Reaching More Residents: Opportunities for Increasing Participation in Multifamily Energy Efficiency Programs

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Contents

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Executive Summary

The multifamily sector can be hard to reach when it comes to energy efficiency programs. Customers are often underserved by energy efficiency programs due to the sector's diversity, complexity, and unique set of challenges that relate to energy efficiency investments. This report builds upon previous research and examines participation in multifamily energy efficiency programs. We summarize the challenges to program participation and identify best practices that programs can use to achieve high participation. We draw on program-level data from 20 different utilities and other program administrators for 30 multifamily energy efficiency programs. We also conducted 13 interviews with program administrators on their efforts to build program participation, including marketing, outreach, and networking with key stakeholders involved in multifamily energy efficiency projects.

REPORT FINDINGS

We assessed participation across programs by analyzing annual and cumulative participation and by estimating the annual and cumulative percentage of multifamily units served in a program's service territory. Annual participation ranges from 1,724 units to 54,198 units, representing anywhere from 1% to 26% of the estimated eligible customer base. Cumulative participation for each program varies widely based on the length of a program and size of the multifamily housing stock within its service territory. On a cumulative basis, some programs report reaching upward of 25–50% of their multifamily customers. This is a hard figure to gauge because many programs allow for repeat customers across different program cycles. Additionally, we do not know how many buildings received direct-install measures versus more comprehensive retrofits. Saturation of direct-install measures may be high, but opportunities for deeper savings likely remain.

This range of annual and cumulative program participation is a result of the unique characteristics of each program and is also a function of budget size, program type (direct install versus comprehensive), and the size of the local multifamily housing stock. The tracking and reporting differences and the overall lack of standard reporting made it difficult to make comparisons of participation data across programs. Additionally, few programs break down participation by market segment.

We also spoke with program administrators to learn about strategies for building program participation and the factors that contribute to high participation. Program administrators give credit to several strategies that they believe help increase participation. These strategies include directly targeting building owners and managers with marketing and outreach efforts; working with owners of large, regional housing companies; providing technical support and decision-making guidance to building owners and managers, including a free customer-friendly energy assessment and identification of energy-saving opportunities; and partnering with state and local housing organizations and trade allies.

BEST PRACTICES FOR ACHIEVING HIGH PARTICIPATION IN MULTIFAMILY PROGRAMS

There are many challenges utilities and program implementers must overcome to successfully deliver a multifamily energy efficiency program. We identify the following as

best practices that program administrators can use to better reach their multifamily customers.

Simplify and streamline access to program and services. From the first inquiry into a program through project completion, the implementation of energy efficiency projects can be a long and intimidating process for building owners and managers. Providing owners and managers with a single point of contact that can assist them through each step of a program can help ease the process. The single point of contact can either be at the utility or housed in a partner organization. Often referred to as a one-stop shop, this single point of contact approach combines all of the behind-the-scenes services required for a utility program and places them under one roof, streamlining the implementation process and addressing the specific needs of customers.

Target building owners and managers. Properties vary widely in their ownership, management, and operation. Program administrators need to reach the people who can approve projects (e.g., building owners) and commit their own time and resources as necessary to see the projects through completion (e.g., building managers). Several programs reported reaching property owners through their local housing trade associations, which are in place in many areas. Targeting marketing to property owner associations can leverage these networks and help gain high participation in multifamily programs.

Tailor marketing and outreach to specific segments of the multifamily market. The multifamily sector is highly segmented. Targeting different segments through marketing and outreach efforts can help program administrators better reach multifamily customers. A successful strategy will help decision makers in various segments see the potential cost and energy savings that energy efficiency measures can bring to their properties.

Partner with state and local housing organizations to market and deliver programs. There are many multifamily stakeholder organizations that help support the sector at the state and local level. These organizations have established networks throughout the multifamily community. Program administrators can partner with these organizations to leverage these relationships to connect with decision makers and promote their programs. This process can increase participation by increasing awareness of available services. It also helps program administrators better understand the needs of their multifamily customers.

Partner with trade allies to market programs. Trade allies are contractors or other technical partners that work with program administrators to deliver energy efficiency programs. Partnering with trade allies yields several benefits. Trade allies typically have an established network within the multifamily sector. Program administrators can leverage these network connections to reach out to more potential customers, as well as use the trade allies to enhance their existing marketing and outreach efforts. Trade allies also benefit from this partnership because increased program participation means more business for them.

Deliver effective messages that demonstrate clear value with actionable guidance. Effective messaging is important to achieving high participation in multifamily programs. Investments and changes to properties must yield benefits to owners that they value enough to make the investments and implement selected energy efficiency measures. While energy savings and energy cost reductions are the primary benefits typically marketed by

programs, programs must also market the many nonenergy benefits that result from energy efficiency improvements. In addition to the multiple benefits of energy efficiency, messages need to include actionable guidance—clear steps to learn more about program services and information on how to enroll.

CONCLUSION

Energy efficiency programs are getting better at reaching multifamily customers as more and more program administrators are engaging in outreach efforts to identify the needs of the multifamily community and are designing programs specifically for this sector. The research presented in this report shows that multifamily energy efficiency programs are successful in serving high numbers of multifamily customers while achieving large energy savings. Successful programs have incorporated best practice strategies and filled a steady pipeline of projects.

While some program administrators have improved their programs to reach more of their multifamily customers, some sectors remains underserved. This is especially true for the harder-to-reach segments of the market, like affordable multifamily buildings. Because many programs do not track participation by segment, we often do not know how well a program reaches the affordable multifamily segment or other segments.

Our research also revealed the limited and inconsistent data on program participation and related metrics for multifamily programs. Better data, consistent metrics, and increased understanding of program participation are needed to better inform program planning, development, implementation, and evaluation of multifamily energy efficiency programs. A better understanding of multifamily participation will also help in setting and achieving program goals.

Background

In 2013 ACEEE estimated that if multifamily energy efficiency programs were expanded nationwide, they could save owners and their residents up to $3.4 billion per year (McKibbin 2013). Since then, new utility programs have emerged and old ones have expanded, but much of the energy savings potential in this sector remains untapped. While single-family and commercial customers increasingly experience the multiple benefits of improved energy efficiency, many multifamily customers continue to miss out despite their high potential for energy and cost savings.

The multifamily sector is diverse and complex, and it presents a unique set of challenges that relate to energy efficiency investments. For many building owners and managers, the decision whether or not to invest in energy efficiency remains complicated, even when they recognize the value of energy efficiency. Will owners directly benefit from the energy savings? How do these investments compare to other priorities such as capital investments or building maintenance? Do they (and their residents) have the time and resources to commit to such investments? These are the types of concerns that utilities and other program implementers must consider and address when designing effective multifamily programs. They must also consider these concerns when engaging with a wide range of multifamily customers, including those who own and operate thousands of units and those who may oversee one or two buildings. Utilities and other program implementers that offer a program or suite of programs that target and serve different segments of the multifamily market have the greatest potential for success.

While good programs will aim to get the most savings from each participating customer, achieving high energy savings in multifamily buildings requires building owners, managers, and residents who are interested in and motivated to make energy efficiency improvements. For many utilities and other program implementers, generating sufficient demand for program services is a fundamental challenge. To get projects approved, program administrators must also engage with a set of decision makers that varies across the many different types of multifamily buildings that comprise this customer segment. For these reasons, traditional outreach and marketing activities are enhanced by having staff and organizational partners who are familiar with the multifamily housing stock and its ownership and investment structures.

This report examines high participation in multifamily energy efficiency programs. It builds upon previous ACEEE research on multifamily energy efficiency programs by summarizing the challenges to program participation and identifying best practices that programs use to achieve high participation (York et al. 2015; Johnson 2013). Based on these practices, this report presents a set of recommended strategies that utilities and other program administrators can use to achieve higher participation in their multifamily programs.

Objectives and Methodology

Our research had several objectives. First, we sought to compile participation and other program-level data and began to compare these metrics across programs. The key metrics we examined were participation rates as given by the percentage of eligible customers reached annually and cumulatively. A second objective was to identify best practices that

program administrators attribute to increasing program participation among building owners. These recommendations are intended to inform marketing and outreach strategies employed by program administrators and other program design elements known to affect participation.

Our final objective was to provide useful data that will assist utilities, regulators, program implementers, and other stakeholders to effectively plan programs, set spending levels, and establish goals based on desired participation rates. In this objective, we also wanted to respond to the need for a better understanding of the various segments of the multifamily market and the implications for delivering effective energy efficiency programs that serve multifamily customers across all market segments. To the fullest extent possible, we examined how participation varies across different segments of the multifamily market.

As we identified successful strategies for different segments of the market, we paid particular attention to affordable multifamily buildings that serve low- and moderate-income residents. Throughout this report, we use the term "affordable multifamily buildings" to refer to both housing that is subsidized through federal and state government programs and unsubsidized housing deemed affordable because of rent levels.[1] Building owners, operators, and residents of affordable multifamily buildings face unique barriers to participation. We highlight points of leverage for participation in programs that target comprehensive retrofits in the affordable housing sector (e.g., building equipment and systems upgrades and building envelope).

We used two related methods for our research. We first sent surveys to 44 utility program administrators requesting data on their multifamily energy efficiency programs. The program administrators surveyed participate in a working group organized and facilitated by ACEEE as part of an ongoing initiative to expand and improve programs serving multifamily housing markets.[2] In total, eight program administrators returned completed data requests, which included information on program offerings, spending, eligibility, savings, and participation. Appendix B includes a copy of the survey. We also used state utility commission filings, annual utility reports, and program evaluations to supplement the returned data requests in cases where they were incomplete, as well as for programs that did not return the request. In our analysis we included data from 30 programs implemented by 20 utilities and other program administrators. In gathering these data, we also identified common metrics and nomenclature associated with program participation.

The second part of our research was to interview selected program administrators on their efforts to build program participation, including marketing, outreach, and networking

[1] Programs do not have a uniform definition of low-income or affordable housing. National Grid's Income Eligible Multifamily Program in Massachusetts, defined "low-income" as a building where 50% or more of the residents are at 60% or less of the area median income. Similarly, the District of Columbia Sustainable Energy Utility's (DCSEU) Low-Income Multifamily Initiative requires two-thirds of a building's units to have gross household incomes at or below 60% of the area median income. Con Edison's Multifamily Low Income Program targeted buildings that receive federal or state financial subsidies such as Section 8 vouchers or low-income housing tax credits.

[2] For more information on ACEEE's multifamily initiative, please visit aceee.org/multifamily-project.

among key stakeholders involved in projects. Key stakeholders include owners, contractors, housing finance institutions, community development organizations, and trade allies. This qualitative data provided insights into how programs target and achieve high participation. We conducted 13 interviews in total. Appendix C includes a list of utilities and other program administrators that submitted data or participated in an interview.

Our mixed-method approach allowed us to compare costs, savings, and participation across programs as well as provide a more in-depth overview of the marketing and outreach strategies being implemented to reach multifamily customers. In addition to identifying cost-effective strategies for reaching these customers, we paid particular attention to the approaches being used to target different segments of the market, including affordable multifamily buildings, existing buildings, new construction projects, and owners with large portfolios of buildings.

Ultimately, we chose not to rank or compare programs based on participation metrics, because this type of comparison would not accurately represent a program for several reasons, including diversity of service territories' multifamily housing stock, program measures, and total and per-unit energy savings. Our research focuses on strategies that program administrators report as having led to greater participation. Many utilities and program implementers are well positioned to incorporate these strategies into their marketing and outreach efforts without significantly impacting program spending.

The Multifamily Market

The term "multifamily" is used to describe a range of physical, living, and ownership arrangements. The tendency to view the sector as a singular entity can mask its diversity. Multifamily buildings range from duplexes to high-rises with more than 50 units. Some properties are leased to residents, while others are owned by their occupants. Rental buildings can be owned by mom-and-pop landlords or companies that own and operate hundreds of buildings nationwide. Some multifamily rental buildings house low-income residents and receive government subsidies that go toward rent or are owned and operated by a local public housing authority. Figure 1 represents a snapshot of the diversity within the multifamily housing market from 2013.

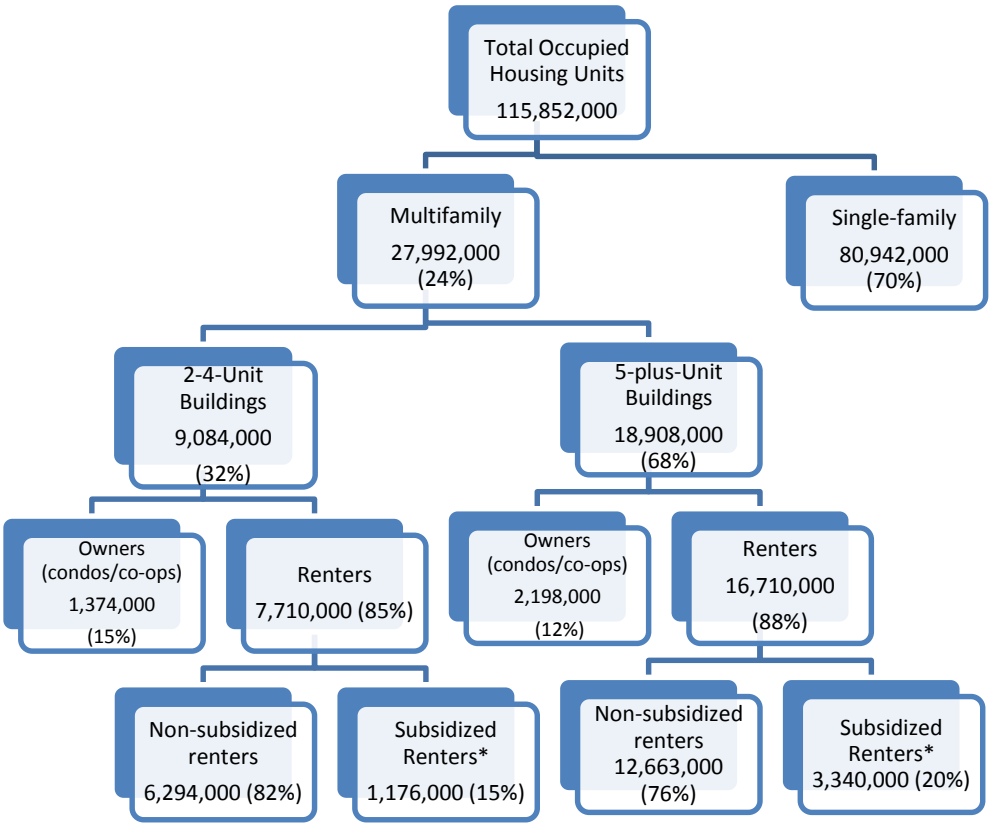

Figure 1. Segments of the multifamily market. *Renters who reside in a building owned by a local public housing authority or those that receive a government subsidy towards their rent. *Source:* Census Bureau 2015.

The majority of multifamily buildings reside in urban areas. According to the 2013 American Housing Survey (Census Bureau 2015), 95% of multifamily buildings are located in metropolitan areas. Only 2% of households living in buildings with 50 or more units live outside of metropolitan areas.

Despite the differentiation within the multifamily market, there are some trends in the market that have important implications for program design and delivery. The majority of multifamily buildings have more than five units are renter occupied and do not receive government subsidies for rent. Additionally, multifamily rental units are predominately occupied by low- and moderate-income families, which is not demonstrated in Figure 1. A large portion of the multifamily rental market (68%) consists of households that have an annual household income of below $50,000 (NMHC 2015a). In addition to low-income households, seniors on a fixed income and university students commonly occupy multifamily units. Large companies also own and operate a sizeable stake of the multifamily rental market. The top 50 largest multifamily managers operate nearly 3 million units, comprising 18% of the multifamily rental buildings with 5 or more units (NMHC 2015b).

Successful multifamily energy efficiency programs must recognize and factor the unique characteristics of the multifamily market into their design and delivery. A program designed to serve retirees who own condominiums in Florida will naturally differ from a

program designed to serve affordable multifamily high-rise buildings in New York City. The marketing, available services, and targeted technologies will also differ.

Characterizing multifamily markets on a more local level can be challenging. Data, like those provided above, are not readily available for smaller geographies like states, utility service territories, and neighborhoods. In the cases where data are limited and market characterization studies have not been completed, program administrators can turn to local affordable housing stakeholders, such as the state housing finance agency or large building owners, to learn more about the multifamily market they serve.

Multifamily Program Models

Multifamily energy efficiency programs, like the multifamily sector itself, are diverse and tend to differ from utility to utility. Because of the nature of multifamily buildings (size, ownership, and existence of central mechanical equipment), utilities may group multifamily buildings with their residential portfolios, commercial portfolios, or both. As a result, multifamily customers may be eligible for residential and/or commercial energy efficiency programs. However a growing number of utilities have identified the need to create programs specifically targeted at the multifamily sector in order to reduce confusion among customers and within the utility itself. Whereas residential and commercial programs might target both residents and owners of multifamily buildings, the majority of multifamily-specific programs, including all of the programs in this report, target building owners and managers as the primary program participants. These multifamily-specific energy efficiency programs are the main focus of this report.

Typically, to be eligible for a multifamily program, a building must have at least five units, though some programs have different unit or ownership requirements. For example, Austin Energy requires buildings to have a minimum of four units or a combination of adjoining duplex or triplex units that have a single point of contact.

Based on previous ACEEE research on utility-implemented multifamily energy efficiency programs, we have identified the four types of program models that utilities typically use to serve their multifamily customers: (1) direct-install services, (2) equipment and product rebates, (3) comprehensive energy retrofits for existing buildings, and (4) comprehensive energy efficiency measures for new construction (Johnson and Mackres 2013). In some cases, these programs are adapted to meet the needs of properties that house low-income residents by offering higher incentives or additional measures.

Table 1. Types of utility-implemented multifamily energy efficiency programs

Program type	Description
Direct install	Direct-install services are energy efficiency improvements that are made in individual units or common spaces in a multifamily building. These installations are typically at no cost to the owners or occupants. Examples of direct-install services include energy-efficient lighting (CFLs or LEDs), weather stripping, faucet aerators, and low-flow showerheads. Additionally, direct-install services can be used in conjunction with rebate programs for similar energy efficiency measures.
Equipment and product rebates	Equipment and product rebate programs are designed to incentivize multifamily customers to purchase and install energy-efficient equipment. Some examples of equipment often eligible for these rebates include HVAC systems, water heating systems, insulation, lighting, and other appliances. Depending on the program, customers either receive the rebates at the time of sale, or after completing and submitting an application for the rebate.
Comprehensive energy retrofits for existing building retrofits	Comprehensive energy programs take a whole-building approach rather than focusing on individual units or common areas within a building. These programs typically begin with an energy audit that identifies the most cost-effective strategies to make a building more energy efficient. Helping multifamily customers find available incentives and financing options provided by utilities or other sources is important to the success of a comprehensive program. Additionally, these programs may require coordination between the electric and gas utilities in cases where they are separate utilities. Some programs also may require a building to reach a specific level of energy savings in order for program customers to qualify for incentives.
Comprehensive energy measures for new construction	New construction programs, like comprehensive retrofit programs, are designed to take a whole-building approach. However these programs are specifically for developers that want to incorporate energy efficiency measures into building design from the beginning of the design process. New construction programs can offer both custom and prescriptive measures, including insulation, high-efficiency heating and cooling systems, energy-saving appliances, lighting, and high-performance windows and doors. Additionally, some programs offer different incentives based on the project phase (design, implementation, completion, and post-occupancy). Some new construction programs require that the measures selected exceed building code energy efficiency standards.

These program models can be used across all segments of the multifamily sector. They also affect the number of customers a program reaches and the level of energy savings achieved. ACEEE research finds that direct-install services and equipment and product rebate programs tend to reach a higher number of participants but achieve a lower level of energy savings than more comprehensive programs on a per-unit basis. Alternatively, comprehensive programs tend to reach a smaller number of customers, yet result in a higher level of energy savings.

Additionally, some comprehensive programs establish a threshold for energy use reduction in order for a building to qualify for participation. For example, the Bay Area Regional Energy Network's (BayREN) program requires participants in its comprehensive program to select a scope of measures that are expected to reach at least a 15% energy savings in order to qualify for rebates. BayREN uses a modified version of code compliance software to estimate energy savings. This modified software requires less data and participant burden

(e.g., time) than the full version of the software, while still providing reasonable estimates.[3] The New York State Energy Research and Development Authority (NYSERDA) also has a 15% energy savings requirement. Although the intent of a minimum savings requirement is to help owners save more energy, NYSERDA finds it can be difficult to convince owners and managers to participate in a program with a minimum requirement when other utility programs exist in the area and provide owners and managers incentives for single measures (Research Into Action, Inc. and Wirtshafter Associates, Inc. 2014). Programs that are direct install only, or provide a combination of direct-install and comprehensive measures, tend not to have these requirements.

Challenges to Participation in Multifamily Programs

The multifamily sector faces a unique set of challenges that relate to energy efficiency investments. For the purposes of this research, we highlight a set of challenges that may influence a building owner or manager's decision to participate in a multifamily program. These challenges apply across all segments of the multifamily market. We have described many of these challenges in greater detail in previous ACEEE research (McKibbin et al. 2012; McKibbin 2013). As these challenges become well-documented, an increasing number of program administrators are designing and delivering their programs to meet the unique needs of multifamily building owners, managers, and their residents (Johnson 2013).

Split Incentives

The alignment of incentives for undertaking energy efficiency improvements in multifamily buildings can pose a challenge for program participation. Split incentives typically arise in apartment buildings where the building owners are responsible for paying for retrofits while residents primarily benefit from the energy savings through reduced utility bills. While this issue might not be as significant in master-metered buildings, it is often an issue in individually metered buildings where residents typically pay for all or some of their utilities.[4] In order to address this barrier, program administrators can communicate the multiple benefits of energy efficiency to building owners, such as improved resident comfort and satisfaction, and decreased operating or maintenance costs. These benefits can lead to lower vacancy rates and increased revenue (Elevate Energy 2014; Cluett and Amann 2015).

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[3] Basic inputs for BayREN's Energy Pro Lite software include number of units, heating type (e.g., central or wall furnace, electric resistance, etc.), duct location (e.g., no ducts, attic, conditioned space, etc.), conditioned floor area, year built or last renovated, number of kitchens and bedrooms, typical wall construction (e.g., wood or metal studs, or others), glazing description (e.g., single metal clear, double vinyl low-e), bottom-floor type (e.g., slab-on-grade, suspended slab, wood), typical roof construction (e.g., flat roof, gabled roof, or others), roof description (e.g., attic or cathedral).

[4] Master-metered buildings measure energy usage at the building level, and building owners pay for all utilities. Residents in master-metered buildings typically have these utility costs accounted for in their rent. Individually metered buildings measure energy usage at the unit level and residents pay for some or all utilities. In some individually metered buildings, residents pay only for electricity, and in other individually metered buildings residents pay for a combination of the electricity, heating, cooling, and domestic hot water costs.

Programs can also provide incentives and rebates to reduce the cost of both in-unit measures and centralized energy efficiency equipment. This encourages building owners and managers to make improvements in units and in common areas. Incentives and rebates can be used to replace building systems such as the core HVAC system or in-unit appliances. To further encourage the installation of in-unit and common area measures, some programs require that free in-unit measures be installed before building owners are eligible to receive rebates for measures installed in common areas.[5] Tenants who pay their own utility bills benefit from the in-unit measures, while owners become eligible for common area measure rebates.

Time and Resource Constraints

Energy efficiency improvements often compete with other priorities, such as capital-intensive projects and maintenance, and require the time and resources of building owners, managers, and occupants. In the end, owners must decide which projects they can pursue and managers must dedicate staff time needed to apply for programs and be present during parts, if not all, of the implementation process.

Property owners, managers, and maintenance staff are often not trained to conduct energy audits or identify potential improvements that will increase a building's efficiency. They usually require some technical assistance to identify and understand the projected savings and to guide them through energy efficiency projects. For retrofit projects, this assistance might include help with program applications, energy assessments, construction, quality assurance, post-installation monitoring, and verification of savings. For owners of multiple buildings, this may also include help selecting which buildings are best suited for energy efficiency upgrades. This level of turn-key assistance can be needed for comprehensive energy efficiency retrofits and new construction programs more so than for simpler direct-install programs.

Properties may also need assistance accessing financing for retrofit projects. Access to capital is a barrier for many buildings in the multifamily sector, and program administrators may need to guide customers to an appropriate source of finance, or offer customers access to capital directly through their program. Financing can help customers cover program costs, including energy audits, design assistance, and construction costs. Some programs help customers overcome this barrier by offering on-bill repayment. This method allows customers to pay back a portion of the total costs over time on their utility bill.

Program administrators must also be aware of the time commitment and scheduling needs that their program poses for building managers and their residents. Energy efficiency measures, such as insulation, air sealing, lighting, and other direct-install measures often require access to resident spaces. Building system upgrades and other building-wide retrofits can also pose a disruption to residents. For these reasons, property managers and owners may prefer to coordinate these upgrades with other capital improvements and maintenance needs to minimize disruption to residents. Programs that are flexible and can

[5] Con Edison's Multifamily Energy Efficiency Program uses this strategy to overcome split incentives.

accommodate different building capital improvement cycles and minimize resident disruption are likely to be viewed more favorably by owners and residents than programs where program funds must be dispersed over tight timelines. This flexibility could also encourage owners to participate in programs that are more comprehensive.

At times, building owners and managers also have to navigate between programs offered by separate electric and gas utilities, which can be confusing and time intensive. Where possible, we recommend that gas and electric (and sometimes water) utilities coordinate program delivery so that measures can be installed together, making the process easier for participating buildings (Johnson 2013; Nowak, Kushler, and Witte 2014).

While time and resource constraints exist in all segments of the multifamily sector, they can be magnified in affordable multifamily buildings. These properties are more financially constrained than most market-rate properties and not only require access to capital, but also specifically access to low-cost capital (Joint Center for Housing Studies 2015). It is especially important for low-income properties that programs not only help provide access to capital, but that they are also flexible and can accommodate building capital improvement cycles. Because these properties have more resource limitations than market rate properties, they are often only able to make major building improvements, such as comprehensive energy efficiency retrofits, during recapitalization. Because periods of recapitalization may not always align with the rollout and implementation of a utility program, program administrators need to build relationships with owners or managers so that they know when they should reach out or follow up about potential energy efficiency projects.

Owners and managers of affordable multifamily buildings may also require additional assistance identifying low-cost energy efficiency financing products and state, local, or utility incentives and grants (Henderson 2015). Because these options are not available for all properties, program administrators may not be familiar with them. Program administrators should familiarize themselves with the additional offerings available to better serve their customers in this segment of the market. Technical assistance and timing of energy efficiency retrofits can thus be critical for pushing these projects forward.

Complex Decision-Making Structures

Decisions to implement energy efficiency improvement projects in multifamily buildings often require multiple levels of approval before any actual work can begin. Building owners, property managers, building maintenance staff, and residents each have a different level of authority when it comes to making these decisions. Owners likely approve projects and, at times, financing. Managers and maintenance staff, to which the day-to-day activities are contracted, might develop the scope of work and coordinate implementation, while residents may be required to provide access to their units. Running decisions up and down the chain can be time consuming and challenging for program administrators trying to enroll a property within a program cycle. Further, depending on a property's investment structure, especially for the subsidized affordable sector, arranging approval for financing for upgrades can be particularly challenging.

Decision making also varies depending on the types of measures a program offers. For example, property managers might have the authority to approve low- or no-cost direct-

installation measures, but not have the authority to approve the purchase of new equipment or more comprehensive projects. At times, program administrators will need to attain the approval of the owner and work with the property manager and building maintenance staff to deliver the program, ensuring the project is appropriately timed around other maintenance activities and other building upgrade projects.

When a building has a single owner, the decision to enroll in a program and make common area or in-unit upgrades is often made by the owner or manager. In condo buildings or cooperatives (co-ops), where units are individually owned, it can be more complicated to deliver these programs. Common area measures typically have to be approved by the homeowner's association, while in-unit measures have to be approved by each individual owner.

Marketing and Outreach

To reach potential participants, programs must develop effective marketing and outreach strategies. Multifamily building owners and managers, often strapped for time and continuously juggling building and resident concerns, may not be aware of programs offered by their utilities. This is especially true if their utilities do not offer or market programs specifically designed for multifamily customers. In cases where multifamily customers are eligible for a mix of residential and commercial rebates and incentives, this can result in a great deal of market confusion. Programs have sought to overcome these challenges by providing standalone multifamily programs with a single point of contact who can conduct direct outreach to building owners and managers and support program enrollment and delivery.

The diversity of the multifamily market also poses challenges for marketing and outreach efforts. Utilities should conduct market characterization surveys to learn more about the housing stock and energy saving opportunities within their service territory. Owners and managers of apartments, student housing facilities, assisted-living buildings, and condominiums have different drivers and barriers to participating in energy efficiency programs. Financial and scheduling constraints will also vary across these market segments. Effective marketing and outreach targets the unique characteristics and opportunities within different segments. For example, program administrators can target the owners of student housing facilities prior to the summer months so that retrofits could take place when the majority of students are off campus.

Findings: Program Participation and Outreach

We collected data for this report from 30 multifamily energy efficiency programs implemented by 20 different utilities or other program administrators. In this section we focus on the program spending, participation, and energy savings data that program administrators report annually. We also note programs that are in their first year or pilot phase. We used this information to assess participation across programs by analyzing annual and cumulative participation, and by calculating the percentage of multifamily units served in a program's service territory. Table A1 in Appendix A summarizes the program data we collected.

The complexity of the multifamily housing stock is reflected in the different ways utilities and other program implementers collect and report participation and other program information. While the majority of programs report participants as the number of dwelling units (units) served, others report number of buildings served or number of completed projects.[6] Some programs count all units in a building as participants even if their building only received common area measures and no in-unit measures were installed. Some programs track participation by unit when direct-install measures are implemented, and by project for comprehensive measures. These tracking and reporting differences and the overall lack of standard reporting made it difficult to make comparisons of participation data across programs.

Additionally, when reporting these data, few programs break down participation by market segment. While all of the programs covered in this report are open to affordable multifamily buildings, only eight programs are specifically designed for this segment. Because these utilities and program administrators have separate programs to serve the affordable multifamily sector, they track participation for this specific segment. Those that have programs open to all segments of the multifamily market tend just to track total participation and not break it down by market segment. Without tracking data by segment, it is difficult for program administrators to determine how well they are reaching different market segments or whether they need to focus their efforts on certain underserved segments.

Some utilities and program implementers are attempting to make program changes so that they can better serve their low-income multifamily customers. For example, Austin Energy is interested in better reaching this segment and is shifting its focus to affordable multifamily customers. They are in the process of launching a new program for this sector with higher rebates designed to help overcome the larger financial barriers faced by these customers.

We also found that very few utilities have an idea of the total eligible multifamily customers in their service territories. Many utilities do not track this customer class internally, and public data for this information are not readily available. In order to assess program participation as a percentage of eligible multifamily customers served, we used eligibility data reported to ACEEE by program administrators and turned to US Census data for the remaining programs. For statewide programs, we used housing data for the entire state. For programs that were not statewide, we used housing data from the major metropolitan regions in the utility's service territory to estimate the eligible customer base.[7]

The majority of programs surveyed offer participants a mix of both direct-install and comprehensive measures. The type of measure or measures installed influenced both participation and energy savings. Previous ACEEE research found that higher program

[6] Several utilities and program administrators reported participation rates as projects rather than unit or buildings. Projects vary from program to program. Projects can refer to a whole building, a series of units or common areas, or a combination thereof. This creates additional complications when trying to compare programs.

[7] This methodology is consistent with previous ACEEE reports that calculate program participation as a percentage of eligible multifamily customers served (Johnson and Mackres 2013).

participation does not always guarantee higher total or per unit energy savings (York et al. 2015). Therefore, a program may have lower participation but deeper savings or vice versa. As mentioned, programs that rely mostly on direct-install measures, such as lighting and faucet aerators, low-flow showerheads, and programmable thermostats tend to have higher participation because of the low cost and low maintenance nature of these measures. On the other hand, comprehensive programs that replace more expensive, complex building systems strive to achieve deeper energy savings, often sacrificing a higher participation rate.

PROGRAM COMPARISON: PARTICIPATION

Where possible, we identify program participation as the total number of units annually served by the program, the percentage of eligible units annually served in the program's service territory, and the cumulative number of units served since the beginning of the program, or at least over a longer period. This allows us to better understand how much of the multifamily market is served in one program year and how much has been served over the duration of the program However comparing programs based solely on participation data does not accurately represent a program. Programs serve territories with different multifamily housing stocks and offer varying measures. Participation data also do not take into account total or per-unit energy savings. Some programs have also been in existence much longer than others and have had more time to build relationships with the multifamily community, which helps them reach more customers. Therefore, in addition to participation data, we include program spending, eligibility, and energy savings data to present a more holistic view of a program. We display these data in table A1 in Appendix A.

Among the programs surveyed, annual participation by unit ranged from 1,724 units to 54,198 units, representing anywhere from 1% to 26% of the estimated eligible customer base.[8] This range is a result of the unique characteristics of each program and is also a function of budget size, program type (direct install versus comprehensive), and the size of the local multifamily housing stock. Comparing this set of programs, many of them have multimillion dollar budgets. Budgets range from $805,441 to $44 million. These budget and participation data illustrate the magnitude of funding necessary to achieve a significant penetration into multifamily housing markets.

Several programs in our sample reported meeting or exceeding their participation goal, with some noting that they would be able to serve more customers in a single program year if their programs had larger budgets.[9] For example, Focus on Energy's Direct Install Program met its goal of reaching 4,750 units in 2014 but had to turn away participants because of a limited program budget. Focus on Energy acknowledges that using trade ally partners to market its programs helped them create this level of interest. While some program administrators, like Focus of Energy, are meeting their participation goals, this number represents a small portion of their multifamily customers and should not be regarded as an indicator of demand.

[8] These data points exclude new programs and those that are in a pilot phase.

[9] Arizona Public Service, Austin Energy, BayREN, National Grid Massachusetts, and National Grid Rhode Island.

Programs that establish pipelines of projects offer a better picture of market demand. BayREN's multifamily program has 24,000 units in its pipeline, which prompted it to ask Pacific Gas and Electric (PG&E) for additional funding. Because BayREN's program is new, it is important that it serve as many units in the pipeline as possible to keep up the program's momentum and make sure owners remain interested. BayREN believes that the interest in its program is, in part, a result of marketing strategies. BayREN relies on the city and county governments in its service territory to conduct its marketing and outreach. It believes that potential customers are more likely to open a letter or read a flyer from their local government rather than one sent directly from BayREN.

High energy savings can also be achieved by programs with lower participation. For example, DCSEU achieved a high per-unit energy savings (1,194 kWh and 20 therms) while reaching a lower number of units (3,245) relative to similar programs. Program participation will therefore be affected by the program approach, budget, and measures offered. These aspects should be considered when setting goals for participation.

Climate zones and varying fuel costs can also affect a program's participation. In milder climate zones, heating systems tend to last longer because they are used less. As a result, there is less motivation for owners to upgrade the equipment, which can make them less likely to participate in energy efficiency programs. Similarly, in areas where fuel is inexpensive, property owners may not be as interested in making energy efficiency improvements as property owners with a larger portion of their operating costs going toward utility payments. Several program administrators noted this as a challenge to participation and achieving higher energy savings.

We also report cumulative participation for each program. This number varies widely based on the length of a program and the size of the multifamily housing stock within its service territory. On a cumulative basis, some programs report reaching upward of 25–50% of their multifamily customers. This is a hard figure to gauge because many programs allow for repeat customers across different program cycles. Additionally, we do not know how many buildings received direct-install measures versus more comprehensive retrofits. Saturation of direct-install measures may be high, but opportunities for deeper savings likely remain.

In order to begin making comparisons across programs, we provide a selected set of multifamily programs that typify program designs, budgets, and participation in table 2 below. These programs have good, complete data readily available for the key metrics we examined in our study. Each of these programs addresses both electric and natural gas energy efficiency measures. Each program also offers both direct-install and comprehensive measures. A final common factor is that they all achieve relatively high per unit energy savings.

The programs in table 2 also serve a variety of climates, from moderate coastal regions to northern regions with cold winters and warm summers. Electricity and natural gas savings per year reflect different climates as well as differences in housing stock and associated building equipment and appliances. Average savings also vary significantly by the number of participants with direct-install measures only versus the number of participants who undergo comprehensive retrofits. Natural gas savings are most subject to differences in climate since the dominant use of natural gas is for space heating. Improving space-heating

efficiency for multifamily housing in cold climates will yield higher savings than the same changes in more moderate climates. While these are important considerations, without participation by measure installed, we are unable to assess how some of these factors influence savings.

Table 2. Subset of comprehensive programs for comparison

Value	BayREN Bay Area Multifamily Building Enhancements*	Con Edison Multifamily Energy Efficiency Program Multifamily Low Income Program	DCSEU Low-Income Multifamily Initiative	National Grid (MA) Residential Multi-family Retrofit Low-Income Multi-family Retrofit	National Grid (RI) EnergyWise Multifamily Income Eligible Multifamily	Puget Sound Energy Multifamily Existing
Program year	2015	2015	2014	2014	2014	2014
Annual budget Marketing budget	$9,003,227 $146,339	$12,000,000 $325,000	$4,385,843 N/A	$44,023,522 $459,301	$7,697,800 N/A	$13,697,885 N/A
Annual participation (units)	7,512	38,800	3,245	54,198	19,867	31,000
Total number of eligible units % served annually	700,000 1.1%	2,380,000 1.6%	65,000 5.0%	339,698 16.0%	76,419 26.0%	245,000 12.7%
Cumulative participation Percentage served	15,896 2013–2015: 2.3%	100,000 2010–2015: 4.2%	N/A	N/A	N/A	157,585 (elec) 16,479 (gas) 2006–2016: 64.3%
First-year incremental energy savings	3,759,000 kWh 247,000 therms	15,200,000 kWh 2,000,000 therms	3,873,000 kWh 64,390 therms	30,147,000 kWh 1,569,535 therms	11,745,000 kWh 382,000 therms	24,524,000 kWh 13,684 therms
Average per-unit energy savings, based on first-year incremental energy savings	500 kWh/unit 33 therms/unit	392 kWh/unit 52 therms/unit	1,194 kWh/unit 20 therms/unit	556 kWh/unit 29 therms/unit	591 kWh/unit 19 therms/unit	791 kWh/unit 4 therms/unit

* New program or pilot program. *Sources:* DCSEU 2014; National Grid 2015a; National Grid 2015b; National Grid 2015c; Puget Sound Energy 2015; data requests.

PROGRAM COMPARISON: MARKETING AND OUTREACH STRATEGIES

The quantitative data provide a snapshot of participation for leading multifamily programs. However these data do not necessarily tell us what factors may contribute to high participation. In conversations with program administrators, we were able to learn more about how they worked to increase participation in their programs. The strategies that program administrators discussed include the following:

- Directly targeting building owners and managers with marketing and outreach efforts
- Working with owners of large, regional housing companies
- Providing technical support and decision-making guidance to building owners and managers, including a walk-through survey of their property and a follow-up report
- Partnering with state and local housing organizations and trade allies, attending industry events, and advertising in industry publications

All of the program administrators we interviewed emphasized the importance of targeting their marketing and outreach efforts directly to owners and managers as a way to enroll high numbers of program participants. This approach also requires program administrators to consider property types when conducting marketing and outreach activities. Programs tend to target rental properties (e.g., apartment buildings, student housing, assisted-living facilities, etc.) that have a primary decision maker. Other property types, such as condominiums, pose unique challenges because there is no single decision maker.

Arizona Public Service (APS) has found its greatest success in targeting marketing efforts at owners of regional housing companies that have portfolios of buildings. This strategy allows them to sign up several buildings for their program while working with a small number of decision makers. APS attributes this strategy to the success of its program, which has just experienced its highest participation rate since its inception.

National Grid Massachusetts's program has found success reaching condos in addition to rental properties. It typically works with the management company that runs the condo building to install measures in common areas, and in doing so, advertise the program to the building's residents. National Grid attempts to have all units in a property participate when delivering a program to a building; however this is challenging and often does not result in 100% participation.

Many programs find that, while marketing to building owners and managers is an important step in their outreach strategy, most do not have the technical expertise to fully understand the potential energy efficiency opportunities. As a result, these programs work with owners to identify the energy efficiency measures that would be best suited for them and to estimate savings. Energy Trust of Oregon's program is particularly effective when providing this type of technical expertise. Its program provides a walk-through survey for owners that includes an initial discussion and follow-up report on potential energy efficiency opportunities specific to their property and related costs, savings, and incentives. The survey and follow-up report help owners understand the benefits of energy efficiency and encourage them to enroll in Energy Trust's program.

Connecting with building owners and managers in the affordable multifamily segment is also an effective way to encourage program participation in this hard-to-reach segment of the market. Elevate Energy targets this segment and notes that building owners often hear about energy efficiency programs through word of mouth, which also helps establish trust within Elevate Energy's program and its projected savings.

Further, Elevate Energy finds that working with other multifamily stakeholders that already have the trust of the owners is an effective way for them to earn the trust of the multifamily community. To build the reputation of being a trustworthy stakeholder in the community, Elevate Energy's program in Illinois works with lenders, the state housing finance agency (HFA), and contractors that have existing relationships with owners to develop their own relationships and market its program. Con Edison's program implementer, the Association for Energy Affordability (AEA), has had similar experiences working in the affordable multifamily segment. AEA continues to establish relationships with contractors active in the affordable multifamily community.

Programs also attributed high participation to partnering with trade allies and housing-related organizations to help them market their programs. These groups often have existing relationships with multifamily stakeholders and know the needs of the community. Program administrators can leverage these relationships to reach more customers. Additionally, the relationships between program staff and trade allies tend to be mutually beneficial. Trade allies bring customers to programs, while programs bring business to trade allies. For example, Focus on Energy credits its long-term trade ally relationships as a major factor in generating participation. Trade allies help drive potential customers to the program, and, as a result, the program's common-area lighting package has been very successful.

National Grid Massachusetts partners with the Community Associations Institute (CAI), a group of property management companies, building owners, and other multifamily stakeholders to market its programs. The partnership provides an audience for case studies developed by the utility in the organization's main publication. This relationship allows the program's success stories to reach a broad audience and helps attract new customers.

APS has partnerships with both trade allies and housing organizations to help market its program. APS offered a training workshop for all trade allies interested in getting involved with the program. This day-long training highlighted the potential for business in the multifamily sector and was one of the biggest turnouts APS has experienced for these types of workshops. APS's trade ally partners find their own projects and bring them to APS, and APS connects customers with its trade ally partners to deliver more business. APS also partners with the Arizona Multihousing Association, an organization that represents rental housing providers and offers services, products, educational programs, and networking opportunities for its members. APS had an existing relationship with the Arizona Multihousing Association because the organization helped APS market its weatherization program and now leverages this relationship to market its multifamily program to potential customers.

Best Practices for Achieving High Participation in Multifamily Programs

Our research revealed a set of common practices that program administrators attribute to greater participation. In this section we identify these practices and provide examples to

illustrate how programs benefit from them. As other ACEEE research shows, achieving high participation in energy efficiency programs primarily requires well-designed programs and effective messaging (York et al. 2015). Research specific to multifamily programs builds on these fundamental principles.

SIMPLIFY AND STREAMLINE ACCESS TO PROGRAM AND SERVICES

From the first inquiry into a program through project completion, the implementation of energy efficiency projects can be a long and intimidating process for building owners and managers. Providing owners and managers with a single point of contact that can assist them through each step of a program can help ease the process. The single point of contact can either be at the utility or housed in a partner organization. The goal of this type of program model is to streamline the implementation process and address specific needs of customers.

Often referred to as a one-stop shop, this single point of contact approach combines all of the behind-the-scenes services required for a utility program and places them under one roof. One-stop shops work with customers to help them navigate programs, answer any questions, and address any problems. Customers have a direct contact they can go to for questions or assistance, which can facilitate program participation. In addition to working with customers, one-stop shops also work behind the scenes with electric, gas, and water utilities; housing finance organizations; community organizations; and other multifamily stakeholders to coordinate services and keep the process simple for customers. This is especially important if the electric and gas utilities are separate companies.[10]

Programs offering one-stop shops should also work with their customers to move from direct-install measures to more comprehensive projects. Retrofit and new construction projects often require different implementation processes and project financing that one-stop shops can streamline. For retrofit projects, they can help customers apply for the program, conduct an energy assessment or audit, help prioritize and select measures, help align project financing, arrange contracting if necessary, oversee implementation of selected projects, and provide post-installation monitoring and verification. For new construction projects, one-stop shops can assist with reviewing the design of a project that can reduce the transaction costs, stress, and staff resources that come along with planning and implementing energy efficiency upgrades (Johnson 2013).

Easy access to program services is also important for encouraging repeat business, even after a project's completion. Continued customer support is necessary in case something goes wrong, like the installation of a bad lighting fixture or damage caused during the installation process. Building owners need to understand whom to contact to resolve these issues and if the work is under warranty. If programs do not offer this type of guarantee or continued support, they stand to lose repeat business from displeased owners. This is

[10] Some programs offer customer support through the use of market coordinators, also called market aggregators. Market coordinators and aggregators discuss program details with owners, tell them whom to call for each step in the process, and potentially coordinate efforts of gas and electric utilities.

especially true for owners with larger building portfolios. If they have a bad experience with one property, they may not want their other properties to participate in the program.

Program Examples

ELEVATE ENERGY

Elevate Energy is a pioneer of the one-stop shop model serving multifamily properties. Its multifamily program uses a single point of contact for program participants. The program contact follows projects and works with the customer throughout the entire project, from the initial contact to verification and reporting of project results. This model has proved very effective in gaining participation and achieving high completion rates for comprehensive retrofits.

PACIFIC GAS & ELECTRIC COMPANY (PG&E)

PG&E has a single point of contact at the utility that coordinates with both program customers and trade allies to deliver multifamily programs. PG&E has several different offerings, depending of the owner's level of commitment to energy efficiency projects. This single point of contact helps customers navigate through the multiple opportunities that are available. PG&E also notes that having a single point of contact also allows them to address a building's specific project needs and is an essential part of program delivery for both customers and trade allies. PG&E continues to move forward with more comprehensive offerings as they adapt their programs to better meet customer needs. They believe that the continued use of a single contact helps them identify these needs and adjust their programs accordingly.

BAY AREA REGIONAL ENERGY NETWORK (BAYREN)

BayREN offers customized, no-cost technical assistance to help meet the specific needs of its program participants. BayREN assigns an individual analyst to walk participants through initial intake, site visit and audit, rebate reservation, and on-site quality assurance. The analyst conducts a streamlined audit and uses modified code-compliance software to estimate energy savings. BayREN has reduced the amount of required paperwork for its program. If needed, the analyst can help participants complete and submit the required paperwork. BayREN credits its technical assistance service as a driving factor for the program's participation and high completion rate.

PUBLIC SERVICE ELECTRIC AND GAS (PSE&G)

PSE&G uses a one-stop-shop model to walk owners through each step of its multifamily program. PSE&G's one-stop shop is unique as it helps customers overcome barriers associated with upfront project costs. Access to capital is a huge barrier for the multifamily sector. PSE&G provides customers with direct access to capital by offering financing to cover all upfront costs for its services, including energy audits, design assistance, bid preparation, commissioning, and construction costs. Program participants pay back a portion of the total costs over time through on-bill financing. These financing options eliminate the financial barriers that are known to limit participation. Building owners and management firms that participated in PSE&G's program have praised the streamlined process and repayment program.

TARGET BUILDING OWNERS AND MANAGERS

Program administrators may need to communicate with multiple contacts at a single property before they can enroll the property in their multifamily programs. These contacts typically include building owners, property managers, maintenance staff, and residents. Properties vary widely in their ownership, management, and operation. Some may be a single person with a single property, while others may involve a large corporation with many properties. While some programs focus on working with owners with large portfolios to achieve higher participation rates, it is also important that building owners with one or a few buildings are encouraged to participate so that their residents are not underserved by the program.

Reaching the right person or persons with program information is critical. The individual (or individuals) with the authority to make key decisions on energy efficiency improvements and program participation varies from building to building. Program administrators need to reach the people who can approve projects and commit their own resources as necessary to see the projects through completion. Several programs reported reaching property owners through their local housing trade associations, which are in place in many areas. Targeting marketing to property-owner associations can leverage these networks and help gain high participation in multifamily programs.

Examples

ARIZONA PUBLIC SERVICE (APS)

When reaching out to a property about participating in its multifamily program, APS's first contact is usually a property manager. APS must contact and meet with property managers on-site because of APS's anti-solicitation and marketing rules. The need to meet on-site with property managers means that APS program staff must be as efficient as possible when marketing their program. Otherwise, going through multiple contacts before reaching the key decision makers can greatly increase marketing costs, lengthen response times, and ultimately result in low participation rates.

On-site building managers are not always the key decision makers. APS has found that for certain types of properties, such as large regional housing companies with many properties, the building managers are not the best contacts, because they are often required to run communications up the chain of command. In these cases, such communications and associated messages can fall off and fail to reach the right decision makers. APS has found a better strategy in reaching out to regional housing companies that have a larger portfolio of buildings. By targeting decision makers at the highest level, they are able to sign up multiple properties at once and greatly increase program participation.

AUSTIN ENERGY

Austin Energy has partnerships with the Austin Apartment Association, a trade association consisting of organizations that represent and work with the rental-housing sector, and the Independent Renters and Owners Committee (IROC), a group that represents owners of multiple smaller properties. These relationships are key drivers of success for Austin Energy's multifamily program. The strong network of property managers helped Austin Energy better reach and educate owners, managers, and maintenance staff about energy

efficiency and helped build awareness of the program, especially as managers move around to various properties and companies.

In the last few years Austin Energy has also incorporated resident engagement into its outreach strategy. Austin Energy attends public events, including concerts and festivals, to talk to renters about the city's Energy Conservation Audit and Disclosure Ordinance. The ordinance requires multifamily properties within city limits to conduct an energy audit of residential units and to make results available to potential and current residents. Austin Energy aims to encourage renters to ask their building managers about their audit and Austin Energy's multifamily energy efficiency programs. Once an audit is conducted, Austin Energy can help the owner identify potential energy efficiency improvements.

EFFICIENCY VERMONT

Efficiency Vermont developed its Building Performance program and Residential Rental Property Rebate program to provide owners with incentives for the energy efficiency projects that made the most sense for their buildings. Efficiency Vermont has developed a partnership with the Vermont Apartment Owners Association, a membership organization representing building owners and landlords in Vermont. Efficiency Vermont uses its relationship with the Association to reach owners directly through publications and ads in the association's newsletter and by attending association events.

PUGET SOUND ENERGY (PSE)

PSE joined multifamily organizations and attends association meetings as a way to reach its target population for its multifamily program. PSE actively engages in association events and opportunities, such as purchasing booth space and exhibiting at association events, and submitting articles to publications published by these groups, which typically can be done at no cost.

TAILOR MARKETING AND OUTREACH TO SPECIFIC SEGMENTS OF THE MULTIFAMILY MARKET

As mentioned previously in this report, the multifamily sector is highly segmented. This segmentation occurs on many dimensions, including the following:

- Type of rental housing market (affordable and market rate)
- Building type and size (small properties, high-rises, townhouses, and large complexes)
- Type of residents (general population, seniors, students)
- Ownership (single owners of entire properties, corporate owners, local public housing authorities, individual owners of units [condos])
- Utility metering (master-metered versus individually metered buildings)

Targeting these different segments through effective marketing and outreach efforts can help program administrators better reach their multifamily customers. These efforts make potential customers aware of the programs they can participate in and generate interest in energy efficiency. A successful strategy will help decision makers see the potential cost and energy savings that energy efficiency measures can bring to their properties. Without them seeing the value of these improvements, their limited resources will be allocated to other projects. Because each segment of the market will value these improvements differently, it is

important to market to them differently and address how a program can help meet the specific needs of different segments.

Examples

DISTRICT OF COLUMBIA SUSTAINABLE ENERGY UTILITY (DCSEU)

DCSEU has dedicated teams that conduct outreach to all sectors in the District, including a team that specifically targets low-income multifamily customers. Account managers for DCSEU's Low-Income Multifamily Initiative actively search for potential projects and build relationships with decision makers in this segment of the multifamily market. DCSEU finds that targeting specific segments of the market is an effective strategy to help programs meet energy savings and participation goals. Account managers for the Low-Income Multifamily Initiative are continually working to identify best practices that make programs customer friendly and tailored to meet the needs of building owners and occupants.

BAY AREA REGIONAL ENERGY NETWORK (BAYREN)

Since the program's launch in 2013, BayREN's multifamily program has primarily targeted owners and real estate companies with large multifamily portfolios. By targeting large portfolios, BayREN can deliver its program to more buildings and reach more multifamily customers. This approach helped BayREN fill its pipeline with a large volume of units as it worked to get the program up and running in its first several years. BayREN partners with local governments to market and implement programs in each of its nine counties, which widens the program's reach. They attribute this strategy to increasing participation within the existing market-rate and affordable multifamily housing stock of varying ages, ownership structures, and sizes from 5 to 700 hundred units. BayREN continues to build relationships in the real estate community to reach more of the multifamily market.

ENERGY TRUST OF OREGON

Energy Trust of Oregon has program staff responsible for building relationships with specific sub-segments of the multifamily market: market-rate, campus living, assisted living, condos, and affordable. Energy Trust relies on business development representatives who specialize in a particular segment of the multifamily market, in addition to general market-rate properties, to market their program. The development representatives reach out directly to building owners to take a portfolio-wide approach to upgrading their properties. The business development leads guide owners throughout the process, including helping them complete applications, secure contractors, and complete any necessary post-installation verifications.

Based on a process evaluation and market research, Energy Trust has developed messaging and marketing materials that target the varying levels of decision makers as well as the different sectors of the multifamily market. Energy Trust learned that different language and information are needed to influence market-rate as opposed to affordable building owners. Energy Trust also learned that multifamily building owners, like their commercial counterparts, are motivated by earning a return on their investment and improving the value of their properties. As a result, Energy Trust's business development leads are now working with owners to get energy efficiency upgrades included in budget and capital improvement planning cycles.

PARTNER WITH STATE AND LOCAL HOUSING ORGANIZATIONS TO MARKET AND DELIVER PROGRAMS

Even though the multifamily sector is highly diverse, it is well organized, especially the affordable housing segment. There are many multifamily stakeholder organizations that help support the sector at the state and local level. These established networks are already connected to property owners, building managers, and contractors. Program administrators can partner with these organizations to leverage these existing relationships to connect with decision makers and promote their programs. In some cases, programs can also leverage funds from these partners. This is a strategy programs can use to reduce ratepayer funds while still providing energy savings. This process can increase participation in a program by increasing awareness of available services and resources. Additionally, these partnerships allow program administrators to better understand the multifamily market in their service area, including the type of equipment typically found in multifamily buildings and the challenges that local properties face.

The affordable housing segment also has a unique set of state and local organizations that program administrators can partner with to deliver programs and increase participation. Non-profit housing owners and developers typically belong to or receive support from local or regional organizations including trade associations, state housing finance agencies, state and local housing trust funds, traditional lenders, and community development financial institutions (CDFIs). In many cases these organizations can help program administrators identify projects in the pipeline for major renovations—properties typically well-suited to incorporate energy efficiency improvements—and leverage additional financing.

Examples

CENTERPOINT ENERGY AND XCEL ENERGY– MINNESOTA

A joint multifamily program with CenterPoint Energy (a gas utility) and Xcel Energy (an electric utility) conducts outreach with multifamily organizations, state agencies, and local groups and attributes this engagement as key to their program success. CenterPoint and Xcel unveiled their multifamily program at the Minnesota Multi Housing Association's (MHA) biannual conference with a presentation. They also had a booth to reach potential participants and shared information on the program and services available. As a result of this event, they recruited at least 20 participants and projects. CenterPoint and Xcel also advertise their program in MHA's monthly magazine. CenterPoint and Xcel plan to present at future conferences and remain engaged with related MHA activities and events.

ELEVATE ENERGY

Elevate Energy's multifamily program partners extensively with the local housing community, including builders groups, public housing authorities, and professional associations. Elevate Energy relies heavily on word of mouth to advertise its programs and has found that partnering with national, state, and local housing organizations is an effective marketing method. Elevate Energy attends events with the US Department of Housing and Urban Development, the state housing finance agency, and building owner association meetings. At these meetings they promote their program and get referrals for potential participants. Such relationships provide trusted messengers for program outreach. Program staff also help disseminate case studies from building owners who have completed projects through their program, provide building tours, and include features in multifamily-

related publications. In addition to providing project financing, the Community Investment Corporation, a local CDFI, has helped the program identify potential participants through its multifamily lending activities.

PUBLIC SERVICE ELECTRIC AND GAS (PSE&G)

PSE&G partnered with the New Jersey Housing and Mortgage Finance Agency (NJHMFA), the state's housing finance agency, to develop its program and to ensure it addressed the unique needs of multifamily affordable housing. The partnership with NJHMFA and its portfolio of multifamily properties continues to provide PSE&G with direct access to interested building owners and projects. There are currently more than 40 projects with over 10,000 units in the program pipeline.

AUSTIN ENERGY

Austin Energy's relationship with the Austin Apartment Association is important to its marketing strategy. The apartment industry, unlike many others, has staff that frequently move from property to property and take their experience with them. Bad experiences with energy efficiency programs can affect future business. Austin Energy strives to ensure that customers are happy with their programs to encourage repeat business. Additionally, they work with the Austin Tenants Council to help identify the low-income housing market and guide their low-income outreach.

BAY AREA REGIONAL ENERGY NETWORK (BAYREN)

BayREN partners with several housing organizations, including the local chapters of the California Apartment Association and the National Apartment Association. It also partners with affordable housing organizations, such as the East Bay Housing Organization, Non-Profit Housing, and community management associations including the Educational Community for Homeowners. These partnerships help BayREN advertise its program across several different segments of the multifamily housing market in their area. BayREN also attends expos, conferences, and monthly meetings held by these organizations and when possible, delivers presentations. Additionally, BayREN publishes articles and circulates email messages about its program to these groups.

EFFICIENCY VERMONT

Efficiency Vermont has maintained strong relationships with the non-profit affordable housing providers in the state. As a result of these relationships and outreach to architects and designers, virtually all the multifamily housing that has been built or renovated in Vermont by the non-profit community over the last 10 years has participated in Efficiency Vermont's programs.

PARTNER WITH TRADE ALLIES TO MARKET PROGRAMS

In addition to partnering with state and local housing organizations, program administrators can partner with trade allies to increase participation in a program. This not only ensures that high-quality products are delivered, but it is also useful for recruiting participants. Trade allies are contractors or other technical partners that work with program administrators to deliver energy efficiency programs. They must be familiar with the guidelines of a program and eligible measures in order to be part of the delivery; as a result, some program administrators allow only qualified contractors to deliver programs to customers.

Partnering with trade allies yields several benefits. Because the trade allies must be familiar with a program in order to deliver it, they serve as an additional resource for customers and potential customers interested in participating in a program. Additionally, trade allies typically have an established network within the multifamily sector. Program administrators can leverage these network connections to reach out to more potential customers, as well as use the trade allies to enhance their existing marketing and outreach efforts. Trade allies also benefit from this partnership because increased program participation means more business for them.

While there are clear benefits to partnering with trade allies, there may also be challenges. The partnership must align with a contractor's business model to be effective. Those trade allies that target multifamily housing are best suited to partner with multifamily energy efficiency programs as they can leverage program resources to increase their business.

Examples

NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AUTHORITY (NYSERDA)

NYSERDA relies on a network of contractors that it has created, called Multifamily Performance Partners (MPP). Owners are required to work through these partners to guide them through the program and provide the necessary technical services, which include an initial assessment or audit, development of a customized energy reduction plan, arranging necessary inspections, and verifying savings after project completion.

NYSERDA helps generate leads for partners through its Locate a Partner tool, which enables interested building owners to send out requests for information to participating service providers through one easy web form. Partners, if they are interested in the project, can then follow up directly with the building owners. The tool helps owners find partners serving their area and narrows down the list based on the type of building and level of services they provide. The website also provides information describing the number and size of the MPP projects completed by the partner.

FOCUS ON ENERGY

Both of Focus on Energy's multifamily programs in Wisconsin rely heavily on partnerships with trade allies. Focus on Energy finds that these partnerships direct customers to its programs, helping to meet participation goals. Focus on Energy staff members attend trade shows to connect with potential trade ally partners and regularly highlight these partners on their website. The trade allies they partner with range from lighting specialists to heating and cooling contractors.[11] Additionally, partnering with trade allies ensures that the program is delivering a high-quality product. The quality of products and the delivery of a program will ultimately affect future participation.

ARIZONA PUBLIC SERVICE (APS)

APS's partnership with trade allies has been critical to the success of APS's multifamily program. In 2015 APS held a day-long training workshop for interested trade allies, which included seven contractors. The workshop aimed to ensure that trade allies understand the

[11] For a full list of Focus on Energy's trade ally partners, please visit focusonenergy.com/trade-allies/find-trade-ally.

importance of consistency and quality when delivering a program and serve as another resource to reach out to potential customers. As a result, APS and its trade allies have formed mutually beneficial relationships. Trade allies can find their own projects and bring them to APS, and APS can refer participants to trade allies, providing them with more business.

DISTRICT OF COLUMBIA SUSTAINABLE ENERGY UTILITY (DCSEU)

Partnering with trade allies has been an important part of the success of DCSEU's Low-Income Multifamily Initiative. DCSEU recognized that local contractors and trade allies did not understand energy efficiency measures and the potential benefits within the multifamily market. To overcome these informational barriers, DCSEU is working to build a local workforce of energy efficiency contractors by providing energy efficiency training for their trade ally partners and walking them through DCSEU's multifamily program requirements.

PUGET SOUND ENERGY (PSE)

PSE offers contractors the opportunity to join its Contractor Alliance Network, which provides contractors with customer referrals and allows them to co-brand their services with PSE. The Network helps PSE to follow up on audits by providing owners with contractor referrals that help them coordinate bids. The three-way relationship between PSE, contractors, and owners has helped encourage owners to undertake multiple projects. In this way contractors are both the program's workforce and its sales force.

DELIVER EFFECTIVE MESSAGES THAT DEMONSTRATE CLEAR VALUE WITH ACTIONABLE GUIDANCE

Fundamental to all marketing, effective messaging is clearly important to achieving high participation in multifamily programs. Messages must convey the value of energy efficiency improvements for property owners and their residents. Such value must be expressed in meaningful, clear, and convincing language, not technical jargon. Investments and changes to properties must yield benefits to owners that they value enough to make the investments and implement selected energy efficiency measures. While energy savings and associated energy cost reductions are the primary benefits typically marketed by programs, there are many nonenergy benefits that result from such improvements (Cluett and Amann 2015). Elevate Energy's participants have expressed that these nonenergy benefits can occasionally be as or more important than energy and cost savings.

These benefits include the following:

- Participant benefits
    - Reduced maintenance costs
    - Improved appliance and equipment performance and lifespan
    - Greater property value
    - Increased building durability
    - Increased resident comfort, health, and safety
    - Increased tenant retention and reduced tenant turnover
    - Competitive advantages in real estate markets from low energy costs and associated green building attributes
    - Preparation for future changes such as economic fluctuations, volatile fuel prices, and new building codes

- Utility benefits
    - Reduced arrearages, especially among affordable housing customers, which also leads to fewer shutoffs, reconnections, customer calls, and debt collection actions
- Societal benefits
    - A positive impact on local economies from reduced energy costs for multifamily residents
    - Reduced dependence on government aid from lower energy costs for low-income households
    - Meeting state energy savings and emissions reductions goals helped by energy saved by multifamily energy efficiency programs

In addition to the multiple benefits of energy efficiency, messages need to include actionable guidance—clear steps to learning more about program services and information on how to enroll.

The one-stop-shop program model discussed earlier is an effective way to reach and engage customers. A single call or message can establish that critical first contact with a program needed to access program services and help guide customers through the processes needed to implement energy efficiency improvements to their properties. Generally this process begins with an energy audit or assessment of specific energy efficiency opportunities for an interested customer's property. The results of such analyses and recommendations should be presented clearly and concisely in language and terms that are familiar and understandable to the customer. This may vary by the type of customer. The options and course of action should be spelled out in a clear, detailed manner, and the technical content must be accurate and thorough. Baltimore Gas and Electric (BG&E) finds that conducting a quick, one-hour audit and presenting a list of lighting and other simple measures is an effective way to create customer interest and guide customers through the beginning of the program. After customers see the value of these simpler measures, BG&E then conducts a more in-depth audit that leads to the recommendation of more comprehensive measures that result in deeper energy savings.

Case studies of properties similar to those of prospective program participants are an additional means of demonstrating the value of improvements and providing endorsements from satisfied customers. Multifamily real estate markets are very competitive in many cities and areas. If property owners improve their buildings as a result of participation in available programs, they can gain a competitive advantage (Kolstad 2015). As a result, other property owners will be drawn into available programs to remain competitive. Most leading multifamily programs provide some type of case studies, whether online or printed, as part of their marketing materials to multifamily owners.

Examples

ELEVATE ENERGY

Elevate Energy identifies two essential steps in delivering energy efficiency programs to its affordable multifamily customers. Program staff must physically visit a building site, conduct an energy assessment, and then present a building energy report with construction and financing wraparound services. The report includes recommended improvements and

estimated costs and savings. They also direct potential customers to sources of incentives, grants, and low-cost loans. In a small survey of its customers, Elevate found that 88% of them found assessment reports to be useful. By providing these assessments, program staff display their understanding of a building's energy needs and Elevate Energy's technical expertise. Although these steps may help increase the number of customers served by energy efficiency programs, they require program staff and resources. Program administrators are challenged with balancing how they allocate their limited resources, ensuring that they focus both on new assessments and moving key construction projects forward.

NYSERDA

NYSERDA provides case studies for potential customers that demonstrate the value of energy efficiency but takes an additional step that has proven very effective. NYSERDA offers an online tool that enables interested owners to create a map of all completed projects in a given area. The map shows building owners how many buildings in their market are receiving upgrades with associated project and building data. This helps build competitive pressure among property owners and provides concrete examples of projects that are likely similar to those of prospective customers interested in the NYSERDA program.

ENERGY TRUST OF OREGON

Like many programs, Energy Trust of Oregon provides walk-through surveys of multifamily properties to provide owners and managers with reports on beneficial opportunities. The survey and resulting report are designed to be user-friendly and straightforward. After this initial contact, Energy Trust's business development team provides continuous engagement with building owners to guide them through the process of making energy efficiency improvements.

Areas for Further Research

While we know that the combination of the right program elements with sufficient program funding can benefit thousands of customers, participation data do not tell us the number of participants benefiting from direct-install versus comprehensive measures. These data are ultimately needed to assess the extent to which programs are adequately serving multifamily customers.

More data are also needed to assess how participation relates to the existing demand for a program. While some programs reported having to turn potential participants away because of a limited budget, few program administrators keep these customers on a waiting list or record the number who wish to but are unable to participate in a program. It is important to track this information so that program budgets may be expanded to allow for more participants in future program cycles.

Finally, we found that many utilities remain largely unaware of the total number of eligible multifamily customers in their service areas. This is a problem for both utilities and their multifamily customers. Without knowing the total number of eligible units, it is difficult to assess if they are adequately serving this sector. This is especially true for many of the sub-segments of this market, including affordable multifamily customers who may face heightened barriers to program participation and yet have a high need for energy efficiency

improvements. We will continue to collect data and try to fill some of these gaps, allowing us to build a more complete understanding of how well energy efficiency programs are reaching their multifamily customers.

Conclusions

While a number of programs only serve around 1% of their multifamily customers per year, successful programs are reaching 10–26% of their eligible customer base. The programs achieving higher participation offer a mix of direct-install measures and incentives and rebates to encourage more comprehensive retrofits. On a cumulative basis, some programs report reaching a quarter to more than half of their multifamily customers, although some of these programs may be counting repeat customers. While budget plays a role in the number of customers served, our research revealed that energy efficiency programs have expanded their efforts to reach more of their multifamily customers over the past decade. While program administrators did not acknowledge financing as a key barrier to participation, we expect that as programs expand and offer more comprehensive measures, the provision of financing for upfront project costs will likely play a greater role in program participation. A few programs surveyed in this report provide low-cost financing to building owners or work with a third party to do so and describe this strategy as key for participation and achieving deeper savings across buildings.[12]

We identified several best practices that can lead to high program participation. We found that programs need to be simple and streamlined in order to encourage participation. Successful programs offer a variety of common and in-unit measures and are designed to move participants from direct-install measures to more comprehensive projects that strive to achieve deeper energy savings. Programs need to be marketed to key decision makers with effective messages and actionable information, such as the identification of energy efficiency improvements that would be most effective for a particular building. Messaging is also important. These efforts need to be designed to reach multifamily customers in all segments of the community, allowing them to understand what offerings might be available to them and the value (both energy savings and nonenergy benefits) to them and their residents. Programs should also attempt to partner with housing organizations and trade allies. These groups often have existing relationships with the multifamily community that can be leveraged by the utility. Oftentimes these partnerships turn out to be mutually beneficial. With these fundamental program elements in place, multifamily programs are poised to reach and serve the greatest number of customers.

Overall, more program administrators are engaging in outreach efforts to identify the needs of the multifamily community and connecting with the necessary stakeholders to deliver energy efficiency in this sector. Successful programs have incorporated best-practice strategies and filled a steady pipeline of projects. While some program administrators have improved their programs to reach more of their multifamily customers, some sectors remain underserved. This is especially true for the harder-to-reach segments of the market, such as

[12] BayREN, Elevate Energy, Energy Trust of Oregon, APS, National Grid MA, and PSE&G offer or connect participants to project financing.

affordable multifamily buildings. Because many programs do not track participation by segment, we often do not know how well a program reaches the affordable multifamily segment or other segments.

Our research also revealed the limited and inconsistent data on program participation and related metrics for multifamily programs. Better data, consistent metrics, and increased understanding of program participation are needed to better inform program planning, development, implementation, and evaluation of multifamily energy efficiency programs. A better understanding of multifamily participation can also be used for setting and achieving program goals. In states where utilities are required to implement all cost-effective energy efficiency, for example, high program participation is vital to achieving that goal.

The research presented in this report, and supported by previous ACEEE research, shows that multifamily energy efficiency programs can be and are successful in serving high numbers of multifamily customers, while achieving large energy savings. ACEEE will continue to conduct research, identify best practices, and recommend strategies to consistently help improve multifamily energy efficiency programs. In doing so, more multifamily customers across all segments of the market will have the opportunity to experience the many benefits energy efficiency has to offer.

References

Austin Energy. 2015. *Customer Energy Solutions Program Progress Report 2014-2015*. Austin: City of Austin. austinenergy.com/wps/wcm/connect/3c27e063-b577-4a6f-835a-4338db2c1401/5-7-15+CES+Spreads+ReportReduced.pdf?MOD=AJPERES.

Cadmus Group. 2015. *Focus on Energy Calendar Year 2014 Evaluation Report: Volume II*. Madison: Public Service Commission of Wisconsin. focusonenergy.com/sites/default/files/Focus Evaluation Report 2014 - Volume II3.pdf.

Census Bureau. 2015. "American Housing Survey 2013 Metropolitan Public Use File." Accessed November 12. www.census.gov/programs-surveys/ahs/data/2013/ahs-2013-public-use-file--puf-/2013-ahs-metropolitan-puf-microdata.html.

CenterPoint Energy. 2014. *CenterPoint Energy's 2013 Conservation Improvement Program Status Report, 2013 Demand-Side Management Financial Incentive, Conservation Improvement Program Tracker Report and 2013 Conservation Cost Recovery Adjustment Aggregated Compliance Filing*. St. Paul: Minnesota Public Utilities Commission.

Cluett, R., and J. Amann. 2015. *Multiple Benefits of Multifamily Energy Efficiency for Cost-Effectiveness Screening*. Washington, DC: ACEEE. aceee.org/multiple-benefits-multifamily-energy-efficiency.

Consumers Energy. 2015. *2014 Energy Optimization Annual Report*. Lansing: Michigan Public Service Commission. c.ymcdn.com/sites/www.aesp.org/resource/resmgr/Consumers_Energy_2014_Energy.pdf.

DCSEU (District of Columbia Sustainable Energy Utility). 2014. *The Model City for Sustainability: Annual Report 2014*. Washington, DC: DCSEU. www.dcseu.com/docs/DCSEU-AnnualReport14-FinalWeb.pdf.

Efficiency Vermont. 2015. *Annual Report 2014*. Burlington: Efficiency Vermont. www.efficiencyvermont.com/Media/Default/docs/plans-reports-highlights/2014/efficiency-vermont-annual-report-2014.pdf.

Elevate Energy. 2014. *Valuing the Financial Benefits of Energy Efficiency in the Multifamily Sector*. Chicago: Elevate Energy. www.elevateenergy.org/wp/wp-content/uploads/Valuing-Financial-Benefits-of-Energy-Efficiency-in-Multifamily-Sector.pdf.

——. 2015. *2014 Annual Report*. Chicago: Elevate Energy. www.elevateenergy.org/prod/httpdocs/wp/wp-content/uploads/ElevateEnergyAnnualReport-2014.pdf.

Energy Trust of Oregon. 2015. *2014 Annual Report to the Oregon Public Utility Commission & Energy Trust Board of Directors*. Portland: Energy Trust of Oregon. assets.energytrust.org/api/assets/reports/PAR_2014.pdf.

Henderson, P. 2015. *Program Design Guide: Energy Efficiency Programs in Multifamily Affordable Housing*. Washington, DC: Energy Efficiency for All. energyefficiencyforall.org/sites/default/files/EEFA PROGRAM GUIDE.pdf.

Johnson, K. 2013. *Apartment Hunters: Programs Searching for Energy Savings in Multifamily Buildings.* Washington, DC: ACEEE. aceee.org/research-report/e13n.

Johnson, K., and E. Mackres. 2013. *Scaling Up Multifamily Energy Efficiency Programs: A Metropolitan Area Assessment*. Washington, DC: ACEEE. aceee.org/research-report/e135.

Joint Center for Housing Studies of Harvard University. 2015. *The State of the Nation's Housing*. Cambridge: Harvard University. www.jchs.harvard.edu/sites/jchs.harvard.edu/files/jchs-sonhr-2015-full.pdf.

Kolstad, L. 2015. *High-Performance Buildings and Property Value: A Primer for Lenders*. Washington, DC: Institute for Market Transformation. www.imt.org/uploads/resources/files/LenderGuide_FINAL.pdf.

McKibbin, A. 2013. *Engaging as Partners: Introducing Utilities to the Energy Efficiency Needs of Multifamily Buildings and Their Owners*. Washington, DC: ACEEE. aceee.org/research-report/e137.

McKibbin, A., A. Evens, S. Nadel, and E. Mackres. 2012. *Engaging as Partners in Energy Efficiency: Multifamily Buildings and Utilities*. Washington, DC: ACEEE. aceee.org/research-report/a122.

National Grid. 2015a. *Boston Gas Company and Colonial Gas Company 2014 Energy Efficiency Plan-Year Report*. Boston: Commonwealth of Massachusetts Department of Public Utilities. ma-eeac.org/wordpress/wp-content/uploads/National-Grid-Gas-2014-Plan-Year-Report.pdf.

——. 2015b. *Massachusetts Electric Company and Nantucket Electric Company Energy Efficiency Plan-Year Report*. Boston: Commonwealth of Massachusetts Department of Public Utilities. ma-eeac.org/wordpress/wp-content/uploads/National-Grid-Electric-2014-Plan-Year-Report.pdf.

——. 2015c. *National Grid Electric and Gas Energy Efficiency Programs 2014 Year-End Report*. Warwick: Rhode Island Public Utilities Commission. www.ripuc.org/eventsactions/docket/4451-NGrid-Year-End-Rept(5-1-15).pdf.

NMHC (National Multifamily Housing Council). 2015a. "Apartment Household Incomes in the Previous Year." nmhc.org/Content.aspx?id=4708.

——. 2015b. "NMHC 50 Largest Apartment Managers." Accessed April 20. nmhc.org/Top50List.aspx?year=2015&list=manager.

Nowak, S., M. Kushler, and P. Witte. 2014. *Successful Practices in Combined Gas and Electric Utility Energy Efficiency Programs*. Washington, DC: ACEEE. aceee.org/research-report/u1406.

Puget Sound Energy. 2015. *Energy Efficiency: 2014 Annual Report of Energy Conservation Accomplishments*. Bellevue, WA: Puget Sound Energy. www.utc.wa.gov/_layouts/CasesPublicWebsite/GetDocument.ashx?docID=77&year=2013&docketNumber=132043.

Research Into Action and Wirtshafter Associates. 2014. *Multifamily Performance Program Process Evaluation and Market Characterization Final Report*. Albany: NYSERDA (New York State Energy Research and Development Authority). www.nyserda.ny.gov/-/media/Files/Publications/PPSER/Program-Evaluation/2014ContractorReports/2014-MPP-Process-Evaluation.pdf.

Xcel Energy. 2015a. *2016 Minnesota Electric and Natural Gas Conservation Improvement Program*. Minneapolis: Xcel Energy. www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId=%7B38C034EC-1514-422B-B87E-FF4331B2F076%7D&documentTitle=20156-110991-01.

——. 2015b. *Demand-Side Management Annual Status Report: Electric and Natural Gas Public Service Company of Colorado*. Denver: Public Service Company of Colorado. swenergy.org/Data/Sites/1/media/documents/news/news/file/Xcel 2014 DSM Annual Report-2.pdf.

York, D., M. Neubauer, S. Nowak, and M. Molina. 2015. *Expanding the Energy Efficiency Pie: Serving More Customers, Saving More Energy through High Program Participation*. Washington, DC: ACEEE. aceee.org/research-report/u1501.

Appendix A. Multifamily Program Data

Table A1. Multifamily program data summary

Multifamily program	Program year	Annual budget (Marketing budget in parentheses)	Annual participation (no. of units unless otherwise noted)	Total number of eligible units (% served annually in parentheses)	Cumulative participation (no. of units) (Timeframe: % served in parentheses)	First- year incremental energy savings (kWh or therms) (Goal in parentheses)	Average per unit energy savings (Based on first-year incremental energy savings)
Arizona Public Service (APS) Multifamily Energy Efficiency Program	2014	$1,372,799 ($8,871)	15,046	219,412 (6.9%)	45,000 (2010–2015: 20.5%)	7,594,000 kWh (N/A)	485 kWh/unit
Austin Energy Multifamily Rebate Program Multifamily Energy Reduction Partners	2014	$3,700,509 ($105,000)	17,273	206,410 (8.4%)	86,000[1] (2004–2014: 41.7%)	22,105,000 kWh (N/A)	1,280 kWh/unit
Baltimore Gas & Electric (BG&E) Multifamily Low-Rise	2014	$1,651,434 (N/A)	10,838	83,028 (13.1%)	115,279[2] (2011–2016: 138.8%)	4,754,000 kWh (N/A)	439 kWh/unit
Bay Area Regional Energy Network (BayREN) Bay Area Multifamily Building Enhancements*	2015	$9,003,227 ($146,339)	7,512	700,000 (1.1%)	15,896 (2013–2015: 2.3%)	3,759,000 kWh 247,000 therms (1,300,000 kWh 150,000 therms)	500 kWh/unit 33 therms/unit
CenterPoint Energy (MN) Low-Income Multifamily Building Rebate Project	2013	$67,956 (N/A)	1,839	310,158 (0.6%)	N/A	59,310 therms (270,000 therms)	32 therms/unit

Multifamily program	Program year	Annual budget (Marketing budget in parentheses)	Annual participation (no. of units unless otherwise noted)	Total number of eligible units (% served annually in parentheses)	Cumulative participation (no. of units) (Timeframe: % served in parentheses)	First- year incremental energy savings (kWh or therms) (Goal in parentheses)	Average per unit energy savings (Based on first-year incremental energy savings)
CenterPoint Energy & Xcel Energy (MN) Low-Income Multi-family Building*	2015	$578,375 ($5,000)	1,013 (estimate)	98,000 (1.0%)	N/A	N/A (535,241 kWh 4,893,000 therms)	N/A
Con Edison Multifamily Energy Efficiency Program Multifamily Low Income Program	2015	$12,000,000 ($325,000)	38,800	2,380,000 (1.6%)	100,000 (2010–2015: 4.2%)	15,200,000 kWh 2,000,000 therms (N/A)	392 kWh/unit 52 therms/unit
Consumers Energy Residential Multifamily Program Business Multifamily Program	2014	$6,797,347 (N/A)	N/A	579,534 (N/A)	N/A	7,883,000 kWh 1,655,130 therms (6,541,000 kWh 1,752,800 therms)	N/A
District of Columbia Sustainable Energy Utility (DCSEU) Low-Income Multifamily Initiative	2014	$4,385,843 (N/A)	3,245	65,000 (5.0%)	N/A	3,873,000 kWh 64,390 therms (N/A)	1,194 kWh/unit 20 therms/unit
Efficiency Vermont Multifamily New Construction and Retrofit Low Income Multifamily New Construction and Retrofit	2014	$934,810 (N/A)	1,724	32,963 (5.2%)	7,182 (2012–2014: 21.8%)	1,295,000 kWh (N/A)	751 kWh/unit

Multifamily program	Program year	Annual budget (Marketing budget in parentheses)	Annual participation (no. of units unless otherwise noted)	Total number of eligible units (% served annually in parentheses)	Cumulative participation (no. of units) (Timeframe: % served in parentheses)	First- year incremental energy savings (kWh or therms) (Goal in parentheses)	Average per unit energy savings (Based on first-year incremental energy savings)
Elevate Energy Multifamily Program	2008–2016	$8,726,497 (N/A)	N/A	554,000 (N/A)	56,933 (2008–2016: 10.3%)	Cumulative: 15,801,500 kWh 5,834,400 therms (N/A)	N/A
Energy Trust of Oregon Existing Multifamily Program (DI only)	2014	$4,687,878 Incentives only (N/A)	28,310	229,000 (12.4%)	N/A	21,589,502 kWh 348,356 therms (N/A)	763 kWh/unit 12 therms/unit
Focus on Energy (WI) Multifamily Energy Savings Program	2014	$2,083,723 ($19,908)	829 projects	395,843 (N/A)	10,540 projects (2005–2015)	9,023,305 kWh 426,322 therms (9,054,829 kWh 310,162 therms)	N/A
Focus on Energy (WI) Multifamily Direct Install Program	2014	$805,441 (N/A)	4,750	395,843 (1.2%)	90,000+ (2005–2015: 22.7%)	2,504,195 kWh 175,515 therms (2,778,087 kWh 170,665 therms)	527 kWh/unit 37 therms/unit
Hawaii Energy Energy Saver 4 Homes*	2014	$200,000 (N/A)	1,767	155,864 (1.1%)	1,767 (2014)	N/A	N/A
National Grid (MA) Residential Multi-family Retrofit Low-Income Multi-family Retrofit	2014	$44,023,522 ($459,301)	54,198	339,698 (16.0%)	N/A	30,147,000 kWh 1,569,535 therms (14,369,000 kWh 550,088 therms)	556 kWh/unit 29 therms/unit

Multifamily program	Program year	Annual budget (Marketing budget in parentheses)	Annual participation (no. of units unless otherwise noted)	Total number of eligible units (% served annually in parentheses)	Cumulative participation (no. of units) (Timeframe: % served in parentheses)	First- year incremental energy savings (kWh or therms) (Goal in parentheses)	Average per unit energy savings (Based on first-year incremental energy savings)
National Grid (RI) EnergyWise Multifamily Income Eligible Multifamily	2014	$7,697,800 (N/A)	19,867	76,419 (26.0%)	N/A	11,745,000 kWh 382,000 therms (8,968,000 kWh 260,800 therms)	591 kWh/unit 19 therms/unit
New York State Energy Research and Development Authority (NYSERDA) Multifamily Performance Program Low-Income Multifamily Performance Program	2005–2012	2012: $34,363,235 ($1,718,163)	N/A	2,526,919 (N/A)	163,638 (2005–2012: 6.5%)	38,356,000 kWh 7,193,220 therms (N/A)	N/A
Pacific Gas & Electric (PG&E) Multifamily Energy Efficiency Rebates Program California New Homes Multifamily	2013	$4,676,602 ($71,095)	N/A	N/A	N/A	3,416,544 kWh 335,920 therms (N/A)	N/A
Public Service Electric and Gas (PSE&G) Multifamily Energy Efficiency Program	2011–2015	$38,089,688 (N/A)	N/A	500,000 (N/A)	11,000+ (2011–2015: 2.2%)	Cumulative: 9,218,054 kWh 2,011,137 therms (N/A)	N/A

Multifamily program	Program year	Annual budget (Marketing budget in parentheses)	Annual participation (no. of units unless otherwise noted)	Total number of eligible units (% served annually in parentheses)	Cumulative participation (no. of units) (Timeframe: % served in parentheses)	First- year incremental energy savings (kWh or therms) (Goal in parentheses)	Average per unit energy savings (Based on first-year incremental energy savings)
Puget Sound Energy (PSE) Multifamily Existing	2014	$13,697,885 (N/A)	31,000	245,000 (12.7%)	157,585 (elec) 16,479 (gas) (2006–2016: 64.3%)	24,524,000 kWh 113,684 therms (20,446,000 kWh 104,272 therms)	791 kWh/unit 4 therms/unit
Xcel Energy (CO) Multifamily Weatherization	2013	$1,317,835 ($208)	51 projects	N/A	N/A	1,900,000 kWh 102,420 therms (N/A)	N/A

* New or pilot program. [1] This number does not include units served by Austin Energy that are outside of the city limits, or properties that qualify for the multifamily program but do not meet the Texas Land Development Code such as contiguous duplex and triplex units that are owned or managed by the same person or company. [2] BG&E allows multifamily customers to participate in its program multiple times. Because some customers participate in the program more than once, the program's cumulative participation is greater than the number of eligible units in its service territory.
Sources: Austin Energy 2015; Cadmus Group 2015; CenterPoint Energy 2014; Consumers Energy 2015; DCSEU 2014; Efficiency Vermont 2015; Elevate Energy 2015; Energy Trust of Oregon 2015; National Grid 2015a; National Grid 2015b; National Grid 2015c; Puget Sound Energy 2015; Research Into Action, Inc. and Wirtshafter Associates, Inc. 2014; Xcel Energy 2015a; Xcel Energy 2015b; data requests.

Appendix B. Program Administrator Survey

Background information

1. Utility name
2. Contact information (name, email, phone)
3. Electric or gas utility
4. Is your service area primarily urban, suburban, or mixed?
5. Do you have a program that serves multifamily customers?
6. What is the name of your program that serves multifamily customers?
7. Is your program specifically targeted at multifamily customers?
8. How many units must a building have for it to be considered multifamily?
9. What type of properties does your program target?
10. If income-eligible, please explain the eligibility requirements.
11. Do you have any additional requirements for program eligibility (e.g., renter- or owner-occupied status, age of building)? Please explain.

General program information

1. What year was your program launched?
2. Program spending (most recent year, previous year). Please note whether these amounts reflect actual or budget.
    a. Total
    b. Marketing and outreach
    c. Incentives
    d. EM&V
    e. Other (e.g., technical assistance, support services)
    f. Administration and planning costs:
3. Program savings (most recent year, previous year)
    a. Projected savings
    b. Actual savings
    c. Modeled or deemed
4. Cumulative savings
    a. Time frame
    b. Savings
    c. Modeled or deemed
5. How is your program delivered (contractor, trade ally, utility)?
    a. Please describe your delivery model.
6. Do you provide a one-stop shop for building owners to access integrated program services? If so, please explain.
7. Program elements (Select from the dropdown lists)
    a. Element 1 (direct install, comprehensive, both, n/a)
    b. Element 2 (new construction, retrofit, both, n/a)
    c. Element 3 (low-rise, high-rise, both, n/a)
    d. Element 4 (simple retrofit, comprehensive retrofit, both, n/a)
    e. Element 5 (rate based, prescriptive)
    f. If other, please specify.

8. What type of offerings are included in your program (e.g., common area lighting, HVAC, appliances)? Please explain.
9. Does your program have audit requirements? If so, please describe.
10. Does your program provide incentives to conduct audits? If so, please describe.
    a. Incentive value
11. Does your program have minimum improvement requirements?
12. Does your program provide lending or financing mechanisms? If so, please explain.
13. Do you have any additional comments about your program offerings? If so, please explain.

Participation indicators

1. Who are the target customers for your program?
2. What is the total number of multifamily customers eligible to participate in your program?
    a. Units
    b. Buildings
3. Do you target any specific market segments (e.g., building portfolios, government-owned and operated housing, older buildings)?
4. Did you set a goal for participation in your program (most recent year, previous year)? If so, please list.
    a. Number of units
    b. Number of individual buildings
5. What is the annual participation of your program (most recent year, previous year)?
    a. Number of units
    b. Number of individual buildings
6. What is the cumulative participation of your program?
    a. Time frame
    b. Number of units
    c. Number of individual buildings
7. Do you break down participation by market segment (for example, some utilities conduct market segmentation based on age of building, type of ownership, or property or portfolio size)? If so, please provide participation by segment.
8. What factors do you believe contribute to high participation in this program?
9. What factors do you believe hinder high participation in this program?
10. Do you have any additional comments about participation in your program?

Marketing and outreach

1. Please describe the marketing and strategies that your program uses to reach program participants.
2. Do you use marketing material to promote your program? If so, please include them as an attachment on your email with this completed data request form.
3. Does your utility partner with any local multifamily housing organizations? If yes, please list the partners and describe the partnerships.
4. Does your utility partner with any state agencies to better serve the multifamily sector? If yes, please list your partners and describe the partnerships.

5. What ideas do you have for ways to increase participation in your multifamily programs?
6. Do you have any additional comments about your program's marketing and outreach strategies?

Other

1. Please provide, if available, the most recent program evaluation or annual report as an attachment or link.
2. Would you like your program to be highlighted in the final report?

Appendix C. Data Request Respondents and Interviewees

Table C1. Respondents to data requests and interviewees

Utility	Primary utility data request respondent or interviewee
Arizona Public Service	Christopher Baggett Program Manager, Marketing Programs
Austin Energy	Jaime D. Gómez Rebate Program Coordinator Energy Efficiency Services Power Saver Program - Multifamily Rebates
Baltimore Gas & Electric	Amey Bayes Project Manager
Bay Area Regional Energy Network	Candis Mary-Dauphin Program Manager StopWaste
Con Edison	Philip Madnick Manager of Multifamily Programs
Consumers Energy	Jennifer Binkley-Power Program Manager Energy Efficiency Solutions
CenterPoint Energy	Nick Mark Manager Conservation & Renewable Energy Policy
District of Columbia Sustainable Energy Utility	Jogchum Poodt Multifamily Program Manager
Elevate Energy	Peter Ludwig Director of Building Retrofits
Energy Trust of Oregon	Kate Scott Manager Multifamily Program
Focus on Energy	Brody Vance Multifamily Product Manager Franklin Energy
Hawaii Energy	Caroline Carl Residential Program Manager Leidos
National Grid	Elizabeth Terry Program Manager
Pacific Gas & Electric	Karen Contreras Program Manager Multifamily Program

Utility	Primary utility data request respondent or interviewee
Public Service Electric & Gas	Rachael P. Fredericks Manager Multifamily Energy Efficiency Program
Xcel Energy	Anne Kraft Product Developer