

# Hard to Reach Markets: Delivering Comprehensive Retrofits in the Multifamily Sector

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## ABSTRACT

The multifamily sector is a hard-to-reach market for many energy efficiency programs due to the split incentive between the property owner, who must pay for upgrades, and the resident, who benefits from them. For over 20 years, Austin Energy has offered a successful multifamily rebate program which has encouraged property owners to make energy efficiency upgrades in over 20,000 apartment units.

As the City of Austin becomes more aggressive in its energy conservation goals (with a target of reducing peak consumption by 800 MW by 2020 from baseline year 2007), Austin Energy is designing its next generation of energy efficiency programs to reach for higher energy savings.

Leveraging funding from a federal Recovery Act grant, Austin Energy designed and implemented a new performance-based multifamily program called “*Energy Returns*.” Under this offering, 1,587 apartment units were upgraded in 21 communities in less than a year, with an expected average annual kWh reduction of 23%. The program encouraged comprehensive retrofits by using RESNET-certified raters to provide energy modeling, requiring mandatory water saving devices, and promoting resident education using innovative new outreach campaigns.

Lessons learned from the “*Energy Returns*” offering have been used to inform program design in Austin Energy’s ongoing multifamily rebate program. Moving forward, Austin Energy will measure the impact of this program by tracking actual energy savings at participating multifamily properties and comparing them to the modeled savings predictions. In addition, marketing will highlight completed projects and show potential residents the value of energy efficiency as an amenity.

## Introduction

Utility-sponsored demand side management (DSM) programs generally offer incentives to customers to encourage investments in energy efficiency or alter behavior to reduce peak electricity demand. Incentives for energy efficiency improvements, in theory, reward customers for making investments that they otherwise would not have made. The reduction in peak demand because of the improved efficiency benefits the utility in the form of lower operating costs and the building owner benefits through decreased utility costs, a “win-win” for both parties.

In the multifamily sector, however, much of the benefit of an investment in energy efficiency is not enjoyed by the building owner who makes the investment, but by the residents who pay monthly utility bills. Commonly referred to as the “split incentive”, the arrangement acts as a deterrent to multifamily property owners interested in investing in energy efficiency. As a result, uptake for the residential sector programs is often disproportionately skewed toward owner-occupied single family residences.

Efforts to overcome the split incentive conundrum have led utilities and government agencies to look for alternatives to the traditional prescriptive rebate model that assigns a specific rebate for a specific upgrade. There have been a small number of pilot programs focused on encouraging behavioral changes in multifamily residents, with ongoing program evaluation reviewing effectiveness.<sup>1</sup> Another program concept that shows promise is the “whole house” comprehensive upgrade model, common in the single family sector, being applied to multifamily apartment buildings.

This paper is focused on a comprehensive upgrade multifamily program developed and implemented by Austin Energy (AE) that leveraged a \$10 million Recovery Act grant through the Department of Energy’s Better Buildings Neighborhood Program and the lessons learned that will be useful for program designers. The program, called *Energy Returns for Multifamily*, used energy modeling to calculate savings and offered performance-based rebates for packages of energy efficiency improvements tailored to the specific needs of a multifamily property. The successes realized contribute to the evidence of the viability of comprehensive upgrade programs in the multifamily sector.

## **Background**

### **Austin Energy Multifamily Program History**

In 1986, AE began research towards a pilot energy efficiency rebate program for existing multifamily properties of three stories or less. Five years later in 1991, Austin Energy launched one of the first multifamily programs in the country, offering rebates for prescriptive upgrades made to apartment units. The program has enjoyed success over the years, improving the energy efficiency in over 20,000 units while reducing utility bills for thousands of residents.

Although the program continued to meet or exceed savings and cost-benefit goals, staff was continually looking for opportunities to improve the cost-effectiveness and reach of the program. The need to evolve was accelerated in 2007 when the City Council set aggressive goals for Austin Energy to reduce peak demand. Updated and increased in 2011, the goals call for 800 MW of demand reduction through energy efficiency programs by 2020.

When AE was awarded a \$10 million Recovery Act grant through the Department of Energy’s Better Buildings Neighborhood Program, part of the funding was dedicated to exploring opportunities for comprehensive upgrades.<sup>2</sup> The multifamily program was identified by staff as an ideal opportunity to leverage the existing processes and expertise to implement the comprehensive upgrade concept.

### **City of Austin**

Austin, Texas is located in Travis County in Central Texas with a hot/humid summer peak season lasting from June through September. Austin has enjoyed fairly steady population growth over the past 25 years, with projections estimating that the city’s population will top 1

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<sup>1</sup> HUD awarded \$23 million in grants to 12 organizations to test innovative ways to save energy in older multifamily buildings. Three of the awarded organizations proposed behavioral programs. See: [http://portal.hud.gov/hudportal/HUD?src=/press/press\\_releases\\_media\\_advisories/2012/HUDNo.12-051](http://portal.hud.gov/hudportal/HUD?src=/press/press_releases_media_advisories/2012/HUDNo.12-051)

<sup>2</sup> The grant proposal was originally written and submitted with an emphasis on financing tools, specifically a singlefamily residential PACE program.

million in the next 10 years (Robinson 2014).<sup>3</sup> Population growth has been driven by several factors including a thriving arts and music scene and strong job growth. Major employers in Central Texas include the University of Texas, IBM, Dell, the State of Texas and Samsung, among others (Austin Chamber 2014).

Continuous population growth for over 20 years has also, however, led to a strain on the housing market. In the multifamily housing sector, the average occupancy rate stands at 96 percent in the Austin area (Austin Investor Interest 2013). The high demand and limited supply in multifamily units has led to increasing rental rates. One possible side effect of high demand is that multifamily property owners may have less motivation to add amenities or differentiate their property.

It was within this multifamily housing market that AE developed and implemented *Energy Returns for Multifamily*, a program that resulted in 1,587 apartments receiving comprehensive upgrades in a little over a year.

## Program Design

The U.S. Department of Energy's Better Buildings program "is focused on creating self-sustaining markets for energy efficiency in buildings that result in economic, environmental, and energy benefits for communities throughout the United States (DOE 2011)." At AE, staff attempted to achieve this result by promoting participation through new financial incentives. After an initial, successful short term offering in the single family sector, staff regrouped and identified the multifamily program as a high impact opportunity to implement a deep-dive comprehensive retrofit program.

There are a number of benefits to a utility of developing and implementing a comprehensive program in the multifamily sector, but the greatest may be leveraging of economies of scale. A good contractor with two crews may be able to complete ten apartment units in a day, as opposed to two single family homes. High volume projects, with the allure of greater kW and kWh savings, do also bring significant challenges (split incentive, high volume quality assurance) that need to be considered while designing a comprehensive program. The ultimate success of the *Energy Returns for Multifamily* program was founded in the design process, when staff repeatedly met with and solicited buy-in from three types of key stakeholders: multifamily property owners/managers, participating contractors and internal AE staff.

### Key Program Design Elements

**Performance-based rebates.** The idea of performance-based rebates was new for all three key stakeholders. For contractors and property owners used to building a scope of work around single measure rebates, the concept led to initial apprehension about participating in the program. Basing rebates on modeled annual kWh, rather than deemed kW savings, challenged internal AE staff to change processes and mindsets. Ultimately, through a series of meetings and presentations the parties agreed to move forward with the concept.

When calculating rebate levels, staff performed field surveys about costs for materials, labor and overhead in an effort to find an appropriate rebate level. The research was important, but equally important was acknowledging that the multifamily market is very different than the

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<sup>3</sup> The population of the 5 county MSA topped one million in 2000 and is projected to top three million in 2030.

single family market. Rebates for energy efficiency upgrades that do not explicitly improve the property owner’s bottom line must be attractive in order for contractors to sell the program. In this case, the rebate levels were based on kW and kWh savings estimates but also on historical costs for work in AE’s single measure rebate program. Based on estimates of cost and kW/kWh savings, the rebate levels were then reviewed with the total resource cost test. Table 1 below shows the final rebate levels offered through the program.

Table 1. Performance rebate levels

Modeled Annual kWh Reduction	Rebate per unit
15%	\$ 500
20%	\$ 750
25%	\$ 1,000
30%+	\$ 1,250

**Third-party testing and modeling.** To establish baseline performance and the potential impact of energy efficiency upgrades, a test-in sample of apartment units was required. The test-in established a baseline of the existing conditions at the apartment unit including gathering data about lighting, appliances, duct leakage, air infiltration, insulation, windows and water devices. All of the inputs needed to properly model the apartment unit in REM/Design™ or REM/Rate™ were required to be collected during the test-in by the rater. After the upgrades were completed, the rater would confirm the scope of work was completed during a 10 percent test-out including duct leakage and air infiltration testing.

A ten percent minimum sample rate, or one per floor plan and one per building, whichever was greater, was the rule established for sample size. The test-in sample also was required to be reflective of the configuration of the multifamily complex. For example, raters could not model all top floor or all west-facing apartment units. Finally, when calculating the overall percent savings at a complex, the savings from each floor plan was multiplied by the weighted average of that specific floor plan among all units at the property. The goal of the weighted average calculation was to ensure that anomalistic savings estimates for a certain floor plan did not skew the rebate level for the entire project.

After a thorough review and testing of available energy modeling software tools, REM/Rate™ was chosen as the tool best suiting the needs of the *Energy Returns* program.<sup>4</sup> REM/Rate™ proved to be an effective tool for multifamily buildings and was user-friendly enough for all involved to be comfortable with the reports and predictions. Much effort, though, was required to ensure that all raters were using the same, standardized input parameters. Through extensive modeling exercises, staff learned the strengths and weaknesses of the software and was able to build guidelines for participating raters to ensure consistency in savings estimates. For example, all interior light bulbs were modeled at 2.25 hours of use per day. One limitation of modeling energy use in the multifamily sector is the difficulty in calibrating models to actual resident consumption. Utility bill calibration proved to be extremely useful in the *Energy Returns for Single Family* program, where homeowners’ actual kWh usage could be used to adjust the model to reflect behavioral variables.

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<sup>4</sup> Austin Energy staff utilized REM/Design™ to review energy modeling files submitted for review and approval.

The choice of REM/Rate™ as the best-fitting software, contributed to the decision to require RESNET certification for all participating energy raters. Staff created standardized field data collection forms for raters to use and required in-the-field photo-documentation of units tested, especially when abnormal conditions were encountered. Participating raters were also required to attend training on combustion appliance zone (CAZ) testing led by Building Performance Institute-certified proctors and sponsored by AE. Raters were responsible for field data collection, energy modeling, data organization and development of an energy reduction plan to present test-in findings to property owners and managers. Based on research, experience and rater input, the final rebate levels that Austin Energy would pay to help offset the cost for test-in and test-out were established. Raters were free to charge whatever price the market determined; the rebates for their services were to help offset the cost of a service (test-in and test-out) that was new to the multifamily sector. In addition, to encourage the raters to “sell” the energy efficiency upgrades, a sales performance incentive fund, or SPIF, was offered to raters of \$10 per unit upgraded at a property that they performed both test-in and test-out. Table 2 details the rebate levels; properties with gas furnaces or water heaters in the living space received an additional \$20 per unit to account for the additional testing required.

Table 2. Rebates for test-in and test-out of multifamily properties

<b>Rater test-in rebate</b>	<b>Rebate level</b>
All electric property	\$195/unit
Gas appliances (CAZ testing required)	\$215/unit
<b>Rater test-out rebate</b>	
All electric property	\$195/unit
Gas appliances (CAZ testing required)	\$215/unit
<b>Rater SPIF</b>	\$10/unit upgraded

**Participating contractors.** Although program participation was open to all contractors that met program requirements and had experience in the multifamily sector, only two companies took the opportunity. Although initially the low participation seemed to be a shortcoming, it quickly became an advantage as staff was able to more fully develop partnerships with the two contractors to promote open communication and improved processes. The strong partnership allowed staff to make continuous improvements to the program after it was launched, and it allowed the contractors to feel empowered to make suggestions for changes to staff.

Both companies had extensive experience in the multifamily sector and both supported the concept of comprehensive upgrades. Each recognized the opportunity to expand their services to have a greater impact at every job they performed. They also understood the challenges of making comprehensive packages of upgrades in the multifamily sector, such as larger capital outlays and high variability among apartments in a property.

**Partnerships with other utility providers.** The split-incentive conundrum poses challenges in the multifamily sector because property owners generally do not experience a direct return on their investment in energy efficiency. Most owners of low to mid-rise apartments in Austin do, however, pay at least a portion of the water bill at their property. Given this reality, staff approached Austin Water Utility (AWU) to look for opportunities to collaborate. AWU staff offered to purchase low-flow showerheads and faucet aerators and provide them at no cost to

properties participating in the *Energy Returns* program. Installation of the water saving devices by the program's contractors became mandatory for all projects, with AE realizing energy savings through decreased water heating, and AWU achieving significant water savings.

In an effort to become a "one-stop shop" for multifamily energy and water efficiency upgrades, AE also worked with the natural gas utility provider, Texas Gas Service (TGS), to coordinate rebates for improvements affecting gas consumption. TGS was willing to work with AE and AWU, but as an investor-owned utility it does not have the same aggressive conservation mandates that the municipally-owned utilities usually do.

One significant challenge in making efficiency improvements in apartments with gas service is the potential health and safety concern of carbon monoxide and other combustion gasses that are poisonous. Two common upgrades, air infiltration and duct sealing, can dramatically change the flow of air and combustion gasses in the living space. While in the single family sector HVAC equipment upgrades are very commonly included in comprehensive upgrades, in the multifamily sector property owners normally only change equipment when it fails. Therefore in some properties, natural draft gas furnaces are still present. To address potential safety issues, staff made upgrading all natural draft gas furnaces mandatory for those properties to participate in the program. As a result of this rule and the lower kWh savings, no properties with gas furnaces participated in the program.

**Expedited processing.** The additional steps involved in a performance-based project extend the duration of an upgrade project and can add an additional layer of complexity for property owners. In a single measure, prescriptive upgrade project, the contractor identifies the upgrade opportunities (CFLs for example), then builds his or her scope of work to reflect the opportunity. This process might take only a day or so and the rebate application can be submitted at the same time. The test-in, energy modeling and scope of work development for a project in the *Energy Returns* program, however, could take two additional weeks or more and require that some of the residents be disturbed even before the upgrades are made. With a relatively short project timeline<sup>5</sup> and the added complexity of the projects, AE staff had a specific focus on processing these projects as expeditiously as possible.

Staff worked closely with raters and contractors to ensure that the utility delays would not be the reason that a potential project decided not to participate. Internal work process flows were developed to standardize and expedite the review of both modeling files and process applications as quickly as possible, while still ensuring proper management of funds. The result was that a small team was able to review almost 50 potential projects and approve 21 while also performing field quality assurance on all jobs.

**Focused outreach.** One of the goals of the program was to begin to shift the way that multifamily property owners and residents thought about energy consumption and efficiency. The hope is that eventually energy efficiency will be thought of as an amenity, like new countertops or a fitness room. Traditional collateral like yard signs and banners were given to participating multifamily communities to draw attention to energy efficiency. The names of all participating properties were listed in advertisements placed in the local apartment finder

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<sup>5</sup> The *Energy Returns for Multifamily* program launched in October of 2012; after receiving an extension from the DOE, Austin Energy's *Better Buildings* grant term was set to complete in November 2013. In order to fully process and report on multifamily projects, staff required that all jobs be complete by September 1, 2013, meaning that the program was only offered for 1 year.

circulars and the property manager trade magazine. An interactive map highlighting energy efficient apartments in Austin was also developed and included on the website designed specifically for the *Energy Returns* programs.

Rather than focus on energy savings, marketing collateral for property owners spoke to increased comfort for residents as a selling point. In addition, messaging was crafted to highlight the potential for lower monthly utility bills to increase the likelihood that residents would be able to pay rent on time and in full. Figure 1 shows one of the program's banners displayed at a property that participated in the *Energy Returns* program.



Figure 1. Program banners announce energy efficient apartments with Austin Energy and *Energy Returns* logos.

For the first large project that was completed through the program, staff worked with AE Marketing and Communications staff to coordinate an on-site outreach event. The two goals of the event were to celebrate the completion of the 200-unit upgrade and to educate residents about the upgrades that were made and how to maximize their effectiveness. Although the event was announced to residents through the on-site property management, turn-out was low at first. The critical component in getting families to attend the event was targeting children with a clown and face painting. Figure 2 is an image from the event.



Figure 2. Outreach event held at multifamily community. Austin Energy and Water Utility are represented as are residents and their children.

## Results

The *Energy Returns for Multifamily* program offering was by far one of the grant's greatest successes. After conducting extensive background research into tiered rebate design, modeling software, and commercial financing options, the grant launched the offering which ran from September 1, 2012 to September 30, 2013 and upgraded over 1,500 apartments on 21 separate properties. This unprecedented level of upgrade activity was accomplished by following a smart business model that worked with existing multifamily program staff and contractors to slowly integrate changes. A group of multifamily contractors that were interested in promoting deeper dive upgrades collaborated with program staff to determine tiered rebate levels that would incentivize property owners to take action. The key elements and lessons learned from the program have been used to inform program updates to AE's existing multifamily energy efficiency program.

### Key Factors to Program Success

Many factors contributed to the success of the *Energy Returns for Multifamily* program. Research and stakeholder input into designating rebate levels was critical. The rebates were high enough to ensure that, in most cases, contractors could successfully sell the energy efficiency upgrades.

While there was much research into the rebate levels, another key to success was unintentional. When the program was being designed, six contracting companies were invited to stakeholder input meetings. By the time it was launched only two companies remained interested in participation. The real advantage of having a limited number of contractors is that strong relationships can be built that encourage open communication and trust. Another benefit is that quality control efforts can be focused and organized from day one, building a sure foundation.

Whenever possible, simplifying the process for property owners led to expedited projects and contractors that felt confident in selling the program. Staff partnered with the water utility to facilitate the distribution of water saving devices, bringing a value-add to property owners that



pay water bills and making it easier for contractors to sell the benefits. The partnership garnered an honorable mention as a “Promising Program” for saving both energy and water from ACEEE and AWE in 2013.

Files and paperwork were processed as quickly as possible and staff was open to meeting contractors or raters in the field to discuss program guidelines or process. The willingness on the part of program staff to accommodate rater and contractor schedules and to always be responsive helped encourage strong partnerships and program success.

## Numbers

Property owners electing to participate in the program varied from larger management companies that manage a portfolio of over 20 properties in Austin, to those that owned only one property. Some had sophisticated websites where residents could pay rent while others still do not have a web presence. Anecdotally, though, one common thread was participants’ interest in being able to talk to prospective residents about energy efficiency. Table 3 provides an overview of program activities, funds dedicated and modeled savings estimates from the REM/Rate™ files. The water savings estimates are from AWU, who provided the devices.

Table 3. Overview of program activity and modeled savings

Total number of units upgraded	1,587
Number of communities	21
Total rebates for upgrades	\$1,191,500
Average rebate/unit	\$751
Average annual estimated kWh reduction	23%
Modeled annual kWh reduction	4,851,759
Modeled peak kW reduction	1,467
Units tested-in	499
Units tested-out	193
Testing incentives to raters	\$112,456
SPIF (sales incentive) to raters	\$9,870
Estimated annual gallons of water saved	10,453,965

At the time of this paper’s submittal, a year has not passed since the completion of the work at most of the properties that participated in the *Energy Returns* program. Austin Energy staff will be performing ongoing utility bill analysis of properties, but Table 4 below provides a preliminary comparison of annual kWh estimates predicted prior to the project using REM/Rate™ software and the actual savings realized. The actual savings numbers have been extrapolated to account for the lack of one year of utility bills.

Table 4. Breakdown of estimated vs. actual savings and upgrades by property

#	Year built	Rebates	Units	Estimate	Actual	Duct seal	Air seal	Solar screen	Attic insul.	Water devices	CFLs	DHW pipe wrap
1	1984	\$ 200,000	200	28%	13%	x	x	x	x	x	x	x
2	1982	\$ 55,000	89	21%	1%	x	x		x	x	x	
3	1972	\$ 9,000	12	20%		x	x	x	x	x	x	x
4	1973	\$ 72,500	145	18%	-3%	x	x		x	x	x	
5	1969	\$ 14,500	23	21%		x	x	x		x		
6	1972	\$ 39,500	47	25%	-4%	x	x	x		x		
7	1968	\$ 22,500	18	31%	-5%	x	x			x	x	x
8	1979	\$ 15,000	12	31%	5%	x	x			x	x	x
9	1982	\$ 11,000	11	26%	-1%	x	x	x		x	x	x
10	1980	\$ 128,500	211	23%	-1%	x	x		x	x	x	x
11	1972	\$ 27,750	41	20%	8%	x	x			x	x	
12	1973	\$ 51,500	59	26%		x	x		x	x	x	x
13	1974	\$ 35,500	53	18%	3%	x	x			x	x	x
14	1979	\$ 50,250	67	21%	11%	x	x		x	x	x	x
15	1984	\$ 93,500	131	21%	26%	x	x		x	x	x	x
16	1984	\$ 70,500	93	21%	19%	x	x		x	x	x	x
17	1971	\$ 101,000	101	26%	10%	x	x			x	x	x
18	1974	\$ 124,000	184	21%	3%	x	x			x	x	x
19	1984	\$ 12,000	16	21%	-6%	x	x			x	x	x
20	1971	\$ 16,000	32	18%		x	x			x	x	x
21	1973	\$ 42,000	42	27%	9%	x	x	x		x	x	x
A V G	1976	\$ 56,738	76	23%	5%							

Curiously, the upgrades made to five of the properties have actually had a negative effect and there has been an increase in electrical use. This analysis was run before a full year of post billing data was available for most properties. Results are weather normalized by heating degree days (since summer billing data is not yet available and Austin experienced an unusually harsh winter, which likely increased residents' electric heat use). Additionally, as all of the properties have electric heating, the extreme winter could have had an outsized effect on consumption patterns. Results also do not account for vacant units or changes in tenancy.

Although the results seem somewhat disappointing, they are incomplete and the accuracy of the modeling software should only be evaluated after a minimum of 12 months of post construction utility bills. As was previously mentioned, energy modeling files also were not calibrated to actual usage. In the *Energy Returns for Single Family* program, bill calibration proved tremendously effective in adjusting modeling estimates to actual resident usage patterns. When staff has a full 12 months (24 would be even better) of post upgrade consumption, a more conclusive evaluation can be made about the accuracy of the energy modeling software for the multifamily sector in Central Texas.

## Programmatic Challenges

The success of the *Energy Returns* program was not without a number of significant challenges. Above all else, coordinating projects from initial contact through test-out and follow-up interviews was taxing on the limited grant-funded staff, especially during the first few months of the program when the concept was somewhat new to all parties. As potential projects were submitted, staff reviewed the property's previous program participation, confirmed the property had complied with the City of Austin's Energy Conservation and Disclosure ordinance, and then determined if the property was a good candidate.<sup>6</sup> Raters submitted invoices and paperwork along with all REM/Rate™ files after the test-in was performed. All files were subjected to quality assurance review, some requiring several rounds of revisions. All of this occurred before any actual upgrade work, and for more properties than actually participated in the program.

Although some innovative outreach ideas were explored as part of the program, marketing was a challenge. How does one promote a relatively complex program concept to an audience that was a hard sell for the original, simpler concept? Staff attempted to position energy efficiency as an amenity, but it is unclear whether the market (potential residents) views it that way. Property owners are business owners and respond to how things impact their bottom line; however the benefits of improved energy efficiency are not concrete to them. Will duct sealing *actually* extend the life of equipment? By how much? Will residents with lower utility bills *actually* translate that into lower rates of rent default? These questions are difficult to answer conclusively, but are of high interest to business owners.

## Conclusion

*Energy Returns for Multifamily* was more successful in its short run than initially anticipated. The success was attributable to several factors including:

- Strong partnerships with participating contractors.
- Expedient processing by utility sponsor.
- Attractive rebates to partially off-set the split incentive.
- Coordination of multiple utility services and programs for property owners.
- Utilization direct water savings as a way to attract property owners.

After the completion of the main grant performance period in September 2013, the lessons learned were used in a redesign of Austin Energy's multifamily energy efficiency program. The new program encourages comprehensive packages of upgrades, but does not use energy raters or require energy modeling. With fewer staff dedicated to the new multifamily program, there was a need to lessen the number of steps involved in each project. To that end, staff has designed a simple, fill-able PDF tool that contractors use to calculate a project's potential rebate based on a point system for upgrades. The point system is based on previous cost-benefit analysis, the estimated useful life of the measure and a desire to encourage some upgrades that have not previously been performed as often. The rebate calculator tool also serves to simplify project processing by eliminating hard copy documents and streamlining review and approval. The redesigned program has increased focus on marketing and outreach, highlighting

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<sup>6</sup> The ECAD ordinance requires that all multifamily properties have a basic energy audit performed and present the results to all residents. For more info, see: [austinenergy.com/go/ECAD](http://austinenergy.com/go/ECAD)

properties that make comprehensive upgrades. Participating properties have been listed in ads in apartment finder magazines and are also listed on Austin Energy's website.

The multifamily housing sector offers many challenges and commensurate opportunities to energy efficiency program sponsors. In a market like Austin, Texas where the occupancy rate hovers around 96 percent, lowering resident utility bills through energy efficiency investments is unlikely to be foremost on property owners' minds. *Energy Returns for Multifamily* demonstrated that programs that appeal to owners' business sense (decreased water bills, marketing opportunities) can overcome the split incentive dilemma to achieve significant energy savings.

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