Bringing Multifamily Buildings to the Efficiency Dance: Revelations from a Study of Owners and Operators

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ABSTRACT

The multifamily building sector has long been challenging for energy efficiency programs due to split incentives, competing priorities among busy decision-makers, and a diffuse market with some large market actors and many small ones. At the same time, studies point to unrealized potential for energy savings, and advocates call for increased activity and funding in this sector. Ultimately, program offerings will be adopted only if building owners and operators find them enticing enough to invest their time, attention, and facility budgets.

Southern California Edison, Southern California Gas Company and San Diego Gas & Electric commissioned a study to address questions on what decision makers are looking for in a multifamily energy efficiency program and what would spur them to participate. The study included a telephone survey of multifamily rebate program past participants and in-depth interviews with decision makers for large portfolios of multifamily buildings. Both investigated motivations behind past building upgrades, measure needs, interest in training, reactions to selected best practices for multifamily programs, and what multifamily decision makers value and do not value in current program approaches.

As many states are looking to energy efficiency program portfolios to meet policy goals, multifamily buildings and other sectors with relatively greater remaining energy savings potential are gaining strategic importance. The research presented here highlights the value of approaching program interactions with multifamily decision-makers as an on-going relationship and the need for information (in various forms) and feedback about savings opportunities to owners and operators.

Introduction

Multifamily buildings are widely recognized as a hard-to-reach market for energy efficiency programs. Split incentives, whereby those who fund building upgrades are not those who benefit from most of the operational cost savings, weaken the incentive for building owners and operators to improve efficiency. Plus, many building operators wear many hats and have only limited time to think about energy efficiency. Those with smaller properties may function simultaneously as the investor, accountant, leasing office staff, facility staff, and around-the-clock contact for equipment failures or tenant complaints. Long-term building upkeep and investment has to fit within a host of pressing day-to-day concerns, and energy efficiency is just one consideration among many when regarding building upkeep and improvements. Property management firms and larger portfolio owners also keep busy, but they contrast from smaller properties in their ability to assign dedicated staff to the various roles that need to be filled.

Nevertheless, multifamily buildings are an important opportunity for energy efficiency programs. About one in four dwellings nationwide are in multifamily buildings. The fact that they are distributed widely among smaller buildings makes them challenging to reach. In fact, about two-thirds of multifamily units nationwide are in buildings of 20 units or fewer (NRDC 2015).

As noted by the American Council for an Energy-Efficient Economy (ACEEE), the US Census Bureau shows a diverse landscape among small and large buildings, owners and renters, and subsidized and market rate housing within the multifamily sector (Figure 1).

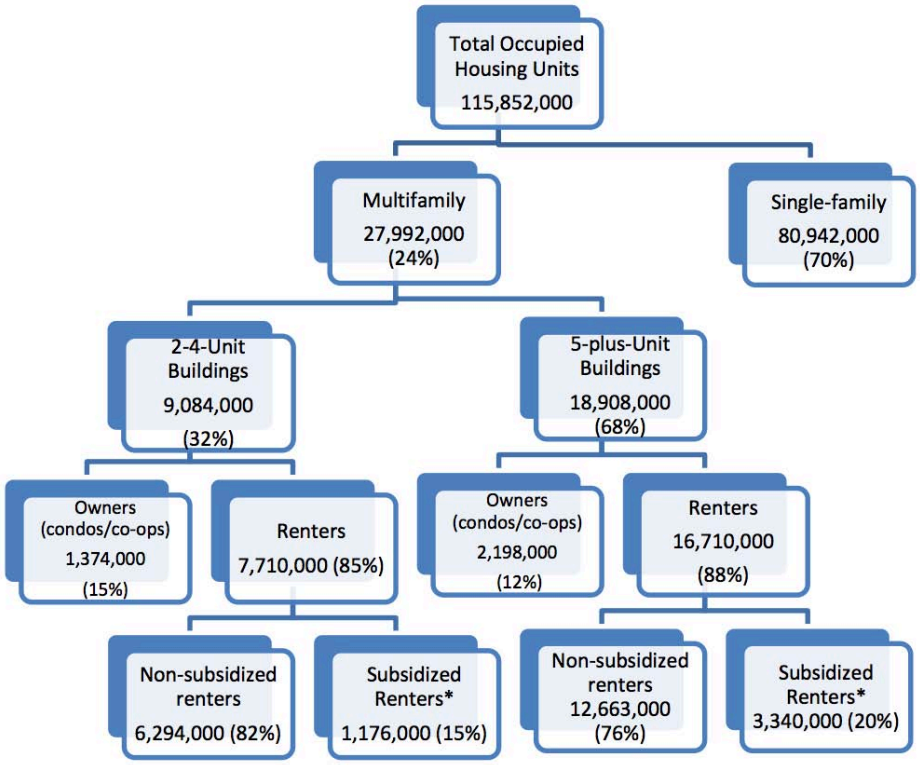

Figure 1. Segments of the multifamily market. Percentages are the share of properties from the immediately-preceding tier. Figure excludes minor categories and groupings. *Source*: Ross, Jarrett, and York 2016 (citing US Census data for 2015).

*Renters who reside in a building owned by a local public housing authority or those that receive a government subsidy toward their rent.

Background and Context

This paper is based on research conducted in 2016 for Southern California's investor-owned utilities (IOUs) to help inform the evolution of their energy efficiency programs for the multifamily sector. Specifically, we draw upon insights gained during in-depth interviews of decision-makers for large portfolios of multifamily buildings in Southern California and during a survey of participants in the IOUs' entry-level energy efficiency program[1] for owners and operators of multifamily buildings of all sizes and types (including affordable housing and market rate properties). The broader study also included program manager workshops, a literature review, a focus group with contractors, an investigation into efficiency opportunities among common area laundry facilities, and an examination of training opportunities for multifamily building operators (Evergreen Economics 2017).

The multifamily programs offered by Southern California's IOUs—Southern California Edison, Southern California Gas Company, and San Diego Gas & Electric—already covered a range of efficiency

[1] This program is called the Multifamily Energy Efficiency Rebate Program, and is administered separately by each of the three Southern California IOUs alongside a family of complementary offerings that specialize in whole-building upgrades, low-income tenants, and moderate-income renters. Participating property types include traditional private investors, building owners who concentrate on affordable housing, and public and non-profit owners of rent-supported buildings.

services to multifamily owners, operators, and tenants. Separate programs offered direct install and rebated efficiency measures for units and common areas, incentives for whole-building retrofits, and services for low-income and moderate-income tenants. A goal in conducting this research was to inform the programs' evolution toward a better integrated package for customers that would provide a single point of contact and embody other best practices identified in the literature (Natural Resources Defense Council 2015).

Figure 2 illustrates the Southern California IOUs' vision for the integration and holistic provision of multifamily programs graphically.

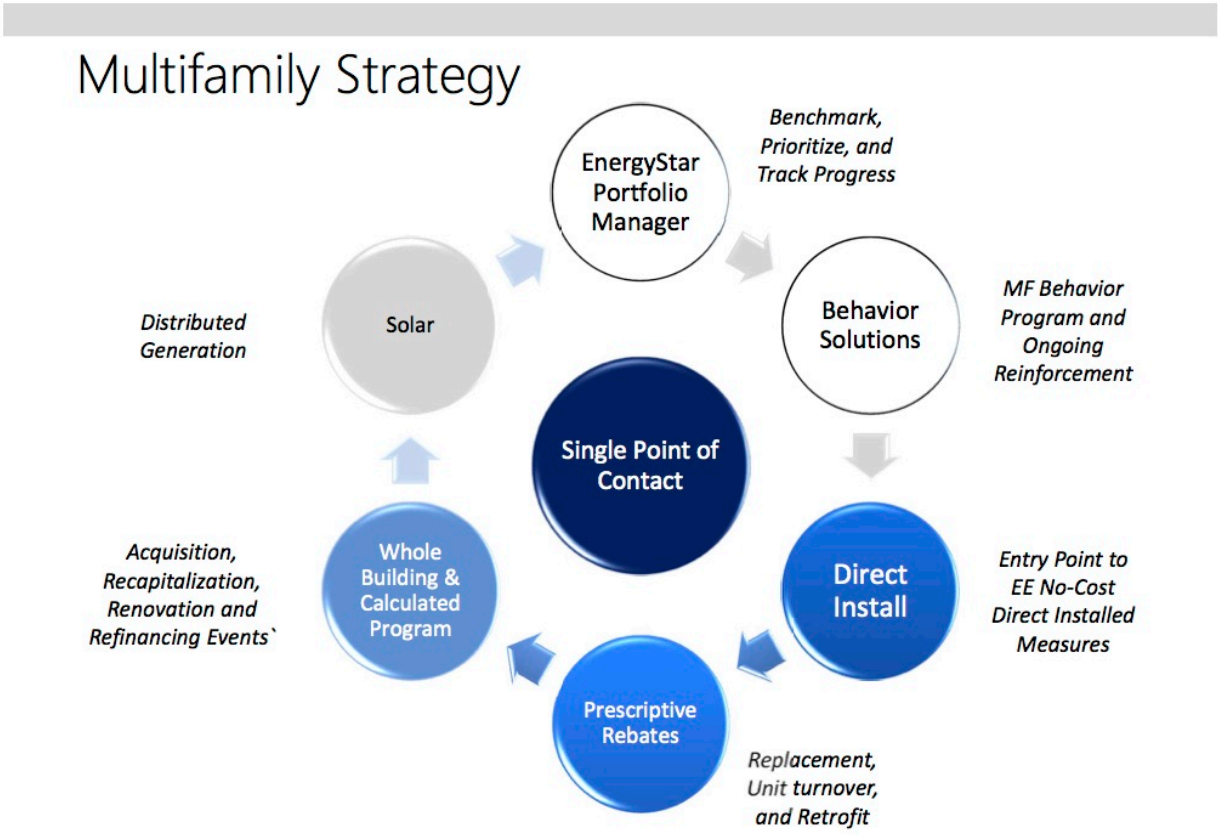

Figure 2. Southern California IOUs' Multifamily Program vision (as developed during program planning meetings in 2015).

In this paper, we present selected findings and insights from in-depth interviews of operators of large portfolios of multifamily properties in Southern California and results from a survey of participants in the Multifamily Energy Efficiency Rebate (MFEER) Program. Potential interviewees were nominated by program managers based on their knowledge of the local decision-makers for large portfolios of buildings. As a result, these interviewees (or their firms) had participated in the existing programs at some level for a share of their buildings, but they often also counted as non-participants for other buildings.[2] Their properties included Class A, B, and C properties[3] and represented a diverse set of

[2] We had intended to include non-participants, but our reliance on program managers' knowledge of their local areas resulted in nominations of partial participants instead, which we did not determine until we were in the midst of the interviews.

[3] Class A properties are newer properties with the most amenities, highest income earning tenants, and lowest vacancies, and will typically demand the highest rents with no deferred maintenance. Class B properties consist of properties built in the last

tenant mixes, including low-income, market rate, upper-income, and seniors. We conducted a total of eight in-depth telephone interviews ranging between 60 and 80 minutes each and obtained input from two others via e-mail. These interviews were conducted in a semi-structured format between May and July of 2016.

The participant survey was fielded as a mostly close-ended telephone survey[4] of primary contacts at multifamily buildings that had participated in the MFEER Program between January of 2013 and July of 2015 and received a program rebate or a no-cost direct install measure. The participants could have participated in the program offered by any of the three Southern California IOUs, but the vast majority (94%) were customers of Southern California Edison, which runs the largest of the three rebate programs. Similarly, 179 of the 195 survey respondents (92%) were customers of Southern California Edison. Figure 3 shows the range of building sizes of the participating properties included in the interview.

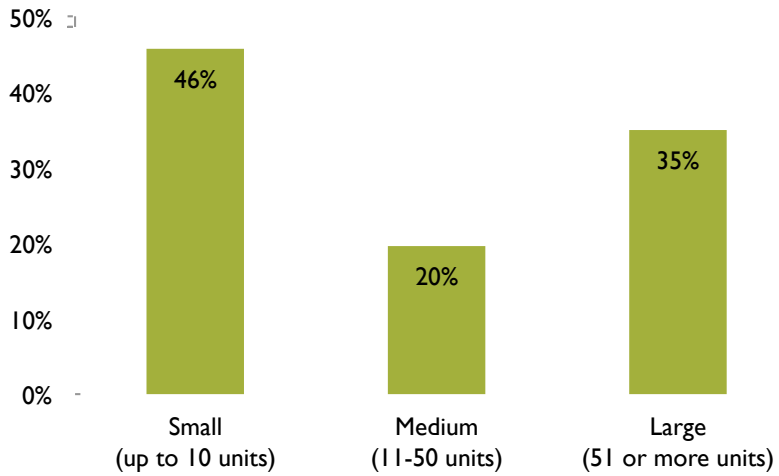

Figure 3. Property sizes of buildings served (survey respondents only, n=195).

Large Multifamily Portfolio Managers

Qualitative, in-depth interviews with a sample of operators of large multifamily portfolios (n=10) provided an opportunity to better understand a distinct segment of the multifamily market in which decision-making for many units is concentrated among a comparatively small number of individuals. The insights gained are qualitative and directional in nature, but nonetheless are useful for program design to ensure this segment of the market is well served. Due to the limited number of interviews, patterns and insights do not distinguish any market sub-segments such as low-income, market rate, senior-oriented, and luxury rental housing.

In all cases, we requested to speak with individuals most knowledgeable about energy efficiency practices and priorities of the company or property management firms we contacted. These individuals turned out to hold a variety of positions and titles, including senior director of maintenance operations

15-30 years with some amenities; rents will be a bit lower than the Class A buildings with low deferred maintenance. Class C properties are typically older properties, built 30+ years ago with much fewer amenities, if any; rents are lower than B Class buildings and usually have more deferred maintenance and a lower occupancy rate.

[4] In other words, the survey comprised questions with pre-defined answer choices rather than open-ended questions with free-form responses. These surveys lend themselves to faster completion and quantification of results when likely response options can be determined.

and energy management, buildings supervisor, purchasing director, asset management director, energy manager/property supervisor, and vice president in charge of sustainability and property services.

Decision-Making Processes

Large portfolio decision-makers we interviewed described more flexibility and subjectivity in their decision-making processes than is sometimes assumed or presented in the literature that describes a focus on sophisticated, return-on-investment calculations and requirements by business decision-makers. However, they did note a sometimes lengthy internal process that does not always coincide with sometimes quicker changes in energy efficiency program offerings.

The property owners and managers we interviewed generally do not adhere to firm project approval criteria such as maximum payback periods that cannot be exceeded. One interviewee described firm criteria to be "too limiting." When deciding which efficiency projects to complete, the following factors are typically considered: equipment cost (net after rebates or discounts), product availability, reliability, remaining budget available, opportunity cost of alternative investments, and sometimes payback period. Only one interviewee reported having a firm payback requirement (three years or less), and the others mostly described ad hoc processes where short-term and long-term project costs—accounting for energy bill savings—are compared to the remaining property budget on a case by case basis.[5]

Property site managers are often authorized to approve small retrofit projects, while higher cost projects need to be approved by regional supervisors, asset management staff, a company green team, or a group of company owners and/or executives. The process varies considerably depending on the company or agency size, organizational structure, culture, and staff experience levels. Some organizations have more hierarchical processes, whereas others rely on a small cadre of experienced property managers to quickly review and approve projects. Some organizations claimed that all or most of their on-site property managers are well informed about energy efficient equipment options, while others said field staff have varying knowledge levels.

In this framework, company sustainability managers are typically tasked with learning about utility rebates, reviewing staff retrofit proposals, and making recommendations on larger projects to upper management or green teams. In some organizations, the sustainability manager has more latitude to approve projects independently. Notably, sustainability managers often have additional job titles and roles, and some staff efficiency experts do not have an official sustainability manager title.

Many of the efficiency upgrades that have been made at respondents' properties have been early replacements, where the existing equipment still had remaining useful life. Utility rebates are a key driver of early replacements, and the respondents we spoke with regularly look for opportunities to do high-volume installations across multiple buildings and sites, which are much more cost effective than many piecemeal projects, since installation contractors only need to come to the site once. In looking for equipment to replace, property owners/managers consider equipment with increasing maintenance costs as well as the average age of existing equipment.

Despite the flexibility, interviewees did note that they encounter instances in which IOU program offerings change or funds are depleted before they finish their internal deliberations or are ready to participate. Longer-term certainty and consistency is important to them so they can count on offerings being available when an opportunity avails itself, which may be a couple of years down the road after initial consideration.

[5] We did not explore the details of budgeting processes or the time frames they cover, but that would be a useful research question for narrower follow-on research to better understand multifamily decision-maker practices.

Priorities

The interviews also revealed a handful of priorities that affect large portfolio decision-makers' choices and perceptions. We did not investigate decision-maker priorities systematically, but offer a couple of important insights that arose incidentally during parts of the interviews, including their own priorities and their perceptions and understanding of their tenants' priorities.

Tenants generally pay their own electric bills for in-unit energy usage, so energy efficiency of a building and of in-unit appliances are a potential selling point. Past multifamily research has suggested that energy efficiency can help with retention and fill rates (Energy Center of Wisconsin 2002). Interestingly, however, large portfolio decision-makers in Southern California indicated a comparatively low level of interest in energy efficiency among tenants. They simply are not asking about energy efficiency despite the comparatively higher electric rates in California than in many other states. Tenants have been asking much more commonly about water efficiency, spurred by the drought California faced during and prior to our research. In such cases, combining messages about energy efficiency with water efficiency and program designs that address the overlapping benefits among both provide not only a holistic approach, but also align better with customer and tenant interests. Addressing energy efficiency in the broader context of sustainability may do the same. Communications along these lines would stress the environmental and/or climate benefit of an action rather than speaking purely in energy terms, or they could emphasize that a particular approach is a more sustainable way of doing business for the future.

Discussions about the existing energy efficiency programs and decision-makers' wish lists revealed a further tenant-related concern and an administrative one. First, portfolio managers indicated a strong dislike by tenants for post-installation verification visits and asked whether verification can occur on the same visit as the actual installation. Needing to enter a tenant's unit a second time for moderate efficiency improvements is an area of concern, as is any disruption to tenants overall in the course of efficiency improvements.

Secondly, portfolio managers expressed interest in minimizing paperwork associated with efficiency rebates and incentives. While not surprising, the unique perspective of large portfolios is important for program designers to keep in mind. Application forms designed to work at the unit or building level can create unnecessary repetition for portfolio managers who sometimes are in a position to participate in a program offering for multiple buildings at once. Adjusting administrative requirements to accommodate larger-scale participation can minimize barriers for these very attractive program participants and possibly also reduce processing requirements by the IOU and program staff.

Identification of Opportunities

Because the IOUs were considering the addition of portfolio-level benchmarking to their offerings, we explored large portfolio decision-makers' interest in assistance in monitoring their building-level energy consumption and identifying energy hogs or energy-saving opportunities in their portfolio. Increasingly, cities are requiring benchmarking using ENERGY STAR Portfolio Manager or similar tools for large commercial and multifamily buildings (BuildingRating 2017; Lindburg 2017). New York, Chicago, Minneapolis, Seattle, and several other cities have such benchmarking requirements in place, but they do not yet exist in any widespread way in Southern California. The Southern California IOUs could fill the void and help point to opportunities.

Familiarity with ENERGY STAR Portfolio Manager was fairly low among the large portfolio decision-makers we interviewed, but several were interested in learning more. That said, respondents were also wary of high setup costs, tedious data import processes, and high staff time requirements. Currently, several appear to use simple spreadsheets to track energy expenses. Utility-facilitated setup, downloads, and interpretation of data would be generally well-received if it could be done without

imposing a substantial data burden on the property owners and managers. While we did not ask them to define a threshold for how much of a time investment was worthwhile from their perspective, the use of Portfolio Manager or similar tools would compete with simple spreadsheet-based tracking of utility costs in many cases.

Some utilities in cities with benchmarking requirements have taken steps to facilitate building and portfolio benchmarking for customers. ComEd, for example, facilitates the linking of building-level and tenant-level accounts for building owners so a property manager can easily see (and report) an entire building's energy usage without compromising tenant privacy (Evergreen Economics 2017, Appendix F).

Interaction with Utilities and Program Staff / Implementers

Part of the interviews focused on decision-maker interaction with utility and program staff. The intent was to inform the Southern California utilities' transition to a single point of contact for programs that involve both utility program managers and staff and implementation contractors working on behalf of the utilities. However, the interviewees' perspectives have implications for other program designs as well.

Large portfolio decision-makers shared that they like the idea of a single point of contact, but think of that as meaning continued interaction with two entities: the program manager who represents the utility in an authoritative way and can speak to program changes and direction, as well as program implementation contractors who bring technical know-how and could discuss opportunities for individual buildings or entire portfolio. They seemed to see this combination as a team and clearly saw value in joint visits by this energy efficiency team.

Furthermore, the interviews also suggested—perhaps not surprisingly—that the large portfolio decision-makers do not distinguish between their contacts with their utility by topic area. That is, they do not think of conversations about energy efficiency as distinctly separate from interactions about rates, service issues, billing, and other topics about which they might interact with the utility. While utilities sometimes create organizational separation for these interactions, they are somewhat more intertwined from the perspective of the customer. As a result, having a utility presence when an implementation contractor discusses energy-saving opportunities and program offers can be beneficial. Having a utility presence that can speak to the customer's needs beyond energy efficiency or at least hear concerns and help connect the customer with appropriate staff in other utility departments enhances the customer experience and could improve engagement with energy efficiency offerings as well.

General Program Participants

In the case of the Southern California utilities' programs, an efficiency rebate program through which contractors and the utility offer standard efficiency upgrades like lighting improvements serves as the mainstay of the multifamily offerings. In fact, lighting upgrades account for the vast majority of measures installed[6] and thus also the majority of program interactions by survey respondents. This program has the potential to serve as a conduit to future and deeper program participation. As such, participants in this program could be seen as early and partial participants indicative of decision-makers who could potentially engage in energy efficiency more deeply. Examining their perceptions,

[6] 83 percent of survey respondents had a lighting measure installed and for most, that was the only measure. The second most common measure was pool pumps (9% of respondents).

motivations, and intentions can provide useful insights for understanding multifamily decision-maker needs and engagement.

We present selected results from a post-participation survey. Respondents included owners and operators of buildings that represent a wide range of building sizes. While the survey did ask about experiences specific to the program in which they participated, we focus here on responses to questions that are more general in nature and more likely to apply to early and partial program participants—or those in a pre-participation state—regardless of program details. Specifically, we examine responses to questions about the decision-makers motivations to participate, the information sources they draw upon and trust, and the degree to which their operations staff obtain training.

Participants were motivated to engage in energy efficiency programs for a wide variety of reasons (Figure 4). Needing to replace the equipment scored highest, which highlights the benefit to energy efficiency programs of coinciding with everyday operational and maintenance needs of decision-makers in some way. However, this driver of participation also raises free ridership concerns, and the need to drive the program participant to upgrade the efficiency of their equipment choice from whatever choice they would have made in the absence of the program. Not surprisingly, several of the other highly rated drivers behind participation are associated with saving money on operating costs or making the building financially more attractive (to tenants or purchasers).

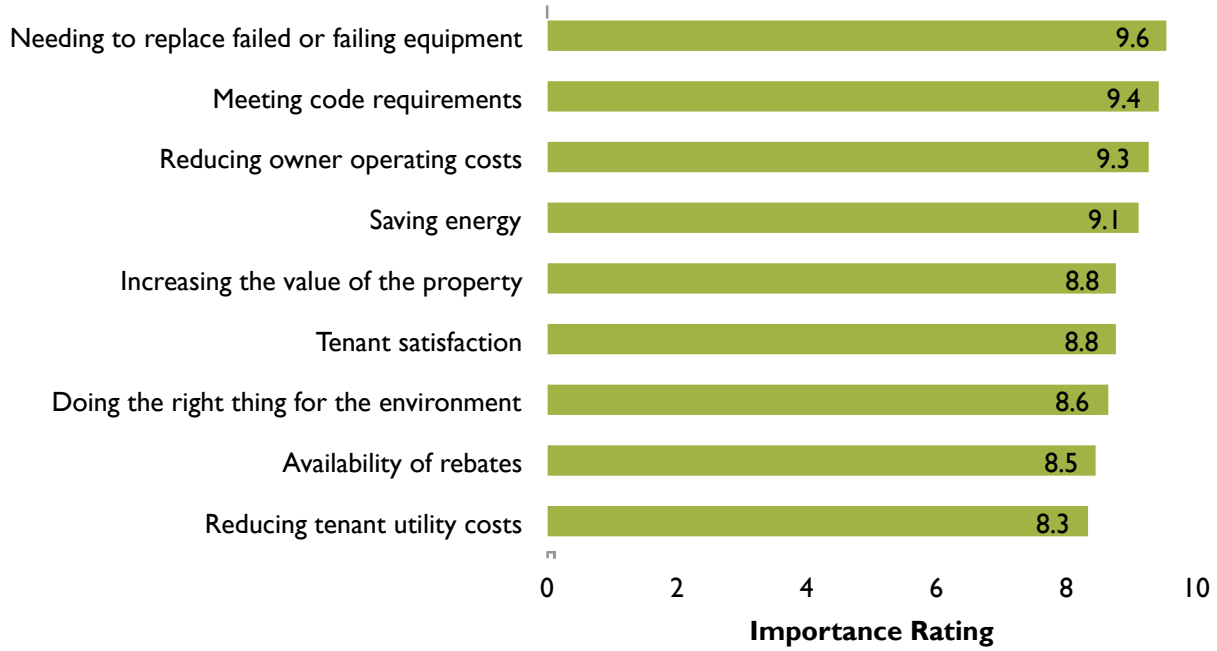

Figure 4. Importance of various motivators to participate (average score on a 10-point scale, n=195).

The survey inquired about trusted information sources in two ways that are enlightening to compare. When asked whom decision-makers trust for information about energy-using equipment, they tended to identify internal staff and equipment vendors (Figure 5). However, when asked whom they trust for information about energy efficiency, they cited their energy utility first and internal staff second (Figure 6). The widespread dissemination of the MFEER program by third parties who identify themselves as contractors working on behalf of the utilities suggests that this trust is based not just on the program, but on a more fundamental confidence in the utilities as valuable and objective information sources on energy efficiency. Meanwhile, internal staff—presumably building operations and facility staff—are clearly a key information source.

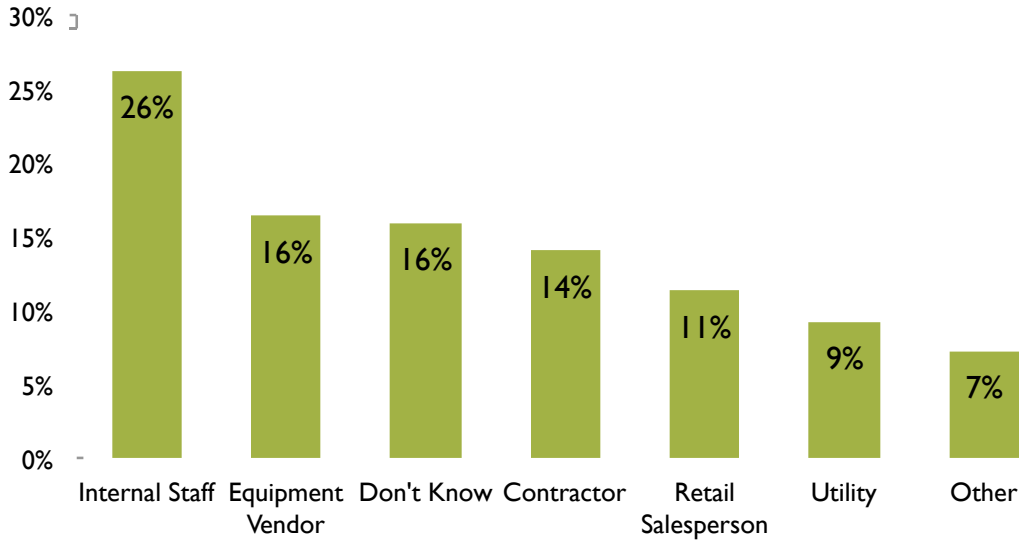

Figure 5. Most reliable sources of information for energy-using equipment (building operator perception, n=195)

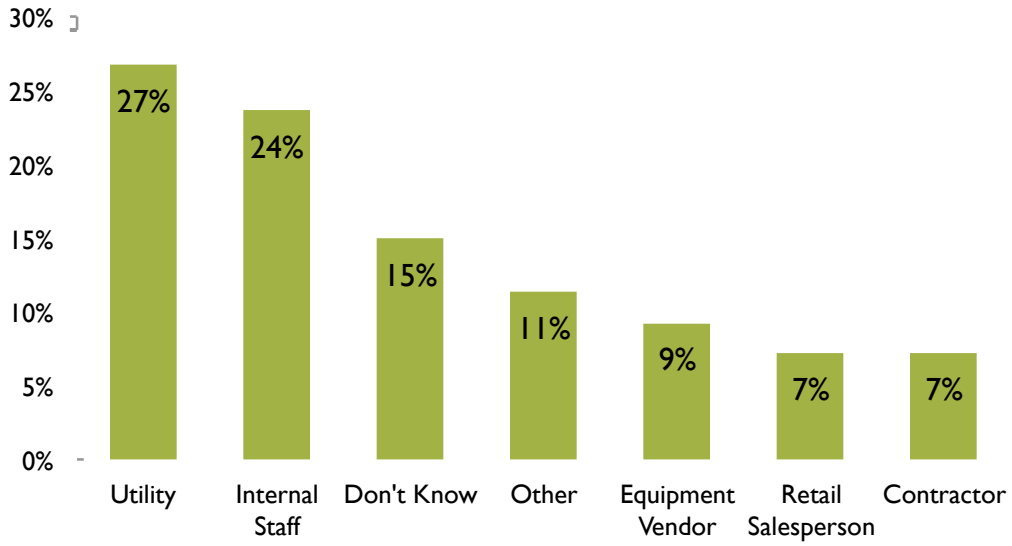

Figure 6. Most reliable sources of information for energy efficiency (building operator perception, n=195).

We also explored the extent to which program participants send building operations staff to training. In retrospect, the results may serve as a proxy for the extent to which energy efficiency programs can engage building operations staff through training and broader information efforts. Here, we analyzed the results by building size and found that buildings operations staff in about two-thirds of smaller and medium-sized buildings (which we defined as 2-10 and 11-50 units, respectively) infrequently or never participate in training, while those who operate large buildings do tend to receive formal training at varying intervals (Figure 7).

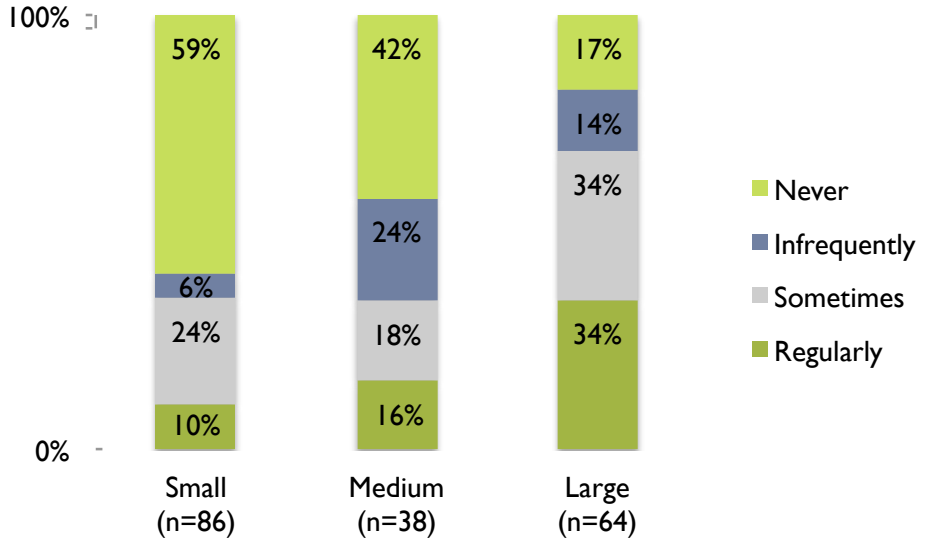

Figure 7. Frequency of building operations staff training by size of property.

Finally, we note that participants indicated a general intention to conduct further energy efficiency improvements at the same property (56 percent indicated such work to be very likely within the next three to five years) as well as at other properties they own or manage (59 percent indicated such work would be very likely there). However, the kinds of improvements they described considering varied greatly, encompassing both measures with generally high potential (such as lighting controls, insulation, and appliances), installation of distributed generation that does not directly save energy (generally solar PV installation), and measures that may or may not save energy cost-effectively (doors and windows). In fact, doors and windows and solar installations were the most commonly cited improvements (Table 1).

Table 1. Energy savings actions most likely to be pursued at the treated property

Energy saving actions	Frequency	Percentage of respondents
Doors or windows	23	15%
Solar	17	11%
Common area lighting or controls	16	10%
Insulation/cool roof	9	6%
Tenant unit appliances	9	6%
Water saving measures (sprinklers, toilets, showerheads, etc.)	9	6%
Tenant unit lighting or controls	6	4%
Tenant unit HVAC or controls	6	4%
Tenant unit water heaters	5	3%
Common area laundry equipment	4	3%
Electricity usage reduction unspecified	4	3%
Anything the utility offers	3	2%
Common area water heaters	2	1%
Energy audits, tune-ups, commissioning	2	1%
Pool/Jacuzzi pumps/heaters	2	1%
Building/common area HVAC or controls	1	1%
Usage reports/behavioral change	1	1%
Electric gate	1	1%
Sewer pumps	1	1%
Don't know/Refused	35	22%
Total	**156**	**100%**

Implications for Program Design and Conclusions

Multifamily properties continue to be a challenging segment for energy efficiency programs to reach, but market research conducted by program administrators further our collective insights about opportunities to better engage both property owners and operators on the one hand, and tenants on the other. The study conducted for the Southern California investor-owned utilities offers and reinforces several take-aways that apply broadly to the multifamily market nationally, regardless of location and local program structure.

First, offering an easy entry point for program participation and energy efficiency upgrades provides a good way for utilities to start potentially interested customers down a potentially longer journey toward greater efficiency upgrades in the future and to establish a relationship with them. Thinking of engagement with new participants as the start of a relationship takes advantage of their trust in utilities on matters of energy efficiency and their tendency to be open to additional improvements at the treated or other properties. Making participation comparatively easy and attractive is important while also meeting cost-effectiveness requirements, while building relationships requires incorporating follow-ups into the program approach. Doing so will require good tracking systems, communication among program implementers, and triggers for follow-ups to the early participants.

Second, solid information and recommendations about what efficiency improvements make sense for owners and operators of multifamily buildings are important to channel their intentions. Left

to their own devices, they are likely to think of a few standard opportunities (as shown in Table 1) and otherwise focus on maintenance upkeep. Utilities are generally well trusted on energy efficiency topics, so clear messaging of key upgrades all multifamily operators should consider (or perhaps recommendations by building type) can be useful, as are customized recommendations based on building-specific energy consumption levels and patterns. Benchmarking offerings could be useful, but tend to require work on the part of the utility to ensure they are easy for multifamily owners and operators to set up and use.

Third, building operations staff are good conduits for reaching building decision-makers. Reaching out to building operators would be worthwhile, especially for larger buildings and portfolios that are more likely to have dedicated building operations staff and are more likely to accommodate training and other opportunities to keep up on good operations practices. Training for staff of smaller buildings and smaller portfolios presents greater hurdles, so meeting these operators' needs may require alternative and possibly creative approaches.

Fourth, operators of large portfolios of multifamily buildings may offer a more efficient path toward reaching substantial numbers of units and buildings efficiently. Developing and maintaining a relationship with members of this segment takes effort, but can result in an on-going stream of program participation or potentially large projects. When building this relationship, it is useful for program managers or account executives to be involved and to remember that they are representing their entire utility – not just the energy efficiency program – in order to be a single point of contact as much as possible. It is also useful and important for them to take advantage of cross-functional opportunities, such as mentioning applicable rate-related or load control opportunities when discussing energy efficiency or mentioning energy efficiency when discussing billing issues.

References

BuildingRating. 2017. "U.S. Commercial Building Policy Comparison Matrix". Washington, DC: Institute for Market Transformation. http://www.buildingrating.org/graphic/us-commercial-building-policy-comparison-matrix

Energy Center of Wisconsin. 2002. Presentation of Multifamily Needs Assessment Results. Presented to Wisconsin Focus on Energy. August 31, 2002.

Evergreen Economics. 2017. *Southern California Multifamily Program Process Evaluation 2014-2015*. Prepared for Southern California Edison, San Diego Gas & Electric, and Southern California Gas Company. (Study is available at www.calmac.org/publications/SoCal_Multifamily_Process_Eval_2014-15_Vol_1_-_FINAL.pdf.)

Lindburg, A. 2017. "Benchmarking Heats up in the Midwest." Midwest Energy Efficiency Alliance. http://www.mwalliance.org/blog/benchmarking-heats-midwest

Natural Resources Defense Council. 2015. *Program Design Guide: Energy Efficiency Programs in Multifamily Affordable Housing*. Prepared for the Energy Efficiency For All Project, a joint effort of the Natural Resources Defense Council, the National Housing Trust, the Energy Foundation, and Elevate Energy.

Ross, L., M. Jarrett, and D. York. 2016. *Reaching More Residents: Opportunities for Increasing Participation in Multifamily Energy Efficiency Programs*. Washington, DC: American Council for an Energy-Efficient Economy.