

# Reach for “Stranded Savings”: The Challenges and Opportunities of Energy Efficiency in Affordable Multifamily

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## ABSTRACT

“Stranded savings” refers to the large savings potential found in affordable multifamily housing that has proven nearly impossible to achieve with traditional incremental incentive structures. Root causes include:

- Limited capital budgets in affordable/public housing, which causes a narrowed focus on routine maintenance over capital improvements
- Older building stock and antiquated systems
- Misalignment of costs and benefits between building owners and residents (“Split Incentive”)
- Strict funding source limitations that exclude leveraging debt to make capital improvements.
- Inability to absorb the costs of health & safety code improvements to outdated facilities
- Inability to temporarily displace tenants (seniors, low income families and other at-risk populations) in properties slated for capital improvements

Energy Trust of Oregon has focused efforts during the past several years on pilot opportunities to target and acquire stranded savings that have historically eluded the Existing Multifamily (MF) program. In 2010, Energy Trust partnered with a coalition of stakeholders to develop a new approach to financing multifamily retrofits. *MPower Oregon*, an energy services pilot program that focuses on investment-grade audits and “light-touch” energy efficiency measures, utilizes on-bill repayment and on-going tenant education and maintenance staff education.

By 2013, the MPower pilot will compile preliminary results, which will enable Energy Trust to compare the success rates of these strategies. The results will inform future programmatic trade-offs and spur the dialogue around incremental cost approaches. The authors will also identify specific designs that were successful and could translate nationally.

## Introduction

Low-income and affordable housing markets generally exceed the reach of many energy efficiency programs, mainly due to traditional incremental incentive structures that cannot substantiate the full cost of the energy efficiency improvements. Moreover, the lack of financing options for an already heavily-leveraged sector further impedes installing energy improvement projects. Throughout the nation, low-income and affordable housing is often comprised of properties ranging from 50 to 75 years of age. In most Eastern and Mid-Western cities, low-

income and affordable housing can reach 100 years or more with equally out-dated and under-performing systems.

Many of the older multifamily properties were developed without standardized building codes, and a good portion of them exist without sub-metering. The lack of modern building science translates into the building owners and residents paying the enormous cost of wasted energy, and obligates property owners to make energy efficiency improvements to meet or exceed code.

When owners and managers of low-income and affordable housing make efficiency improvements, they may also be faced with the added financial hurdle of addressing health and safety code improvements which often makes the project cost-prohibitive, even when leveraging utility incentives. In addition, when owners do not pay the utility bills, the “split incentive” dilemma discourages investment. The “split” occurs in rental properties when the costs for property investment needed to save energy and water are borne by the building’s owner, and the tenant, who pays utility bills, is the primary beneficiary from the increases in efficiency.

Continued deferred maintenance of aged systems and deteriorating windows, coupled with the lack of tenant operating controls and inadequate ventilation, have placed the financial burden and risk associated with a potential increase in the cost of energy on owners and operators of low-income and affordable housing. This burden is amplified due to energy costs representing a substantial percentage of their annual operating budget. As a result, fewer and fewer dollars are allocated to make significant whole building improvements, which allow for little more than routine patch repairs.

If offered an opportunity, low-income and affordable multifamily housing can deliver “stranded savings,” which is defined as the large savings potential found in affordable multifamily housing that has proven nearly impossible to realize with traditional incremental incentive structures. Root causes include:

- Limited capital budgets in affordable/public housing, which causes a narrowed focus on routine maintenance over capital improvements
- Aged structures and antiquated systems
- Misalignment of costs and benefits between building owners and residents (“split incentives”)
- Strict funding source limitations that exclude leveraging debt to make capital improvements.
- Inability to leverage tax credit as a factor in lowering project costs
- Inability to absorb the costs of health & safety code improvements to outdated facilities
- Inability to temporarily displace tenants (seniors, low-income families and other at-risk populations) in properties slated for capital improvements

Access to capital and the opportunity to make one or two significant cost-effective, whole-building improvements can potentially result in a positive cash flow. The realized savings can begin to address additional deferred maintenance projects or even go toward enhanced tenant services.

## **Existing Financing Models - Overview**

### **Add-On Financing Backed By Energy Savings**

Add-on financing is used for properties that seek to pay for the upfront energy and water efficiency improvements, using a loan only for the cost of the improvements at any intermediate point in the financing life cycle. The debt is paid back by the energy and water efficiency savings of the improvements. Because it is based on savings, only relatively small loans, typically \$100,000-\$200,000, can be supported. With add-on financing, the loan amount may be too small and does not typically allow for a developer fee, resulting in limited financial capacity for the organization to carry out the retrofit of the property. Many examples of add-on financing have emerged within the last two years as a result of the sudden influx of capital from the federal stimulus funding. Examples of innovative add-on financing programs are outlined in the appendix of this paper.

Most notably, the Green Retrofit Initiative, a partnership between the San Francisco Office of the Mayor, Enterprise Community Partners and the Low Income Investment Fund, developed an add-on financing approach for green measures based on the improved cash flow generated from reduced utility expenses.<sup>1</sup> The program, which covers nine Bay Area counties, seeks to prove the viability of underwriting loans based on projected energy savings in order to attract private lenders over time and relies on the cash flow from energy savings to pay the debt service on the loans. Debt provided to these projects is either unsecured or subordinated to existing debt.

### **Full Rehabilitation/Recapitalization**

Traditional financing of affordable housing retrofits occurs when a project undergoes a full recapitalization, wherein the owner pays off existing debt with a new loan and receives new tax credit equity investment and other grants or incentives. Until recently, traditional underwriting standards rarely considered the increased cash flow to projects generated from conservation measures, making these improvements difficult to finance. HUD recently introduced programmatic changes to the Fannie Mae / FHA Risk Sharing program, a primary mortgage insurance product, and released the Green Refinance Plus Program, which allows for lower debt service coverage and higher loan to value ratios to allow larger loans to projects to help pay for energy and water conservation measures.<sup>2</sup> While these programmatic changes are positive step forward, they do not address the large percentage of projects that are not in a position to recapitalize and therefore cannot benefit from this new program.

### **Bridge Loans to Permanent Refinancing**

Another innovative financing model, piloted by Enterprise Community Partners, is a short-term bridge loan product designed to be taken out with supplemental financing after three or four years.<sup>3</sup> Until recently, underwriting practices did not typically allow refinancing to recognize predicted utility savings. The bridge loan allows a project to make improvements and then prove up reduced utility consumption and costs and improved project cash flow so that these can be recognized when the bridge loan is taken out by permanent financing.

The proposed loan terms include an initial five-year term, renewable for three consecutive five-year periods, and pre-payable at any time with no prepayment penalty.

Enterprise Green Communities (Enterprise Community Partners program) is working with HUD/FHA's multi-family mortgage group to identify optimal projects using the same screening process developed for the refinancing product. An optimal project would include a sponsor with a demonstrated commitment to sustainable practices; high utility costs with potential for significant savings; and a strong exit strategy to pay off the bridge loan through a supplemental loan, refinancing or new tax credits, and a strong indication of improved cash flow.

### **Incentive Aggregation Model**

Several programs around the county aim to aggregate fragmented financial incentives and services and deploy them through an integrated, one-stop-shop approach. The State of Massachusetts, for example, developed a partnership between gas and electric utilities to offer a one-stop shop for retrofits to affordable housing through its Low-Income Multifamily Retrofit Energy Program (LIMFREP).<sup>4</sup> This program aggregates incentives across gas and electric measures and helps owner's access utility funding sources. It also provides a unified energy assessment to help identify eligible measures for both gas and electric energy savings. The challenge with this model is that it does not provide financing beyond the measures that utility companies are willing to fund, and leaves projects on their own to secure financing through traditional avenues for pay for the balance of the project cost.

### **MPower Oregon**

In 2010, Energy Trust focused its attention and resources to explore how an economy in recession, coupled with continued increases in energy and water utility costs could further destabilize Oregon's low income households and threaten the viability of the affordable multifamily housing community. The conclusions from this exploration led our Existing Multifamily program to begin targeting and acquiring savings from multifamily property management organizations that typically serve seniors, at-risk populations and low income families. This community shareholder engagement, along with the convergence of community partners, helped shape *MPower Oregon*, a pilot initiative designed to comprehensively address the needs of low-income and affordable housing—a sector that has proven challenging for Energy Trust to serve in the past.

MPower employs a dynamic partnership approach that is modeled off the successes of and lessons learned by Clean Energy Works Oregon, a single-family, on-bill energy efficiency retrofit-financing program in which Energy Trust is also a key managing partner.

MPower Oregon is a new business initiative intended to deliver energy efficiency services and capital directly to low-income, multi-family building owners and tenants. The initiative, comprised of a coalition of stakeholders, joined together in 2010 to develop a delivery mechanism for energy efficiency services to this underserved sector. The organizations actively involved include:

- Network for Oregon Affordable Housing (NOAH)
- Energy Trust of Oregon
- Enterprise Community Partners
- Green For All
- Craft3
- Blue Tree Strategies

Each key partner plays a distinct and critical role in the development and implementation of MPower Oregon LLC. NOAH, as the manager of the MPower Fund, combines its lending and risk management track record with the pioneering retrofit guidelines and tenant engagement trainings developed by Enterprise Community Partners. Energy Trust provides cash incentives to MPower based on the amount of energy saved, as well as technical expertise and assistance to the program, including upfront funding to pay for building energy audits and overall program evaluation. Craft3, formerly Enterprise Cascadia, serves as the senior term loan lender to MPower Oregon. Green For All supports expansion efforts by helping to identify new markets, organizing stakeholders and bringing resources to communities interested in MPower replication. Blue Tree Strategies provides program design and project finance services to support the innovation behind the triple bottom line public-private partnership.

In November 2011, the U.S. Department of Housing and Urban Development (HUD) Energy Innovation Fund awarded a \$3MM grant to advance MPower Oregon from concept to implementation. The initial funding provides critical resources to develop organizational capacity to deliver energy efficiency services and leverage an additional \$7.5MM of private capital.

MPower Oregon provides 10 years of energy retrofit services that produce energy cost savings and additional benefits of energy efficiency improvements like health, comfort and safety to building owners and residents. These energy services include the one-stop-shop coordination and provision of retrofit improvements from building audits through completion of construction, as well as long-term energy management services, including resident engagement and education, operations and maintenance protocols development, as well as measurement and verification of energy savings.

**Figure 1. MPower Partner Approach and Services Provided**

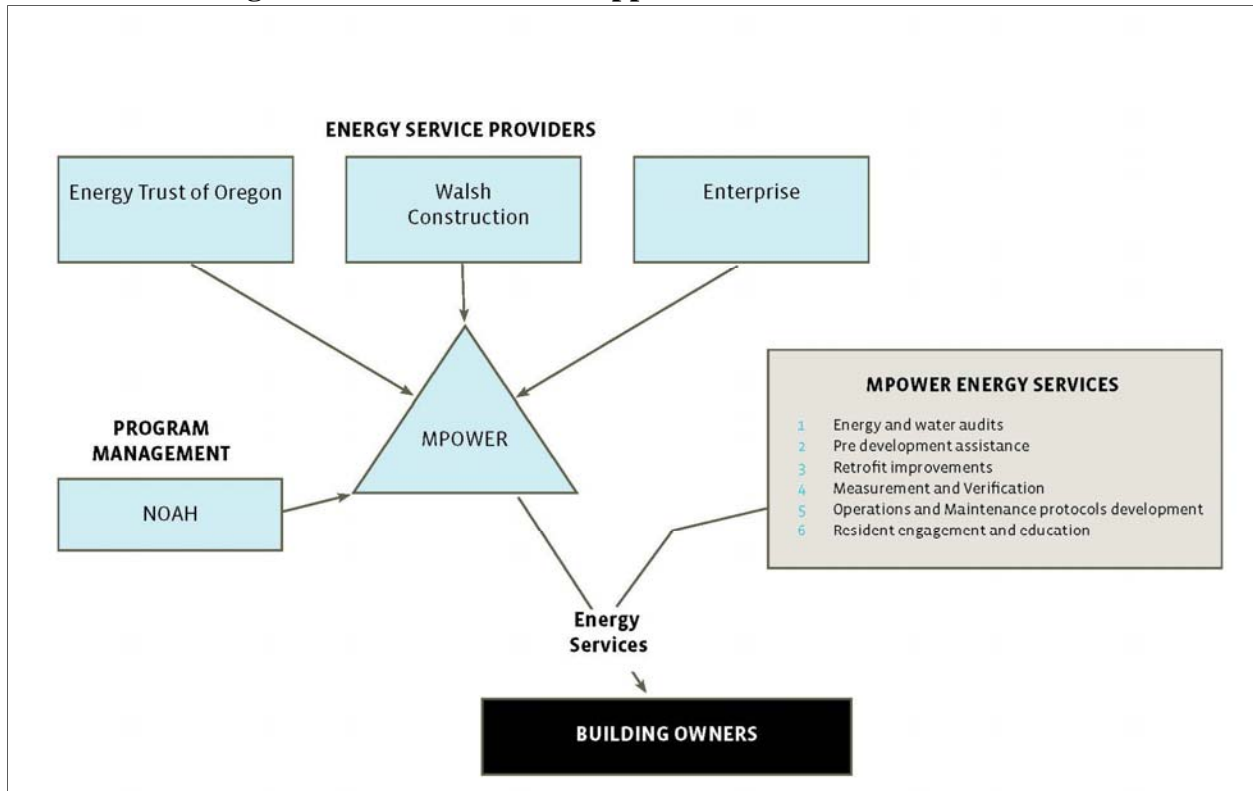


Figure 1: MPower energy retrofit services throughout the term of the agreement.

**MPOWER Oregon Fund Model**

MPOWER Oregon provides the unsecured financing for the energy efficiency retrofit improvements to its customers. Participating building users pay for these energy services through a fixed monthly energy efficiency tariff levied on participating utility bills. The fixed repayment, which is equal to or less than the savings realized, is made on the utility bill of the primary heat-source over a 10-year term. By tying an energy efficiency tariff to utility meters with zero upfront costs to the owners, the payment stream will survive changes in ownership and occupancy, as well as provide a measure of security for lenders at the fund level.

Based on a pro-forma analysis built around past MF projects and the first preliminary investment grade audits rolled up to the fund level, the energy savings are expected to exceed the cost of the improvements, providing cost savings benefits to tenants and building owners and increasing the comfort and health of the residents.

**Figure 2. Capital Aggregation**

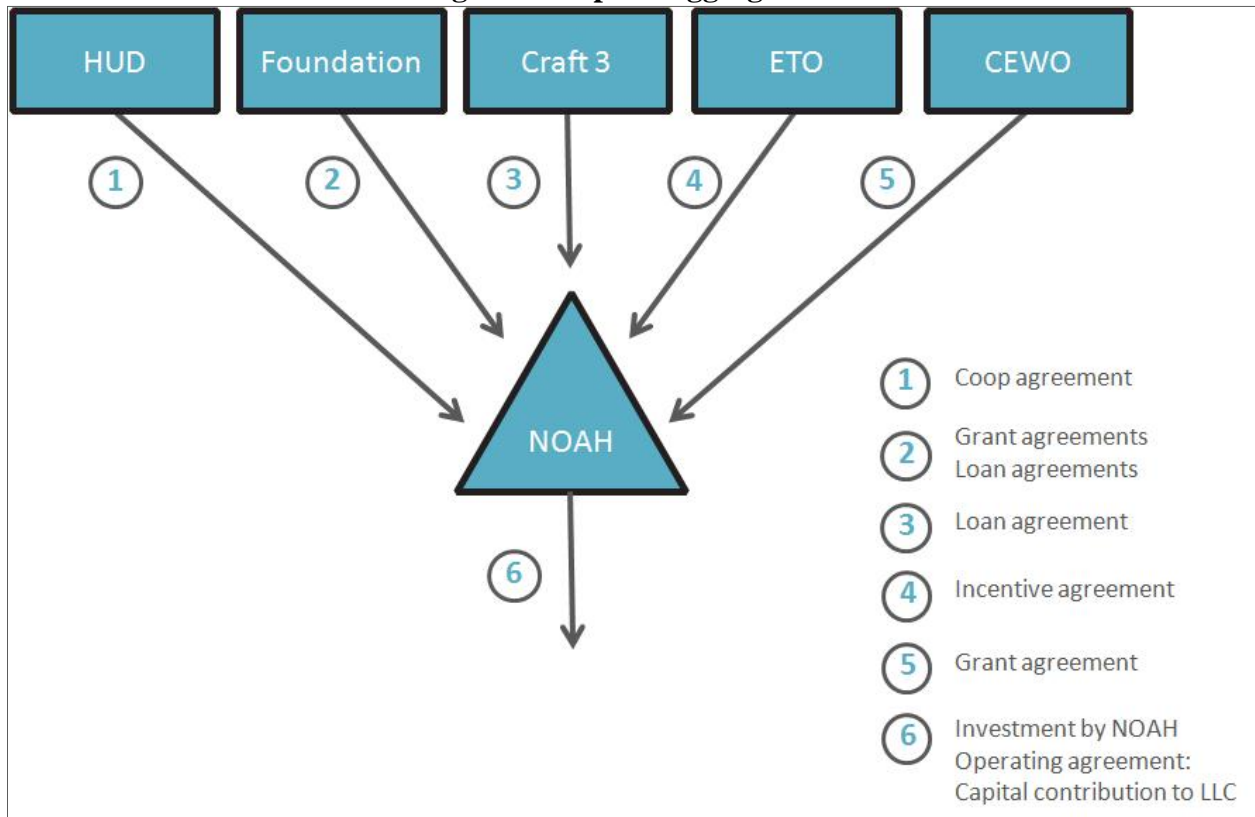


Figure 2: Sources and types of capital aggregated in fund model.

NOAH, the fund manager, serves as a capital aggregation platform, to pull together multiple sources of funding, includes:

- HUD Energy Innovation Fund grant
- Below-market rate loans from Foundations
- Below-market rate loans from Craft3 (formerly Enterprise Cascadia)
- Energy Trust of Oregon incentives
- Clean Energy Works Oregon grant

**Figure 3. Project Completion and Financing Structure**

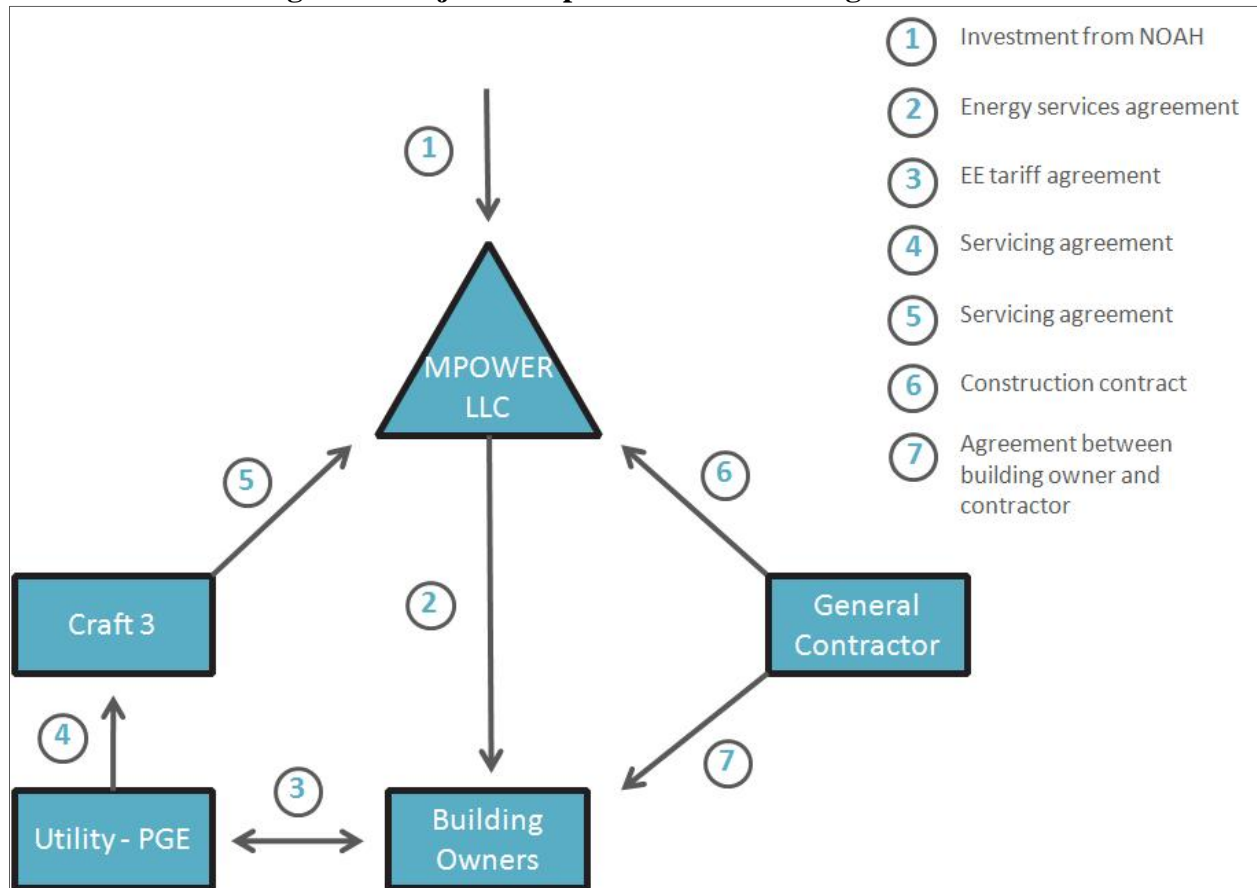


Figure 3: Aggregated funds pass to MPower Oregon LLC and fund the project completion, which initiates the tariff agreement and 10-year loan repayment and servicing period.

NOAH then lends funds to MPower Oregon, which finances investment-grade audits and energy efficiency improvements in affordable multifamily buildings. In turn, the building owner and/or residents agree to the 10-year energy service charge. Subsequently, the charge is collected by the utility and applied to the loan serviced through Craft3.

MPower seeks to deliver a financing option that will provide a unique ability for affordable housing owners to upgrade their properties, as well as create a test market for Energy Trust and other stakeholders to learn about energy usage and retrofits in this challenging market with the following desired outcomes:

- Deliver much-needed capital to existing, occupied, affordable housing properties through a mechanism that does not rely on hard-asset collateral and does not require a restructuring of the existing affordable housing financing including tax-credit equity based capital partnerships;
- Gather and analyze critical data over a 10-year period that is statistically significant and which can inform capital markets, property owners and utility companies of the reliability and predictability of installed energy efficiency in the low-income housing stock;
- Deploy new models for measurement and verification, as well as resident engagement, to maximize the persistence and long-term benefits of installed energy efficiency.



MPOWER Oregon will deliver energy services in three phases over the initial 24-month pilot period. Energy Trust will conduct formal evaluations at the end of each phase. The phased approach enables continuous improvement to the energy efficiency service offering, measured enhancements to the program delivery functions, and offers a form of risk mitigation to funders and implementation partners in the event the program value proposition does not materialize.

The first phase, already underway, will begin with six to eight buildings in Portland, Oregon, to test the efficacy of the program model with master-metered properties. By starting with master-metered buildings we hope to ensure a smooth start related to utility tariff collections by minimizing the amount of meters and utility accounts involved in the on-bill financing portion.

The second phase will serve a larger group of master-metered properties to refine the operations and processes for service delivery while preparing to engage tenant-metered buildings under phase three.

The third phase will focus on incorporating tenant-metered buildings into the pilot, which will require a significant partnership with the participating utilities and strong coordination with tenants' rights organizations. This will add complexity to the offering since they will require an energy efficiency tariff across both tenant and owner-controlled utility meters. Phase three will also prepare for the introduction of new funding sources for the post-HUD grant period and planned commercialization phase. Ultimately MPOWER Oregon anticipates financing green retrofits for 34 multifamily buildings with an average cost of \$3,000 per unit. The fund anticipates retrofitting 2,550 units of housing over the course of the pilot and delivering \$7.9 million in investment into the affordable housing stock.

Ultimately, the success of the initial pilot is expected to result in a scalable business model for energy efficiency services for the multifamily housing sector in Oregon and throughout the nation. MPOWER seeks to develop a nationally-replicable financing program to transform the national marketplace for low-income and affordable multifamily energy efficiency retrofits.

In order to focus the program and ensure the realization of savings, MPOWER Oregon, Enterprise Community Partners and Energy Trust conducted investment-grade audits in early 2012, which are a combination of standard technical analysis study and other elements included in ASHRAE Level II studies. These audits identify what energy efficiency opportunities exist at each site and help the program target the most cost-effective measures for the retrofit. MPOWER is focused on "light-touch" energy efficiency retrofits and does not plan to finance seismic/structural work, new windows, deep insulation, or other measures that increase project costs, require full rehabilitation or could require tenant relocation. However, these types of measures will be studied by Energy Trust for future projects, and if deemed necessary at the time of construction, could be paid for by the owners or property managers in conjunction with the pilot.

Measures targeted for inclusion:

- HVAC improvements
- Energy management systems
- Common-area lighting

- In-unit and common space appliances
- DHW
- Air sealing
- Window weatherization and sealing

Based on the estimated total of \$7.9 million in investment into the affordable housing stock, we anticipate that Energy Trust could invest up to \$2.5M in utility incentives, depending on the savings opportunities identified and the final number of projects. In addition to cash incentives related to the installation of energy efficient measures, Energy Trust will serve as a key delivery partner for the following services:

- Manage measurement and verification as well as provide in-kind staffing resources and utility data analysis through our technical staff and third party benchmarking technology already in use in our normal program offerings;
- Fund Technical Analysis Studies (TAS) done in accordance with our normal program processes and combined with Energy and Water Audit Protocol to create an overarching building audit to inform long-term strategic planning for the building owners and operators.
- Manage project pre-development process that includes all collaborating MPower Oregon partners, building ownership and representation, project auditors, the general contractors and related subcontractors in order to create and implement the most cost-effective project scopes;
- Develop and implement a tenant education plan that will focus on reducing energy consumption and encouraging changes in lifestyle and habits at the multifamily tenant level to offer additional savings opportunities that should be considered in tandem while delivering technology driven solutions;
- Direct support to resident engagement staff to be the primary means of ongoing education and engagement of tenants in order to create and sustain behavioral changes.

These additional services, coupled with the potential cash incentives, demonstrate the commitment of Energy Trust to the MPower Oregon pilot and its potential positive impacts on the affordable housing agencies in Oregon. MPower provides a valuable avenue to circumvent the conventional path of multifamily energy efficiency retrofits, which has focused primarily on making upfront capital improvements. This unique fund model allows us to focus on building a dynamic, long-term partnership with all building users and owners to reach this historically underserved and hard-to-reach market segment and achieve cost-effective energy savings on behalf of utility ratepayers. We feel that this partnership and the ongoing services associated are critical to ensuring not only the persistence of savings in these buildings, but also inform our ongoing MF program offerings and strategies to affordable and market rate multifamily building owners.

## **Conclusion**

Upon successful delivery of the pilot, MPower Oregon plans to leverage other sources of private capital in order to scale up the fund. These sources of funding include private foundations, federal New Markets Tax Credits, and funding from the State of Oregon Conservation Energy Incentive Program. Since MPower Oregon is designed and focused on

“light touch” retrofits, the program will be able to increase the region’s ability to implement energy-efficient retrofits that previously were not able to move forward due to limited capital budgets, the inability to leverage debt and the inability to displace tenants in these aging yet essential structures. Ultimately, we hope that MPower, coupled with the ongoing tenant and building operator pilot, will create an innovative and persistent approach for retrofitting multifamily affordable housing and achieving previously stranded savings that can be transferred to other markets nationally.

The Pacific Northwest has the unique fortune of having relatively low utility costs built around cheap hydropower coupled with a relatively temperate climate. While these are both great benefits to the ratepayer, they also make it more difficult to achieve cost-effective building retrofits in the multifamily building stock. Oregon utilities have much smaller loads compared to regions outside the Northwest with higher utility rates and more distinct seasonality adding to the loads needed to heat and cool these buildings. If we are able to create an on-bill financing model that works from both a savings acquisition and persistence perspective in Oregon, we believe that it can work even better in other markets across the country that have vast needs in their affordable housing building stock.

## References

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