been created in which the increased operating expenses attributable to the ESCO contract will be offset by the decreased operating expenses due to energy savings. Forcing the financier to focus on total operating expenses within the underwriting process is a positive development.

In sum, either way, the ESCO may have an important role to play.

2. **The HFA/ESCO Financing:** The second important financial arrangement is the debt financing provided by the HFA to the ESCO. Note, here, that the debt is *not* provided to the developer/manager, but rather to the ESCO, itself. The security for the debt may not be the mortgage on the underlying property, but rather an assignment of the revenues arising from the developer-manager/ESCO contract. The confidence that the lender has in the ESCO, and the ESCO's ability to predict savings accurately, are key factors in this arrangement, and may substitute for the traditional collateral and credit requirements of the lender.

Ascertaining and implementing the types of credit enhancements, or guarantees or other security necessary in order to make the HFA/ESCO financing deal work is one of the primary problems still to be overcome within the context of the pilot projects.[9]

While a limited number of institutions exist today that can play the role of the ESCO in this model, the intent of the project is to help build the groundwork for an expansion of that industry. In particular, assuming the model works as it is expected to, one future aspect of expanding this type of financing is to provide the training and capacity building to agencies such as Community Development Corporations (CDCs), Community Action Agencies, or other non-profit housing agencies, to become "community - based ESCOS."

The Community-Based Lender Model

The Community-Based Lender Model is virtually the identical model as the HFA Model, with different players being part of the process. The model still involves five major players. These include: (1) the developer/manager; (2) the ESCO; (3) the local utility; (4) the WAP agency; and (5) the community-based lenders. The model is graphically illustrated in Figure 2.

As is thus apparent, the major difference between the two models involves the type of institution providing the gap financing. While in the HFA Model, it is the quasi-public entity, in the Community-Based Lender Model it is an institution such as a Community Development Credit Union, a Community Development Loan Fund, or the like, providing the financing.

A second major difference is that there will likely be the need for a greater emphasis on providing some type of security. Actions to bolster the guarantees will thus be more prominent in this model.

Finally, since Community Development Loan Funds are not governed by the same regulatory structure as banks and other traditional financial institutions, there will be an affirmative effort to develop underwriting criteria that would be appropriate for providing energy efficiency debt financing. The purpose would be to develop and test these new underwriting criteria within the market of community-based lenders. Future advocacy would then be necessary to promote these new energy efficiency underwriting criteria to community development financial institutions, as well as to traditional lenders.[10]

In addition, the Community-Based Lender Model will involve efforts to generate new community investment in the community financial institutions to permit them to make energy efficiency loans. Unlike an HFA, which can generate its own capital through the issuance of tax-exempt bonds, a community-based financial institution depends on private investors. Hence, through the promotion of the Community-Based Lender Model, not only will energy efficiency receive an influx of new private capital, but the neighborhood-controlled financial institutions providing such financing will receive support as well.

Advantages to the Owner/ Developer/Manager

While most attention arising from installation of energy efficiency improvements focuses on the increased and sustainable affordability and comfort of housing low-income households, the private owners/developers/managers of low-income housing will experience benefits, as well, that will arise from financing energy efficiency improvements through third party sources. The following discussion is intended simply to identify the advantages rather than to document or quantify the advantages in any detail.

Clearly, financing energy efficiency improvements in low-income housing developments will generate benefits far beyond those impacts that accrue to the benefit of the owner/developer/manager in their institutional roles. By reducing operation and maintenance costs, such improvements will reduce overall home energy bills to occupants and owners and thus make housing more affordable to the ultimate constituency served by any particular development. The improvements will reduce the need for new and

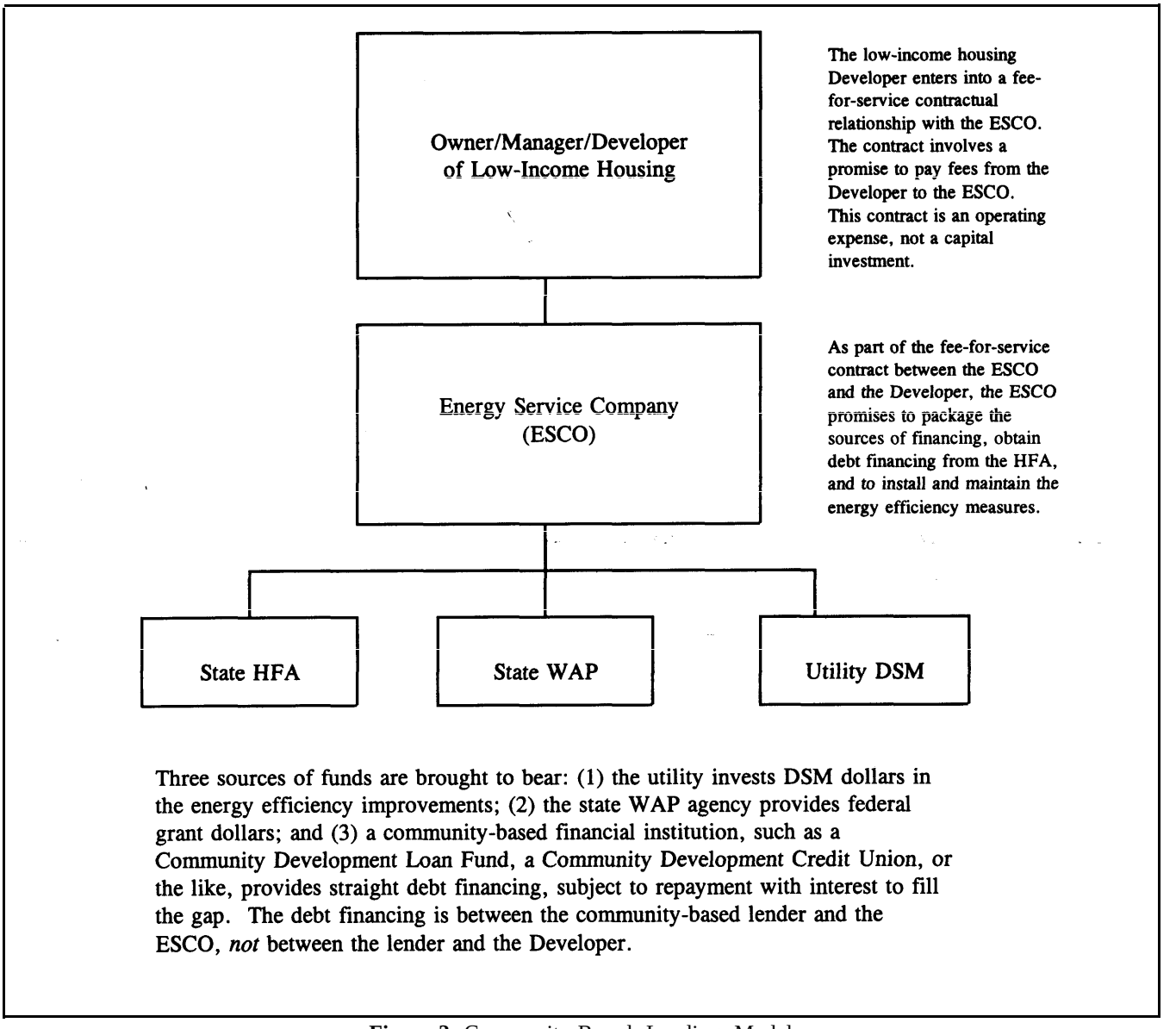

Figure 2. Community-Based Lending Model

more expensive power sources by utilities, again contributing to long-term energy (and thus housing) affordability. The improvements will likely help reduce arrearages. They will help utilities reduce credit and collection expenses and other expenses associated with nonpayment. The improvements will have positive environmental consequences as well as positive impacts on the local economy. Energy efficiency improvements will contribute to local job creation.

The purpose here, however, is not to consider any of these "other" advantages arising from the implementation of energy efficiency improvements. Instead, this discussion focuses its attention solely on the institutional advantages to owners/developers/managers in his or her capacity as housing developers and managers.

Borrow more: Presumably, installation of energy efficiency improvements in a particular housing development will allow the developer to increase leveraging power. To the extent that financiers consider long-term operating costs in their calculation of the financial feasibility of a project, reduced energy expenditures will have a positive impact on the perception of project viability and should lead to increased debt being made available.

Move capital costs to operating costs: According to most persons involved with low-income housing developments, developers virtually always exhaust their capacity to borrow (or otherwise obtain) capital before they exhaust their need to make capital improvements. Where it is an advantage, investment in energy efficiency through one of the two models set forth above can be moved off balance

sheet and out of the capital budget to the operating expense budget instead. In this fashion, for example, investments in improved space heating equipment, windows, insulation, lighting and the like can be taken out of the capital budget altogether.

Move capital costs to energy line-item: If funded through one of the financing models discussed above, many "capital improvements" might be moved to an energy line-item. The replacement of windows, the increase in insulation, the increased investment in higher efficiency space-heating equipment, would all be paid for through a line-item "fee" paid to the Energy Services Company (ESCO). Instead of having to finance this improvement through the capital budget, therefore, the developer/manager can include the costs as part of its ongoing energy/utility budget.

Generate dollars for additional amenities: Amenities are one of the primary selling points of new low-income properties. Given tight budgets and the lack of sufficient capital, however, many-perhaps most—affordable housing units are developed with few amenities. Community Development Block Grant (CDBG) dollars, for example, are a scarce resource. To the extent that capital is freed up for the developer/manager because of energy efficiency improvements, two impacts might arise. First, those scarce CDBG dollars could be used to finance additional affordable housing. In addition, those scarce CDBG dollars could be used to fund additional amenities in the housing that is already being assisted. It is likely that the latter will occur.

Expand total dollars: Financing energy efficiency improvements in low-income housing developments should permit creative expansion of capital funding available for such developments. A utility-based "linked deposit" program is one example of such creative financing.[11] Such a proposal could create entirely new money for low-income housing developers to call upon as a new means to finance energy efficiency. It will not involve displacement finding (through which some existing low-income housing dollars are displaced by new low-income housing dollars with the total pot staying the same). It will not involve substitution funding (with dollars supplied by Financier A being substituted for by dollars supplied by Financier B).

Standardize package or process: Aggressively pursuing energy efficiency in low-income housing will permit agencies such as the ESCOs serving low-income multi-family developers and managers to begin to develop standardized packages. The ultimate goal is to minimize the "hassle factor" in pursuing energy efficiency, one major obstacle to the pursuit of energy efficiency measures in low-income housing developments today. To the extent that a standardized "performance financing" package or process can be developed, developers and managers can implement the energy efficiency improvements with little additional time commitments.

Increased marketability: A more energy efficient unit is likely to be more marketable than a less energy efficient unit. This would be true whether the unit is one developed for sale to a homeowner or one developed as rental property. Increased energy efficiency will positively affect the marketability because the home will be less expensive to operate (or to "sustain") as well as because the home will be more comfortable.

Decreased long-term risk: Energy costs have been increasing far more rapidly than either housing costs or the Consumer Price Index (CPI-U). As a result, increased energy costs represent a long-term threat to the financial sustainability of any particular low-income housing development. Even if sold with an affordable mortgage, or rented at affordable rents, housing will ultimately become unaffordable due to these increasing home energy costs. That unaffordability will directly place rent or mortgage payments at risk. Moreover, a housing unit without energy services, even if the rent or mortgage payments are affordable, is not a housing unit which is livable. Decreasing this long-term risk of default or uninhabitability through the installation of energy efficiency measures today will be of substantial benefit to the developer/manager.

Reduced vacancy losses: Expensive to heat apartments impose unique costs on housing owners, developers and managers. Expensive to heat apartments have high vacancy rates. It is not uncommon, for example, for households to live in an apartment during the winter months, only to move when winter-incurred arrearages come due in the spring. Making these apartments less expensive to heat thus makes them more attractive and less subject to vacancy. The reduction in vacancies results in reduced cash losses due to vacancies.

In sum, there are significant advantages that arise to developers/managers through the implementation of energy efficiency measures. In addition to the advantages that accrue to the residents of affordable housing that is being developed, the developers and managers, themselves, will experience gains. While the purpose here is only to identify the potential advantages, not to document or quantify them in any detail, the existence of such advantages seems apparent.

Summary

Two new models for financing energy efficiency improvements have been developed in Vermont. These

models involve different players, different sources of capital, and different delivery mechanisms. Nonetheless, they are the same in that they seek private and public *investment* funds to help fill the "gap" left by WAP and utility DSM programs for energy efficiency improvements in low-income homes. The models will help bring HFA and community-based lending to the provision of low-income energy efficiency.

Endnotes

1. A generally accepted estimate of savings arising from WAP is 14 percent. Brown, M., Kinney, L., and Berry, L. 1993. *Weatherization Works,* at ii, Oak Ridge National Laboratory

2. For example, perhaps it would be necessary to couple a limited amount of government or utility funds to cover administrative and management costs (transaction costs) with private sector investment covering the actual costs of conservation measures.

3. Cost-effective means simply that the life-cycle benefits from the energy efficiency improvements on a net present value basis exceed the life-cycle costs.

4. Virtually every housing development experiences this situation. This is one reason why "soft dollars" (such as local CDBG dollars and the like) are so essential to make low-income housing developments financially viable in the first instance.

5. In fairness, historically, low-income residential energy efficiency has been financed through publicly provided funds-including federal Weatherization Assistance Program (WAP), oil overcharge funds and HUD assistance for multifamily properties-irrespective of traditional financing criteria such as rate of return, liquidity and risk. Banks and other financial institutions have not been asked to participate, nor have they sought out such participation. Specialized knowledge regarding sources of repayment funds, the estimation and measurement of savings and the valuation of risk may well not fit into historical banking expertise.

6. Decisions made by low-income housing developers represent decisions that will hold for the useful life of the measures. Accordingly, if a developer installs a relatively inefficient furnace or hot water heater, or fails to install the most cost-effective level of insulation, it is not likely that a utility will soon revisit that home to install more energy efficient measures. The opportunity to install high efficiency measures is lost at the time of the developer's initial decision.

7. Indeed, there would not need to be an ESCO requirement. For example, while an HFA would likely be open to being the "lender of last resort" in a retrofit scenario, it would prefer to see the developer include the energy efficiency costs in a purchase scenario.

8. Some developers and financiers indicate that loan-to-value ratios are the limiting factor. Some funding sources impose straight caps on investments, on a per-unit basis, for example. However, in other cases-tax credit-based projects present one example-the need is to *create* the greatest "basis," or total project value, so that moving the expense to the operating side is a deterrent. In sum, there are a variety of avenues to pursue, indicating a need for close attention to the particular situation posed by any particular energy efficiency opportunity.

9. In fact,, in Vermont, there would likely be no need for a guarantee or other type of credit enhancement. The VHFA is well aware of the nature of energy efficiency investments, and comfortable with the potential for repayment. However, notwithstanding this particular comfort level, the pilot project has been designed to create the *structure* necessary to provide comfort to an HFA in some other state that does not share the same comfort level.

10. Efforts did not succeed to negotiate such underwriting criteria with traditional lenders within the context of the National Collaborative on Home Energy Rating Systems and Mortgage Incentives for Energy Efficiency, an effort organized and administrated by the U.S. Department of Energy (DOE) and the U.S. Department of Housing and Urban Development (HUD). According to the Final Report of the Collaborative, "members agreed to disagree" on points such as "how energy-efficiency improvements or construction costs should be reflected in the mortgage or how to incorporate energy cost savings into the procedures used to qualify people for [Energy Efficient Mortgages]." 1992. *A National Program for Energy-Efficient Mortgages and Home Energy Rating Systems: A Blueprint for Action: Executive Summary,* at 3.

11. See for example, Colton, R. 1994. *"Linked Deposits" as a Utility Investment in Energy Efficiency for Low-Income Housing.* Fisher, Sheehan & Colton, Public Finance and General Economics, Belmont, Massachusetts.